

Professor S. S. Iyengar: A Global Scholar Driving Research Excellence and Societal Impact in India

1974 to 2026



February 19th, 2026



FIU, Miami



LSU, Baton Rouge



MSU, Mississippi



IISc, Bengaluru



UVCE, Bengaluru



ORNL, Oak Ridge



Université de Paris



University of Bonn.



JPL, NASA



Poznan University



US Naval Research Laboratory - MS



NFSU, INDIA



National College Bangalore

Dr. **S. S. Iyengar** is internationally recognized as a pioneering researcher, visionary educator, and transformative mentor whose lifelong contributions have profoundly shaped the academic, scientific, and technological landscape, particularly through his enduring engagement with **Indian students, faculty, and institutions**. His work exemplifies how sustained mentorship, global collaboration, and high impact research can elevate generations of scholars and practitioners, thereby contributing directly to national capacity building and societal advancement.

Over several decades, Dr. Iyengar has supervised **more than 60 PhD students** and **over 500 Master's and undergraduate students**, many of whom originate from India or have been trained through Indo, global academic pipelines. Beyond individual supervision, he has collaborated with **over 1000 faculty members from prestigious Indian universities**, building one of the most extensive international academic networks benefiting Indian higher education and research ecosystems.

Mentorship as a National Asset

Dr. Iyengar's most enduring contribution lies in his role as a **mentor of mentors**. His students, trained in rigorous research methodology, ethical scholarship, and interdisciplinary problem solving, now occupy influential positions across **India's premier institutions**, global universities, national laboratories, and leading technology companies. A significant number of his former students and collaborators serve or have served at **Indian Institutes of Technology (IITs)** including:

- IIT Kharagpur, IIT Bombay, IIT Madras, IIT Kanpur, IIT Delhi
- IIT Guwahati, IIT Roorkee, IIT Bhubaneswar, IIT Gandhinagar
- IIT Hyderabad, IIT Patna, IIT Jodhpur, IIT Ropar, IIT Mandi
- IIT Indore, IIT (BHU) Varanasi, IIT Tirupati, IIT Palakkad
- IIT (ISM) Dhanbad, IIT Dharwad, IIT Goa, IIT Jammu, IIT Bhilai

His academic influence also extends to **India's most respected universities and research centers**, including:

- National Forensic Sciences University, Gandhinagar, Goa, Dharwad
- Indian Institute of Management, Ahmedabad
- Indian Institute of Science (IISc), Bengaluru
- Tata Institute of Fundamental Research (TIFR)
- Jawaharlal Nehru University (JNU)
- University of Delhi (DU)
- Banaras Hindu University (BHU)
- University of Hyderabad (UoH)
- Jamia Millia Islamia (JMI)

- BITS Pilani, VIT, Symbiosis International University, Jain University, NFSU Gandhinagar, SVNIT Surat, PESIT, RVCE, IISc, Jain, Chanakya University, SIT, SSIT, and many others

Through these individuals, Dr. Iyengar's intellectual legacy has been **institutionalized within India's higher, education system**, influencing curriculum design, doctoral training, interdisciplinary research centers, and international collaborations.

Global Placement of Indian Talent

Dr. Iyengar's mentorship has also propelled Indian students onto the **global stage**, where they represent India's intellectual excellence in world, class universities and research laboratories such as:

- University of California, San Diego
- MIT, Stanford, Johns Hopkins, Duke, Purdue
- Case Western Reserve University
- Florida International University
- Oklahoma State University, Cal State University
- University of Southern Mississippi, Louisiana Tech University
- University of Oklahoma, Winona State University

Equally significant is the placement of his protégés in **leading global industries and national laboratories**, including:

- Google, Amazon, Microsoft, NVIDIA
- Oracle (San Francisco)
- IBM Research (Austin)
- AT&T Bell Laboratories
- NASA Classroom of the Future Program
- Jet Propulsion Laboratory (JPL)
- Los Alamos National Laboratory
- Oak Ridge National Laboratory
- Hewlett, Packard, Digital Equipment Corporation, Silicon Graphics, Netscape, and others
- Indian Institute of Management, Ahmedabad

These individuals serve as **global ambassadors of Indian scientific capability**, directly contributing to innovation, national prestige, and knowledge transfer back to India.

Research Leadership with Societal Impact

Dr. Iyengar's research spans **distributed systems, sensor networks, artificial intelligence, cybersecurity, healthcare systems, and intelligent infrastructure**, domains that align closely with India's national priorities such as **digital transformation, smart infrastructure, healthcare delivery, and security**.

