

Curriculum Vitae: Jason Xiaowen Liu

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EDUCATION

- Ph.D.** *Dartmouth College (Hanover, NH), Computer Science, 2003*
M.S. *College of William & Mary (Williamsburg, VA), Computer Science, 2000*
B.S. *Beijing University of Technology (Beijing, China), Computer Science, 1993*

FULL-TIME ACADEMIC EXPERIENCE

- Florida International University (FIU)**
Associate Professor 2011 – current
Assistant Professor 2007 – 2011
Colorado School of Mines (CSM)
Assistant Professor 2004 – 2007
University of Illinois, Urbana-Champaign (UIUC)
Postdoctoral Research Associate 2003 – 2004

PART-TIME ACADEMIC EXPERIENCE

- Dartmouth College**
Graduate Research/Teaching Assistant 1996 – 2003
College of William and Mary
Graduate Research Assistant 1995 – 1996

NON-ACADEMIC EXPERIENCE

- Institute for Security Technology Studies, Dartmouth College**
Research Scientist 2003
Icon Technologies, China
Co-founder & Chief Computer Engineer 1993 – 1994
Institute of Mathematics, China Academy of Science
Research Intern 1993

JOURNAL PUBLICATIONS

1. **Symbiotic network simulation and emulation.** Miguel Erazo, Rong Rong, and Jason Liu. *ACM Transactions on Modeling and Computer Simulation (TOMACS)*, 26(1), Article No. 2, 2015.
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2. **Cluster-based spatio-temporal background traffic generation for network simulation.** Ting Li and Jason Liu. *ACM Transactions on Modeling and Computer Simulation (TOMACS)*, 25(1), Article No. 4, 2015.
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4. **OpenFlow-based flow-level bandwidth provisioning for CICQ switches.** Hao Jin, Deng Pan, Jason Liu, and Niki Pissinou, *IEEE Transactions on Computers*, 62(9):1799-1812, 2013. [DOI:10.1109/TC.2012.167](https://doi.org/10.1109/TC.2012.167).
5. **PrimoGENI for hybrid network simulation and emulation experiments in GENI.** Nathanael Van Vorst, Miguel Erazo, and Jason Liu, *Journal of Simulation*, 6:179-192, 2012. [DOI:10.1057/JOS.2012.5](https://doi.org/10.1057/JOS.2012.5).
6. **A model-driven emulation approach to large-scale TCP performance evaluation.** Miguel A. Erazo, and Jason Liu. *International Journal of Communication Networks and Distributed Systems (IJCNDs)*, 5(1/2):130-150, 2010. [DOI:10.1504/IJCNDs.2010.033971](https://doi.org/10.1504/IJCNDs.2010.033971).
7. **Real-time network simulation support for scalable routing experiments.** Yue Li, Jason Liu, and Raju Rangaswami. *International Journal of Simulation and Process Modelling, Special Issue on Parallel and Distributed Simulation*, 5(2):146-156, 2009. [DOI:10.1504/IJSPM.2009.028627](https://doi.org/10.1504/IJSPM.2009.028627).
8. **Parallel hybrid network traffic models.** Jason Liu and Yue Li. *Simulation: Transactions of the Society for Modeling and Simulation International*, 85(4):271-286, 2009. [DOI:10.1177/0037549708099996](https://doi.org/10.1177/0037549708099996).
9. **A real-time network simulation infrastructure based on OpenVPN.** Jason Liu, Yue Li, Nathanael Van Vorst, Scott Mann, and Keith Hellman, *Journal of Systems and Software*, 82(3):473-485, 2009. [DOI:10.1016/J.JSS.2008.08.015](https://doi.org/10.1016/J.JSS.2008.08.015).
10. **On the performance of a hybrid network traffic model.** Jason Liu and Yue Li. *Simulation Modelling Practice and Theory*, 16(6):656-669, 2008. [DOI:10.1016/J.SIMPAT.2008.04.007](https://doi.org/10.1016/J.SIMPAT.2008.04.007).
11. **Experimental evaluation of wireless simulation assumptions.** Calvin Newport, David Kotz, Yougu Yuan, Robert S. Gray, Jason Liu, and Chip Elliott. *Simulation: Transactions of the Society for Modeling and Simulation International*, 83(9):643-661, 2007. [DOI:10.1177/0037549707085632](https://doi.org/10.1177/0037549707085632).
12. **RINSE: the real-time immersive network simulation environment for network security exercises (extended version).** Michael Liljenstam, Jason Liu, David Nicol, Yougu Yuan, Guanhua Yan, and Chris Grier. *Simulation: Transactions of the Society for Modeling and Simulation International*, 82(1):43-59, 2006. [DOI:10.1177/0037549706065544](https://doi.org/10.1177/0037549706065544).
13. **Empirical validation of wireless models in simulations of ad hoc routing protocols.** Jason Liu, Yougu Yuan, David M. Nicol, Robert S. Gray, Calvin C. Newport, David Kotz, and Luiz Felipe Perrone. *Simulation: Transactions of the Society for Modeling and Simulation International*, 81(4):307-323, 2005. [DOI:10.1177/0037549705055017](https://doi.org/10.1177/0037549705055017).
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CONFERENCE/WORKSHOP PUBLICATIONS

