Sitharama S. Iyengar

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Startup Roles (Technical Adviser)
Third Solutions, FL
Nulogix Inc., New Jersey
IYENTECH Inc., Davie, FL
Miami Design Solutions, Florida
Noeticnexus, Bangalore, India

EDUCATION

Ph.D. (Eng.), Mississippi State University, USA 1974

ME (Mech.Eng.), Indian Institute of Science, Bangalore, India 1970

BE (Mech.Eng.), UVCE-Bangalore 1968

RESEARCH/EDUCATIONAL INTERESTS

Computational Medicine, Bio-informatics, Artificial Intelligence, and Bio-Computing, Distributed Sensor Networks (Theory and Application); Software for Detection of Critical Events Autonomous Systems; Distributed Systems; Effective Leadership and Practice in Administrative Roles (Built Many Educational Programms at many Universities in USA which have attained top 30 ranking)


FIU, Miami


LSU, Baton Rouge


MSU Bell Tower


Indian Institute of Science


UVCE,Banglore

Oak Ridge National Lab

December 05, 2017

BRIEF BIOGRAPHY

S.S. Iyengar is currently the Ryder Professor of Computer Science and Director of the School of Computing and Information Sciences at Florida International University, Miami. He has been involved with research and education in high-Performance Algorithms, Data Structures, Sensor Fusion, Data Mining, and Intelligent Systems. Since receiving his Ph.D. degree in 1974 from MSU, USA, he has directed over 50 Ph.D. students, 100 Master's students, and many undergraduate students who are now faculty at Major Universities worldwide or Scientists or Engineers at National Labs/Industries around the world. He has published more than 500 research papers, has authored/co-authored and edited 22 books. His books are published by MIT Press, John Wiley and Sons, CRC Press, Prentice Hall, Springer Verlag, IEEE Computer Society Press, etc. One of his books titled "Introduction to Parallel Algorithms" has been translated into Chinese. During the last thirty years Dr. Iyengar has brought in over 65 million dollars for research and education. He has providing the students and faculty with a vision for active learning and collaboration at Jackson State University, Louisiana State University, Florida International University, and across the world. Dr. Iyengar's career is a distinguished one, marked by his incredible record of success in ground breaking research, inspirational teaching and excellence in community service. It is his consistent drive to fight for and promote the minority and underrepresented groups which is his passion.

Through his national and international contributions, he has consistently provided opportunities for minority students and underrepresented groups to participate in his research endeavors, and to develop local, state, and national programs to promote minority and underrepresented groups in computer science and STEM education programs. He has developed enormously successful models and programs that have been replicated in universities around the world. Through NSF, he developed a comprehensive network of computer education, and coordinated computer science workshops and short courses which introduced computer science to over 5,000 minority students and assisted minority faculty in advancing educational concepts and research. In his most current initiatives in providing computer science advising and student tutors, he has been able to significantly increase retention rates at his University in STEM areas.

Dr. Iyengar has also provided outreach to industry and to a variety of groups in the local high school community. Industry affiliations have resulted in internships with multiple Fortune 500 companies for his students. Informally, as well as formally through his NSF sponsored Research Experience for Teachers, he has worked with local science teachers in high school and middle schools to open up many of his labs for weekend work and interaction with the students to participate with undergraduate students in areas such as computer hardware, cyber security and robotics. He has invited and sponsored the Girls Who Code organization to provide summer seminars for local high school women—a tremendous success in preparing and recruiting high school women for STEM careers.

His research has been funded by National Science Foundation (NSF), Defense Advanced Research Projects Agency (DARPA), Multi-University Research Initiative (MURI Program), Office of Naval Research (ONR), Department of Energy / Oak Ridge National Laboratory (DOE/ORNL), Naval Research Laboratory (NRL), National Aeronautics and Space Administration (NASA), US Army Research Office (URO), and various state agencies and companies. He has served on US National Science Foundation and National Institute of Health Panels to review proposals in various aspects of Computational Science and has been involved as an external evaluator (ABET-accreditation) for several Computer Science and Engineering Departments across the country and the world. Dr. Iyengar has also served as a research proposal evaluator for the National Academy.

Dr. Iyengar, a computer scientist of international repute, is a pioneer in the field and has made fundamental contributions in the areas of information processing for sensor fusion networks, robotics and high performance algorithms, all relevant to critical event detection systems as seen in following:

1. Co-inventor of the Brooks–Iyengar algorithm for noise tolerant distributed control which bridges the gap between sensor fusion and Byzantine fault tolerance, providing an optimal solution to the fault-event disambiguation problem in sensor-networks (1996);
2. Co-inventor of a novel, paradigm shifting method for grid coverage of surveillance and target location in distributed sensor networks (2002);

3. Provided seminal work for automated analyses and interpretation of satellite imagery of the ocean and other unknown terrain (1994);
4. Co-invented the Cognitive Information Processing Shell, a complex event processing architecture and engine which recognizes and responds to complex patterns in mission critical, real-time applications (2010);
5. Solved an open problem in graph recognition, laying foundation for fast parallel computing for large scale data sets (1988);

The impact of his research contributions can be seen in places like Raytheon, Telecordia, Motorola, the United States Navy, DARPA agencies, etc.

Dr. Iyengar is a Member of the European Academy of Sciences, a Life Fellow of the Institute of Electrical and Electronics Engineers (IEEE), a Fellow of the Association of Computing Machinery (ACM), a Fellow of the American Association for the Advancement of Science (AAAS), a Fellow of the Society for Design and Process Science (SDPS), and a Fellow of the American Institute for Medical and Biological Engineering (AIMBE). He has received various national and international awards including the Times Network NRI (Non-Resident Indian) of the Year Award for 2017, most distinguished Ramamoorthy Award at the Society for Design and Process Science (SDPS 2017), the National Academy of Inventors Fellow Award in 2013, and the NRI Mahatma Gandhi Pradvasi Medal at the House of Lords in London in 2013 among others. He was awarded Satish Dhawan Chaired Professorship at IISc, then Roy Paul Daniel Professorship at LSU. He has received the Distinguished Alumnus Award of the Indian Institute of Science. In 1998, he was awarded the IEEE Computer Society's Technical Achievement Award and is an IEEE Golden Core Member. Professor Iyengar is an IEEE Distinguished Visitor, SIAM Distinguished Lecturer, and ACM National Lecturer. In 2006, his paper entitled, A Fast Parallel Thinning Algorithm for the Binary Image Skeletonization, was the most frequently read article in the month of January in the International Journal of High Performance Computing Applications. His innovative work called the Brooks-Iyengar algorithm along with Professor Richard Brooks from Clemson University is applied in industries to solve real-world applications. Dr. Iyengar's work had a big impact; in 1988, when he and his colleagues discovered "NC algorithms for Recognizing Chordal Graphs and K-trees" [IEEE Trans. on Computers 1988]. This breakthrough result led to the extension of designing fast parallel algorithms by researchers like J. Naor (Stanford), M. Naor (Berkeley), and A. A. Schaffer (AT&T Bell Labs). Professor Iyengar earned his undergraduate and graduate degrees at UVCE-Bangalore and the Indian Institute of Science, Bangalore and a doctoral degree from Mississippi State University.

Dr. Iyengar has been a Visiting Professor or Scientist at Oak Ridge National Laboratory, Jet Propulsion Laboratory, Naval Research Laboratory, and has been awarded the Satish Dhawan Visiting Chaired Professorship at the Indian Institute of Science, the Homi Bhaba Visiting Chaired Professor (IGCAR), and a professorship at the University of Paris-Sorbonne.

Professional Employment Affiliations

Aug 2011 - Present
Ryder Professor & Director, School of Computing and Information Sciences (SCIS), Florida International University, Miami, USA

Jul 1992 - Aug 2011
Roy Paul Daniel's Professor & Chairman, Department of Computer Science, Louisiana State University, Louisiana, USA

Dec 2007 – Jul 2008
Visiting Homi Bhabha Distinguished Professor at Indira Gandhi Center of Atomic Research, Kalpakkam, India.

Aug 2006 – Jul 2007
Visiting Chaired Professorship, Department of Computer and Communication Engineering, Asia University, Taichung, Taiwan.

2004 - 2011
Co-Director, Louisiana Biomedical Research Network (LBRN) Bioinformatics Core, Department of Computer Science, Louisiana State University.

Jul 2003 – Aug 2006
Visiting Satish Dhawan Chaired Professor, Indian Institute of Science, Bangalore, India.

May 2002
Visiting Professor, University of Kuwait.

Feb - Mar 1993
Visiting Professor, Department of Computer Science, Universite Paris VII, France, Host: Professor A. Saoudi.

Jul 1991 – 1992
Professor and Interim Chairman, Department of Computer Science, Louisiana State University, Baton Rouge, Louisiana.

Jun - Aug 1990
NASA Summer Faculty Fellow, Division of Automated Systems at Jet Propulsion Laboratory, **California Institute of Technology**.

Aug 1987- Aug 2011
Professor of Computer Science, Director - Robotics Research Lab, Louisiana State University, Baton Rouge.

Jul 1988
Visiting Faculty, Robotics and Artificial Intelligence Group, CESAR Division, **Oak Ridge National Laboratory**, Oak Ridge, TN.

Jun - Jul 1987
Visiting Faculty, Robotics and Artificial Intelligence Group, CESAR Division, **Oak Ridge National Laboratory**, Oak Ridge, TN.

Jun - Jul 1986
Visiting Faculty, Robotics and Artificial Intelligence Group, CESAR Division, **Oak Ridge National Laboratory**, Oak Ridge, TN.

Jun - Aug 1985
Oak Ridge Associated Universities program visiting faculty, Robotics and Artificial Intelligence Group, CESAR Division, **Oak Ridge National Laboratory**.

May - Aug 1984
Visiting Professor, School of Computer Science and Automation, Indian Institute of Science, Bangalore, India.

Aug 1983 - Jul 1987
Associate Professor, Dept. of Computer Science, Louisiana State University.

Jan 1980 - Aug 1983
Assistant Professor, Dept. of Computer Science, Louisiana State University.

Aug 1977 - Dec 1980
Associate Professor, Dept. of Computer Science, Jackson State University.

May – Jun 1977
Visiting Faculty, Department of Informatics, University of Bonn, Germany.

Jun 1974 - August 1977
Assistant Professor of Computer Science, Jackson State University.

1991 – 2004
Technical Consultant: **Jet Propulsion Laboratory-Caltech (1991), Naval Research Lab (1996), Duke University (2002-2003), South Carolina Commission on Higher Education (2003), Ministry of Education - UAE (2002-2004)**.

PART-A
RESEARCH PUBLICATIONS AND BOOKS

Dr. Iyengar has published more than 500 scholarly articles in

- **Authored/coauthored/edited books (23),**
- **leading technical journals (211),**
- **conference proceedings (237),**
- **book chapters (34),**
- **Technical Reports (9) (jointly with Cornell, UT-Austin, Purdue, Georgia Tech, Case Western University, Oak Ridge National Lab, Georgia State University, Indian Institute of Science, and others).**

A-1. Books Authored/Co-authored/Editted

I. Authored/Co-authored Books

524 Kianoosh G. Boroojeni, S. S. Iyengar, "Smart Grids: Security and Privacy Issues", **Springer Verlag**, pp. 113, 2016.

523 S. S. Iyengar, Kianoosh G. Boroojeni, “Oblivious Network Routing: Algorithms and Applications,” **MIT Press**, pp 200, March 2015.

522 S. S. Iyengar, Kianoosh G. Boroojeni, N. Balakrishnan, “Mathematical Theories of Distributed Sensor Networks”, **Springer Verlag**, pp 240, December 2014.

521 Gregory Vert, S.S.Iyengar, Vir Phoha, "Introduction to Contextual Processing - Theory and Appli- cation", **CRC Press**, pp. 320, November 2010.

520 S.S.Iyengar. N. Parameshwaran et. al., "Fundamentals of Sensor Network Programming: Application and Technology ", **John Wiley and sons and IEEE Press**, November 2010, pp. 352

519 Chakrabarty and S.S. Iyengar, "Scalable Infrastructure for Information Processing in Distributed Sensor Networks", **Springer-Verlag** London Ltd, June 2005, pp. 252.

518 C. Xavier and S.S. Iyengar, "Introduction to Parallel Algorithms", **John Wiley and Sons**, July 1998, pp. 365 Translated into Chinese language (January 2005).

517 S.S. Iyengar, E.C. Cho and V. Phoha, "Foundations of Wavelet Networks and Applications", **Chapman and Hall/CRC Press**, June 2002, pp. 258.

516 R.R. Brooks and S.S. Iyengar "Multi Sensor Fusion: Fundamentals and Applications with Software", **Prentice Hall Publication Co.**, New Jersey 07458 (October 1997), pp. 488.

515 L. Prasad and S.S. Iyengar, "Wavelet Analysis with an Application to Image Processing", **Chapman and Hall/CRC Press**, June 1997, pp. 279.

514 S.S. Iyengar, L. Prasad and Hla Min, "Advances in Distributed Sensor Integration: Applications and Theory", **Prentice-Hall**, New Jersey, (1995), pp. 273.

II. Editted Books

513 S.S. Iyengar, R.R. Brooks (EDS), "Distributed Sensor Networks: Image and Sensor Signal Processing", 2nd Edition, **CRC Press, Chapman & Hall Books**, September, 2012.

512 S.S. Iyengar, R.R. Brooks (EDS), "Distributed Sensor Networks: Sensor Networking and Applications", 2nd Edition, **CRC Press, Chapman & Hall Books**, September, 2012.

511 V.K. Prasanna, S. S. Iyengar, Paul Spirakis, Matt Welsh (EDS), "Distributed Computing in Sensor Systems", **Proceedings of IEEE International Conference on DCOSS**, pp. 420, 2005.

510 S.S. Iyengar and R.R. Brooks (EDS), "Distributed Sensor Networks", **Taylor and Francis / CRC Press**, Inc. December 2004, pp. 1120.

509 A.R. Das Gupta, S.S.Iyengar and H.S. Bhatt (EDS), "Recent advances in Computing and Communication", **Tata McGraw-Hill**, Proceedings of the 9th International Conference on Advanced Computing and Communications, pp. 486, 2002.

508 S.S.Iyengar and B.Sinha (EDS), "Recent Advances in Computing and Communication", **Tata McGraw-Hill**, Proceedings of the 9th International Conference on Advanced Computing and Communications, pp. 286, 2000.

507 S.S. Iyengar (Ed), "Structuring Biological Systems a Computer Modeling Approach", **Chapman and Hall/CRC Press**, December 1997, pp. 267.

506 S. S. Iyengar and A. Elfes, (EDS), "Autonomous Mobile Robots: Perception, Mapping, and Navigation", Volume 1, **IEEE Computer Society Press**, pp. 260, October 1991.

505 S. S. Iyengar and A. Elfes, (EDS), "Autonomous Mobile Robots: Planning, Control, and Architecture", Volume 2, **IEEE Computer Society Press**. pp. 527, October 1991.

504 S. S. Iyengar, (EDS), "Structuring of Complex Bio-Systems" Volume II, **Chapman and Hall/CRC Press**, pp. 267, June 1991.

503 Elliot Soloway and S. S. Iyengar, (EDS), "Empirical Studies of Programmers" **Ablex Pub. Co**., Norwood, New Jersey, pp. 268, June 1986.

502 S. S. Iyengar,(Ed), "Computer Modeling of Complex Bio-Systems" **Chapman and Hall/CRC Press**, pp.142 (Best Seller-list, 1984), November 1983.

A-2. Peer-Reviewed Journals

I. Bio-informatics, Image Processing, and Computer Vision

501 Ruogu Fang, Samira Pouyanfar, Yimin Yang, Shu-Ching Chen, and S. S. Iyengar, "Computational Health Informatics in the Big Data Age: A Survey," **ACM Computing Surveys**, vol. 49, no. 1, pp. 1-12, 2016.

500 Juan C Martinez, Nelson L Jimenez, Tao Meng, S.S. Iyengar. "Predicting DNA mutations during cancer evolution." **International Journal of Bioinformatics Research and Applications**, Vol. 11, Issue 3, pp. 200-218, 2015.

499 Soliman AT, Meng T, Chen SC, S. S. Iyengar, Puneeth Iyengar, Yordy J, and Shyu M.L., "Driver Missense Mutation Identification Using Feature Selection and Model Fusion," **Journal of Computational Biology**, Vol. 22, Issue 13, pp. 1075-1085, Dec. 2015.

498 Tao Meng, Student Member, IEEE, Ahmed T. Soliman, Mei-Ling Shyu, Senior Member, IEEE, Yimin Yang, Student Member, IEEE, Shu-Ching Chen, S. S. Iyengar, John Yordy, and Puneeth Iyengar., "Wavelet Analysis in Current Cancer Genome Research: A Survey", **IEEE/ACM Transactions on Computational Biology and Bio-Informatics**, Vol. 10, Issue 6, pp. 1442-1459, 2013.

497 P.T.Krishna Kumar, P.T.Vinod, Vir V Phoha, S.S.Iyengar, Puneeth Iyengar, "Design of an Expert System to Mitigate Trace Element Toxicity in Cancer Risk Management", **The Journal of Cancer Informatics**, Vol. 12, pp. 21-29**,** 2013.

496 S.S. Iyengar, Xin Li, Huanhuan Xu, and Supratik Mukhopadhyay, N. Balakrishnan, Amit Sawant and Puneeth Iyengar, "Toward More Precise Radiotherapy Treatment of Lung Tumors" , **IEEE - Computer Magazine**, Vol. 45, Issue 1, pp. 59-65, 2012.

495 Hua Cao, Nathan Brener, S.S.Iyengar, Braham Khoobehi, "High Performance Adaptive Fidelity Algorithms for Multi-Modality Optic Nerve Head Image Fusion" **ACM Journal of Signal Processing Systems**, Vol. 64 Issue 3, pp. 373-387, September 2011.

494 P.T. Krishna Kumar, P.T. Vinodh, Vir V. Phoha, S.S. Iyengar, Puneeth Iyengar, "Design of a Smart Biomarker for Bioremediation: A Machine Learning Approach", **Computers in Biology in Medicine**, Vol. 41, Issue 6, pp. 357-360, June 2011.

493 Madhusudhanan Balasubramanian, Stanislav Zabic, Linda M. Zangwill, Hilary Thompson, Peter Wolenski, S. Sitharama Iyengar and Bijaya B. Karki. "A Framework for Detecting Glaucomatous Progression in the Optic Nerve Head of an Eye Using Proper Orthogonal Decomposition," **IEEE Transactions on Information Technology in Biomedicine**, Vol. 13, Issue 5, pp. 781-793, September 2009.

492 Manikandan Karuppasamy, Debnath Pal, Ramakumar Suryanarayanarao, Nathan E Brener, Sitharama S Iyengar, Guna Seetharaman, "Functionally Important Segments in Proteins Dissected Using Gene Ontology and Geometric Clustering of Peptide Fragments," **Genome Biology**, Vol. 9, Issue 3**,** March, 2008.

491 Nathan E. Brener, S.S. Iyengar and O.S. Pianykh, "A Conclusive Methodology for Rating OCR Performance", **Journal of the American Society for Information Science and Technology**, October 2005, Vol. 56, Issue 12, pp. 1274-1287.

490 R. Acharya, Niranjan, S.S. Iyengar, Kannathai .N, Lim Choo Min, "Simultaneous Storage of Patient Information with Medical Images in the Frequency Domain", **Journal of Computer Methods and Programs in Biomedicine**, Vol. 76 , No. 1 , pp. 13-19, July 2004.

489 S. Dua and S. S. Iyengar, "Advances in Medical Signal Processing", **Yearbook of Medical Informatics**, pp. 401-403, 2004.

488 Rajendra Acharya U., U.C, Niranjan, S. S. Iyengar, N. Kannathal, Lim Choo Min, "Simultaneous Storage of Patient Information with Medical Images in the Frequency Domain," **Computer Methods and Program in Biomedicince**, Vol. 76, Issue 1, pp. 13-19, 2004.

487 S. S. Iyengar, Vir. V. Phoia, Y. Wu, Hlamin, "A New Efficient Extraction Algorithm for Images Using Directional Tracing Techniques", **Intelligent Automation and Soft Computing**, Vol. 8, No. 3, pp. 217-234, 2002.

486 Ying Chen, Richard R. Brooks, S. Sithamara Iyengar, Nageswara, S.V. Rao, Jacob Barhen, "Efficient Global Optimization for Image Registration", **IEEE Transaction on Knowledge and Data Engineering**, Vol. 14, No.1, January/February 2002.

485 R.R. Brooks, L.Greve, S.S. Iyengar, Recognition in the Wavelet Domain: **A Survey, Journal of Electronic Imaging**, No. 3, Vol. 10, pp. 757-784, July 2001.

484 John Zachary, S. S. Iyengar, and Jacob Barhen, "Content Based Image Retrieval and Information Theory: A General Approach", J**ournal of the American Society for Information Science and Technology**, Vol. 52, Issue 10, pp. 840 -852, 2001.

483 S. S. Iyengar, "Visual Based Retrieval Systems and Web Mining- Introduction", **Journal of the American Society for Information Science and Technology**, Vol. 52, Issue 10, pp. 829 -830, 2001.

482 Qishi Wu, S. Sitharama Iyengar, and Mengxia Zhu, "Web Image Retrieval Using Self-Organizing Feature Map", **Journal of the American Society for Information Science and Technology**, Vol. 52, Issue 10, pp. 868-875, 2001.

481 J. Zachary and S.S.Iyengar, "Information Theoretic Similarity Measures for Content Based Image Retrieval", **Journal of the American Society for Information Science and Technology**, Vol. 52, Issue 10, pp. 856-867, 2001.

480 Weian Deng, S. Sitharama Iyengar and Nathan E. Brener, "A Fast Parallel Thinning Algorithm for the Binary Image Skeletonization", **The International Journal of High Permance Computing Applications**, Vol. 14, No. 1, pp. 65-81, Spring 2000.

479 E.C Cho, S. S. Iyengar, Guna Seetharaman, J. Hoyler, Matthew Lybanon, "Velocity Vectors for Features of Sequential Oceanographic Images", **IEEE Transactions on Geoscience and Remote Sensing**, Vol. 36, No. 3, pp. 985-998, May 1998.

478 Kiran K. Simhadri, S. S. Iyengar, Ronald J. Holyer, Matthew Lybanon, and John M. Zachary, Jr., "Wavelet-Based Feature Extraction From Oceanographic Images", **IEEE Transactions on Geoscience and Remote Sensing**, Vol. 36, No. 3, pp. 767-778, May 1998.