Through collaborative research projects, visiting professorships, joint supervision, and advisory roles, he has consistently enabled **Indian faculty and institutions** to participate in cutting, edge international research. Many collaborative works initiated under his leadership have resulted in **high, impact publications, funded projects, and long, term research programs** that continue to benefit Indian academia.

Importantly, Dr. Iyengar's philosophy emphasizes **knowledge democratization**, ensuring that advanced research insights reach Indian institutions beyond metropolitan centers, thereby strengthening the broader academic ecosystem.

Smart-Grid Collaboration with IIM Ahmedabad by Professor SS Iyengar funded by Department of Science and Technology. The PI for this project from IIM Ahmedabad is Professor Amit Garg





MI Smart Grids

SMART GRIDS

INNOVATION CHALLENGE

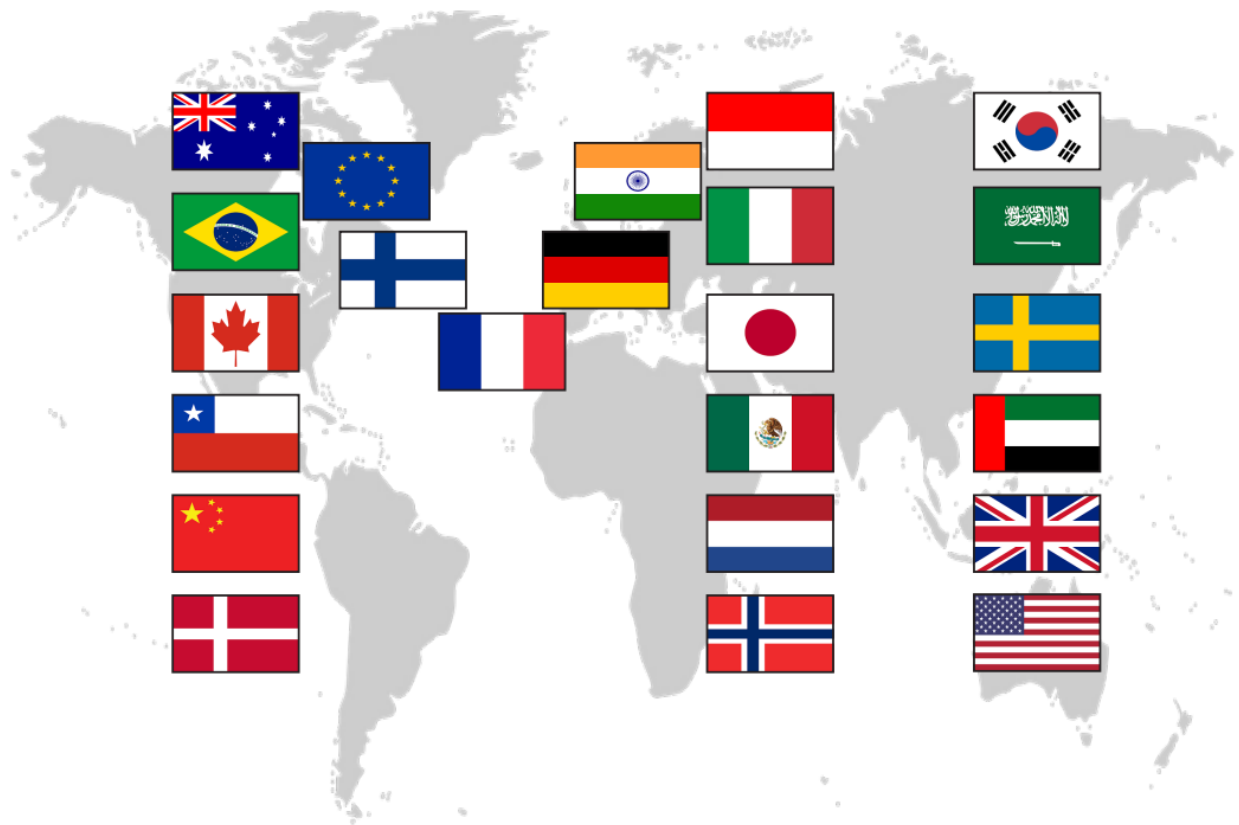


सत्यमेव जयते

Department of Science and Technology



MI GLOBAL PARTNERS



MISSION INNOVATION
Accelerating the Clean Energy Revolution

Mission Innovation (MI) is a global initiative of 22 countries and the European Union to dramatically accelerate global clean energy innovation. As part of the initiative, participating countries have committed to double their governments clean energy research and development (R&D) investments over five years, while encouraging greater levels of private sector investment in transformative clean energy technologies.