1. **Simulation of HPC job scheduling and large-scale parallel workloads.** Mohammad Abu Obaida and Jason Liu. In *Proceedings of the 2017 Winter Simulation Conference (WSC 2017)*, December 2017. To appear.

2. **A brief history of HPC simulation and future challenges.** Kishwar Ahmed, Jason Liu, Abdel-Hameed Badawy, and Stephan Eidenbenz. In *Proceedings of the 2017 Winter Simulation Conference (WSC 2017)*, December 2017. To appear.
3. **On improving parallel real-time network simulation for hybrid experimentation of software defined networks.** Mohammad Abu Obaida and Jason Liu. In *Proceedings of the 10th EAI International Conference on Simulation Tools and Techniques (SIMUTOOLS 2017)*, September 2017. To appear.
4. **An energy efficient demand-response model for high performance computing systems.** Kishwar Ahmed, Jason Liu, and Xingfu Wu. In *Proceedings of the 25th IEEE International Symposium on the Modeling, Analysis, and Simulation of Computer and Telecommunication Systems (MASCOTS 2017)*, September 2017. To appear.
5. **Real-time anomaly detection of short time-scale GWAC survey light curves.** Tianzhi Feng, Zhihui Du, Yankui Sun, Jianyan Wei, Jing Bi, and Jason Liu. In *Proceedings of the 6th IEEE International Congress on Big Data*, June 2017.
6. **Distributed Mininet with symbiosis.** Rong Rong and Jason Liu. In *Proceedings of the IEEE International Conference on Communications (ICC 2017)*, May 2017.
7. **When good enough is better: Energy-aware scheduling for multicore servers.** Xinning Hui, Zhihui Du, Jason Liu, Hongyang Sun, Yuxiong He, David A. Bader. In *Proceedings of the 13th Workshop on High-Performance, Power-Aware Computing (HPPAC 2017)*, held in conjunction with *31st IEEE International Parallel and Distributed Processing Symposium (IPDPS 2017)*, May 2017. [DOI: 10.1109/IPDPSW.2017.38](https://doi.org/10.1109/IPDPSW.2017.38)
8. **Zipf's law in MOOC learning behavior.** Chang Men, Xiu Li, Zhihui Du, Jason Liu, Manli Li, and Xiaolei Zhang. In *Proceedings of the 2nd IEEE International Conference on Big Data Analysis (ICBDA 2017)*, March 2017.
9. **Scalable interconnection network models for rapid performance prediction of HPC applications.** Kishwar Ahmed, Jason Liu, Stephan Eidenbenz, and Joe Zerr. In *Proceedings of the 18th International Conference on High Performance Computing and Communications (HPCC 2016)*, December 2016. [DOI: 10.1109/HPCC-SmartCity-DSS.2016.0151](https://doi.org/10.1109/HPCC-SmartCity-DSS.2016.0151)
10. **Panel – Reproducible research in discrete-event simulation – A must or a rather maybe?** Adelinde M. Uhrmacher, Sally Brailsford, Jason Liu, Markus Rabe, and Andreas Tolk. In *Proceedings of the 2016 Winter Simulation Conference (WSC)*, Washington DC, December 2016, 15 pages. [DOI: 10.1109/WSC.2016.7822185](https://doi.org/10.1109/WSC.2016.7822185)
11. **Fast and effective power profiling of program execution based on phase behaviors.** Xiaobin Ma, Zhihui Du and Jason Liu. In *Proceedings of the 1st International Workshop on Resilience and/or Energy-Aware Techniques for High-Performance Computing (RE-HPC 2016)*, held in conjunction with the *7th International Green and Sustainable Computing Conference (IGSC 2016)*, November 2016. [DOI: 10.1109/IGCC.2016.7892625](https://doi.org/10.1109/IGCC.2016.7892625)
12. **Toward integrated multi-resolution HPC modeling for rapid performance prediction (an abstract).** Jason Liu and Stephan Eidenbenz. *2016 Workshop on Modeling and Simulation of Systems and Applications (ModSim 2016)*, August 2016.
13. **An integrated interconnection network model for large-scale performance prediction.** Kishwar Ahmed, Mohammad Obaida, Jason Liu, Stephan Eidenbenz, Nandakishore Santhi, and Guillaume Chapuis. In *Proceedings of the 2016 ACM*