477 K. Sankar, S.S.Iyengar, R. Holyer and M. Lybanon, "Topographic Based Feature Labeling for Oceano-graphic Images", **Journal of Pattern Recognition Letters**, Vol. 14, Issue 1, pp. 915-925, November 1993.

476 Wu Wang and S. S. Iyengar, "Efficient Data Structures for Model-Based 3-D Object Recognition and Localization from Range Images", **IEEE Transactions on Pattern Analysis and Machine Intelligence**, Vol.14, No. 10, pp. 1035-1045, October 1992.

475 M. Manohar, P. S. Rao and S.S. Iyengar, "Template Quadtrees for Representing Region and Line Data Present in Binary Images", **Computer Vision, Graphics and Image Processing**, Vol. 51, Issue 1, pp. 338-354, September 1990.

474 N. Krishnakumar, S. Sithamara Iyengar, Ron Holyer, and Matthew Lybanon, "An Expert System for Interpreting Mesoscale Features in Oceanographic Satellite Images", **International Journal of Patter Recognition and Artificial Intelligence**,Vol. 4, No. 3. pp. 341-355, April 1990.

473 Wu Wang, S.S.Iyengar, and L. M. Patnaik, "Memory Based Reasoning Algorithm for the Recognition of Binary Images", **Journal of Pattern Recognition**, Vol. 22, No. 5, pp. 505-518, July 1989.

472 Ying Cheng, S, Sithamara Iyengar, and Rangasami L Kashyap, "A New Method of Image Compression Using Irreducible Covers of Maximal Rectangles**", IEEE Transactions on Software Engineering**. Vol. 14, No. 5, pp. 651-658, May 1988.

471 S. Sitharama Iyengar and Stephan W. Miller, "Efficient Algorithm for Polygon Overlay for Dense Map Image Data Set", **Journal of Image and Vision Computing**, Vol. 4 Issue 3, pp. 167-174, August 1986.

470 N. Gauthier, S. S. Iyengar, Lakhani and Manohar, "Space and Time Efficiency of the Forest-of Quadtrees Representation", **Journal of Image and Vision Computing**, Vol. 3, No. 2, pp. 63-70, May 1985.

469 David S. Scott and S. Sitharama Iyengar, "A New Data Structure for Efficient Storing of Images," **Pattern Recognition Letters**, Vol. 3, Issue 1, pp. 211-214, May 1985.

468 S. S. Iyengar, "Modeling the Shearing and Rehybridization Process of Dna", **Society for Modeling and Simulation International (SCS)**, Vol. 36, No. 5, pp. 173-176, 1981.

467 S Sithamara Iyengar, "Information System Design for a Pediatric Clinic", **Computers and Industrial Eng.**, Vol. 4. Issue 1, pp. 193-201, 1980.

II. Artificial Intelligence, Robotics, and Electrical Engineering

467 Kianoosh G. Boroojeni, et al., "A novel multi-time-scale modeling for electric power demand forecasting: From short-term to medium-term horizon," **Electric Power System Research**, vol. 142, no. 1, pp 58-73, Jan. 2017.

466 M. Jami, A. I. Sarwat, S. S. Iyengar, and F. Kaleem, "Security Breach Possibility with RSS-Based Localization of Smart Meters Incorporating Maximum Likelihood Estimator", **Progress in System Engineering**, Vol. 330, pp. 133-139, 2016.

465 Kianoosh G. Boroojeni, M. Hadi Amini, S. S. Iyengar, Mohsen Rahmani, Panos M. Pardalos, "An economic dispatch algorithm for congestion management of smart power networks: an oblivious routing approach," **Energy Systems**, doi: 10.1007/s12667-016-0224-6, 2016.

464 Xin Li, Wuyi Yu, Xiao Lin, and S. S. Iyengar, "On Optimizing Autonomous Pipeline Inspection," **IEEE Transactions on Robotics**, Vol. 28, No. 1, pp. 223-233, February 2012.

463 H. Cao, N. Brener, S. S. Iyengar; "3D Large Grid Route Planner for the Autonomous Underwater Vehicles" **International Journal of Intelligent Computing and Cybernetics**, Vol. 2, Issue 3, pp. 455-476, 2009.

462 Ranjit Abraham, S. Sitharama Iyengar and J.B.Simha, Effective Discretization and Hybrid Feature Selection Using Naive Bayesian Classifier for Medical Datamining", I**nternational Journal of Computational Intelligence Research**. ISSN: 0974-1259 Vol.5, pp. 116-129, No.2, 2009.

461 Ranjit Abraham, Jay B. Simba, and Sithamara Iyengar, "Effective Discretization and Hybrid Feature Selection Using Naive Bayesian Classifier for Medical Datamining", **International Journal of Computational Intelligence Research**, Vol. 4, No.1, pp. 1-13, 2008.

460 N. Kannathal, U. Rajendra Achary, C.-M. Lim, P.K. Sadasivan, S. S. Iyengar, "Cardiac Health Diagnosis Using Heart Rate Variability Signals, A Comparative Study", **Autosoft. Intelligent Automation and Soft Computing**, Vol. 10, No. 1, pp. 23-36. 2004.

459 Nathan E. Brener, Hua C. Looney, S. Sithamara Iyengar, Qishi Wu, Narayanada Vakamudi, Decai Yu, Qianyu Huan,"Three-Dimensional Route Planner Using a Three-Dimensional Algorithm Application to Autonomous Underwater Vehicles", **Artificial Intelligence Journal**, June 2004.

458 Y. Xia, S.S.Iyengar and N.E. Brener, "An Event Driven Integration Reasoning Scheme for Handling Dynamic Threats in an Unstructured Environment", **Artificial Intelligence Journal**, Vol. 95, Issue 1, pp. 169-186, August 1997.

457 J. Benton, S.S. Iyengar, W. Deng, N. Brener, and V. Subramanyam, "Tactical Route Planning: New Algorithms for Decomposing the Map", **Journal of Artificial Intelligence Tools and Applications**, Vol. 5, No. 1 and 2, pp. 268-277. Novemeber 1996.

456 Weian Deng and S. Sitharama Lyengar, "A New Probabilistic Relaxation Scheme and Its Application to Edge Detection", **IEEE Transactions on Pattern Analysis and Machine Intelligence**, Vol. 18, No. 4, pp. 432-437, April 1996.

455 Zhiyuan Ying and S. Sithirama Iyengar, "Robot Reachability Problem: A Nonlinear Optimization Approach ", **Journal of Intelligent and Robotic Systems**, Vol. 12, Issue 1, pp. 87-100, 1995.

454 Yuyan Wu, S. Sitharama Iyengar, Ramesh Jain, "A New Generalized Computational Framework for Finding Object Orientation Using Perspective Trihedral Angle Constraint", **IEEE Transactions on Patter Analysis and Machine Intelligence**. Vol. 16, No. 10, pp. 961-975, October 1994.

453 N.S. V. Rao, S. Gulati, S.S. Iyengar, and R.N. Madan, "Guest Editorial: Parallel and Distributed Computing for Intelligent Systems", **Journal of Computers and Electrical Engineering**, Vol. 19, Issue 6, pp. v-viii, 1993.

452 S.S. Iyengar, Jeffrey Graham, V.G. Hegde, Phil1 Graham, and F.G. Pin, "A Concurrent Control Architecture for Autonomous Mobile Robots Using Asychronous Production Systems" **Automation in Construction**, Vol. 1, Issue 4, pp. 371-401, 1993.

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449 S. S. Iyengar, "Guest Editor'S Introduction - Self Organizing Knowledge and Data Representation in Distributed Environment", **IEEE Transactions on Knowledge and Data Engineering**, Vol. 4, No. 2, pp. 105-108, April 1992.

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Patents

1. "Device to Directly Monitor Intra-Ocular Pressure by a Person Based on Pattern and Colour Changes", Us Patent Application Number: 13138316, S. S. Iyengar et al, 2016.
2. "System and Architecture for Robust Management of Resources in a Wide-Area Network" Patent (No.8572290 B1) - & Inventors: S.Mukhopadhyay and S.S.Iyenga Oct 29, 2013.
3. Fast Web Page Allocation on a Server Using Self Organizing Properties of Neural Networks. United States Patent: 7191178, March, 2007(Jointly with Kannan and Phoha), Oip File: 0110, Jointly with Dr. R. Kannan and Dr. V. Phoha.
4. Confocal-4D: an Architecture for Real-Time Tracking and Volume Rendering of White-Light Confocal Microscope Optical Serial Sections. Us Patent Application Number: 11716848, 2007. Inventors: Madhusudhanan Balasubramanian, Juan Reynaud, Roger W. Beuerman, S. Sitharama Iyengar, Bijaya B. Karki [In Process].
5. Method of Allocation of Web Pages using Neural Networks. Vir V. Phoha, S. S. Iyengar, and R. Kannan. U.S. Patent No. 7191178. Issued March, 2007 (Jointly with Kannan and Phoha). (Featured in the World's Best Technology Showcase, 2007, Arlington, TX)
6. Data Set Request Allocations to Computers. Vir V. Phoha, S. S. Iyengar, and R. Kannan. US. Patent No. 7730086B1. Issued June 1, 2010 (Joinly with Phoha and Kannan).
7. System and Architecture for Robust Management of Resources in a Wide Area Network. S. Mukhopadhyay and S.S. Iyengar. Patent was filed on June 3rd, 2011, United States Application Number or PCT International Application Number 13/153,388. Licensed to (NuLogix and/or Prases Corp. and also inter-institutional agreement with Utah State University)

PROFESSIONAL RECOGNITION

(Honors and Awards for contribution to research and scholarship)

National and International

- **Professor Ramamoorthy Mentoring Award** for contribution to Software Engg at the conference on Society of Process and Design Science Nov. 2017 Birmingham, Alabama.
- **TIMES NETWORK and ICCI NRI Award** to DR. S.S. Iyengar for Global contribution to technology and Leadership June 2017.
- **Honorary Doctorate;** Ph.D. (h.c.), Nanjing University of Posts and Telecommunications (2017)
- **Fellow of American Institute of Medical and Biological Engg**. (Fellow of AIMBE), for outstanding

contributions to the development of distributed computational algorithms, 2017

- **Florida Inventors Hall of Fame**,(Nominated) 2016
- **Fellow of the American Association of Biomedical Engineering** (Nominated) 2016
- **NRI Mahatma Gandhi Pravasi Samman Award and Medal**, House of Lords, London, UK 2013
- **IBM Distinguished Faculty Award**, 2013
- **Fellow of National Academy of Inventors Award**, 2013.
- **Fellow, National Academy of Inventors (NAI)** In recognition of support and commitment to advancing technological development and innovation, Prof. Iyengar selected as a Fellow of the National Academy of Inventors, 2013.
- **Lifetime Achievement Award for Outstanding Contribution to Engineering, Science and Leadership in Education** Awarded at Agile Engineering Conference at Indian Institute of Technology, Banaras Hindu University, ICAM, December 16-19, 2012.
- **Innovation-2-Industry Award** (2012) Dr. Iyengar and Nulogix were awarded third prize in the 2012 Innovation 2 Industry (i2i) Florida competition. The innovative and patented technology invented by the team enables a person to see changes in intra ocular pressure by observing their eye using a small hand held device. ["Funding the Dream", Harbor Style Magazine - June]
- **The Association of Scientist and Developers and Faculty Award**, 2012, awarded to selected, distinguished faculty by the Eminent Engineer Award Institution of Engineers, Calcutta (India), 2012.
- **Distinguished Alumnus Award** from University Vishveshwarya College of Engineering, Bangalore, India, and January 2-3, 2011.
- **Distinguished Research Award** from Xaimen Uiversity, China for Dr. Iyengar's research in Sensor Networks, Computer Vision and Image Processing for 2010.
- **ATLAS-2010**, The Academy of Transdisciplinary Learning and Advanced Studies, George Town, Texas, elected Dr. Iyengar to the Grade of its Prestigious Village Fellow.
- Recognized by the Societe Mathematique de Tunisie (SMT) for "**Notable Services and Outstanding Contributions in the Area of Mathematical Theories in Sensor Networks and Computational Algorithms in Robotics for 2010**".
- **Honorary Doctorate in D.Sc** (Eng). from Techno Global University, Calcutta, India, 2010.
- **Distinguished Rain Makers for Leadership and Research Award** at LSU (2009)
- **Satish Dhawan Chaired Professorship Award**, Indian Institute of Science, Bangalore, and Homibhaba Professor, 2007-08.
- **Best Paper Award at the 10th International Conference on Information Technology** (IEEE - ICIT 2007) Rourkee, India, Co-authored with Ranjit Abraham and Jay B. Simha, "Medical Data-mining with a New Algorithm for Feature Selection and Naive Bayesian Classifier".
- **World's Best Technology Showcase** Award 2007 - A project titled "Fast Web Page Allocation on a Server Using Self-Organizing Properties of Neural Networks LA Tech - LSU)" authored by Dr. Phoha (LA Tech), Dr. S.S. Iyengar (LSU) and Dr. Kannan (LSU) has been selected in this highly competitive summit - May 15-18, Arlington, Texas.
- **Visiting Chaired Professorship**, Dept of Computer and Communication Engineering, Asia University, Taichung, Taiwan. (Aug 2006 - July 31st, 2007).
- **Best Paper Award at the International Conference on Information Systems**, ISNG, November 19-21 2004, Las Vegas Co-authored with Lydia Ray, Rajgopal Kannan, Arjan Durresi, and Ramaraju Kalindi, "Secure Weighted Data Aggregation in Wireless Sensor Networks"
- **Best Paper Award at the 18th International Conference on Advanced Information Networking and Application** (AINA 2004) March 2004 at Tokyo. Co-authored with Parachuri, Durresi, and Kannan "Authenticated Autonomous System Trace back".
- **Distinguished Alumnus Award** of the Indian Institute of Science, Bangalore, India, 2003. Presentation of a Medal and a lecture on March 3, 2003 at the Senate Hall, IISc, Bangalore, India.

- **Satish Dhawan Chaired Professorship Award**, Indian Institute of Science, Bangalore, and 2002-04.
- Elected **Member of the European Academy of Sciences** (EAS) in the category of Computer Science, 2002. Elected
- **Fellow, Association of Computing Machinery** (ACM) for Outstanding and Professional Achievements in the Field of Information Technology, 2002.
- **Roy Paul Daniel's Endowed Professor of Computer Science in Research/Teaching**, 2002.
- Appointed Member of the Advisory Board of the Springer Verlag Dictionary of Internet Dictionary, 2002.
- **Technology Innovation Award Louisiana Tech University Research Foundation Inventor Award**, September 2001. This was a patent titled "Fast Web Page Allocation on a Server using self-organizing properties of Neural Networks". United States Patent, Application filed, September 1, 2001, OIP File: 0110, submitted jointly with Dr. R. Kannan and Dr. V. Phoha. Featured in World's Best Technology Showcase.
- **Rainmaker Award**, LSU 2009-2010.
- **Elected Fellow, American Association of Advancement of Science (AAAS)** for Outstanding Contribution to Algorithms in Robotics, 2000.
- **Distinguished Research Master Award**, University Medalist 1999.
- **H.M. Hub Cotton Award for Faculty Excellence**, 1999.
- **LSU Association for Computing Machinery Student Chapter Award**, 1999.
- **IEEE Computer Society Technical Achievement (Research) National Award for Outstanding Contribution to Algorithms in Robotics**, 1998.
- **Member of the New York Academy of Sciences**, 1996.
- **LSU Alumni Association Distinguished Faculty Award of Excellence in Research/Training**, 1996.
- **LSU College of Basic Sciences Tiger Athletic Foundation Award**, 1996.
- Elected **Fellow, Institute of Electrical and Electronics Engineering (IEEE**), for Outstanding Contribution to Algorithms in Robotics 1995.
- **Jawaharlal Nehru Chaired Professorship Award**, September, 1995, University of Hyderabad.
- Appointed **member of the advisory panel NIH** (National Institute of Health)-NLM (National Library of Medicine), 1993-97.
- **Awarded Williams Evans Fellowship**, University of Otago, New Zealand, 1991.

SCIENCE, EDUCATION AND DEVELOPMENT ACTIVITIES AT FIU

Impact of Leadership in Research

Dr. Iyengar has exhibited leadership in research that has proven itself useful in defense and industrial applications. His research work has influenced many academic and industrial researchers at FIU as well as South Florida.

- Airforce Research Lab in partnership with FIU
- Establishment of Research Collaboration between FIU and IHMC
- Ignition of research collaborations between FIU and Brazil in the area of Future Internet Architecture (FIA. This research and development is for more conservatively and high-impact research collabora- tions on two countries.
- Establishment of Discovery Lab and Visualization Lab at FIU
    - Academic research to commercialization
    - National Robotics week event for local community
    - Robotics Summer Camp for high/middle school students
    - Telepresense project for disabled veteran and police has been world wide spot lighted
        ∗ Yahoo news, MSNBC TechNews, CNet News, Deccan Herald (India), Nate News South Korea),etc.

Contribution to the State of Florida as Innovator and Technology Entrepreneur

- Dr. Iyengar and his colleagues at Nulogix received Florida Innovation Award for their device which is invented with an innovative technology that enables a person to see changes in intra ocular pressure (IOP) when he looks at his eye in the mirror. The purpose of this invention is to ensure that glaucoma's silent damage is detected as early as possible, well ahead of any damage.
- As President for Technology of Noetic Nexus, Dr. Iyengar is mentoring the company's scientists in the areas of intellectual property management systems, Google map integration, and portals.
- Dr. Iyengar has created the Cognitive Information Management (CIM) Shell software technology, feature in IEEE Computer, in collaboration with Dr. Supratik Mukhopadhyay of Louisiana State University.
- Dr. Iyengar is working with a group of researchers at the University of Texas Southwestern Medical Center in the area of lung cancer treatment.

RESEARCH COMMERCIALIZATION AND IMPACT

Brooks-Iyengar Distributed Sensing Algorithm

The Brooks-Iyengar algorithm or Brooks-Iyengar hybrid algorithm is a distributed algorithm that improves both the precision and accuracy of the measurements taken by a distributed sensor network, even in the presence of faulty sensors. The sensor network does this by exchanging the measured value and accuracy value at every node with every other node. It computes the accuracy range and a measured value for the whole network from all of the values collected. Even if some of the data from some of the sensors is faulty, the sensor network will not malfunction. Iyengar is the Co-inventor of the Brooks-Iyengar algorithm for noise tolerant distributed control, which bridges the gap between sensor fusion and Byzantine fault tolerance thus providing an optimal solution to the fault-event disambiguation problem in sensor-networks.

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- R.R. Brooks and S.S. Iyengar. "MultiSensor Fusion," in Fundamentals and Applications with Software,1998 Prentice Hall PTR.

1. **APPLICATION OF THIS ALGORITHM IN MODERN DAY LINUX OPERATING SYS- TEM FOR COMBINING DATA IN FAULT-TOLERANCE. (MINIX)** In 1996, Iyengar's group, in collaboration with Brooks and with funding from Oak Ridge National Laboratory, invented a method of fault tolerance modeling that offers a computationally inspired realtime task management solution. This work has emerged in new versions of real time extensions to Linux Operating Systems. Many of these algorithms were used and installed in the RT Linux Operating System. They are now working on formal model verification by incorporating the algorithms into a new embedded kernel for robotic applications. The profound contribution of the Brooks-Iyengar Distributed Computational Sensing work has enhanced new real-time features by adding fault tolerant capabilities.

2. **APPLICATION IN DARPAS'S PROGRAM DEMONSTRATION WITH BBN, CAMBRIDGE MASSACHUSSETTS, MURI, RESEARCHERS FROM PSU/ARL, DUKE, U. WISCONSIN, UCLA, CORNELL AND LSU** In 2000, the DARPA program manager used two major demonstrations to showcase SensIT's advances and document the ability of sensor networks to provide new capabilities. One demonstration took place at the Twenty nine Palms, California Marine Training grounds in August 2000, the other took place at BBN offices in Cambridge, Massachusetts in October 2011. Dr. Gail Mitchell of BBN coordinated this work for BBN, DARPA's SensIT integration contractor. Both demonstrations used the Brooks-Iyengar fusion approach to combine sensor readings in realtime. Acoustic, seismic, and motion detection readings from multiple sensors were combined and fed into a distributed tracking system. The first deployment was effective,

but noisy. The second demonstration built on the success of the first testing Cali- fornia. An improved "outfielder algorithm" was used to determine which node was best situated to continue existing tracks. This work was an essential precursor to the Emergent Sensor Plexus MURI from Penn State Applied Research Laboratory (PSU/ARL) with Dr. Shashi Phoha as PI. In that MURI, researchers from PSU/ARL, Duke, U. Wisconsin, UCLA, Cornell, and LSU extended SensIT's advances to create practical and survivable sensor network applications.

3. Brook-Iyengar Sensor Fusion Algorithm has been extremely influential

- This algorithm was central to the DARPA SensIT program's prototype distributed tracking program demonstrated at 29 Palms marine base.
- This algorithm was used to combine heterogeneous sensor feeds in the application fielded by BBN Technologies, BAE sytems', Penn State Applied Research Lab (ARL), USC/ISI. This program was a major mile-stone in establishing the field of distributed sensing.
- The Thales Group, a UK Defense Manufacturer, used this work as part of its Global Operational Analysis Laboratory.
- The research in developing this algorithm has continued over time and associated researchers have had many follow on programs. The final results of these follow on programs include tools used by the US Navy in its maritime domain awareness software.
- Education: This algorithm has been used in teaching classes at U. Wisconsin, Purdue, Georgia Tech. Clemson, U of Maryland, etc.
- AT BOEING CORPORATION Mattikalli, R. Fresnedo, R. Frank, P. Locke, S. Thunemann, Z. Optimal Sensor Selection and Placement for Perimeter Defense, 2007.
- AT DEPARTMENT OF DEFENSE Capt. S. Hynes and N. S. Rowe, Multi-Agent Simulation for Assessing Massive Sensor Deployment, Article at Naval Postgraduate School, 2004.

4. Optimization of Sensor Network Infrastructure

The impact of Iyengar's seminal work on optimization of sensor network infrastructure has been wide ranging. Since he laid the foundations for sensor deployment through his early papers, several major companies have commercialized this research and filed for patents.