Strategic Indo-US Collaboration in Smart Energy Infrastructure: The S3RA-CPPS Initiative



A particularly impactful example of Dr. S. S. Iyengar’s contribution to India’s national infrastructure development is the Indo–US collaborative research initiative titled “**Smart Secure Scalable Resilient and Adaptive Cyber-Physical Power System (S3RA-CPPS)**”, funded by India’s Department of Science and Technology (DST) with a grant of approximately **\$400,000**.

Under the leadership of Dr. Iyengar as Co-Principal Investigator at Florida International University (FIU), this project established a strategic partnership between FIU’s Knight Foundation School of Computing and **Indian Institute of Management (IIM) Ahmedabad**. The initiative aimed to design the technological and algorithmic foundation for India’s next-generation smart energy ecosystem.

Enabling India’s First Peer-to-Peer Energy Trading Platform

A central objective of the S3RA-CPPS project was to develop the foundational network algorithms, forecasting mechanisms, and security protocols required to support **India’s first peer-to-peer (P2P) energy transferring platform**.





Under Dr. Iyengar’s mentorship, student researcher **Kianoosh G. Boroojeni** played a key role in architecting the system’s core infrastructure. Their work focused on:

- Developing software-driven control mechanisms for distributed grid environments
- Designing forecasting algorithms for demand prediction and renewable energy integration

- Creating congestion management strategies for dynamic load balancing
- Implementing cybersecurity frameworks for resilient grid operations

The system was designed to enable **local renewable energy producers to trade electricity directly with consumers**, thereby supporting decentralized energy markets and strengthening India’s renewable energy ambitions.

Featured Research Contribution

One of the most influential research outputs emerging from this collaboration is:

“Optimal Two-Tier Forecasting Power Generation Model in Smart Grids”

(Published in IEEE Transactions on Smart Grid or related IEEE conference proceedings)

Authors: Kianoosh G. Boroojeni, M. Hadi Amini, and S. S. Iyengar

Core Contribution:

This work directly addresses one of India’s major infrastructure challenges: the integration of **Distributed Renewable Resources (DRR)** into residential and urban electrical grids.

The paper proposes a **hybrid two-tier forecasting framework:**

• **Long-Term Forecasting Layer**

Utilizes a **Maximum-Likelihood Estimator (MLE)** to predict power demand and renewable generation trends over weeks and months.

• **Real-Time Forecasting Layer**

Employs an **Auto-Regressive Integrated Moving-Average (ARIMA)** model to respond to short-term fluctuations in energy generation and consumption.

This dual-layer architecture enhances grid stability, improves demand-supply matching, and enables efficient decentralized energy trading — all of which are critical to India’s Smart Grid Mission and renewable transition goals.

Comprehensive Security Framework for Smart Grids

Beyond forecasting and grid optimization, Dr. Iyengar’s leadership extended to ensuring the security and resilience of cyber-physical energy systems.

A comprehensive consolidation of this work appears in the book:

“Smart Grids: Security and Privacy Issues” (Springer, 2017)

Authors: Kianoosh G. Boroojeni and S. S. Iyengar

This book documents the security architecture, intrusion detection mechanisms, privacy preservation models, and resilience strategies developed under Dr. Iyengar's mentorship. It addresses:

- Cyber-attack mitigation strategies for smart grids
- Secure communication protocols for distributed energy systems
- Privacy protection for prosumer-based energy markets
- Intrusion detection in cyber-physical infrastructures

These frameworks directly support India's objective of building secure, scalable, and intelligent energy infrastructure.







Institutional Impact and National Significance

The S3RA-CPPS project represents more than an academic collaboration; it serves as a foundational bridge between:

- FIU’s advanced computing research ecosystem
- IIM Ahmedabad’s energy economics and policy expertise
- India’s Department of Science and Technology (DST)
- National smart grid and renewable energy initiatives

Through this initiative, Dr. Iyengar contributed to:

- Strengthening Indo–US scientific collaboration
- Transferring advanced grid intelligence technologies to India
- Building human capital in smart energy systems
- Supporting renewable energy integration and decentralized power markets

This work aligns directly with India’s national priorities in:

- Digital transformation
- Energy sustainability
- Smart infrastructure

- Cybersecurity resilience
- Renewable energy expansion



DR. S.S. IYENGAR'S DONATED LIBRARY AT SIT



Inauguration Ceremony of Dr. S.S. Iyengar's books and articles collection library at the main library of Siddaganga Institute of Technology, Tumakuru, Karnataka, India.

"Dr. S S Iyengar regularly shares academic materials whenever he visits India or over e-mail on latest developments in computing which initiates research activities. Our library has recently received journals, books and articles on emerging technologies sponsored by Dr. S S Iyengar."