- SIGSIM Conference on Principles of Advanced Discrete Simulation (SIGSIM-PADS)*, Banff, AB, Canada, May 2016, 11 pages. [DOI: 10.1145/2901378.2901396](https://doi.org/10.1145/2901378.2901396)
14. **The simian concept: parallel discrete event simulation with interpreted languages and just-in-time compilation.** Nandakishore Santhi, Stephan Eidenbenz, and Jason Liu. In *Proceedings of the 2015 Winter Simulation Conference (WSC)*, Huntington Beach, California, December 2015, 12 pages. [DOI: 10.1109/WSC.2015.7408405](https://doi.org/10.1109/WSC.2015.7408405)
 15. **Scalable emulation of SDN applications with simulation symbiosis.** Jason Liu and Cesar Marcondes. In *Proceedings of the SwitchOn Workshop*. São Paulo, Brazil, October 2015, 2 pages.
 16. **Toward scalable emulation of future Internet applications with simulation symbiosis.** Jason Liu, Cesar Marcondes, Musa Ahmed, and Rong Rong. In *Proceedings of the 19th IEEE/ACM International Symposium on Distributed Simulation and Real Time Applications (DS-RT)*, Chengdu, China, October 2015, 10 pages. (*Best Paper Nomination*) [DOI: 10.1109/DS-RT.2015.19](https://doi.org/10.1109/DS-RT.2015.19)
 17. **To ARC or not to ARC.** Ricardo Santana, Steven Lyons, Ricardo Koller, Raju Rangaswami, and Jason Liu. In *Proceedings of the 7th USENIX Workshop on Hot Topics in Storage and File Systems (HotStorage)*, Santa Clara, California, July 2015, 5 pages.
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 19. **Performance study of a minimalistic simulator on XSEDE massively parallel systems.** Rong Rong, Jiang Hao, Jason Liu. In *Proceedings of the 3rd Annual conference of the Extreme Science and Engineering Discovery Environment (XSEDE)*, Atlanta, Georgia, July 2014, Article No. 15. [DOI:10.1145/2616498.2616512](https://doi.org/10.1145/2616498.2616512).
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 21. **Toward PrimoGENI Constellation for distributed at-scale hybrid network test.** Jason Liu, Mohammad Abu Obaida, and Fernando Dos Santos. In *Proceedings of the 3rd GENI Research and Educational Experiment Workshop (GREE)*, Atlanta, GA, March 2014, 7 pages. [DOI:10.1109/GREE.2014.10](https://doi.org/10.1109/GREE.2014.10).
 22. **Real-time scheduling of logical processes for parallel discrete-event simulation.** Jason Liu. In *Proceedings of the 2013 Winter Simulation Conference (WSC)*, Washington, DC, December 2013, pp. 2959-2971. [DOI:10.1109/WSC.2013.6721664](https://doi.org/10.1109/WSC.2013.6721664).
 23. **Leveraging symbiotic relationship between simulation and emulation for scalable network experimentation.** Miguel A. Erazo and Jason Liu. In *Proceedings of the 2013 ACM SIGSIM Conference on Principles of Advanced Discrete Simulation (SIGSIM-PADS)*, Montreal, Canada, May 2013, pp. 79-90. [DOI:10.1145/2486092.2486103](https://doi.org/10.1145/2486092.2486103). (*Best Paper Nomination*)
 24. **Joint host-network optimization for energy-efficient data center networking.** Hao Jin, Tosmate Cheoherngarn, Dmita Levy, Alex Smith, Deng Pan, Jason Liu,