- K. Chakrabarty, S.S. Iyengar, H. Qi, and E.C. Cho, "Grid Coverageof Surveillance and Target Location in Distributed Sensor Networks", IEEE Transactions on Computers, Vol 51, No. 12, December 2002.
- S.S. Dhillon, K. Chakrabarty, and S.S. Iyengar, "Sensor Placement for Effective Grid Coverage and Surveillance", Workshop on Signal Processing, Communications, Chaos and Systems, Newport, RI, 2002.
- S.S. Dhillon, K. Chakrabarty, and S.S. Iyengar, "Sensor Placement for Grid Coverage under Imprecise Detections", Proceedings of the International Conference on Information Fusion (FUSION 2002), pp. 1581-1587, 2002. Research Monograph (Springer Verlag London Ltd)
- Chakrabarty and S.S. Iyengar, "Scalable Infrastructure for Information Processing in Distributed Sen- sor Networks", Springer Verlag London Ltd, June 2005, pp. 252.

5. Impact on Graduate Theses and In Diverse Areas

- Integrated Circuit Design: On-Chip Thermal Sensor Placement, M.S. Thesis at UMass Amherst (Yun Xiang), 2008
- Wireless Networks: Secure Localization and Node Placement Strategies for Wireless Networks, PhD Thesis at Auburn University (Santosh Pandey), 2007
- Robotics: Energy-Efficient Mobile Robots, PhD Thesis (Yongguo Mei) at Purdue University (2007)
- Sensor Management: Global Sensor Management: Allocation of Military Surveillance Assets, PhD Thesis at NC State University (Kristin Arney), 2008

- Wireless Sensor Networks: Effiziente Kommunikation und Optimierung der Knoten Positionierung in drahtlosen Sensornetzen unter Ausnutzung raumlicher Korrelationen (in German), PhD Thesis at Technical University of Aachen, Germany (Frank Odewurtel), 2011
- Cargo Monitoring: Optimal Communications Systems and Network Design for Cargo Monitoring, PhD Thesis at University of Kansas (Daniel Fokum)
- Human Activities Space: A Multi Sensor System for a Human Activities Space Aspects of Planning and Quality Measurement, Blekinge Institute of Technology, Sweden, Licentiate Dissertation Series, 2008.
- Structural Health Monitoring: Identification of Damage Using lamb Waves, Springer Book volume 2009.
- Dimensional Measurement: Distributed Large-Scale Dimensional Metrology: New Insights (book).
- In the area of sensor networks narrowly defined, cited in over 23 PhD thesis.

6. Impact on NSF Grant

Dr.Iyengar's research has also influenced university research over the past 10 years, and several NSF grants have been awarded to researchers who have built on and leveraged his pioneering work on sensor deployment and minimalistic sensor networks. Here is a snapshot of some these grants

- Award Number: CNS-1054935 (CAREER: A Theoretical Foundation for Achieving Sustainability and Scalability in 3D Wireless Sensor Network Deployments)
- Award Number: CNS- 1152134 (Optimal Surface Gateway Deployment for Underwater Acoustic Sensor Networks)
- Award Number: 0449309 (Collaborative Signal and Information Processing in Sensor Networks)
- Award Number: CNS-1149611 (SensorFly: Minimalistic Dynamic Sensing and Organization in Groups of Semi-Controllable Mobile Sensing Devices)

7. Impact of Dr. Iyengar's work on Naval Research Laboratories Mission

- Provided the foundation for a much larger effort involving U.S. Navy laboratories, industry partners and leading universities to construct next generation U.S. Navy surveillance systems
- Provided the centerpiece for the Navy's pioneering efforts in developing a computerized image analysis system leading to the first fully automated U.S. Navy system for interpretation of satellite images of the ocean
- Provided the fundamental framework for today's operational U.S. Navy systems
- Expanded the frontiers of image analysis science, and are captured in his book, Advances in Distributed Sensor Integration: Applications in Theory, published in 1995 and his new, soon to be published work, The Design and Analysis of Algorithms for Processing Digital Satellite IR Images

Dr. Iyengar's research on image processing systems was used in 1988-93 by the US Navy as a centerpiece of architecture. Dr. Iyengar addressed the problem on linkage of low level features to oceanographic objects. Without useful results in this key area, the work of other laboratories involved with this project could not have been integrated into a working prototype system. For three years Dr. Iyengar's research served well as the centerpiece of this pioneering effort in computerized image analysis system.

8. Research in Global Scale

His research work was shown on the Discovery channel, History channel, local ABC news affiliates (WBRZ News), Fox TV channel(Fox 44 WGMB), Youtube and major news outlets (LSUReville, The Advocate) around the world, over 60 million homes distributed worldwide (Russia, Korea, Europe, China, India etc.) One of Dr. Iyengar's students Brian Obe's love of digital artistry emerged in 1990 with a visit to LSU robotics research laboratory where he was introduced to many techniques and that ended him getting an animation award at the 78th Academy Awards.

9. Influential Text Books

Dr.Iyengar's influential text books have been used extensively and translated into many languages worldwide in Multi-Sensor Fusions, Sensor Network Programming, Wavelet Analysis, Distributed Sensor Networks. The research findings uniquely connect computing techniques to imaging techniques to biological systems protocols and modeling.

10. Research into Commercial Area

One of Dr. Iyengar's project along with Dr. Phoha (LA Tech) and Dr. Kannan (LSU) entitled "Fast Web Page Allocation on a Server Using Self-Organizing Properties of Neural Networks" was selected in World's Best Technology Showcase in the year 2007. This is a highly competitive summit and other competitors were Los Alamos Labs, Johns Hopkins University, EPA , NASA and many other. His research has spanned over three decades producing a number of new inventions and has led him to have his impact on thousands of researchers. Professor Iyengar has named patents and has guided graduate level research of almost 150 students.

11. Ground breaking Work Has Inspired Researchers in Academia and Industry

- Patent no. US 7,676,805 B2 , Issued: March 9, 2012 : Wireless sensor node executable code request facilitation method and apparatus, Yang Yu et al, Assigned to: Motorola
- Patent no. US 7,688,793 B2 , Issued: March 30, 2010 : Wireless sensor node group affiliation method and apparatus, Loren J. Rittle et al, Assigned to: Motorola
- Patent no. US 8,019,576 B2 , Issued: September 13, 2011 : Method for placement of sensors for surveillance, Hanan Luss, Assigned to: Telcordia

A computational frame-work for modeling the respiratory motion of lung tumors provides a 4D parametric representation that tracks, analyzes, and models movement to provide more accurate guidance in the planning and delivery of lung tumor radiotherapy.

- S.S. Iyengar, Xin Li, Huanhuan Xu, Supratik Mukhopadyay, N. Balakrishnan, Amit Sawant, Puneeth Iyengar, "Toward More Precise Radiotherapy Treatment of Lung Tumors", Computer, January 2012.

12. Impact on Startup Companies

In 2010, Iyengar as a president of NoeticNexus Company has been instrumental in setting up the technology goals and vision of the start-up www.noeticnexus.com. and built up innovative applications using Java, PHP and the latest web technologies. We also build iPhone Apps. In 2010, He co-founded GroupThink, a startup company for social network applications. He has been helping the company on getting the tight clientele and keeping up a competitive edge with the competitors. Under his guidance the following projects have been delivered. In collaboration with Morph2O and Indian Agricultural Research Institute, Dr. Iyengar led the engineering team at NuLogix Labs, a start up company that he founded in 2010 to commercialize this technology and lead its deployment in the agricultural domain in India and the United States. Dr. Iyengar invented the Cognitive Information Management Shell, a complex event processing architecture and engine that innovatively combines automated agent synthesis with machine learning-based agile analytics and distributed databases. This shell introduced a new paradigm for combining machine learning with expert knowledge and human input. Prof. Iyengar serves on several boards / councils of corporations, universities, foundation, and governments.

PART-B

Contribution to Education and Research in Science

Introduction

My research has spanned a large number of disciplines emphasizing algorithmic information, data structure techniques for image processing, and modeling systems in the 1970's and 1980's; efficient computer techniques for sensor, image processing in the 1990's (wavelet applications to image processing and pattern recognition techniques). The contributions, the culmination of energetic personal effort and an eager response to the rigorous demand of his field, are evidenced by a large number of publications. I have produced and will con- tinue to contribute to many areas of computational study, which include computational aspects of robotics, image processing, artificial intelligence, distributing sensor integration and high performance computing, data mining and data warehousing.

A key ingredient in my research work has been my ability to combine deep mathematical insights into algorithmic foundations with an equally deep view of practical issues and the instinct to always pursue state-of-the-art developments in my field. During the intervening three decades of my career, research interest spanned an incredibly wide spectrum, but there is a distinct pattern. There are several distinct periods:

- High Performance Parallel and Sequential Algorithms for various problems in Image Processing Applications, 1975-1990.
- Theory of Multidimensional Signal/Image Integration and Sensor Fusion Problems, (Fundamentals and Applications), 1988-2000.
- Contribution to Distributed Sensor Networks (2000-Present)

Distributed Depth First Search: Depth - first search is a powerful technique that has been used in designing many efficient graph algorithms on the sequential computer model. In the distributed setting, several algorithms have been reported, among them the best ones are those of Sharma, Iyengar, Cheung. A comparison of our algorithm to that of others.

Paper	Message Length	Time	Message	Other features
Cheung	O(1)	2m	2m	FIFO rule required; does not mark son links
Awerbuch	O(1)	< 4n	4m	FIFO rule not required; does not mark son links
Lakshmanan et al.	O(1)	2n-2	≥ 2m , < 4m - (n - 1)	FIFO rule required; does not mark son links
Cidon (corrected)	O(1)	2n-2	≥ 2m , < 4m - (n - 1)	FIFO rule not required; mark son links
This paper	O(lg n)	$n(l+r)^a$	≥ n + 1, < 4m - (n - 1)	FIFO rule not required; mark son links
Sharma, Iyengar et al	O(n)	2n-2	2n-2	
Makki et al.	O(n)	$n(l+r)^a$	$n(l+r)^a$	

Between 1979-1988, we initiated, developed and enriched several important lines of research on the data structure theory of image processing. This work was at the origin of many important works in various laboratories in the world. For instance, an illustrative example, our paper titled virtual Quadtrees solved an important problem of image representation. The Quadtree data structure has been used for storage of pictorial data. Recognizing the limitations of the earlier work on Quadtrees, we invented "Forest Set Technique" as an efficient way to represent and store images [IEEE Trans. on Pattern Analysis and Machine Intelligence Vol. PAMI-6 No.2 Mar1984]. This is the first seminal paper in image processing literature that discussed an opti- mal (in time) forest data structure for images which results in a decomposition of the image into a collection of sub

Quadtrees, each of which corresponds to a maximal square. This technique has been extended by Samet, Rosenfeld, Manohar et al and is well cited in textbooks and other papers and has been a topic for Ph.D. dissertations. In 1986, with Prof. Scott at UT-Austin I proposed a very efficient data structure called Translation Invariant Data Structure for storing two and three-dimensional images [Comm. of the ACM, Vol. 29, No 5, May 1986]. This paper has been extensively cited in textbooks (Samet and others) and by other researchers. These new results led to many other discoveries by other researchers like Samet, Rosenfeld etc. Later research on similar bounds and asymptotic expansions under dependence by Samet, Gargentini and others were significantly influenced by the methods and formalisms laid out in my papers.

Based on these discoveries, it was indeed an honor to be invited as a co guest editor for a special issue in the area of "Image Databases" (May 1988) in IEEE Transactions on Software Engineering and later years, in a Journal of Theoretical Computer Science (1991). These special issues we edited laid the foundation for research for other researchers at University of Michigan, San Diego, Santa Barbara, Penn. State, and National laboratories around the world. These investigations led to my work based on data structuring techniques for balancing search trees [Comm. ACM, Vol. 27, Jul 1984] which has profound influence in the analysis of content-based image retrieval systems. Also my work has become a benchmark for evaluating other balancing algorithms for time and space complexity. The algorithm proposed in 1984 by us is one of the six known algorithms in the literature and has led to subsequent research in this area by many researchers (Stout and Gerasch, Dekel, Wang. Moitra et al).

Next, I turned my attention to the theory of real time parallel algorithms (1987). With the increasing use of highly parallel computers, it has become necessary to identify various computational problems that can be solved fast in parallel. Contrary to popular belief, in 1988, we discovered "NC algorithms for Recognizing Chordal Graphs and K-trees" [IEEE Trans. on Computers Vol. 37 No8 Oct 1988]. This breakthrough result led to the extension of designing fast parallel algorithms by researchers like J.Naor (Stanford), M.Naor (Berkeley), and A. A. Schaffer (AT&T Bell Labs). These are used in acyclic relational data base schemes for image processing. This is a very well quoted paper by researchers and has been a topic for numerous Ph.D. dissertations around the world. These investigations led to the publication in 1997 of a research monograph and a textbook at the graduate level.

L.Prasad and S.S.Iyengar, "Wavelet Analysis with an Application to Image Processing", CRC Press Inc., pp 278, June 1997. This is the first book in this area with many applications. Many universities around the world are presently using this book. Amazon.com comments - "The first book on the topic for readers with minimal mathematical backgrounds", "This is an ideal introduction to the subject for students, and a valuable reference guide for professionals working in image processing".

C. Xavier and S.S.Iyengar, "Introduction to Parallel Algorithms", John Wiley and Sons, pp 270, July 1988. This book is a source of several techniques for designing of parallel algorithms for high performance com- puting. This book is used as a reference material for many image processing and other related courses. This book is being used as a textbook at University of California - Berkeley, Purdue University, University of New Mexico, many universities in Australia and Asia.

In short, my work in the period 1979 - 1990 strongly influenced certain aspects of subsequent work. In 1985, during my visit to Oak Ridge National Laboratory, the research group led by Dr. Weisbin was looking for methods to develop a mathematical theory of navigating an intelligent robot in an unstructured terrain (like Mars). We focused almost entirely on the retraction theory of navigation for 6 months and were able to provide an efficient $O(n \log n)$ algorithm for this unsolved problem.

In this area of computational aspects of robot motion planning in unknown terrains, we were the first researchers to formulate efficient tractable algorithms and data structures for implementations at Oak Ridge National Laboratory Research test bed. [IEEE Journal of Robotics and Automation, Vol. 3, No 6, 1987, Vol. 4, 1988]. Also, Our work titled "Trajectory Planning of Robot manipulators in noisy work spaces using Stochastic Automata" published in the International Journal of Robotics Research, Apr 1991 (MIT Press) has been cited extensively by researchers all over the world. This is another major contribution in 1980's, which led to the publication of the following two edited books, which have been on the best sellers list for several years.

- S. S. Iyengar and A. Elfes, (eds.), "Autonomous Mobile Robots: Perception, Mapping, and Navigation - Volume 1" IEEE Computer Society Press, October 1991, pp 541.
- S. S. Iyengar and A. Elfes, (eds.), "Autonomous Mobile Robots: Planning, Control, and Architecture - Volume 2" IEEE Computer Society Press, October 1991, pp 527.

The next period, 1988-2000, was devoted to an investigation of the extremely difficult problem of multidimensional sensor fusion. Although this problem originated in 1960's by several researchers, the formulation of fundamental algorithms and representation were not dealt with. Approaching the problem of sensor fusion from application point of view, we developed novel techniques to generalize and exploit certain principles of invariance in representation and computation. A large number of important applications depend on com- puters interfacing with real world. These applications (Medical/ Manufacturing/ Environmental Planning System) have been difficult to realize because of problems involved with inputting data from sensors directly into automated systems. In a series of papers extending over several areas (1988 - 1998), my collaborators and myself showed how robust multi-sensor fusion algorithms can handle imperfect inputs. These investigations led to the publication of the following two research monographs.

S.S.Iyengar, L.Prasad and Hla Min, "Advances in Distributed Sensor Integration: Applications and Theory", Prentice Hall Inc., 1995. This is the very first book on Sensor Integration containing Dr. Iyengar's original researches published in archival journals. These researches have had a major impact in many federal agencies. Many research laboratories and scientists around the world are using this book.

R.R.Brooks and S.S.Iyengar, "Multi Sensor Fusion: Fundamentals and Applications with Software", Prentice Hall Publication Co., pp 488, New Jersey October 1997. This is the first book co-authored by Dr. Iyengar describing software tools to many multi-sensor fusion problems.

This book is in use at Penn State University, Purdue University, Syracuse University etc for research courses. Theories developed on representation of multidimensional data structure, techniques for reasoning with uncertainty, approaching to enhance system dependability working with Meta heuristics.

July 2001 - Present

The recent work (funded by DOE-ORNL, DARPA-Sense IT) by me with a number of my collaborators from Duke University, Univ., of Tennessee, Purdue University etc., focused on a new problem of sensor placement for target tracking problems. Our work on sensor placement [Brooks and Iyengar, 1997] is motivated by the fact that distributed, real-time sensor networks are essential for effective surveillance in the digitized battle- field and for environmental monitoring. An important issue in the design of these networks is the underlying theoretical framework and the corresponding efficient algorithms for optimal deployment of sensors. The key challenge here is to develop mathematical models and computational-efficient approaches for placing sensors in an optimal fashion.

Unlike most current sensor fusion architectures, which are platform-centric, MU-FASHION (Multi-Resolution Data Fusion Using Agent Bearing Sensors in Hierarchically-Organized Networks responds to DOD's vision of environmental monitoring network. The multi-resolution signal-processing algorithm proposed in MU- FASHION is fault-tolerant. Based on the concept of weighted overlap function, it offers the following innovative features:
(1) progressively accurate results by multi-resolution analysis (2) real-time integration, (3) faulty sensors need not to be known a-priori (this is essential to sustain a dynamic network structure), and (4) robustness, i.e., a slight change in the input will not dramatically affect the output (satisfies Lipschitz condition).

We are developing the first mathematical theory that leads to novel sensor deployment strategies for effective surveillance and target location. In our preliminary work, we represent the sensor field as a grid (two- or three-dimensional) of points (coordinates), and use the term target location to refer to the problem of pinpointing a target at a grid point at any instant in time. We have developed an Integer linear programming (ILP) model for minimizing

the cost of sensor deployment under the constraint of complete coverage of the sensor field. The ILP models are solved using a representative public-domain solver, and a divide-and- conquer approach is presented for solving large problem instances. We then use the framework of identifying codes to determine sensor placement for unique target location. We provide coding-theoretic bounds on the number of sensors and present methods for determining their placement in the sensor field. We also show that sensor placement for single targets provide asymptotically complete (unambiguous) location of multiple targets. Previous research in distributed sensor networking by Varshney, Luo, Kay et.al has largely ignored the above sensor placement issues. Most prior work has concentrated exclusively on efficient sensor communication and sensor fusion for a given sensor field architecture. However, as sensors are used in greater numbers for field operation, efficient deployment strategies become increasingly important. Indeed, it is fair to state that the extensive research in this area has not yet led to a firm grasp of sensor deployment strategies for target location. This lack of understanding is not altogether surprising because the sensor deployment combines the hitherto unexplained interaction of target location with optimal placement of sensors.

Finally, during my academic career, I have had long standing exciting research involvements in two dis- tinct disciplines outside of Computer Science - (1) Biological Systems and (2) Computational aspects of Oceanography. Biological Systems are inherently complex information-processing systems. This makes it very difficult and, of course challenging to model them and to perform computer simulations on them. Phys- iological complexities of biological systems limit the formulation of hypotheses to explain their behavior and the ability to test such hypotheses. The study of biological systems is concerned with the study and interpretation of biological processes at the molecular level and, more importantly, in terms of the structure and properties of molecules. The availability of high-performance computers, coupled with mathematical modeling has contributed to the development of increasingly accurate models of biological systems. In recent years my work surrounds research and activity in modeling medical data and knowledge representation in the context of understanding physiological complexities, as it is often difficult to predict behavior of biosystems during an experimental investigation. My research in this area led to the publishing of the following books:

- S.S. Iyengar (Ed), "Computer Modeling and Simulation of Complex Biological Systems" CRC Press Inc, December 1997, pp 194. This unique book focuses on the use of innovative modeling techniques to better understand complex diseases such as AIDS and cancer.
- S. S. Iyengar, (Ed), "Computer Modeling of Complex Bio-Systems", CRC Press, Inc., November 1983, pages 142 (best seller-list, 1984).
- S. S. Iyengar, (Ed), "Structuring of Complex Bio-Systems", Volume II, CRC Press Inc., June 1991, pp 267.

The work in computational aspects of oceanography has been in collaboration with Dr. Holyer of Naval Research Laboratory. My work has produced fundamental results in a broad range of areas and has influenced professional education as well as practice. "I was among the first group of researchers to combine the discipline of oceanography and computer science". Our pioneering work with Naval Research Laboratory research group on the interpretation of oceanographic images has laid the foundation to solve many infrared image-processing problems. The impact of this work in image processing in general and in image modeling in particular is very significant to national laboratories. A number of federal agencies such as ONR, US Army Research office, ORNL have implemented many of his algorithms for a variety of applications.

Recently, in June 2002, I coauthored a book titled "Foundations of Wavelet Networks with Applications" (published by CRC Press) based on my research work on wavelet theory applied to network learning and other computational paradigms that I discovered over the last 2 years. During the last two months, we have been able to link Bio-computing with sensor networks using the idea of adaptive learning. These methods will and new paradigms will be described in our forthcoming books listed below:

- S.S. Iyengar etal, "BIO COMPUTING - Approaches, Methods and Applications", In Preparation.
- S.S. Iyengar and R.R. Brooks, Forthcoming handbook on "Frontiers in Distributed Sensor Networks", CRC Press, Inc. Boca Raton, FL, 2003.

Contribution in Sensor Networks

Traditional routing algorithms for sensor networks are datacentric in nature. Given the unattended and untethered nature of sensor networks, datacentric routing must be collaborative as well as energy-conserving for individual sensors. In related research, we develop a novel sensor-centric paradigm for network routing using game-theory in which sensors collaborate to achieve common network-wide goals such as route reli- ability and path length while minimizing individual costs. The sensor-centric model can be used to define the quality of routing paths in the network (also called path weakness) describes inapproximability results on obtaining paths with bounded weakness along with some heuristics for obtaining strong paths. The development of efficient distributed algorithms for approximately optimal strong routing is an open issue that can be explored further.

- R. Kannan, S.Sarangi, S.S. Iyengar and L. Ray, "Sensor-Centric Quality of Routing in Sensor networks". INFOCOM 2003, San Francisco, CA, April 2003.
- R. Kannan and S. S. Iyengar, "Game-theoretic Models for Reliable, Path-length and Energy-constrained routing in wireless sensor networks," IEEE Journal on Selected Areas in Communications, August 2004.