*- Dr. N R Sunitha,
Professor, Dept of CS&E, SIT*

Contribution of Prof. S. S. Iyengar to Academic Excellence at SIT

Prof. S. S. Iyengar's contribution to Siddaganga Institute of Technology (SIT) stands as a significant example of his enduring commitment to strengthening academic ecosystems through knowledge sharing and mentorship. By donating an extensive collection of his books, research articles, and scholarly materials to the SIT central library, Prof. Iyengar has directly enriched the intellectual resources available to students, faculty, and researchers. These materials span foundational and emerging areas of computing and engineering, enabling learners to access high-quality global research that supports advanced study, innovation, and inquiry. Beyond the physical donation, his continued engagement through sharing updates on recent developments in computing and encouraging research activities has fostered a culture of scholarship and curiosity at SIT. This contribution not only enhances library holdings but also serves as a lasting academic legacy that empowers future generations of engineers and researchers to pursue excellence, innovation, and impactful research.

Broader National Relevance

The S3RA-CPPS initiative exemplifies Dr. Iyengar's model of nation-building through:

- High-impact research
- Cross-border institutional partnerships
- Mentorship-driven innovation
- Infrastructure-oriented technological development

By enabling decentralized renewable trading and strengthening cyber-physical resilience, this collaboration contributes to India's long-term energy security, sustainability, and technological sovereignty.

It reflects not only academic excellence but also applied research with tangible societal impact — reinforcing Dr. Iyengar's enduring commitment to advancing India's scientific and technological foundations.

Faculty Collaboration and Capacity Building

Dr. Iyengar's collaboration with **over 500 faculty members across India** reflects a rare commitment to **collective academic upliftment** rather than isolated excellence. His engagements include:

- Joint research supervision
- Faculty mentoring and curriculum guidance
- International conference leadership involving Indian scholars

- Strategic advice on building interdisciplinary research centers

These efforts have significantly enhanced **India's research visibility, funding competitiveness, and international partnerships.**

Distinguished Professorships and Formal Recognition in India

In recognition of his exceptional academic leadership, research excellence, and sustained contributions to Indian higher education, Dr. S. S. Iyengar has been invited to serve in several **prestigious professorial and chair positions across India.** These appointments reflect not only his scholarly eminence but also the deep trust Indian institutions place in his ability to guide academic vision, mentor faculty, and strengthen research ecosystems.

A partial list of his distinguished professorships in India includes:

- **Indian Institute of Science (IISc), Bengaluru** – *Satish Dhawan Professor*
- **National Forensic Sciences University (NFSU)** – *Distinguished Chair Professor*
- **Chanakya University** – *Distinguished Chair Professor*
- **Sardar Vallabhbhai National Institute of Technology (SVNIT), Surat** – *Distinguished Chair Professor*
- **R. V. College of Engineering (RVCE)** – *Distinguished Chair Professor*
- **Jain University** – *Distinguished Chair Professor*
- **PES Institute of Technology (PESIT)** – *Distinguished Chair Professor*
- **Sri Siddhartha Institute of Technology (SSIT)** – *Distinguished Chair Professor*
- **Siddaganga Institute of Technology (SIT)** – *Distinguished Chair Professor*

In addition to the above, Dr. Iyengar has held advisory and honorary academic roles at **several other institutions across India,** contributing to curriculum development, research strategy, faculty mentoring, and the establishment of interdisciplinary programs.

These distinguished appointments underscore Dr. Iyengar's **direct and sustained engagement with Indian academia,** extending far beyond symbolic association. Through these roles, he has actively shaped institutional research agendas, guided young faculty, fostered international collaborations, and ensured that Indian universities remain aligned with global scientific and technological advancements.

Enduring National Contribution

Through decades of mentorship, research leadership, and collaboration, Dr. S. S. Iyengar has contributed to **nation, building in its most enduring form: human capital development.** His students and collaborators, now leaders, innovators, educators, and

policymakers, continue to shape India's future in science, technology, education, and industry.

His life's work reflects the true spirit of service envisioned by national honors such as the **Padma Awards**, service not limited by geography, but anchored in a deep commitment to **uplifting Indian society through education, research, and global engagement.**

Conclusion

Dr. S. S. Iyengar's contributions transcend individual achievements. Through his extraordinary mentorship of Indian students, sustained collaboration with Indian universities, and global placement of Indian talent, he has played a decisive role in **strengthening India's intellectual, scientific, and technological foundations.**

His legacy is not only measured in publications or positions held, but in the **thousands of lives shaped, institutions strengthened, and futures transformed**, a legacy that continues to grow with each generation he inspires.