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25. **Depth-first worst-fit search based multipath routing for data center networks.** Tosmate Cheochnngarn, Hao Jin, Jean Andrian, Deng Pan, and Jason Liu, In *Proceedings of the 2012 IEEE Global Communications Conference (GLOBECOM 2012)*, Anaheim, CA, December 2012, pp. 2821-2826. [DOI:10.1109/GLOCOM.2012.6503544](https://doi.org/10.1109/GLOCOM.2012.6503544).
26. **Hierarchical composite synchronization.** Jason Liu and Rong Rong, In *Proceedings of the 26th Workshop on Principles of Advanced and Distributed Simulation (PADS 2012)*, Zhangjiajie, China, July 2012, pp. 3-12. [DOI:10.1109/PADS.2012.20](https://doi.org/10.1109/PADS.2012.20).
27. **Realizing large-scale interactive network simulation via model splitting.** Nathanael Van Vorst and Jason Liu, In *Proceedings of the 26th Workshop on Principles of Advanced and Distributed Simulation (PADS 2012)*, Zhangjiajie, China, July 2012, pp. 120-129. [DOI:10.1109/PADS.2012.35](https://doi.org/10.1109/PADS.2012.35).
28. **Toward comprehensive and accurate simulation performance prediction of parallel file systems.** Miguel Erazo, Ting Li, Jason Liu and Stephan Eidenbenz, In *Proceedings of the 42nd Annual IEEE/IFIP International Conference on Dependable Systems and Networks (DSN 2012)*, Boston, MA, June 2012, 12 pages. [DOI:10.1109/DSN.2012.6263930](https://doi.org/10.1109/DSN.2012.6263930).
29. **Simulation studies of OpenFlow-based in-network caching strategies.** Ting Li, Nathanael Van Vorst, Rong Rong, and Jason Liu, In *Proceedings of the 15th Communications and Networking Simulation Symposium (CNS 2012)*. Orlando, FL, March 2012, 7 pages. *(Best Paper Award)*
30. **How low can you go? Spherical routing for scalable network simulations.** Nathanael Van Vorst, Ting Li, and Jason Liu, In *Proceedings of the 19th Annual Meeting of the IEEE International Symposium on Modeling, Analysis and Simulation of Computer and Telecommunication Systems (MASCOTS 2011)*, Raffles Hotel, Singapore, July 2011, pp. 259-268. [DOI:10.1109/MASCOTS.2011.35](https://doi.org/10.1109/MASCOTS.2011.35).
31. **PrimoGENI: integrating real-time network simulation and emulation in GENI,** Nathanael Van Vorst, Miguel Erazo, and Jason Liu. In *Proceedings of the 25th Workshop on Principles of Advanced and Distributed Simulation (PADS 2011)*, Nice, France, June 2011, 9 pages. [DOI:10.1109/PADS.2011.5936747](https://doi.org/10.1109/PADS.2011.5936747).
32. **OpenFlow based flow level bandwidth provisioning for CICQ switches.** Hao Jin, Deng Pan, Jason Liu, and Niki Pissinou, In *Proceedings of 2011 IEEE International Conference on Computer Communications (INFOCOM 2011) Mini-Conference*, Shanghai, China, April 2011, pp. 476-480. [DOI:10.1109/INFCOM.2011.5935208](https://doi.org/10.1109/INFCOM.2011.5935208).
33. **Model-driven network emulation with virtual time machine.** Jason Liu, Raju Rangaswami, and Ming Zhao. In *Proceedings of the 2010 Winter Simulation Conference (WSC 2010)*, Baltimore, MD, December 2010, pp. 688-696. [DOI:10.1109/WSC.2010.5679120](https://doi.org/10.1109/WSC.2010.5679120).
34. **On enabling real-time large-scale network simulation in GENI: The PrimoGENI approach (poster abstract).** Miguel A. Erazo and Jason Liu, In *Proceedings of the 3rd International ICST Conference on Simulation Tools and Techniques (SIMUTools 2010)*, Torremolinos, Malaga, Spain, March 2010, 2 pages. [DOI:10.4108/ICST.SIMUTOOLS2010.8636](https://doi.org/10.4108/ICST.SIMUTOOLS2010.8636).