Comment by Naval Research Laboratory Researcher

Dr. Ronald Hoyler of Naval Research Laboratory made the following remark on the impact of Professor's work on Infra Red Image Processing funded by the NRL - "His work was a key factor leading to the first fully automated interpretation of a satellite image of the ocean in 1989 However, for three years Professor Iyengar's research served well as the centerpiece of this pioneering effort in the computerized image analysis system. He made a significant contribution to the image analysis science and to the goals of the Naval Research Laboratory".

In short, Dr. Iyengar's research ranged in different disciplines of computer science and the thread of continuity through all of his work has been his interest in algorithms and data structures and implications of these techniques for various applications. Among these topics are sensor fusion, parallel algorithms, multimedia and networking, intelligent systems etc. His papers have been marked by penetrating insights and clarity exposition. He has also directed more then 33 Ph.D. students and many post-doctoral researchers over his career. His ability to bring out the best in his students is clearly visible from his former students who hold prestigious, scientific positions in National Labs and Universities across the world.

As a scientist, he has won the respect of his peers and fellow scientists as evidenced in the following recog- nitions.: IEEE Computer Society Technical Achievement Award (1998), Fellow of IEEE, Williams Evans Fellow, Fellow of AAAS, etc. In the last 5 years, his research endeavors have attracted over 8.0 million dollars from various industrial and federal agencies such as NSF, ONR, DOE-ORNL, MURI, DARPA, US Army Research office, and Naval Research Laboratory. He has served on these scientific committees or panels and served on the editorial board/guest editor of various journals like IEEE TSE, IEEE C. Mag, and IEEE TC. He has given more than one hundred invited talks, plenary lectures and has been named the Jawaharlal Nehru Chaired Professor at Hyderabad, offered Williams Evans Fellowship at University of Otago, New Zealand. He has served as visiting professor at University of Paris, France, Indian Institute of Science, India, and visiting faculty fellow at JPL-CalTech, Oak Ridge National Laboratory.

Research Impact in National Laboratories and Universities Worldwide

Professor Iyengar was among the first group of researchers to combine the discipline of oceanography and computer science. His pioneering work was with NRL research group on the interpretation of oceanographic images is the foundation to mix of modern computer science. The impact of his work in image processing in general and in image modeling in particular is very significant to national laboratories. Dr. Iyengar's research in image processing

algorithms was a key factor leading to a first fully automated interpretation of a satellite image of the ocean in 1989 for the United States Navy. His contribution was a Centerpiece of his Pioneering Effort to image analysis, science, and to the goals of the Naval Reference Laboratory (See. letter by Dr. Hoyler, head, Department of Navy - NRL).

The development and discovery of general techniques by Dr. Iyengar for graph recognition and related problems enabled practitioners and researchers at Lucent Bell Labs, Stanford, Berkeley and etc to easily develop solutions to other hard computational problems. The models introduced by Dr. Iyengar in sensor fusion algorithms (implemented at DARPA, NRL, DoD Labs) have found significant applications for target tracking detection problems. His work on graphs helped researchers to solve many NP-complete problems in polynomial time if the input graph is chordal. The impact of his work in image processing modeling is very significant to national laboratories. More specifically, his work was a key factor leading to the first fully automated interpretation of a satellite image of the ocean in 1989. However, Dr. Iyengar's Edge Detection Algorithm served as the centerpiece of this pioneering effort in the Computerized Image Analysis System of the Naval Research Lab. His work on algorithms and data structures for sensor fusion has been recognized as special topics at IEEE international conferences. His seminal research in the areas cited above is now standard textbook material and has led to a large volume of follow-up work by numerous researchers. Dr. Iyengar supervised more than 31 Ph.D dissertations and Post Doctoral and the legacy of his research efforts can be seen at top universities, national labs, industries etc. Dr. Iyengar's research on Image Structures, Algorithms, and Computational aspects of path planning algorithms, etc. have been widely cited in textbooks, Ph.D. dissertations, large number of published technical articles and reports, and in national as well as international underline conference proceedings. The following Textbooks that cite Dr. Iyengar's research publications in data structures and algorithms for real-time applications include but are not limited to The Design and Analysis of Spatial Data Structures, Applications of Spatial Data Structures, Motion Planning in Dynamic Environments, Introduction to Algorithms: A Creative Approach, Algorithms for VSLI Physical Design Automation.

Major Research Contribution

Dr. Iyengar's research strives to combine deep Mathematical insights into Algorithmic Foundations with an extensive view of practical issues. A prime example is to allow the feedback of Theory of Data structures into practice in an Innovative way. His work, based on Balancing Techniques, led to the development of Algorithms optimal in space and time by researchers such as Stout, Gerasch, Wang and others and has been cited as a benchmark for comparison with other algorithms in the Literature (Gerasch, Comm. of the ACM, May, 1988). Recognizing the limitations of the earlier work on quadtree representations, popularly used in image processing literature, he (with Les Jones) developed a forest Data-Structure of quadtrees, which has becomes the basis of representation that is used in most disk-based quadtree Implementations (IEEE Pattern Analysis and Machine Intelligence, 1984.) This paper Space and Time Efficient Virtual Quadtrees has also been cited extensively. It is also highly referenced in textbooks (Samet, Spatial Data Structures, Addison Wesley, 1989) and journals, and is a major contribution in the area of image Data Structures.

Dr. Iyengar made seminal contributions in the area of robot motion planning in unknown terrains. He and N. Rao were the first to formulate and solve the visit problem and the terrain model acquisition problems. These papers are well quoted by researchers such as Lumersky (Yale), Mitchell (Cornell), Doshi (JPL) and Ahuja (Illinois). Dr. Iyengar's research in the area of high performance algorithms (Nick's class) for graph recognition presented a unique characterization for Choral graphs and k trees. This paper has been cited extensively and led to the extension of designing fast parallel algorithms by researchers like Joseph Naor (Stanford), Mone Naor (Berkeley) and A. A. Schaffer (AT&T Bell Labs). Dr. Iyengar's research in the automated analysis and interpretation of Satellite imagery of the ocean has bridged the gap between low-level image features and High-level Oceanographic features, leading to the development of automated image interpretation for the department of the U.S. Naval-Research Laboratory in 1989. His use of non- linear probabilistic relaxation (first proposed by Rosenfeld in 1976) to perform feature label of oceanographic images is innovative and is well quoted. Dr. Iyengar has published some pioneering work on distributed sensor networks. He showed that the problem of binary detection could be solved very easily on several kinds of computer Architectures. He has served as an author, editor for voluminous publications dealing with various topics in the area of his expertise. His books are published by publication companies such as IEEE Computer Society Press, CRC Press, Prentice-Hall, companies with strong and proven science tradition, and his

Technical papers and articles are published by such prestigious journals as IEEE CAD, IEEE Transactions on Robotics. He also served as a guest-editor for a number of computer-related topics for IEEE-SMC, IEEE-TSE, IEEE-Computer, etc. His research has had a global impact and he is one of the few world-renowned scientists on the application of data structure and algorithms. His international reputation is reflected in the awarding of William Evan Fellowship at the University of Otago, New Zealand and Jawaharlal Nehru Chaired Professorship of the University of Hyderabad, India.

Undergraduate Research Program-(URP)

Establishment of Mentoring for under represented students and Faculty
NSF - Supported Joint Faculty Program between Southern university and Louisiana State University
In his research, Dr. Iyengar has been assisted by a stellar array of more than 20 undergraduates and is a visionary in his approach to defining research projects and encouraging students to venture into cutting edge areas that might mature in the next 5 years. Many of his undergraduate students have published papers in first-rate computer science journals and have presented papers in international conferences.

Over 10 undergraduate students have worked under Dr. Iyengar in the past two years. Dr. Iyengar has been able to generate funding to conduct workshops/seminars/short courses to under represented students and women in Computer Science Program.

- Dr. Iyengar makes a concerted effort to encourage and mentor students from under-represented groups.
- Dr. Iyengar's work with LSU's Pre-Doctoral Scholar's Institute demonstrates his commitment to the success of minority graduate students.
- As a part of 1995 NSF grant, Iyengar held a robotics workshop for faculty form Hampton University, University of Puerto Rico, Southern University, Grambling University etc.
- Dr. Iyengar provided necessary advice in the creation of The Center for Research in High Performance Computing (CRHPC) at Morehouse College.

Dr. Iyengar is the leading principle investigator in collaboration with Dr. Walker, Dean of the College of Engineering at SU (an HBCU) for the project entitled "Development of SU/LSU Joint Research and Educational Program in High Performance Networking" funded by the NSF at $460,000. This is a new experimental program to establish Joint Faculty Appointments between a majority white and a majority black university, LSU and Southern University. Currently, Louisiana is the first and only state selected by NSF, and Dr. Iyengar's project represents the state's only high performance networking engineering project. With this program, the inter-relations between the two universities, including faculty members and students, will be significantly enhanced (1999-2002).

Graduate Research Laboratories

Dr. Iyengar's mission is to provide an environment for students to learn and to do research; for faculty to teach to do research and to engage in professional service; and to facilitate these educational and research programs. His focus is on cross unit collaboration and university wide information technology education. He established a Robotics Laboratory, Networking Laboratory, and Microcomputer Laboratory with funding from NSF, LEQSF, and other computer industries (over one million dollars) to do teaching and research for many undergraduate and graduate students. This laboratory offers hands-on experience in the computer science courses to do research in computational aspects of robotics. He also developed programs to disseminate computer science to non-computer science majors at LSU. This unique graduate education and research infrastructure provides innovative educational experience to students. The Robotics Research Lab, one of the best laboratories for graduate students and faculty to do research and teaching in the country, with support from NSF (LaSER), LEQSF, Apple Computer Inc., and other agencies.

Multi-Disciplinary, Multi - Institutional Educational / Research Efforts

Dr. Iyengar's collaborative efforts in Inter-Disciplinary teaching and research are very unique and have generated significant funding, research and teaching interest among faculty at LSU and in other universities. The Interdisciplinary Research Initiative in Bioinformatics was one such program initiated by Dr. Iyengar.
The title of the program was LUCID: An Advanced Computer Imaging Systems for Early Lung Cancer Diagnosis. He has participated actively in collaborative research with various groups within and outside LSU.
Since becoming chairman in 1991, Dr. Iyengar has continued his trend of excellence. He has been establishing computer science as a core field for every Basic Sciences curriculum, understanding that the key to the future of the science as a whole lies in these interdisciplinary efforts. Professor Iyengar has made use of numerous grants both state and federal grants to fund and enhance the computers, workstations, and other laboratory materials in the department. As mentioned, the total amount he has raised for research exceeds 3 million in the last 5 years. The High Performance Computing and Communication (HPCC) is an exemplary strong interdisciplinary research group between Computer Science, Astronomy, and Physics. The HPCC dual Masters program has been featured in magazines such as Science, New Scientist, Physics Today, Computers in Physics, and American Physical Society News as one of the most innovative in the United States, and it has produced a winner of the Best Dissertation Award. Professor Iyengar is presently promoting a collaborative effort between the physical and biological sciences as well as engineering the creation of the Biological Computation and Visualization Center. In addition, Professor Iyengar has personally established linkages and funded programs with the several Engineering departments, Chemistry, and ECE Departments. This has in turn led to curriculum changes for many LSU programs.

Highlights to Interdisciplinary Teaching and Research Contributions

- In this administrative capacity, he has enriched the curriculum with a variety of new courses, notably some on object oriented programming and advanced machine vision. He was an early proponent of inclusion of topics on High Performance Computer Science in the computer science curricula and led their adoption in the LSU curriculum.
- He has also been a leader in establishing collaborative relationships and mentoring with historically Black colleges and universities. More specifically, Professor Iyengar conducted the NSF-LASER career oriented research workshops that allowed undergraduate students from minority institutions to get involved in challenging projects in computer vision and artificial intelligence. He has initiated exter- nally funded programs to provide opportunities to undergraduate students from a diverse spectrum of cultural and academic backgrounds.
- Professor Iyengar and Dr. Sun are presently developing a Distributed Multimedia Laboratory for Advanced research and education in the Computer Science Department with funds provided by LEQSF enhancement grants.
- Dr. Iyengar initiated a Computer Science Programming Competition in 1994 for gifted high school Students from Louisiana and neighboring states in the hopes of attracting more students to LSU. This has evolved as an annual event in the Department for recruiting bright students from the State of Louisiana. This programming contest is funded by many petrochemical and computer industries in Louisiana.
- During the last two years, Professor Iyengar serves as the director of a statewide project called "Fellows of Excellence Award in Undergraduate Instruction for Computer and Information Science Faculty." This program is sponsored by the Board of Regents of the state of Louisiana and the goal of this project is to award "Fellows of Excellence" to qualifying faculty for excellence in Undergraduate instruction across universities and colleges in the areas of Louisiana.
- Professor Iyengar's collaborative efforts in inter-disciplinary teaching and research are very unique and have attracted a lot of faculty in other departments. Specifically, Professor Iyengar jointly with Professor Triantaphyllou, Professor Chapman, Professor Chen, Professor Voyiadjis, Professor Blackwell and others have submitted a comprehensive proposal to National Science Foundation on Graduate Education and Training in Data Mining and Knowledge Discovery Project for 2.8 million dollars. This is a project creating unique Multidisciplinary graduate training programs in Computer Science and Engineering. This group was invited to submit a final comprehensive proposal based on preliminary selection of seventy proposals among

four hundred pre-proposals submitted. An NSF letter dated Sept. 21 1998 stated the following: "Your receiving such an invitation is a genuine mark of distinction for the plans you and your colleagues have developed for improving graduate education."

- In the future as in the past many of the seminal achievements in biomedical research will occur through interdisciplinary collaborations. The recent emergence of high performance computing algorithms, parallel computers, visualization tools, biomedical science. Along with Dr. E. W. Wischusen, Dr. D. Abegboye, Dr. R. Beuerman, Dr. E. Doomes, Dr. G. Kousoulas, Dr. F. Pezold, Dr. H. Silverman, and Dr. G. Winston, Dr. S.S. Iyengar received a Biomedical Research Infrastructure Network grant award from NIH to recruit and train a new generation of students with interdisciplinary expertise in biological, computer and physical sciences, and engineering.
- Recently Professor Iyengar has been selected as one of the members of Public Higher Education of The Department of Defense USA, Navy Education Consortium Council. The primary purpose of this DOD Information Technology Center located at University of New Orleans is to acquire, develop and support technologically superior and affordable management systems for the US Navy.

Former Dean of College of Basic Sciences, Dr. P.W. Rabideau noted the following in his evaluation of Dr. Iyengar's performance as Chairman of Computer Science: "Dr. Iyengar is an excellent chairman who leads by example. He is also an excellent teacher. The qualities of his performance in all three areas of teaching, research, and service certainly serve as a role model for the faculty."

Collaborative Research Efforts

Through collaboration with either individuals or groups in National Laboratories, Technological institu- tions, and other research centers, S.S.Iyengar has participated in and contributed to a number of scientific inquiries. Among the research institutions collaborated with are CORNELL, CASE WESTERN, PURDUE, OHIO STATE UNIVERSITIES, UNIVERSITY OF TEXAS, Austin and the OAK RIDGE NATIONAL LABORATORY. Listed below are the technical reports of these collaborations:

Technical Reports

12. N.S.V. Rao, S. Kareti and S.S. Iyengar, "Robot Navigation In Unknown Terrains: Introductory Survey of Non-Heuristic Algorithms", Oak Ridge National Laboratory / Tm -12410, July 1993.
11. D. N. Jayashima, S. S. Iyengar and R. L. Kashyap, "Information Integration and Clock Synchroniza- tion In Distributed Sensor Networks", Department of Computer and Information Science, Ohio State University, Technical Report, November 1991.
10. S. S. Iyengar, "Functional Characterization of Fault Tolerant Integration In Distributed Sensor Net- works", Purdue University, West Lafayette, Technical Report TR-EE-91-23, May 1991.
9. D. Kumar and S. S. Iyengar, "Correctness Proof of a Distributed Depth First Search Algorithm", Dept. of Computer Engineering and Science, Case Western Reserve University, Cleveland, Ohio, Technical Report CES-90-34, Oct. 1990.
8. V. K. Vaishnavi, S. S. Iyengar, "Priority Range Search Trees, Department of Computer Information Systems", Georgia State University, Atlanta, Technical Report 4, 1986.
7. J. J. Oommen, S. S. Iyengar, N. S. V. Rao and R. L. Kashyap, "Robot Navigation In Unknown Terrains Using Learned Visibility Graphs: Part 1: The Disjoint Convex Obstacle Case", School of Computer Science, Carleton University, Ottawa, 1987
6. N.S.V. Rao, S. S. Iyengar and Stoltztus, A Retraction Method for Learned Navigation In Unknown Terrains for a Circular Robot", Department of Computer Science, Old Dominion University, Norfolk, Technical Report 88-018, 1988.
5. D. Scott and S. S. Iyengar, "TID - A Translation Invariant Data Structure for Storing Images", De- partment of Computer Science, University of Texas, Austin, Technical Report 1984-16.
4. Y. Cheng, S. S. Iyengar and R. L. Kashyap, "A New Method of Image Compression Using Irreducible Covers of Maximal Rectangles", School of Electrical Engineering, Purdue University, West Lafayette, Technical

Report 87-44, Nov. 1987.

3. Moitra and S. S. Iyengar, "Discussion of Parallel Algorithms", Department of Computer Science, Cornell University, Ithaca, Technical Report 86-759, June 1986.
2. Moitra and S. S. Iyengar, "Derivation of a Maximally Parallel Algorithm for Balancing Binary Search Trees", Department of Computer Science, Cornell University, Ithaca, Tech., Report 84-638, Sept. 1984.
1. J. Jorgensen, S.S. Iyengar, N.S.V. Rao and C. R. Weisbin, "Robot Navigation Algorithms Using Learned Spatial Graphs", Oak Ridge National Laboratory, Technical Report 9782, Dec. 1985.

RESEARCH GRANTS/CONTRACTS

Funding totals over $65.0 million dollars in the past 30 years. Major sources of Grants/Contracts include: National Science Foundation, office of Naval Research, Department of Energy -Oak Ridge National Laboratory, DARPA (Defense Advanced Research Projects Agency), DOD (Department of Defense)-MURI (Multi University Research Initiative), US Army Research office, NASA, Naval Research Lab, Louisiana Education Quality Support Fund (LEQSF) and others.

89. IUSE/PFE: RED: Florida International Computer Science Institutional Transformation, **National Science Foundation**, PI: S.S. Iyengar, Co-PIs: Mark Weiss, Debra Davis, Zahra Hazari, Geoff Potvin, $1,999,897, Total Award Period Proposed: 8/1/2016-7/31/2021 (Pending)
88. MRI: Development of a GeoSpatial Instrument for the Acquisition, Navigation, Analysis, and Interaction with Super-resolution Aerial Imagery, **National Science Foundation**, PI: Naphtali Rishe, Co-PIs: Malek Adjouadi, S.S. Iyengar, Abraham Kandel, Francisco Ortega, $1,995,000, Total Award Period Proposed: 8/1/2016-7/31/2021 (Pending)
87. A Game Theoretic Approach to Self-Configuring, Non-Cooperative Mobile Sensors for Monitoring Moving Targets, PI: S. S. Iyengar, Co-PI: Niki Pissinou, **U.S. Army Research Office**, $550,000, Total Award Period Covered: 10/1/2015-9/30/2018.
86. URAP Supplement to A game theoretic approach to self-configuring, non-cooperative mobile sensors for monitoring moving targets, PI: S.S. Iyengar, Co-PIs: Niki Pissinou and Jerry Miller, $12,000. Total Award Period Proposed: 1/1/2016-12/31/2016 (Recommended for Funding).
85. REU SITE: ASSET: Research Experiences for Undergraduates in Advanced Secured Sensor Enabling Technologies, **National Science Foundation**, PI: Niki Pissinou, Co-PI: S.S. Iyengar, $360,000, Total Award Period Proposed: 1/01/2016-12/31/2018 (Recommended for Funding).
84. Multi University Research and Training in Protection of Critical Information Infrastructures, **National Science Foundation**, PI: S. S. Iyengar, Collaborative partners at Louisiana State University, $299,998, Total Award Period Covered: 8/15/2011-7/31/2015.
83. NeTS: Medium: Collaborative Research: Building an Intelligent, Uncertainty-Resilient Detection and Tracking Sensor Network, **National Science Foundation**, PI: S. S. Iyengar, Collaborative partners at Louisiana State University, University of Florida, and Purdue University: $279,202, Total Award Period Covered: 08/26/2011-5/31/2014.
82. PFI-AIR: CREST-I/UCRC-Industry Ecosystem to Pipeline Research, **National Science Foundation**, PI: Naphtali Rishe, Co-PI: Kalai Mathee, Sr. Inv.: S.S. Iyengar and Aileen Marty, $822,000, Total Award Period Covered: 07/15/2012-6/30/2016.
81. REU SITE: ASSET: Research Experiences for Undergraduates in Advanced Secured Sensor Enabling Technologies, **National Science Foundation**, PI: Niki Pissinou, Co-PI: S.S. Iyengar, $360,000, Total Award Period Covered: 3/01/2013-2/28/2017.
80. I/UCRC: Phase II: Center for Advanced Knowledge Enablement, **National Science Foundation**, PI: Naphtali Rishe, Co-PIs: Malek Adjouadi, Scott Graham, S.S. Iyengar, and Shaolei Ren, $573,250, Total Award Period Covered: 10/01/2013-9/30/2018.
79. MRI: Development of an Instrument for Acquisition, Management, and Analysis of Super-resolution Aerial Imagery, **National Science Foundation**, PI: Naphtali Rishe, Co-PIs: Abraham Kandel, S.S. Iyengar, Malek Adjouadi, Tao Li, $300,000, Total Award Period Covered: 09/01/2014-8/31/2017.
78. UniversityCity Prosperity Project, **US Department of Transportation**, PI: Naphtali Rishe, Co-PIs: S.S.Iyengar, Mohammad Hadi, Adam Drisin, Nagarajan Prabakar, Elysse Newman, Robert Rovira, Scott

Graham, Jong-Hoon Kim, Atorod Azizinamini, $11,397,120, Total Award Period Covered: 6/24/2014-3/31/2018.