35. **A large-scale real-time network simulation study using PRIME.** Jason Liu, Yue Li, and Ying He, In *Proceedings of the 2009 Winter Simulation Conference (WSC'09)*, Austin, TX, USA, December 2009, pp. 797-806. [DOI:10.1109/WSC.2009.5429678](https://doi.org/10.1109/WSC.2009.5429678).
36. **Real-time security exercises on a realistic interdomain routing experiment platform.** Yue Li, Michael Liljenstam, and Jason Liu. In *Proceedings of the 23rd Workshop on Principles of Advanced and Distributed Simulation (PADS'09)*, Lake Placid, NY, USA, June 2009, pp. 54-63. [DOI:10.1109/PADS.2009.12](https://doi.org/10.1109/PADS.2009.12). (*Best Paper Nomination*)
37. **A fluid background traffic model.** Ting Li and Jason Liu. In *Proceedings of the 2009 IEEE International Conference on Communications (ICC'09)*, Dresden, Germany, June 2009, 6 pages. [DOI:10.1109/ICC.2009.5198605](https://doi.org/10.1109/ICC.2009.5198605).
38. **SVEET! A scalable virtualized evaluation environment for TCP.** Miguel Erazo, Yue Li, and Jason Liu. In *Proceedings of the 5th International Conference on Testbeds and Research Infrastructures for the Development of Networks and Communities (TridentCom'09)*, Washington DC, USA, April 2009, 10 pages. [DOI:10.1109/TRIDENTCOM.2009.4976227](https://doi.org/10.1109/TRIDENTCOM.2009.4976227).
39. **Toward scalable routing experiments with real-time network simulation.** Yue Li, Jason Liu, and Raju Rangaswami. In *Proceedings of the 22nd Workshop on Principles of Advanced and Distributed Simulation (PADS'08)*, Rome, Italy, June 2008, pp. 23-30. [DOI:10.1109/PADS.2008.25](https://doi.org/10.1109/PADS.2008.25).
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42. **Immersive real-time large-scale network simulation: a research summary.** Jason Liu. In *Proceedings of the 22nd IEEE International Parallel and Distributed Processing Symposium (IPDPS'08), NSF NGS Workshop*, Miami, Florida, April 2008, 5 pages. [DOI:10.1109/IPDPS.2008.4536406](https://doi.org/10.1109/IPDPS.2008.4536406).
43. **Parallel simulation of hybrid network traffic models.** Jason Liu. In *Proceedings of the 21st Workshop on Principles of Advanced and Distributed Simulation (PADS'07)*, San Diego, CA, USA, June 2007, pp. 141-151. [DOI:10.1109/PADS.2007.26](https://doi.org/10.1109/PADS.2007.26). (*Best Paper Nomination*)
44. **An open and scalable emulation infrastructure for large-scale real-time network simulations.** Jason Liu, Scott Mann, Nathanael Van Vorst, and Keith Hellman. In *Proceedings of INFOCOM 2007 MiniSymposium*, Anchorage, AK, USA, May 2007, pp. 2471-2475. [DOI:10.1109/INFCOM.2007.304](https://doi.org/10.1109/INFCOM.2007.304).
45. **Packet-level integration of fluid TCP models in real-time network simulation.** Jason Liu. In *Proceedings of the 2006 Winter Simulation Conference (WSC'06)*, Monterey, CA, USA, December 2006, pp. 2162-2169. [DOI:10.1109/WSC.2006.323017](https://doi.org/10.1109/WSC.2006.323017).
46. **Advanced concepts in large-scale network simulation.** David M. Nicol, Michael Liljenstam and Jason Liu. In *Proceedings of 2005 Winter Simulation Conference*

(WSC'05), Orlando, FL, USA, December 2005, pp. 153-166.