77. **National Science Foundation**, RET in Engineering and Computer Science SITE: Research Experience for Teachers on Cyber-Enabled Technologies, Niki Pissinou and S.S. Iyengar, Total Award Amount: $ 498,000, Total Award Period Covered: 08/01/2014 - 07/31/2017.
76. Cyber Science, Biometrics and Digital Forensics: Workshop on Emerging Cyber Techniques and Technologies, **Army Research Office**, PI: S.S. Iyengar, $32,000, Total Award Period Covered: 07/01/2015-6/30/2016.
75. Multi University Research and Training in Protection of Critical Information Infrastructures, **National Science Foundation**, $299,998, This NSF project is a collaborative project with Florida International University and Louisiana State University, Duration: Starting from August 2011 - July 2013(2 Years) PI: S.S.Iyengar
74. Science, Mathematics, and Technology Scholars - Increasing Diversity through Mentoring, **National Science Foundation/**S-STEM, $599,940, January 8, 2011- July 31, 2015(4 Years) PI: Warner, Co-PI: S.S.Iyengar, Su-Seng Pang, Zakiya S, Wilson and Neubrander
73. Automated Techniques for Inferring Actionable Information from WAMI data, DARPA, $515,000 (Stage 1: (Starting July 1, 2010,) $215000, Stage 2 Starting July 1 2011) PI: Supratik Mukhopad- hyay, Co-PI: S.S.Iyengar
72. NeTS: Medium: Collaborative Research: Building an Intelligent, Uncertainty-Resilient Detection and Tracking Sensor Network, **National Science Foundation**, $350,000, This NSF project is a collaborative project with Purdue University ($100,000(Prof. David Yau-PI)) and University of Florida($250,000(Prof. Sahni-PI)) Duration: Starting from June 2010- June 2013(3 Years) PI: S.S.Iyengar Co-PI: Dr.J.Zhang(CS Dept) & Dr. H.C.Wu(Electrical and LSU CS Department)
71. Center of Excellence in Integrated Smart Cyber-Centric Sensor Surveillance Systems Research, **Board of Regents** Post-Katrina funds, $3.6 M (LSU share is $1.2 M), starting from 2007, PI: Vir Phoha, Co-PI: Dr.S.S.Iyengar
70. Secure and Survivable Cyber-Centric Sensor Networks: Algorithms and Architecture Research, **DoD DEPSCoR** Grant, ranked No.1 from the state of Louisiana, PI: Dr.S.S.Iyengar, Co-PI: Dr. Kannan
69. Louisiana's Strategic Research Infrastructure Improvement Initiative (Cyber Tools), **NSF** EPSCoR Grant-Computer Science Dept's share is approximately $253,000.00, PI: Dr. Konsari, Co-PI: Dr.S.S.Iyengar
68. Development of High-Performance Sensor Networking Infrastructure- Wireless Testbed and Curriculum Innovations, **Board of Regents** - $90,000(awarded for one year) , PI's : Dr. A. Wilson, Dr. A. Durresi, Dr. B. Karki, Dr. R. Kannan, and Dr. S.S. Iyengar.
67. Request for Hardware Enhancement for High Performance Data Mining and Knowledge Discovery Lab in the CS Department at LSU, **Board of Regents** - $45,400 (awarded for one year), PI's: Dr. E. Triantaphyllou, Dr. J. Chen, Dr. S.S. Iyengar
66. Recruitment of Superior Students to the Doctoral Program in Areas of Distributed Sensor Networking at LSU, **Board of Regents** - $92,000 (awarded for four years) , PI's : Dr. S.S.Iyengar, Dr. R. Kannan and Dr. B.J.Karki
65. Doctoral Research and Training in Information Networks for Monitoring, Assessment and Relief Activities for Natural and Man-Made Disasters, GAANN(Graduate Assistance in Areas of National Need) from **United States Department of Education** - $126,675.00 (starting August 2006) , PI's : Dr. E.Triantaphyllou, Co-PI: Dr. S.S.Iyengar.
64. FD-Multi University Research and Training in Information Assurance and Computer Security, **National Science Foundation** - $443,210 (awarded for two years) , PI's : S.S.Iyengar , Co-PI's Dr. P. Chen, Dr. J. Fernandez, Dr. R. Kannan, Dr. S. S. Pang
63. Distributed Sensor Network Design for Efficient Plume Mapping of Chemical, Biological, and Nuclear Radiation Events, **Department of Energy (DOE)**, 193, 913 (awarded for one year 64, 630), August 2005-August 2008 , PI's : S.S.Iyengar, Kannan.
62. MRI:Development of Viz Tangibles and VizNet:Instrumentation for Interactive Vizualization,Simulation,and Collaboration , **National Science Foundation** , 397, 121, September 2005 - September 2008 , PI : Brygg Ullmer , Co-PI's : S.S. Iyengar, Dr. Ed Seidel, Dr. Stephen D. Beck.
61. Research Experiences for Undergraduates Program (REU) - **National Science Foundation**, $6,000,

August 2004 for 1 year. Title of the Project: "Data Distribution and Access in Large Sensor Networks", PI's: Kannan, Co-PI: S.S.Iyengar.

60. Survivable Sensor Networks, **National Science Foundation**, and $200,000, Sept 2003 - July 2006 PI: Kannan, Co-PI: S.S.Iyengar.
59. Control Theory and Internet Implementation of Transport protocols in overlay networks, **DOE-ORNL** (UT-Battelle) Amount: $ 85,561, October 2003-Sept 2004. PI: S.S.Iyengar.
58. Secure Data Distribution and Access in Large Sensor Networks*, **National Science Foundation** - ITR Program, $400,000, Sept 2003 - July 2006, PI: Kannan, Co-PI: S.S.Iyengar.
57. Workshop on "Wireless Networks - Evolution and Trends and Next Generation Optical Networks", funded by **ONR**, $5,000, (Award: N000140310204) at HPC Asia 2002, Bangalore, December 16-19, 2002, PI: S.S.Iyengar.
56. A proposal for American Scientists to participate in 6th International Conference on High Performance Computing in the Asia Pacific Region at Bangalore, Dec 16-19, 2002, $16,000 by **NSF** for 8 scientists, PI: S.S.Iyengar.
55. Enhancing the Quality of Routing (QoR) in Data-Centric Sensor Networks, **DARPA**, $ 40,000, September 15 2002-September 1 2003, PI's: Kannan, S.S. Iyengar and Saranghi.
54. Real Time Distributed Data Mining for Sensor Networks, **National Science Foundation**, $ 34,000, August 2002-July 2003, PI: S.S. Iyengar.
53. Information Technology Training and Academic Enhancement Program for undergraduate students for Computer Science, Mathematics and Engineering, **National Science Foundation**, $ 396,607, January 2003 - January 2006, PI: S.S. Iyengar, Co-PI's :Sandra Mcguire, Frank Neubrander, Connie Stelly, and Eyassu Woldensenbet.
52. Upgrading UNIX Lab for Computer Science Department, LSU, **Student Technology Fee Fund**, $ 87,000, 2002-2003 PI's: E. Khalaf & S.S Iyengar.
51. Biomedical Research Infrastructure Network (BRIN) by **NIH-NLM** for about $ 4.8 million from January 2002 - 2006, PI: E. W. Wischusen, Co-PI's : D. Abegboye, R. Beuerman, E. Doomes, G. Kousoulas, F. Pezold, H. Silverman, G. Winston, and S.S. Iyengar.
50. Next Generation Internet Routing Laboratory, LSU, Student Technology Fee Fund, $105,000, 2001-2002, PI's: Kannan & S.S.Iyengar.
49. Upgrading the Microcomputer Laboratory, LSU Technology Fee Grant, $36,000, 2001-2002, PI's: E. Khalaf & S.S. Iyengar.
48. Reliable Query Reporting in Adaptive Sensor Networks: Analytical Framework and Protocols, $50,000, J June 1-Sept 30, 2001, **DARPA** Agency, PI's: S.S.Iyengar, Kannan and Saranghi.
47. Automated Self-Configuring Surveillance Networks, **DOD**-Multi-disciplinary Research Institute (MURI), $1,000,000 (Jointly with Penn. State University and Cornell University) over a 3-year period, Feb 2001-Feb 2003. (Phoha (PI) and Iyengar (Co-PI)), LSU Part $ 75,000.
46. Multi Resolution Data Fusion using Agent Bearing Sensors in Distributed Sensor Networks, **DARPA** (Sensor/IT Program), $720,000 (Jointly with Duke University and University of Tennessee), July 2000-2003. (PI's: Hairong and K.Chakravarthy), LSU Part $250,000.
45. Templates, Databases and Forums for web-based Instructions in Chemistry and Computing Science, **NSF/JFAP** Program, $25,000, Jan 2000- July 2000, PI: L. Butler, Co-PI's: M. Dick, S.S.Iyengar, R. Hall .
44. Biological Computation and Visualization Center Louisiana Board of Regents Millennium Trust Health Excellence Fund Proposal, LEQSF-**Board of Regents**, $3.85 million dollars over 5 years July 2000 - June 2005. (PI: Harold Silvermann) Other participants are R. Kalia, S.S.Iyengar, Acharya, R. Beuerman, and Harlow.
43. Development of SU/LSU Joint Research and Educational Programs in High Performance Networking, (**JFAP, NSF/LEQSF**) (1999-2000). $460,000. PI: S.S.Iyengar, Co-PI: Dr. Walker.
42. Undergraduate Research Experiences in Composite Material for Petrochemical and offshore applica- tions, **National Science Foundation**, Amount: $473,000, for 3 years starting from June 1999. PI's include Su-Seng Pang, Forest D.Smith, Kurt C.Schulz, Yi. Zhao, and S.S.Iyengar.
41. Fast Global Optimization Technique for Computer Vision and Neural Network Learning, **Department of Energy**-Through Oak Ridge National Laboratory (Operated by Lockheed-Martin Co), Amount: $132,000 April 1997- October 2001, PI: S.S.Iyengar.

40. Next Generation Internet-Related Networking Laboratory at LSU, funded by **LSU-Technology** Fee, $105,000, June 2001- July 2002, PI: S.S.Iyengar.
39. Upgrade of the Microcomputer Laboratory in Computer Science Department at LSU, funded by LSU-Technology Fee, $ 38,000, July 2002-2003, PI's:S.S.Iyengar & Hwang.
38. Distributed Multimedia Laboratory for Advanced Research and Education, LEQSF-Enhancement, July 1997-1998, $80,000, PI: S.S.Iyengar, Co-PI's: Zheng and Sun.
37. Faculty Incentives and Rewards Enhancement, Undergraduate Project, Computer and Information Sciences (FIREUP Computer and Information Sciences), LEQSF-Board of Regents, July 1997-July 1999, $94,675, PI: S.S.Iyengar.
36. Geographical Information Systems, LA. Dept. Of Natural Resources, Oct. 1, 1995 - Jun. 30, 1996, $7000, PI: S.S.Iyengar.
35. High Performance Character Recognition Algorithms, **Department of Energy**, Jan. 96 - Dec. 99 (5 years), $100,000, jointly with Southern University, PI: S.S.Iyengar, Co-PI: Brener.
34. NSF Workshop to Enhance Minority Undergraduate Faculty Education in Robotics and Machine Vision. National Science Foundation, June 19-30, 1995, $25,400, PI: S.S.Iyengar.
33. Development of Database for Sponsored Programs; **NSF**-Laser Sept. 1-June95, $21,000, PI: S.S.Iyengar.
32. Enhancement of the LSU-RRL for the Study of real-time Signal and Image Interpretation Problem, **LEQSF-ENH**, (July 1994-July 1995), $200,000, PI: S.S.Iyengar.
31. Joint investigation for enhancement Grant with High-performance Computing Group. Source of Fund- ing: **LEQSF-ENH** of Regents, Amount: $600,000 funded in June 1993, PI's: R. Kalia, J. Tohline & P. Vashista, Co-PI: S.S.Iyengar.
30. Division of Electronics of the office of Naval Research (**ONR**) Travel Grant to Indo-US Workshop on Distributed Signal/Image Integration Problems, Dec 1993.$2500, PI: S.S.Iyengar.
29. Wavelet Based Fault Tolerant Integration and Target Recognition in Multidimensional Sensor/Signal Processing, Division of Electronics of the office of Naval Research (**ONR**), $290,606, Jan 1994 -Dec 1996, PI: S.S.Iyengar, Co-PI: Jones.
28. Predictive Intelligence Military Tactical Analysis System (PIMTAS), **U.S. Army Research office**, $180,000, October 1, 1993 - 1996, PI: S.S.Iyengar, Co-PI: N.Brener.
27. Advances in Multi-Sensor Integration, Jet Propulsion Laboratory (JPL) - **Caltech**, $60,000, August 1, 1993 - 1995, PI: S.S.Iyengar.
26. Career Oriented Research Workshops in Computer Science for undergraduates, National Science Foundation **NSF** (LaSER) program, $59,000, for 1993 - 95, PI: S.S.Iyengar, Co-PI: Hinds.
25. NSF Travel Grant to present a paper at the Informatics Conference, Bangalore, India, August 10-12, 1991, $2500, PI: S.S.Iyengar.
24. Enhancement of the LSU Robotics Research Laboratory for the study of Advanced Computer Vision and Perception, LEQSF-ENH-25 (1991-1992), $230,000. PI: S.S.Iyengar, Co-PI: Harlow.
23. A General Theory of Signal Integration for Fault-Tolerant Dynamic Distributed Sensor Networks, Division of Electronics of the office of Naval Research (**ONR**), $291,000, Dec. 1990 - Nov. 1993. PI: S.S.Iyengar, Co-PI: Jones.
22. An Integrated Feature Labeling Software Structure for Oceanographic Satellite Images, Department of Navy, for a grant of $189,000, contract: N00014-88-K6002, Dec. 1991 - May 1994, PI: S.S.Iyengar.
21. NSF- LASER Distinguished Lecture Series Program, for a grant of $5000, contract: LEQSF-RD-A-04, June 1990 - June 1991, PI: S.S.Iyengar.
20. Fault-Tolerant Distributed Sensor Network Structures, for a grant of $58,302, supported by LEQSF, contract: LEQSF-RD-A-04, June 1990 - June 1992, PI: S.S.Iyengar.
19. Co-PI for a grant of $890,000, for Parallel Computing Laboratory (Connection Machine) Supported by LEQSF Grant, PI's: Joe Tohline and Jerry Drayyer.
18. A study on Intelligent control of HERMIES III using APS in real time Environment, Department of Energy through Oak Ridge National Laboratory, contract : 19X - 55902V, $32,198, Jan 1, 1990 - Sept. 30, 1990, PI: S.S.Iyengar.
17. Equipment proposal from Apple Corporation for four MAC-II systems, Laser Printer and Ethernet Interfaces for the Robotics Laboratory, $20,000. (1988) PI: S.S Iyengar.
16. Asynchronous Production Systems for Intelligent Control of a Mobile Robot, Department of Energy through Oak Ridge National Laboratory (Martin Marietta), Contract: 19X-55902V, $38,540, October 1988 -

September 1989, PI: S.S.Iyengar.

15. Development and Implementation of HERMIES III Robot Simulator Program With An APS Expert System on the ORNL SILICON GRAPHICS TERMINAL, Contract: DE-AC05-840R21400 with Oak Ridge National Lab Operated by Martin Marietta, June 1989, $33,350, PI: S.S.Iyengar.
14. Asynchronous Parallel Algorithms for Nonlinear Neural Networks with Jet Propulsion Lab. - CAL- TECH, contract: 958309, $30,000. April 1988 - October 1988, PI: S.S.Iyengar.
13. A Feature Labeling Algorithm for Oceanographic Satellite Images with Department of Navy, Contract: N00014-88-K6002, $127,500, March 1988 - December 1991, PI: S.S.Iyengar.
12. MINER: An Expert System for Mineral Resource Development, Center for Energy Studies, $8,500, August 1983 - July 1984, PI: S.S.Iyengar, Co-PI: Miller.
11. MINER: An Expert System for Mineral Resource Development, Center for Energy Studies, $3,200, June 1982 - June 1983, PI: S.S.Iyengar, Co-PI: Miller.
10. Load Balancing using Neural Networks in Hypercube Machines, Oak Ridge National Laboratory, con- tract 19X-55902V, $10,000, October 1987 - January 1988, PI: S.S.Iyengar.
9. LSU Foundation Travel Fund, to present a research paper at the 3rd World Congress on Medical Informatics, France, May 1980, PI: S.S.Iyengar.
8. Robot Navigation Algorithms Using Learned Spatial Graphs, Department of Energy, ORAU program, Faculty Summer Research Award, $10,600, June 1985 - August 1985, PI: S.S.Iyengar.
7. Database Interfaces to Distributed Heterogeneous System, National Aeronautics and Space Adminis- tration, $30,000, Contract :NAG5-540, May 1985 - May 1986, PI: S.S.Iyengar.
6. Design and Analysis of View Integration Constraint Realization and Interface Modules for DAVID System, National Aeronautics and Space Administration, $30,000, Contract: NAG5-540, July 14, 1986 - July 30, 1987, PI: S.S.Iyengar.
5. Neural Networks for Hypercube Load Balancing, Department of Energy through Oak Ridge National Laboratory, contract 19X-55902V, $25,000, June 1, 1987 - October 30, 1987, PI: S.S.Iyengar.
4. Development of a Brain-like Computer Architecture for a Mobile Robot, US Department of Energy under contract Number DE-AC05-84OR21400 with Oak Ridge National Laboratory, $43,000 October 1987 - Sept 1988, PI: S.S.Iyengar.
3. Time Dependent Robot Navigation: I. Issues and Problems, Department of Energy through Oak Ridge National Laboratory, contract 19X-55902V, $21,422, October 1, 1986 - May 30, 1987, PI: S.S.Iyengar.
2. Implementation of Autonomous Robot Navigation on HERMIES-II, Department of Energy through Oak Ridge National Laboratory, $20,000, contract: 19X 55902V, June 1, 1986 - September 30, 1986, PI: S.S.Iyengar.
1. DAVID (Distributed Heterogeneous Database) System Interface with Astrophysical Data Sets, National Aeronautics and Space Administration, $25,000, contract NAG5-540, Sept 2, 1985- July 1988, PI: S.S.Iyengar.

Educational Grants - Board of Regents (LEQSF)

14. Recruitment of Ph.D. Students in Computer Science, S.S.Iyengar and D. Kraft, LEQSF-Board of Regents, 2003-2007, $72,000.
13. Recruitment of Ph.D. Students in Computer Science, S.S.Iyengar and D. Kraft, LEQSF-Board of Regents, 2001-2003, $64,000.
12. Recruitment of Superior Graduate Students in Computer Science, S.S.Iyengar and Dr. Carver, LEQSF, $136,000, 2001-2006.
11. Recruitment of Superior Graduate Students in Computer Science, S.S.Iyengar and Dr. Carver, LEQSF, $136,000, 2000-2005.
10. Recruitment of Superior Graduate Students in Computer Science, S.S.Iyengar and Dr. Carver, LEQSF, $136,000, 1999-2004.
9. Recruitment of Superior Graduate Students in Computer Science, S.S.Iyengar and Dr. Carver, LEQSF, $136,000, 1998-2003.
8. Recruitment of Superior Graduate Students in Computer Science, S.S Iyengar, LEQSF, $64,000, 1997- 2002.
7. Recruitment of Ph.D. Students in Computer Science, S.S.Iyengar and D. Carver, LEQSF-Board of Regents, 1997-2000, $64,000.

6. Recruitment of Ph.D. students in Computer Science Program 1996-1999, $128,000.
5. Recruitment of Superior Graduate Students in Computer Science, S.S. Iyengar, LEQSF, $128,000, 1996-2001.
4. Recruitment of Ph.D. students in Computer Science Program – S.S Iyengar & D. Carver. Source of Funding: LEQSF-Board of Regents, Amount: $128,000 funded in 1995-1998.
3. Recruitment of Superior Graduate Students in Computer Science, S.S. Iyengar, LEQSF, $128,000, 1995-2000.
2. Recruitment of Superior Graduate Students in Computer Science, S.S. Iyengar and Dr. Carver, LEQSF, $128,000, 1994-1999.
1. Recruitment of Ph.D. students in Computer Science Program – S.S Iyengar & D. Carver. Source of Funding: LEQSF-Board of Regents, Amount: $120,000 funded for 1993-1996.

TEACHING PHILOSOPHY

The issues in the arena of computer science are not the same as they were in the past or as they are in other arenas. Never before, in the history of engineering and sciences, has the progression of one discipline impacted human activities so deeply and profoundly as the discipline of computer science. With the inception of the computer era and with the advances in Computer Technology and software development, the term "computer literacy" has become the most legendary phrase ever used in the history of learning. This makes computer science a unique arena, and requires an entirely new approach to teaching in computer science.

I strongly believe that teaching and research are inseparable. In part, I believe that superior teaching enhances the process of quality research. Quality research promotes the concept of innovation in the process of teaching and adds new dimensions to the process of learning. Never before, during my academic life of more than twenty years, have I believed, so profoundly, that teaching and research are so inter-dependent, that one would not proceed without the other. Moreover, an innovative instructional approach essentially induces the principles of meaningful research and contributes to its enhancement.

Teaching and research are integral parts of the learning process. My central theme in teaching is to pro- mote high quality instructional standards that are instrumental for students to improve their creativity and orientation toward research. As an instructor, my goals are to prepare students to think in a logical way to address the real computational problems, to inculcate in them the spirit of creative thinking, to enable them to develop a good insight so as to follow a strong research pursuit, and to provide them an infrastructure of learning techniques. I value undergraduate training no less than Graduate. In fact, sound undergraduate teaching is vitally important and should not be regarded as unproductive. It is the undergraduate curricu- lum that provides the very foundation of the potential graduate studies. This is the stage where creativity and imagination can well be observed in the students in its early form for this reason, I chose to teach undergraduate courses and developed undergraduate research programs for students of LSU during early 1980's.

A very important part of my teaching is preparation of class notes that are comprehensive as well as illustra- tive. I prepare these notes using the research papers collected from various refereed sources. These notes are of great help in propagating my thoughts on recent developments in computer science among the students. During class time teaching, I actively look forward to feedback from the students and allow ample time for discussion. This serves remarkably in establishing communication links not only between the students and me, but also among the students themselves. My paradigm of teaching follows:

Building Block Approach in Lecturing:

- Explanations reinforced with numerous concrete examples to help students grasp the fundamental concepts.
- I assume that the student's background in Computer Science includes only college algebra and discrete structures. All necessary details like programming techniques and algorithmic skills are reviewed during the course. Organization is by application rather than technique, so that students can establish a repertoire of methods for solving problems.
- Quizzes and small graphical experiments are embedded in an instructional narration, along with larger experiments and simulations as needed. Multimedia electronic presentations help a student round out his understanding of an area.

My teaching philosophy includes combining deep mathematical insights into algorithmic foundations with an equally extensive view of practical issues. With this in mind, I design the curriculum so that the learning process itself is appealing to the student. Computer based expositions are combined with video, text, graphics and speech. In my class, research papers and ongoing research projects are used as classroom material for study and discussion. The class materials and seminar discussions have formed the basis of my books, book chapters and articles.

Exceptional Contributions to the Instructional Program

- Fellows of Excellence Award in Undergraduate Instruction for Computer and Information Science Faculty June 1997 - Dec 1999 (Sponsored by Board of Regents- Louisiana). During the years (97-99), Professor Iyengar served as the director of a statewide project called "Fellows of Excellence Award in Undergraduate Instruction for Computer and Information Science Faculty."

  - In 1996 Professor Iyengar directed a program called "CAREER Oriented Research Workshops for Computer Science Undergraduates." This program was supported by NSF-EPSCOR with a budget of $58,000. This program encouraged beginning undergraduate students from Southern University (the largest Historically Black university in the U.S.A.) and LSU (both are in Baton Rouge, LA) to pursue careers in the field of computer science. Selected students from both institutions were exposed to research projects of national importance at LSU's Robotics Research Laboratory in the Computer Science Department. Students who participated in this program have been able to go to graduate schools across the country.

- Research Experiences for undergraduates (NSF-REU) - Dr.Iyengar (Co-PI) jointly with Dr.Pang-PI, Dr. Stubblefield (Co-PI)-SU, and Dr.Smith (Co-PI) developed a very comprehensive Research program for undergraduate students funded by the National Science Foundation. Dr. Iyengar is currently advising/supporting (with Dr. Su-Seng Pang) at least thirty minority Engineering and Science students per year through his research and educational grants funded by NSF/REU Program ($ 264,000 for 1999- 2001). The focus has been in the area of application of High Performance algorithms for materials science research. More importantly, most selected students have indicated their intention to go to Graduate school.

  - Dr. Iyengar is a lead PI, Dr.Kraft and Dr. Carver (Co-PI's) of a project titled "Recruitment of Superior Graduate Students to the Doctoral Program in Computer Science at LSU". This is funded by the Board of Regents (LEQSF) of the State of LA with over $1 million during the last ten years (1991- 2002). This program was critical in attracting many top caliber students to the Ph.D. in Computer Science Program. Dr. Iyengar has been successful in recruiting several superior graduate students to the Doctoral Program in Computer Science at LSU, through the use of LEQSF fellowships.

  - Dr. Iyengar jointly with Dr. Butler, Dr. Miller, Dr. Diack, Dr. Moore, Dr. Hall and Dr. Walker have an approved grant proposal (JFAP Science Education Program) titled "Templates, Databases, and Forums for Web-Based Instruction in Chemistry and Computer Science" which seeks to address an efficient way to instruct students and to use peer-instruction components, using web-based technologies. This new approved proposal ($25,000) would start in January 2000.

  - Information technology in the twenty-first century will utilize the grid of geographically distributed supercomputing, database and visualization resources connected via high-speed networks. Pervasive (from any place in the world at any time) access to these shared resources will create collaborative environments, in which people across both geographical and discipline boundaries jointly perform tasks that are otherwise impossible. Resulting virtual communities will change many aspects of our life. Dr. Iyengar and Dr. Nakano have proposed the establishment of an Internet Collaboration Hub for Students (ICHS) that will allow LSU students in a wide variety of disciplines to acquire Collaborative Internet literacy-the ability to access, analyze, evaluate and produce Internet Communication in a variety of forms. Students will create active shared contents: Web-Based Video Conferencing, Global Team Work, Multi-Media Software and Shared Virtual Reality. ($100,000 has been requested).

  - Graduates of Dr. Iyengar have been employed by distinguished research institutions including the University of Pittsburgh, NASA's Jet Propulsion Laboratory, IBM Research Laboratories, Hewlett Packard, Digital Equipment Corporation and others.

  - This proven Track record will make it easier to attract superior quality students from the state to join the LSU Computer Science graduate programs and specialize in High Performance Computing, Software Engi-

neering, Robotics and Machine Vision, Distributed and Parallel Systems, Artificial Intelligence, Database Systems, Information Retrieval, Information Systems, Programming Language Design and VLSI and Graph Algorithms, to name a few. Special Laboratories have been set up for High Performance Computing, Software Engineering, Robotics and Machine Vision.

PART-C

Leadership

Ryder Professor and Director

School of Computing and Information Sciences at Florida International University (Aug 2011 - present). Since becoming Director of the School of Computing and Information Sciences (SCIS) at FIU, I have fo- cused my efforts on enhancing the profile of our School, increasing research collaborations with high-impact partners, and establishing laboratories that nurture hands-on education and technology transfer.

To enhance the profile of our School, I established the Citrix Lecture Series at FIU SCIS. This series of high-profile speakers, including several members of the National Academies, drew hundreds of participants. Speakers included Jack Dongarra (University of Tennessee), Moshe Vardi (Rice University), Mary Fanett Wheeler (University of Texas, Austin), Vince McKoy (California Institute of Technology), and Edward Seidel (National Science Foundation). This lecture series was followed by the 25th Anniversary Celebration of FIU SCIS which included lectures by Jeff Ullman (Stanford University), Wenliang Du (Syracuse University), C.V. Ramamoorthy (UC Berkeley), James O'Brien (UC Berkeley), and Bjarne Stroustrup (Texas A&M).

To increase research collaborations with high-impact partners, I have led the establishment of several new collaborations:

- FIU SCIS has become a member of the Air Force Research Laboratory's Information Institute. The Information Institute is a virtual organization that is embodied by a consortium of universities that perform research in areas of information technology that are of interest to the AFRL's Information Directorate.
- We have exchanged delegation visits with the Institute for Human and Machine Cognition and have begun research collaborations in the areas of robotics, artificial intelligence, disaster response, and broadening participation with IHMC scientists.
- We have ignited research collaborations to set up a doctoral consortium in collaboration with Brazil. The doctoral consortium will consist of joint research teams with faculty and graduate students from both US and Brazil conducting research in the area of Future Internet Architecture (FIA). The goal of the doctoral consortium is to create a mechanism to stimulate high-impact research collaborations between US and Brazil, and to align US and Brazil FIA research and development activities.

Founding director of the FIU Discovery Lab which is aimed at developing products for the marketplace. At the same time, the laboratory provides students with the hands-on experiences they need to solve real-world challenges, develops student-led research opportunities, fosters students' entrepreneurial skills, and trains a new generation of IT professionals who reflect the diversity of South Florida. The Discovery Lab, funded in part by a generous donation from State Farm, is working in several areas to fulfill its mission of pipelining academic research to commercialization:

- Hosting National Robotics Week events for the local community
- Hosting a Robotics Summer Camp for Middle and High School students
- Pursuing a telepresence project for disabled veterans and police, which has been spotlighted around the world - Yahoo news, MSNBC technews, Cnet nets, Deccan Herald (India), Nate News (South Korea), etc.

I have begun establishing a culture of technology transfer and commercialization:

- With my colleagues at Nulogix, I have received a Florida Innovation Award for our device which is invented with an innovative technology that enables a person to see changes in intra ocular pressure (IOP) when he

looks at his eye in the mirror. The purpose of this invention is to ensure that glaucoma's silent damage is detected as early as possible, well ahead of any damage.

- As President for Technology of Noetic Nexus, I am mentoring the company's scientists in the areas of intellectual property management systems, Google map integration, and portals.
- I have created the Cognitive Information Management (CIM) Shell software technology, featured in IEEE Computer, in collaboration with Dr. Supratik Mukhopadhyay of Louisiana State University.
- I am working with a group of researchers at the University of Texas Southwestern Medical Center in the area of lung cancer treatment on research that will lead to much more accurate treatment of such cancers.
- Improved the NSF 8 Broad Categories in S&E ranking of FIU-SCIS to 45 in 2016.
- Established an infrastructure jointly with the College of Architecture titled "ICAVE", a new virtual reality system at FIU, 2016.
- We established the FIU Tech-Station which is a $3 million, 8,000 sq. ft hub for technology innovation, training and community engagement built to attract the next generation of top computing students.in Aug. 2015.

Founding Director of Cybersecurity Research and Development Program: Cyber Infrastructure Education and Research for Trust and Assurance (2013). Established a Master's Program in Cybersecurity (Fall 2014).

Professor and Chairman

Department of Computer Sciences at Louisiana State University (July 1992- Aug 2011).

As Chairman of the Computer Science Department at LSU, I was part of a highly successful research group jointly with the Department of Physics and Astronomy. During my tenure as chair, the department placed major emphasis upon the establishment of strong research laboratories in the areas of Intelligent Systems, Software Engineering, and Concurrent Computing Laboratory for Material Simulation.

In connection with this effort, we developed very successful research computing proposals, which resulted in a well-equipped computing facility comprised of several high performance parallel computers. The total Equipment holdings at this time is around 3 million dollars. This is state of the art computing providing leadership in Concurrent Computing Laboratory for Material Simulation. This effort of interdisciplinary focus has made us a strong department in terms of publication and external funding.

In addition, recruitment of outstanding faculty in areas of national importance (High Performance Computing in the context of Information Technology Networking) was a high priority. As chair, I successfully recruited three junior faculties including Dr. A.Nakano, who was subsequently named NSF Career Award Recipient. I also had a proposal funded from NSF-EPSCOR to hire joint-faculty from both Louisiana State University and Southern University. This effort has resulted in hiring outstanding faculty who can successfully bridge programs with minority schools. In short, I am committed to diversity among the faculty and staff, high quality undergraduate and graduate education, and high performance standards in all academic areas.

NRC Ranking

Louisiana State University's Computer Science PhD program has been placed in the top 30 programs in the United States by the The National Research Council (NRC) in their recently released rankings. Subject matter experts ranked 126 computer science departments based on twenty characteristics, including research activity, student involvement and diversity. These raw scores were aggregated via two different models to provide a regression-based R-ranking and a survey-based S-ranking. Innovatively, the NRC has not assigned serial ranks this year. Instead, they have given each university a probabilistic rank, reported as 5 percentile and 95 percentile ranges, rather than one fixed number.

This reflects significant progress from our last NRC ranking of 76.

LSU's flagship agenda has catalyzed research activity and teaching excellence in the computer science de- partment by allowing us to strategically hire promising new faculty and attract doctoral students of higher caliber.

LSU's computer science department has ranked remarkably well across all of NRC's criteria. Our R-rank range is 19-39, which means that out of all different rankings generated, 5% of rankings placed LSU-CS in the top 19 and 95% of them placed LSU-CS in the top 39 programs in the USA. Similarly, our S-rank range was 13-49. While this does not directly give us a conventional rank, if we sort all the departments on any of the aggregating criteria, LSU computer science ranks in the top 30 of 126 programs in the United States. This accomplishment highlights the dramatically increased quality of the department's faculty as well as doctoral students

Professor and Chairman

Department of Computer Sciences at Louisiana State University (July 1992- Aug 2011).

- A recent computer science program ranking put LSU's program thirty-first in the country, based on how often the LSU faculty was cited in peer-reviewed journals. The URL of universities rankings is http://www.vanderbilt.edu/AnS/history/graham/Computer Science Data.html.
- Developed a 1998 strategic plan: This strategic plan envisions a great opportunity for the Department of Computer Science at LSU to catapult itself to the top of the nation, since the enabling technologies for the new paradigms are high performance computing, communications, intelligent systems and software development, and the Department has recently established research and educational programs in these areas for details see the enclosed information for strategic planning.
- Initiated several NSF proposals currently under review for graduate education and training with other departments in the area of data mining and parallel computing.
- Brought a new vision to the department in attracting faculty members of worldwide reputation.
- Undergraduate research in the department has flourished as a result of Iyengar's personal efforts.
- Experience for undergraduate (NSF-REU) program, enhances our undergraduate program.
- Dr. Iyengar's contributions to the department's teaching efforts have been exceptional.
- Mentored a faculty member to get a career award from NSF.
- Director of the High School Programming Contest to recruit top high school students for the Depart- ment of Computer Science.
- Served as an Advisory Committee member for the Computer Science Department of University of Arkansas, IEEE Computer Society Fellow Nomination Board and other several International Conferences.
- External reviewer for Ph.D. programs in other universities across the country and the world.
- Professor Iyengar has been selected as a member for the Public Higher Education of the Navy Higher Education Consortium Council, which oversees DOD funding for Information Technology Centers in Louisiana.
- Celebrated the 25th Anniversary of the Computer Science Department. Many distinguished professors (Cornell, Berkeley, CMU, Purdue, etc.) visited the department to celebrate the success of the computer science department.

Dr.Iyengar initiated Distinguished Seminar Program in Computer Science Department funded by the Board of Regents, NSF- and Industries Distinguished professors regularly visit the Computer Science Department from all round the world. The computer science department jointly with Concurrent Computing Laboratory for Materials Simulation (Physics and Astronomy) has hosted, each spring since 1993, the Mardi Gras Conference for High Performance Computing and Communication, and many researchers have gathered and exchanged invaluable knowledge in the area of material science.

Dr. Iyengar has developed Collaborative ties with other universities, private industry and national facilities The department is part of a Multi-Institute Research Collaboration that includes uni- versities and laboratories in

12 states across the nation, including the Jet Propulsion Laboratory, Los Alamos National Laboratory, Harvard and Purdue University, to name a few.

Dr. Iyengar was able to foster interdisciplinary research and develop an interdisciplinary pro- grams An understanding of the future of computer science is dependent on interdisciplinary programs and interdisciplinary efforts at a critical point and must be fostered for a bright success. Dr.Iyengar was an early proponent of inclusion of topics on High Performance Computation in Computer Science, and led this adoption to LSU curricula for joint faculty/student participation from minority institutions.

Dr. Iyengar has undertaken Workshops to provide Excellence to Undergraduates, Minorities and High School Students

We host a series of NSF workshops and LEQFS-Board of Regents workshops to train faculty from different minority institutions. Also we host the High School Programming Contest every year to encourage healthy competition and provide a forum for excellence outside the classrooms.

Dr. Iyengar's, ACM - LSU Student Chapter of the Association for Computing Machinery

Businessmen and recruiters are invited as guest speakers, to tour area computing facilities, and to volunteer their time through tutoring. It is all done at an Annual spring crawfish boil party. Generally, a good media of understanding is generated between the faculty and fellow computer science students that are a very healthy prospect.

DISTINGUISHED NATIONAL LECTURER

- Society for Industrial and Applied Mathematics (SIAM) Distinguished Visiting Lecturer, 2000-02.
- Institute of Electrical and Electronics Engineering (IEEE) Distinguished Lecturer (under distinguished visitors program), 1995-1998.
- ACM National Distinguished Lecturer, (1986 - 1995): Association for Computing Machinery selects a distinguished group of computer scientists across the country as national lecturers. This is a dis- tinguished program for professors to visit student chapters of ACM for seminar presentations. Dr. Iyengar has been the part of this lecture program and gave lectures at over 50 ACM Student Chapters across the country and the world.

PROFESSIONAL SERVICES AND DISTINCTIONS

- Charter Member, IEEE National Computer Society's Golden Core, 2000.
- IEEE National Computer Society Meritorious Service Award, 2000.
- Selected as a Reviewer of Board of Regents of South Carolina Educational Program to review Computer Science programs in South Carolina, October 2000.
- Certificate of Distinction to Professor S.S.Iyengar by The Institution of Engineers (India), 1999.
- Certificate of Appreciation from IEEE National Computer Society, (Fall 1999) for having served on IEEE Fellows Committee.
- Member of the Navy Higher Education Consortium Council for Navy Information Technology Center University of New Orleans (1998-99).
- National Research Council Review Panel, "Collaboration in Basic Sciences and Energy", 1996.
- Member of the NASA Review Panel on Intelligent Robots, 1996.
- Member of NY Academy of Sciences, 1996.
- NSF Review Panel member on Intelligent Control Projects, 1992.
- NSF Workshop on Visual Information Management System, San Francisco, February 24 - 26, 1992.
- National Science Foundation review panel, 1990-present.
- Phi Delta Kappa Certificate of Recognition, 1989.

- Member of the Research Group of the Oak Ridge National Laboratory, 1985-Present.

BIOGRAPHY LISTINGS

- Listed in the Dictionary of Leading Americans, The American Biographical Institute, Cambridge, UK, December 1999.
- Included in Who's Who of Southwest, (1980), Marquis Publication USA.

PROFESSIONAL EXPERIENCES

- August 26, 2011 - Present - Ryder Professor & Director, School of Computing and Information Sciences, Florida International University, Miami, USA
- July 1,1992 - August 25, 2011- Roy Paul Daniel's Professor & Chairman, Department of Computer Science, Louisiana State University, Louisiana, USA
- Visiting Homi Bhabha Distinguished Professor at Indira Gandhi Center of Atomic Research, Kalpakkam, India (Dec 2007 and July 2008).
- Visiting Chaired Professorship, Dept of Computer and Communication Engineering, Asia University, Taichung, Taiwan. (Aug 2006 - July 31st, 2007).
- 2004 - 2011, Co-Director, Louisiana Biomedical Research Network (LBRN) Bioinformatics Core, Department of Computer Science, Louisiana State University.
- Visiting Satish Dhawan Chaired Professor, Indian Institute of Science, Bangalore, India (2003 - 2006).
- May 2 - May 12, Visiting Professor, University of Kuwait, 2002.
- Feb. 19 - March 7, 1993, Visiting Professor, Department of Computer Science, Universite Paris VII, France, Host: Professor A. Saoudi.
- July 1, 1991 - 1992, Professor and Interim Chairman, Department of Computer Science, Louisiana State University, Baton Rouge, Louisiana.
- June 15 - August 23, 1990, NASA Summer Faculty Fellow, Division of Automated Systems at Jet Propulsion Laboratory, California Institute of Technology.
- August 1987 - 2011, Professor of Computer Science, Director - Robotics Research Lab, Louisiana State University, Baton Rouge.
- July 15 - July 25,1988, Visiting Faculty, Robotics and Artificial Intelligence Group, CESAR Division, Oak Ridge National Laboratory, Oak Ridge, TN.
- June - July 1987, Visiting Faculty, Robotics and Artificial Intelligence Group, CESAR Division, Oak Ridge National Laboratory, Oak Ridge, TN.
- June - July 1986, Visiting Faculty, Robotics and Artificial Intelligence Group, CESAR Division, Oak Ridge National Laboratory, Oak Ridge, TN.
- June - August 1985, Oak Ridge Associated Universities program visiting faculty, Robotics and Artificial Intelligence Group, CESAR Division, Oak Ridge National Laboratory.
- May - August 1984, Visiting Professor, School of Computer Science and Automation, Indian Institute of Science, Bangalore, India.
- August 1983 - July 1987, Associate Professor, Dept. of Computer Science, Louisiana State University.
- January 1980 - August 1983, Assistant Professor, Dept. of Computer Science, Louisiana State Univer- sity.
- August 1977 - December 1980, Associate Professor, Dept. of Computer Science, Jackson State Univer- sity.
- May 18 - May 28, 1977, Department of Informatics, University of Bonn, Germany.
- Jun. 1974 - August 1977, Assistant Professor of Computer Science, Jackson State University.
- Technical Consultant: Jet Propulsion Laboratory-Caltech (1991), Naval Research Lab (1996), Duke University (2002-2003), South Carolina Commission on Higher Education (2003), Ministry of Education - UAE (2002-2004).

PROFESSIONAL AND SCHOLARLY ACTIVITIES

- Conference Chair for the IASTED International Symposium on Distributed Sensor Networks (DSN 2008), November 16-18, 2008, Orlando, Florida.
- Advisory and Program Committee of the Second IEEE International Workshop on Heterogeneous

Wireless Sensor Networks (HWISE2006) , 2006

- Program Co-Chair at IEEE International Conference on Sensor Networks, Ubiquitous, and Trustworthy Computing (SUTC2006), June 5-7, 2006 Taichung, Taiwan
- Program Chair at International Conference on "Agility, Design & Manufacturing Summit, December 11-13, 2005, Bangalore, India.
- Program Co-Chair at Third International Conference on Innovative Applications of Information Tech- nology for the Developing World (AACC-2005), Kathmandu, December 10-12, 2005, Nepal
- Advisory Board Member and Conference Co-Chair in the upcoming symposium on Innovations and Commercial Applications of Distributed Sensor Networks, October 18 - 19, 2005, Bethesda, MD, USA
- Advisory and Technical Committee member in the workshop, First International Workshop on Het- erogeneous Wireless Sensor and Actor Networks (HWISE 2005) July, 2005, Japan.
- Program Committee Member of the Second Workshop on High Performance Grid Computing (HGPC '05), April, 2005, Denver, Colorado.
- Co Program Chairman of the Advanced Computational and Communications, December, 2004, Ah- madabad, India.
- Member of the Technical Program Committee for the 2nd International Workshop on Information Processing in Sensor Networks (IPSN03), Palo Alto, California, April, 2003.
- Member of the National Research Council (NRC) Review Panel in Basic Sciences and Engineering, August 2001-2003.
- Technical Program Co. Chairs, 6th International Conference on High Performance Computing in Asia Pacific Region - 2002, December, Bangalore India.
- Member of the Program Committee of the Sixth International Symposium on Parallel Architectures, Algorithms and Networks, May, 2002, Manila, Philippines.
- Member of the IEEE Fellows Reviews Committee for reviewing IEEE Fellow nominations, 1998-2001.
- Special Session Chairman on Distributed Sensor Networks at the International Conference on FUSION, August 2001, Montreal, Canada.
- Program Chairman of Advanced Computing and Communication (ADCOM) Conference, Bhuvanesh- war, December 2001, India
- ACM-IEEE Computer Science Accreditation Board for program review in Computer Science in US and all over the world, July 2001-2011.
- Technical Advisor of Manipal International Institute of Information Technology, Bangalore, India, Fall 2000.
- Member of the 8th International Conference on Advanced Computing and Communications, December 2000, Cochin, India.
- External Review Board Member for Canadian National Medal for Science and Technology, 2000.
- Founding member of the Karnataka Information Technology Task Force on higher education, 1999- 2000, India.
- Technical Advisor to InfoPike Corporation, a software consulting co. in Raleigh, NC, 1999-Present2011.
- Technical Advisor to Metalogic Inc. Hyderabad, India, 1999-2011.
- Member of the IEEE National Computer Society Awards Committee, 1998-2003.
- Member of the Advisory board for the Department of Computer Science of the University of Arkansas, Fayetteville (June, 1996-1998).
- Public Higher Education member of the Navy Higher Education Consortium Council, 2000.
- Member of the International Conference on Information System Analysis and Synthesis (ISAS 98) Orlando, Florida July -August 1999.
- Distinguished Experts on a two-day National Workshop on "Distributed Problem Solving using Multi Robot Cooperation in Agile Manufacturing," July 1997 sponsored by the Institution of Engineers, Bangalore, India.
- Member of the Program Committee: 4th International Conference on High Performance Computing, December, 1997 Bangalore, India.
- Member of the Program Committee: 10th International Conference on Parallel and Distributed Com- puting Systems, New Orleans, Louisiana, September, 1997.
- Member of the Program Committee and Keynote speaker at SPIE - International Society for Optical Engineering's Conference on Sensor Fusion, Orlando, Florida, April, 1997.
- Member of the Third International Conference on High Performance Computing, Trivandrum, India, December, 1996.

- Member of the Program Committee: SPIE's Proceedings on Multimedia Storage and Archiving Sys- tems, November, 1996.
- Member of the Program Committee: SPIE's 11th Annual International Symposium on Aerospace, Mariott's Orlando World Center Resort and Convention Center, Orlando, Florida, April, 1996.
- Member of the Second International Conference on High Performance Computing, Delhi, India, De- cember, 1995.
- Vice-Chairman of the 1995 International Conference on Tools with Artificial Intelligence, Washington D.C., November 1995.
- Program Committee Member for SPIE's 1995 Symposium on Information, Communication and Com- puter Technology, Application and Systems, Philadelphia, October 1995.
- Program Committee member at the First International Workshop on Parallel Processing, Bangalore, India, during December, 1994.
- Program Committee member at the Seventh International Conference on Parallel and Distributed Computing Systems, October, 1994.
- Program Chairman on Indo-US Workshop on Parallel and Distributed Signal and Image Integration Problems, December, 1993.
- Member of the Advisory Committee at the 2nd Gauss Symposium, International Conference on Med- ical, Mathematics and Physics, Munich, Germany, August, 1993.
- The Chairman for technical Papers in Parallel Algorithms and Distributed Computing in International Conference, (France and Germany), 1993 - 1994, Frankfurt and Paris.
- Prestigious NIH-Library of Medicine Review Panel Member on Image Databases, at Yale University Medical School, December, 1992.
- Program Committee Member for the Fifth International Parallel Processing Symposium, April 30-May 2, 1991.
- Program Committee Member for an International Conference on Artificial Neural Networks in Engi- neering, November, 1991, St. Louis, Missouri.
- Program Committee Member of the Workshop on Strategic Directions in Computational Robotics: Symbolic, Algorithmic and Neuromorphic, May 1990. (Sponsored by IEEE Robotics and Automation Society).
- Program Committee Member of the Second International Conference on Industrial and Engineering Applications of Artificial Intelligence and Expert Systems, 1989, St. Louis, Missouri.
- Program Committee Member of Second International Conference on Artificial Intelligence and Appli- cations, December 1985, Miami, Florida (Sponsored by IEEE).
- Session Chair for ORSA/TIMS conference, New York City, October, 1989. Theme of the Session: Optimization Problems in Autonomous Intelligent Machines.
- Program Chairman for a Conference on Empirical Studies of Programs, June, 1986; Co-program Chair- man, Ben Shneiderman, University of Maryland; Conference Chairman, Elliot Soloway, Yale University.
- Member of the Panel of Judges for the best paper award in the Annual Computer Simulation Sympo- sium, Tampa, Florida 1976.
- Member of the panel of judges for the best paper award in the Annual Computer Simulation Sympo- sium, Tampa, Florida, 1976.

INVITED LECTURES

- Invited Workshop/Speaker at IEEE Symposium on Computers and Communications (ISCC'09) on July 5-8, 2009 in Sousse, Tunisia Topic: " Distributed Source Coding for Sensor Data Model and Estimation of Sensor Errors Using K- Near Neighborhood Classifiers in Deployment of Dense Wireless Sensor Networks".
- Invited Workshop/Speaker at International Conference of Contemporary Computing to be held on Aug 7-9, 2008 in Noida, Delhi. Topic: " A NEW CLASS OF COMPUTATION FOR DISTRIBUTED SENSOR NETWORKS ".
- Invited Speaker at The IEEE International Conference on Sensor Networks, Ubiquitous, and Trust- worthy Computing at Taichung, Taiwan from June 11-13, 2008.
- Invited speaker at the International Conference on Contemporary Computing at Noida, India from Aug. 7-9, 2008.
- Invited speaker at the Boeing IEEE Advanced Technology Conference at Seattle, Washington on April 12, 2007.

- Visiting Chaired Professorship, Dept of Computer and Communication Engineering, Asia University, Taichung, Taiwan. (Aug 2006 - July 31st, 2007). Talk on Distributed Sensor Networks from Dec 10th - Dec 16th, 2006.
- Invited speaker at the University of Texas Health Science Center at Houston, "A Grouping Algorithm for Clustering of Similar Protein Folding Units" April 19, 2006, Houston, TX
- IDGA's Image Fusion 2006 Conference, "Distributed Image/Sensor Fusion for Feature: Recognition Problems", Jan 30-Feb 1, Hilton Washington DC, Silver Spring, MD.
- International Conference on High Performance Computing, "Self Organizing, Fault-Tolerant Feature Extraction in a Distributed Wireless Sensor Network", Goa, India from December 18-21, 2005.
- Third International Conference on Intelligent Sensing and Information Processing, "Futuristic Dis- tributed Sensor Networks" Bangalore, December 14-17, 2005, India.
- International Conference and Research Center for Computer Science, Schloss Dagstuhl, Wadern, Septem- ber 18-23, 2005, Germany
- Indian Institute of Science on "Computational Framework for Content Based Image Retrieval", Ban- galore, India, January 7, 2005.
- INFOSYS Technologies, on "Distributed Sensor Networks: An Emerging Application", Bangalore, December 28, 2004.
- Taught a workshop at Raytheon, Dallas on "Distributed Sensor Networks", August 12-14, 2004.
- Supercomputing Education & Research Center, Indian Institute of Science on "Distributed Sensor Networks: Exploring beyond the Boundaries", Bangalore, July12, 2004.
- Honeywell on "Distributed Sensor Networks", Bangalore, July14, 2004.
- Department of Aerospace Engineering, Indian Institute of Science on "New Applications of Distributed Sensor Networks", Bangalore, July14, 2004.
- Center for Development of Advanced Computing (CDAC) on "Remote Visualization of Networks", Bangalore, July16, 2004.
- Institution of Engineers (Karnataka), "Distributed Sensor Networks - An Emerging Technology", Ban- galore, July17, 2004.
- General Electric John Welch Research Laboratory on "New Applications of Distributed Sensor Net- works", Bangalore, July 20, 2004.
- Ngee Polytechnique, Singapore, "Biomedical Applications", December 10-15, 2002.
- Sensor Fusion Workshop to celebrate Dr. R. Madan's contributions, Newport, Rhode Island, June 19-20, 2002.
- Sixth International Symposium on Parallel Architectures, Algorithms and Networks, May 23-25, 2002, Manila, Philippines.
- 2000 International Symposium on Multimedia Software Engineering, Taipei, Taiwan, Dec. 11-13.
- INTERCON 2000 at the 7th International Conference on Electronics, Electrical and Systems Engi- neering on Dominant Technologies of the New Millennium in Lima, Peru, August 15-18, 2000.
- University of California, Berkeley to speak on "New Trends in Distributed Sensor fusion", Nov. 1999.
- University of Illinois-Chicago, Nov10-11 on "Sensor Fusion", 1999.
- Tulane University on "Wavelet Analysis with Applications to Imaging Survey: A Survey." March 19, 1999.
- LSU on "Computational Aspects of Gene Locating Algorithms", Sept.1999.
- Naval Research Laboratory to speak on "Analysis of Infrared Images", Stennis Space Center, MS, Dec 1998.
- Naval Research Laboratory on Wavelets, August 9, 1997.
- Ashok Leyland, Hosur, "Robots in Intelligent Manufacturing," 15th July 1997, Bangalore University, India.
- Computer Point Company "Scientific Visualization using High Performance Computers," July 29, 1997, Bangalore University, India.
- Image Processing Workshop at Naval Research Laboratory, June 7, 1995. Topic: "Wavelet Based Edge Detection Algorithms for Oceanographic Images".
- The First International Conference on High Performance Computing, Bangalore, India, Dec 27-29, 1994.
- NSF Indo-US Workshop on Cooperative Research in Computer Sciences, August 4 - 6, 1992, Bangalore, India.
- NIH Workshop on Medical Imaging Databases, NIH Campus, and Bethesda, MD, 27, 1992.
- NSF Workshop in Computer Science, Bangalore, India, August 3 - 7, 1992.
- NSF funded International Conference on Informatics (Paper co-authored with N. S. V. Rao and D. Kraft) Bangalore, India. August 10, 1991.

- Center for Advanced Computing CDAC, Bangalore, India, Jan. 11, 1991, on, "Parallel Computational Models for AI Systems".
- S. J. College of Engineering, Mysore, India, June 6, 1990, on, “Towards the Design of Intelligent Systems".
- National Aeronautical Laboratory, Bangalore, India, May 25, 1990, on, "Towards the Design of Intel- ligent Systems".
- Naval Institute of Oceanography, Bay St. Louis, Mississippi, Feb. 7, 1990, on, "Expert System Interface for Oceanographic Images".
- Indo-US Workshop on High Speed Digital Processing, New Delhi, India, Nov. 28, 1989, on, "Routing Strategies in Distributed Sensor Networks".
- Indian Institute of Science, Department of Communication Engineering, Bangalore, India, Dec. 12, 1989, on, "Reliability and Communication Issues in Sensor Networks".
- Titan International Co., Bangalore, India, Dec 13, 1989, on "Distributed Intelligent manufacturing for Real Time Applications".
- Indian Institute of Technology, Kharagpur, India, Aug. 1984.
- Indian Statistical Institute, Calcutta, India, Aug. 1984.
- University of Kansas, Lawrence, Jan 1981.
- University of Paris, Paris, France, May 1980; INRIA, France, May 1978.
- Indian Institute of Science, Bangalore, India, June 1977, June 1980.
- Bell Laboratories, Naperville, Illinois, September, April 1976.
- Bell Laboratories, Holmdale, New Jersey, April 1976.
- Burroughs Corporation, Flint, Michigan, April 1979.
- Division of Computer Technology, National Institute of Health, April 1978.
- University of Bonn, Department of Informatics, May 1977.
- Indian Institute of Technology, Kanpur & Chennai, India, May 1974.

ACM NATIONAL LECTURESHIP PROGRAM

- ACM National Lecturer: The Association of Computing Machinery (ACM) Lectureship Committee selects a group of professors from all over the country for giving lectures at the ACM Student Chapters.
- Robot Navigation: Design and Analysis, Laval University, March 24-25, 1995.
- Robot Navigation: Design and Analysis at the following Universities through ACM student chapter on Sept. 24-26, 1994.
  - University of Michigan, Department of Electrical Engineering and Computer Science.
  - Wayne State University, Department of Computer Science, Detroit, Michigan.
  - ACM Student Chapter of the Eastern Michigan University.
- Dayton ACM Chapter, January 14, 1993.
- Central Ohio ACM Chapter, January 13, 1993.
- Greater Cincinnati ACM Chapter, January 12, 1993.
- ACM speaker at the University of Massachusetts, University of Connecticut and Worcester Polytechnic Institute, Worcester, MA, April 16 - 17, 1992.
- Indian Institute of Science, Bangalore. (IEEE- Computer Society of India, August 8, 1991). University of Oklahoma, Norman, Oklahoma, April 30, 1991.
- Old Dominion University, Department of Computer Science, Norfolk, Virginia, Nov. 30, 1991, on, "Parallel Production Systems".
- College of Williams and Mary, Dept. of Computer Science, Feb. 11, 1990, on, "Design and Analysis of Robot Navigation Algorithms".
- Kent State University on "A Taxonomy on Parallel Algorithms", April 1989.
- Case Western University, April 1989, on, "Robot Navigation Algorithms".
- University of Michigan, Flint, October 1988.
- Michigan State University, East Lansing, October 1988.
- ACM Chapter, Detroit, October 1988.
- James Madison University, Virginia, March 1988.

- Virginia Polytechnic Institute and State University, Blacksburg, March 1988.
- Vanderbilt University, Nashville, Tennessee, Feb. 23, 1988.
- University of Puerto Rico, April 1987.
- Department of Navy (NORDA), NSTL, MS Sept 1987.
- University of Oklahoma, Norman, Oklahoma, October 1987.
- University of Colorado, Denver and Boulder, November 1986.
- University of Alabama, Birmingham, October 1986.
- University of Cincinnati, Ohio, Sept. 1979.
- Auburn University, Alabama, Sept. 1979.

KEYNOTE/DISTINGUISHED/PLENARY LECTURES

- Invited Keynote Speaker at NASSCOM, Bangalore, India November 2017
- Invited Keynote Speaker at 2017 SDPS - The Future of Innovative and Connected Communities in Science and Engineering November 2017
- Invited Keynote Speaker at the 3rd International Conference and Business Expo on Wireless & Telecommunication, Munich Germany July 2017
- Invited Keynote Speaker at Fortieth Annual Science Festival, Bangalore, India July 2017
- Speaker at TUDelft, Netherlands, November 2016
- Keynote Speaker at Twelfth International Multi Conference on Information Processing - August 2016
- Distinguish Speaker at Distinguished Lecture Series at IIT, Chicago March 2016
- Keynote Speaker at Conference Shaastrarth 2016 - Innovations in Sciences, Engineering and Technology February 2016
- Invited Keynote Speaker at The 5th International Conference on Computer Science & Education (ICCSE) - & on August 24th to 28th in Hefei, Anhui, P. R. China, Topic: " Algorithmic Challenges in Ad-Hoc Networks".
- Invited Keynote Speaker at Chettinad College of Engineering and Technology - & on July 29-31, 2010 in Puliyur C.F, Karur district, TamilNadu, India, Topic: " Information Dynamics In Sensor Networks for Extreme Environments".
- Keynote Talk at Second International Conference on Multimedia and Content Based Image Retrieval (ICMCBIR-2010) - & on July 14, 2010 in H N Hall, Basavanagudi, Bangalore, India, Topic: " Modeling and Visualization of Oil Spills".
- Keynote Talk at Bangalore Science Forum - & on July 21-23, 2010 in National College, Bangalore, India, Topic: " Modeling and Visualization of Oil Spills".
- Tutorial Sessions at Indo-US Workshop for Engineering Education - & on June 28 - July 02, 2010 in Chittoor, India, Topic: " Distributed Sensor Networks and Programming".
- Invited Keynote Speaker at ATLAS TRANSDISCIPLINARY- TRANSNATIONAL-TRANSCULTURAL bi-annual meeting, Southwestern University, - & on May 23-28, 2010 in Georgetown, TX, Topic: " Translational Medical Systems In India".
- Invited Keynote Speaker at Korean Institute of Science & Technology(KAIST)- & on May 3, 2010 in Teajon, Korea, Topic: " Information Processing in Sensor Networks- An Overview".
- Invited Keynote Speaker at Computer Science Conference of the Tunisian Telecommunication Scientific Society & on March 21-23, 2010 in Sousse, Tunisia, Topic: " Information Processing in Sensor Networks- An Overview".
- Invited Keynote Speaker at International Conference on Information & Communication Systems on December 20, 2009, Jordan. Topic: "Distributed Sensor Networks".
- Invited Keynote Speaker at National Modeling and Simulation Conference on December 16-18, 2009 in Pune, India. Topic: " Distributed Sensor Networks".
- Invited Keynote Speaker at 5th International Conference on Intelligent Sensor Networks & Information Processing (ISSNIP) on December 7-10, 2009 in Melbourne, Australia . Topic: "Intelligent Sensor Networks".
- Invited Workshop/Speaker at IEEE Symposium on Computers and Communications (ISCC'09) on July 5-8,2009 in Sousse, Tunisia. Topic: " Distributed Source Coding for Sensor Data Model and Estimation of Sensor Errors Using K- Near Neighborhood Classifiers in Deployment of Dense Wireless Sensor Networks".
- Invited Workshop/Speaker at International Conference of Contemporary Computing to be held on Aug 7-

9,2008 in Noida, Delhi , Topic: " A NEW CLASS OF COMPUTATION FOR DISTRIBUTED SENSOR NETWORKS ".

- Invited Workshop/Keynote Speaker at International Society for Computers and their Applications (CATA-2009) on April 8-10,2009 in New Orleans, Louisiana, USA. Topic: " Distributed Sensor Net- works".
- Keynote Speaker at "The Second International Conference on Mobile Ubiquitous, Computing, Systems, Services and Technologies", Valencia, Spain, September 29-October 4, 2008.
- Keynote Speaker at the International Conference on Content Based Image Retrieval (ICCBIR - 2008) at PESIT, Bangalore, India during July 16-18, 2008.
- Invited talk at Bangalore Science Forum, Bangalore, India in July 19, 2008.
- Invited speaker at the Boeing IEEE Advanced Technology Conference at Seattle, Washington on April 12, 2007.
- Keynote Talk at the Second IEEE International Workshop on Next Generation Wireless Networks 2006 (IEEE WoNGeN '06), "Contamination Detection and Mapping Sensor Networks", Bangalore, India, December 18-21, 2006.
- Keynote Speaker at the IASTED International Conference on Advances in Computer Science and Technology (ACST-2006), "A New Class of Computation for Distributed Sensor Networks" January 23-25, 2006 Puerto Vallarta, Mexico.
- Plenary Speaker at 2nd International Conference on Distributed Computing & Internet Technology (ICDCIT 2005), "The Distributed Sensor Networks - An Emerging Technology" December 22-24, 2005 Kalinga Institute of Industrial Technology, Bhubaneswar, India.
- "Distributed Sensor Networks: Exploring Beyond the Boundaries", Denver, Colorado, April 4th, 2005.
- "Adaptive Remote Visualization System", March 4, 2005, National Institute of Standards and Tech- nology (NIST), Gaithersburg, MD.
- "Fault-Tolerant Distributed Sensor Networks", Feb 17,2005, University of Florida, Gainesville,
- Plenary Speaker at 92nd Indian Science Congress, January 6, 2005, Ahmedabad, India
- Keynote speaker at Integrated Design & Process Technology Symposium, Kusadasi, Izmir, Turkey, June 28 - July 2, 2004
- "Distributed Sensor Networks" at the International Conference on Intelligent Sensing and Information Processing, Chennai, India, Jan 5th, 2004.
- International Conference on Computing and Communications, Coimbatore, India, Dec 18-19, 2003.
- International Conference of Image Processing in Seoul, Korea. October 19 1998.
- The first southern conference on high performance computing, December 5, 1998 at University of Southern Mississippi.
- International conference on Information Technology Integration for Manufacturing, Dec. 28-30, Ban- galore, India, 1998.
- The Conference on image processing, Ewha Woman's University, Seoul, Korea. October 18-23, 1998.
- Luthern Memorial "Conference for Information Technology applications for Mechanical Engineers", Hyderabad, India, Dec.1999.
- "International Conference of Information Technology", Bhuvaneshwar, India.Dec.20 1999.
- Workshop on "Distributed Problem Solving using Multi Robot Cooperation in Agile Manufacturing," 25-26th July 1997, Bangalore, India.
- The third International Conference on Neural Networks and Their Applications," IUSPIM, University of Aix-Marseille III, Marseilles, France, March 12-14, 1997.
- Internet networking for the Twenty-first Century, The Institution of Engineers, India, July 16, 1996.
- Institution of Engineers, Bangalore, (India), Jan 6, 1996, Topic: "Theory of Computer Vision".
- "Distributed Databases" NASA Goddard Space Flight Center, Greenbelt, Maryland, October 1984.
- Fifth European Congress on Operations Research, Lausarne, Switzerland, July 11- 14, 1982.

PROFESSIONAL SERVICES

Promotion Tenure Reviews, Award Reviews, etc

- State University of Stony Brook
- Northeastern University-Boston

- Syracuse University
- Clemson University
- Duke University
- City University of New York
- Penn. State University
- University of Missouri
- University of Houston
- University of California-Santa Barbara
- North Carolina State University-Raleigh
- University of Minnesota
- University of Florida-Gainesville
- University of Notre Dame
- Old Dominion University
- University of Louisiana-Lafayette
- Purdue University
- University of Arkansas
- University of Las Vegas
- Bill Kent University, Turkey
- University of Miami
- University of Missouri-Columbia
- Indian Institute of Science
- Indian Institute of Technology, Chennai, Mumbai, Kharagpur.
- Indian Statistical Institute, Kolkata
- Louisiana Tech , Ruston, LA
- Oregon State University

Reviewer for Journals

- SIAM Journal of Computing.
- Computer Vision.
- Graphics and Image Processing (CVGIP)
- Journal of the ACM.
- Communications of the ACM
- Journal of Computer and System Science.
- IEEE Transactions on Software Engineering.
- IEEE Transactions on Pattern Analysis and Machine Intelligence.
- IEEE Trans. on Systems, Man, and Cybernetics.
- Operation Research Quarterly.
- Journal of Optical Engineering.
- Information Processing Letters.
- Information and Control.
- Journal of Parallel and Distributed Computing, and other IEEE Conference papers.
- IEEE Transactions on Computers.
- IEEE Transactions on Image Processing.
- Journal of Optical Computing and other Journals.

Reviewer for Journals

- National Science Foundation.
- Department of Energy.
- office of Naval Research.
- US Army Research office, and

- NASA.
- Board of Regents of Louisiana
- Jet Propulsion Laboratory - California Institute of Technology and others
- National Institute of Health (NIH-NLM)

External Ph.D. reviewer, Member of the Ph.D. committee and Technical Advisor for Universities in Asia and Europe

- University of Tennessee
- Duke University
- University of Notre Dame
- State University of New York, Stony Brook.
- Indian Institute of Technology, Bombay, India
- Manipal International Institute of Information Technology, Bangalore: A program in Advanced Busi- ness Computing (Fall 2000 - present)
- UniSoft Infotech, A software company in Bangalore
- Indian Institute of Technology, Kharagpur, India
- Indian Institute of Technology, Chennai, India
- Indian Institute of Science, Bangalore, India
- St. Xavier's College, Tirunelveli, Tamil Nadu, India.
- Cairo University, Egypt.
- University of Hyderabad, India
- University of Paris, France
- Bharathidasan University, Tamil Nadu India
- National Institute of Technology (formerly REC), Calicut, Kerala, India.
- National University of Hong Kong (UGC)
- University of Singapore
- Indian Statistical Institute, Calcutta
- University of Kuwait, Kuwait
- Asia University, Taichung, Taiwan.

SPECIAL WORKSHOPS

- Workshop on Engineering Applications for Distributed Sensor Networks, June 12-14, 2008, Raytheon Corporation, Dallas, TX, USA.
- Workshop on Engineering Applications for Distributed Sensor Networks, May 17-19, 2007, Raytheon Corporation, Dallas, TX, USA.
- Workshop on new generation of Distributed Sensor Networks, December 11-16, 2006, Taichung, Taiwan.
- Workshop on Emerging Applications of Distributed Sensor Networks, May 12-15,2005 Raytheon Co, Dallas
- Distributed Sensor Networks at Raytheon Co., August 12-15, 2004, Dallas, Texas.
- Java Programming Language organized by Metalogic Technologies, Infopike Inc., USA, & Global Academy for Corporate Education, Dec 15-16, Hyderabad, India.
- One-Day National Workshop on "Data Warehousing and Data Mining for Manufacturing in the Next Millennium." Center for Development of Advanced Computing. Dec 24, 1999.
- Java programming language for PSI Inc. at the Naval Research Laboratory, April 22-25 1998 and June 20-24, 1998.
- NSF Supported Workshop to Enhance Minority Undergraduate Faculty Education in Robotics and Machine Vision. June 19-30, 1995
- NSF-Laser Supported Career Oriented Research Workshops in Computer Science for Undergraduates, 1993-1995.
- Conducted a Workshop at the University of Puerto Rico-Mayaguez, April 1992.
- Director for the NSF - Laser Distinguished Lecture Series Program in the area of Robotics and Artificial

Intelligence, 1990 - 1991.

- Conducted Special Workshop on INGRES System for US Army in Hawaii, this Workshop was designed to train Army officers for US Army office, (April 1988).
- Conducted several workshops on an NSF-funded Computer Network Project at JSU-MS during 1974- 77 on Development and Design of Distributed User Services Network at Colleges and Universities in Mississippi.
- One-day Workshop on Data Mining at SPIE Conferences, Orlando, Florida, April-99, Co-speaker Dr. R.Sharma.

RESEARCH SUPERVISION

Commendations on Dr. Iyengar's Ph. D students dissertation work

Currently Dr. Iyengar is supervising 2 Ph.D. students and 1 Master student. Three of Dr. Iyengar's Ph.D. students were recognized by LSU- Graduate School and received "Exemplary Achievement Certificate" (Richard Brook (1997), John Zachary (2000), Qishi Wu (2004)) and two were given honorary awards of the University wide competitive Distinguished Dissertation Award.

1. Number of Ph.D. Dissertations supervised during the last 20 years: Fifty (50) students have graduated and two (2) are currently working under his Guidance. External supervision for universities in India for their PhD work.
2. Supervisor for Master's Projects and Theses: Over hundred (100) students have graduated and one is working under Guidance.
3. Member of the Committee on the Ph.D. Dissertations collaborated world wide (India, China, Singapore, Korea) excluding USA. : Over Fifty (50) students.
4. Dean's Representative for Ph.D. Dissertations in other departments: Five (5) students.

Ph.D. Students (Dissertation Advisor)
(52 PhD students (in US) as dissertation advisor and 10 students from various countries around the world as external PhD research advisor and Committee Members for more than 30 PhD dissertations)

52. Sayeed Safayet Alam: title: "Analysis of Eye-Tracking Data in Visualization and Data Space" [August 2017]
51. Kianoush Gholamiboroujeni, title: "Applications of Oblivious Network Routing in Smart Grids and Cities" [May 2017]
50. Leonardo Marmol, title: "Customized Interfaces for Modern Storage Systems" [May 2017].
49. Mingming Guo, Tentative title: "User-Centric Privacy Preservation in Mobile and Context-Aware Applications" (Co-Major Professor) [May 2018]
48. Samia Tasnim Tentative title: "Distributed Sensor Network Security" [August 2018]
47. Hasan Mahmud Title: "Resource Management in Sustainable Cloud Data Centers" [May 2016]
46. Juan C Martinez "Towards the Prediction of Mutations In Genomic Sequences" [Fall 2013]
45. Frank E Hernandez "Development of an Expert System for Interpreting Features in Medical Images in Mobile Devices" [Fall 2013]
44. Vasanth Iyer, 2012, "Ensemble Stream Model for Data-Cleaning in Sensor Networks", Place of Employment: Oaklohma State University.
43. Jerry Weltman [August 2012], Artificial Intelligence, Place of Employment: ELOP.
42. Jong-Hoon Kim [Fall 2011] Research .Topic: "Sensor-based Autonomous Pipeline Monitoring Robotic System" Research Advisor: Dr. Iyengar Place of Employment: Visiting Assistant Professor of SCIS, Florida International University.
41. Srivathsan Srinivasagopalan [Spring 2011] Research Topic: "Deterministic Algorithms for Oblivious

Network Design" Research Advisor: Dr. Konstantin Busch Co- Major Professor: Dr. Iyengar Place of Employment: Cognizant Technology, California

40. Anindya Poddar [Spring 2011] Research Topic: "Efficient substring discovery using Suffix, LCP Array and Algorithm-Architecture Interaction" Research Advisor: Dr. Donald Kraft Co-Major Professor: Dr. Iyengar
39. Hua Cao [December 2007] Research Topic "A Novel Automated Approach of Multi-Modality Retinal Image Registration and Fusion"
38. Wei Ding [August 2006] Research Topic: "Utilizing Peer-to-Peer Approaches in Mobile Ad Hoc Networks" Place of Employment: University of Maine.
37. Madhusudhanan Balasubramanian [May 2006] Research Topic: "A Computational Framework for the Structural Change Analysis of 3D Volumes of Microscopic Specimens" Place of Employment: University of California, San Diego.
36. Mengxia Zhu [Fall 2005] Research Topic: "Adaptive Remote Visualization System for Large Scale Scientific Data" Place of Employment: University of Southern Illinois, Carbondale
35. Patrick McDowell [Fall 2005] Research Topic: "Biologically Inspired Learning System" Place of Employment: Naval Research Lab
34. Sumanth Yenduri [Summer 2005] Dissertation title: An Empirical Study on Imputation Techniques for Software Datasets Place of Employment: University of Southern Mississippi
33. Qishi Wu [Dec 2003] Dissertation title: Control of Transport Dynamics in Overlay Networks Place of Employment: Oak Ridge National Laboratory / Memphis State University.
32. Brian Pangburn [Dec 2002] Dissertation title: Experience Based Language Acquisition: A Computa- tional Model of Human Language Acquisition Place of Employment: President, The Pangburn Com- pany Inc., New Roads, LA.
31. Sumeet Dua [Dec 2001] Dissertation Title: Techniques to Explore Time-Related Correlation in large data sets Place of Employment: Louisiana Tech. University, Ruston
30. Thomas Smailus [Dec 2001] Dissertation Title: Precision Mapping in a Distributed Multi-Robot Environment" Place of Employment: The Boeing Company, Seattle, WA
29. John Zachary [Dec 2000] Dissertation Title: Content Based Image Retrieval System Place of Employ- ment: University of South Carolina
28. Elias Khalaf [August 2000] Dissertation Title: Congestion Control Mechanisms for Internet Multicast Transport Protocols Place of Employment: Loyola University
27. Sundar Vedantham [Dec 1997] Dissertation Title: Traffic Management and Congestion Control in the ATM Network Model Place of Employment: AT & T Bell Laboratories.
26. Raghuram Yedatore [Dec 1996] Dissertation Title: Virtual Central Control. Place of Employment: ORACLE, San Francisco.
25. Richards Brooks [June 1996] Dissertation Title: Reliable Sensor Fusion Algorithms: Calibration and Cost Minimization. Place of Employment: Penn State University, Applied Physics Laboratory.
24. Nitin Naik [June 1996] Dissertation Title: An Integrated Network Architecture for a High Speed Distributed Multimedia System Place of Employment: NASA Classroom of the Future Program in Wheeling, WV.
23. Amit Nanavati [Dec 1996] Dissertation Title: Designing Diagnosable Distributed Programs Place of Employment: NETSCAPE. Co-Advisor: Dr. S. Kundu.
22. Lakshman Prasad [May 1995] Dissertation Title: Multi-resolution Fault Tolerant Sensor Integration and Object Recognition in Images Place of Employment: Los Alamos National Lab.
21. Ramana Rao [May 1995] Dissertation Title: Multi-resolution Techniques in Image Processing Place of Employment: Los Alamos National Lab.
20. Daryl Thomas [Aug 1994] Dissertation Title: A Theoretical and Empirical Investigation of the Design Requirements of Semi-Autonomous Mobile Robotic Platforms to Assist Individuals Having Severe Motor Disabilities Place of Employment: Southwestern Adventist College, Keene, Texas.
19. Sankar Krishnamurthy [May 1994] Dissertation Title: Sequential and Parallel Algorithms for a Vision System Place of Employment: Silicon Graphics Corporation, Palo Alto, California.
18. Joon Shik LIM [Dec 1993] Dissertation Title: A Heuristic Approach for Shortest Path Problem with Rectilinear Obstacles Place of Employment: University of Korea, Seoul.
17. Weian Deng [Dec 1993] Dissertation Title: An Efficient Class of Edge Detection Algorithm Place of Employment: Consulting Company in San Francisco.
16. Don Inglehart [May 1993] Dissertation Title: Synergistic Control of N-body Computer Generated Robots

Place of Employment: Consultant to State Agencies.

15. Phil Graham [May 1993] Dissertation Title: New Approaches and Techniques for Drawing Lines on Raster Devices Place of Employment: Scientist: Boss Film Industry, Los Angeles.
14. Gili Mendel [May 1993] Dissertation Title: Optical Character Recognition Using Morphological At- tributes Place of Employment: IBM, Kingston, New York.
13. Vinayak Hegde [May 1993] Dissertation Title: Software Configuration Techniques for Interconnection Networks & Distributed Systems Place of Employment: Software Engineer, Iowa.
12. Maung Htay [Dec. 1992] Dissertation Title: Error Correcting Codes using Neural Networks Place of Employment: "Virginia Military Institute, Virginia."
11. Subbiah Rajanarayanan [Dec. 1991] Dissertation Title: Parallel and Distributed Algorithms for a Class of Graph Related Computational Problems Place of Employment: Hewlett-Packard Company, Cupertino, California.
10. KrishnaKumar Narayanan [Dec. 1991] Dissertation Title: New Techniques for Scene Understand- ing and Parallel Image Processing Place of Employment: Digital Equipment Corporation, Palo Alto, California.
9. Sandeep Gulati [Dec. 1990] Dissertation Title: Computational Neural Learning Formalisms for Per- ceptual Manipulation Singularity Interaction Dynamics Model Place of Employment: Jet Propulsion Laboratory, Pasadena, California.
8. Rajendra Srivastava [May 1990] Dissertation Title: Parallelization of Goal Driven Production Systems on Hypercube machines in 'C' Environment Place of Employment: Southern University, Baton Rouge.
7. Mohan Sharma [May 1990] Dissertation Title: Efficient Distributed Algorithms for Network Facility Problems Place of Employment: IBM Research Center, Austin, Texas.
6. Sridhar Radhakrishnan [May 1990] Dissertation Title: Parallel Algorithms for a Class of database related Problems Place of Employment: University of Oklahoma, Norman, Oklahoma.
5. Yujean Sheng [May 1990] Dissertation Title: Enforcement of Database Constraints: A Decompositional Approach Place of Employment: Western Illinois University, Dekalb, Illinois.
4. Wu-Wang [Dec. 1989] Dissertation Title: Model Based 3D Object Recognition and Localization using properties of Surface Curvatures Place of Employment: Metaphor Computer Systems, California.
3. Tai-Tsung Ho [Dec. 1989] Dissertation Title: A Density Based Greedy Channel Routing Algorithms for VLSI Problems Place of Employment: McNeese State University, Lake Charles, LA.
2. S. Bhaskar Iyengar [Aug. 1989] Dissertation Title: A Frame-Work for Efficient Execution of Logic Programs Place of Employment: Winona State University, Minnesota. Co-Advisor: Dr. Hoppe.
1. S. V. N. Rao [Aug. 1989] Dissertation Title: An Algorithmic Framework for Robot Navigation in Unknown Terrains Place of Employment: Oak Ridge National Laboratory, Tennessee.

M.S Students (Supervisor)

63. Sandeep Bandi, [Current students] : "Implementation of Virtual ATM System for User Test of Dynamic PIN: A Novel Approach towards Secure ATM Authentication".
62. Karthik Nagabandi, December 2011: "Advanced Learning methods for Security Access Control System"
61. Sona Mrinal Pal, August 2011: "Finding the trends in behavior of air pollution data using SQL Server Analysis Services"
60. Swati Dubbaka, December 2010: "Automated High Performance Execution and Archiving of ADCIRC Hurricane Simulations"
59. Jong-Hoon Kim, December 2008: "Design of a Fully Autonomous Mobile Pipeline Exploration Robot"
58. Bharath Narahari, December 2008: "Modeling and Design of low Cost Customizable Household Robot"
57. Ratika Natarajan, August 2008: "Automated Enhanced Transit System"
56. Ankur Suri, December 2005: "Simulation Study for wireless sensor networks and load sharing routing protocol to increase network life and connectivity".
55. Ayyappa Chowdhary Veerapaneni, June 2005: "Online Library Automation"
54. Neelay Shah, June2005: "Implementation of the Max-Min Length-Energy-Constrained Routing Pro- tocol and Mobility model using LSU Sensor-Simulator"
53. Cariappa Mallanda, December 2004: "Sensim, a Framework for Sensor Networks using OMNeT++."

52. Sarath C. Peddi, April 2004: "Lamp Driven Web Content Management System".
51. Sridhar Karra, May 2003: "Image Characterization and Modeling Systems Using Multiscale RSD".
50. Sumanth Yenduri, Nov 2002: "Semantic Extractor: An Analyzing Tool"
49. Mengxia Zhu, Nov 2002: "Decentralized and Adaptive Sensor Data Routing"
48. Ashok Chidige, Dec 2001, "Visualization of Fluid Flow in Human Eye".
47. Sumeet Dua May 2001: "Dynamic and Implicit Profiling of Sequential Patterns for Efficient Customer Branding in e-commerce."
46. Zhi Li May 2000: "A Structural Classification of Protein Database Using Probabilistic Suffix Trees."
45. Brian Pangburn May 2000: "Web Based Solution to Multi-Sensor Fusion Problems."
44. A.S. Rau April 1998: "Simulation of the Component Object Model on Unix Operating System"
43. Ying, Chen April 1998: "Application of TRUST for Image Registration"
42. Atul Batra Dec 1996: "Workstation Inventory Management System with Web Interface".
41. Bollapragada Satya Ravi Sekhar Dec 1996: "Image Segmentation Using Live-Wire Boundary Definition Techniques"
40. S. Chauhan May 1996: "A Multithreaded Approach to a Three-Tier Client Server System."
39. Yan Xia May 1996: "A Reasoning System for Handling Dynamic Threats in an Unstructured Environment."
38. Vijay Veeranna May 1996: "XNET - A Motif Based Network Monitoring Tool."
37. J.R.Mahesh Kumar June 1996: "A New Computational Framework for Complementary Sensor Integration"
36. Raghuram Yedatore May 1996: "A Fault-Tolerant Distributed Programming Framework."
35. Gautham Udeshi July 1995: "Louisiana Environmental Geographical Information System."
34. Anand Ganeshan July 1995: "Object Oriented Design of a Records and Registration System."
33. R.P. Singh June 1995: "Online Publishing House."
32. Balaji Narayan Sept 1994: "An Object Oriented Distributed System with White Board."
31. RaviShankar Narayan Dec 1994: "An Object Oriented Database for a Personal Management System."
30. Kiran Mathur Dec 1994: "An Object Oriented Database for Employee Information System."
29. Shyam Cukkemane Aug 1994: "A Travel Management System using 4GL Tools."
28. Amit Nanavati Aug 1994: "Peterson Architecture," (July 1994).
27. V.B. Srinivasa Dec 1993: "Distributed Fault Tolerant Routing in de-Bruijn Networks."
26. Sankar KrishnaMurthy Dec 1993: "Project on Algorithm for Processing Oceanographic Images."
25. G. Pardhy Dec 1993: "Network Monitoring of Distributed Nodes in Networks."
24. Ramesh Patak: Dec 1993 "A Document Reader."
23. Sathish T. Gopalrao Dec 1993: "An Object-Oriented Distributed Database Financial Application Software Package using C++ and X/Motif."
22. Z. Ying Aug 1993: "Development of Simulation Software for the Programmable Logic Controller with an Object based Graphical User Interface."
21. S. Bose Aug 1993: "A New Algorithmic Frame Work for Finding Illumination Direction of Spherical Objects"
20. Shivaramakrishnan Subramanian July 1993: "A PROcess MANager using X/Motif."
19. Sumathi Nagaraj May 1993: "A 2-D Spatial Representation and Shortest path Problem."
18. Ashish G. Tilwe May 1993: "An Intelligent Chess Program."
17. Deepak Nadig May 1993: "A Distributed Conferencing System for 2-D Graphical Design."
16. Harsha Chaturvedi July 1992: "Analysis and Evaluation of Internet Protocols."
15. KrishnaKumar Narayan1991: "Relaxation Labeling of Mesoscale Features in Oceanographic. Images"
14. Salil Menon 1990: "Range Search in Parallel using Distributed Data Structures: An Implementation on Hypercube."
13. V. Sridhar 1990: "Image Generation Techniques for Robot Vision."
12. Anantha Prasad 1990: Distributed Deadlock Detection System."
11. Nitin Naik 1990: "An Intelligent Display System for Tracing & Navigation of a Robot."
10. Suresh R. Tammana 1989: "Design & Implementation of Algorithms for Non-First Normal-Form Relational Algebra Operations"
9. Fuller 1988: "A Study of Software Complexity."
8. Mahesh Dandapani 1988: "An off-line, Real-time Graphical System for Tracking a Mobile Robot."

7. Sanjoy Bardharan 1988: "Protocols for Process Migration in Distributed Environment."
6. Sandeep Gulati 1987: "The Pebble Crunching Model for Fault-Tolerant Load Balancing in Hypercubes"
5. Venkatesh Nadamuni 1987: "Simulation of Robot Navigation using Discrete Range Sensors."
4. Weisung Chen 1986: "Binary Tree Architecture for UNIX Systems."
3. Sudarshan Iyengar 1986: "Efficient Data Structures for Navigation Problems."
2. Hsi Chang 1985: "Balancing Search Trees."
1. Shankar Ram 1983: "A Study of Queuing Systems for Emergency Applications."

Undergraduate Students (Research Supervision)

Dr. Iyengar has also had many Undergraduate students working on research projects funded by various agencies. Some undergraduate students have published papers in refereed journals with Dr. Iyengar. **Under Graduate Research Participation:**

19. Daniela Chavez Guevara
18. Eduardo Dennis
17. Fernando De Zayas
16. Francisco Peleato
15. Irvin Cardenas
14. Lazaro Herrera
13. Leo Shao
12. Uwe Cerron
11. John Deries Banef
10. Jeff Dereus
9. Ankith Tandon
8. Williams Rummler
7. Brian McMahon
6. Martin S. Warioba
5. Dimmetric Houston
4. Seth Robertson
3. V. Raman
2. Eric Roberts
1. Terry Winongrad

EDITORIAL BOARD/GUEST EDITOR

- Guest Editor of Journal of Sensors (Special Issue on Big Sensor Data and related Analytics).
- Founding Editor-in-Chief of a new journal titled "International Journal of Distributed Sensor Networks" published by Taylor and Francis Company. Premier issue November, Fall 2004.
- Editor for the IEEE Transactions on Computers, 2003-2006.
- Editor for the IEEE Transactions on Knowledge and Data Engineering, 2002-2005.
- Editorial Board of Sensor Processing Letters, 2003, American Scientific Publications Co.
- The Computing: The Official Journal from Russia and Ukraine, 2002-Present.
- The International Journal of High Performance Computing Applications (Special Issue Advances in Information Technology for High Performance and Computationally Intensive Distributed Sensor Net- works, Dec 2001. (Guest Editor)
- Editor for the special topic Issue of Journal of Franklin Institute, (Distributed Sensor Networks for Real-time Systems with Adaptive Configuration) Nov 2000. (Special Issue on Parallel and Distributed Image and Signal Integration Problem), Jan 1995.

- Journal of American Society of Information Science June. 2001, (Special Issue on Visual Based Re- trieval Systems and Web Mining).
- Guest Editor IEEE Transactions on Data and Knowledge Engineering, Jan 2000-Jan2002.
- Guest Editor Journal of Theoretical Computer Science, (Special Issue on Design and Analysis of Geometrical Algorithms in the Context of Vision and Motion Planning), June 1994.
- Guest Editor International Journal of Computers and Electrical Engineering (Special Issue on Parallel and Distributed Computing of Intelligent Systems for Robotics Applications), 1993.
- Guest Editor IEEE Transactions on Knowledge and Data Engineering, (Special Issue on Self-Organizing and Data Representation in Distributed Environment), 1992.
- Guest Editor IEEE Transactions on Systems, Man and Cybernetics (Special Issue on Distributed Sensor Networks), June 1991.
- Neuro-Computer Modeling of Bio-Systems, (series editor, CRC Press Inc.), June 1990.
- Journal of Computer Science and Informatics, September 1990 - 1995.
- Guest Editor IEEE Computer Magazine, (Special Issue on Intelligent Autonomous Systems), June 1989.
- Guest Editor IEEE-Transactions on Software Engineering, (Special Issue on Image Databases), May 1988.
- Guest Editor International Journal of Agile Manufacturing, 1999-Present.