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47. **RINSE: the real-time interactive network simulation environment for network security exercises.** Michael Liljenstam, Jason Liu, David Nicol, Yougu Yuan, Guanhua Yan, and Chris Grier. In *Proceedings of the 19th Workshop on Principles of Advanced and Distributed Simulation (PADS'05)*, Monterey, CA, USA, June 2005, pp. 119-128. [DOI:10.1109/PADS.2005.23](https://doi.org/10.1109/PADS.2005.23). (Best Paper Nomination)
48. **Outdoor experimental comparison of four ad hoc routing algorithms.** Robert S. Gray, David Kotz, Calvin C. Newport, Nikita Dubrovsky, Aaron Fiske, Jason Liu, Christopher Masone, Susan McGrath, and Yougu Yuan. In *Proceedings of the 7th ACM/IEEE International Symposium on Modeling, Analysis and Simulation of Wireless and Mobile Systems (MSWiM'04)*, Venice, Italy, October 2004, pp. 220-229. [DOI: 10.1145/1023663.1023703](https://doi.org/10.1145/1023663.1023703).
49. **Experimental evaluation of wireless simulation assumptions.** David Kotz, Calvin Newport, Robert S. Gray, Jason Liu, Yougu Yuan, and Chip Elliott. In *Proceedings of the 7th ACM/IEEE International Symposium on Modeling, Analysis and Simulation of Wireless and Mobile Systems (MSWiM'04)*, Venice, Italy, October 2004, pp. 78-82. [DOI: 10.1145/1023663.1023679](https://doi.org/10.1145/1023663.1023679).
50. **Simulation validation using direct execution of wireless ad-hoc routing protocols.** Jason Liu, Yougu Yuan, David M. Nicol, Robert S. Gray, Calvin C. Newport, David F. Kotz, and Luiz Felipe Perrone. In *Proceedings of the 18th Workshop on Parallel and Distributed Simulation (PADS'04)*, Kufstein, Austria, May 2004, pp. 7-16. [DOI:10.1109/PADS.2004.1301280](https://doi.org/10.1109/PADS.2004.1301280). (Best Paper Nomination)
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64. **Parallelizable execution-driven simulation of threaded distributed memory parallel computations.** David M. Nicol and Jason X. Liu. In *Proceedings of the 4th International Workshop on Modeling, Analysis and Simulation of Computer and Telecommunication Systems (MASCOTS'96)*, San Jose, CA, February 1996, pp. 174-178. [DOI:10.1109/MASCOT.1996.501013](https://doi.org/10.1109/MASCOT.1996.501013).

BOOK CHAPTERS

1. **Parallel discrete-event simulation.** Jason Liu. *Wiley Encyclopedia of Operations Research and Management Science*. Edited by James J. Cochran. John Wiley & Sons, ISBN: 978-0-470-40063-0. March 2011, 21 pages. [DOI:10.1002/9780470400531](https://doi.org/10.1002/9780470400531).
2. **Parallel and distributed immersive real-time simulation of large-scale networks.** Jason Liu. *Parallel and Distributed Computing*. Edited by Alberto Ros Bardisa. ISBN: 978-953-307-057-5, pp. 221-245. [DOI:10.5772/9453](https://doi.org/10.5772/9453).

THESIS

1. **Improvements in conservative parallel simulation of large-scale models.** Xiaowen (Jason) Liu. *Ph.D. Thesis*. Dartmouth College. February 2003. Advisor: David M. Nicol.

TECHNICAL REPORTS

1. **Model-driven network emulation with virtual time machine.** Jason Liu, and Raju Rangaswami. *Technical Report TR-2009-03-01*, School of Computing and Information Sciences, Florida International University, March 2009.
2. **Outdoor experimental comparison of four ad hoc routing algorithms.** Robert S. Gray, David Kotz, Calvin Newport, Nikita Dubrovsky, Aaron Fiske, Jason Liu, Christopher Masone, Susan McGrath, and Yougu Yuan. *Technical Report TR2004-511*, Dept. of Computer Science, Dartmouth College, June 2004.
3. **Experimental evaluation of wireless simulation assumptions.** David Kotz, Calvin Newport, Robert S. Gray, Jason Liu, Yougu Yuan, and Chip Elliott. *Technical Report TR2004-507*, Dept. of Computer Science, Dartmouth College, June 2004.
4. **Lock-free scheduling of logical processes in parallel simulation.** Xiaowen Liu, David M. Nicol, and King Tan. *Technical Report TR2001-385*, Dept. of Computer Science, Dartmouth College, January 2001.
5. **Automatic video pause detection filter.** Xiaowen Liu, Charles B. Owen, and Fillia Makedon. *Technical Report PCS-TR97-307*, Dept. of Computer Science, Dartmouth College, February 1997.
6. **A critique of the Telecommunications Description Language (TeD).** Brian J. Premore, David M. Nicol, and Xiaowen Liu. *Technical Report PCS-TR96-299*, Dept. of Computer Science, Dartmouth College, November 1996.
7. **The dark side of risk (what your mother never told you about Time Warp).** David M. Nicol and Xiaowen Liu. *Technical Report PCS-TR96-298*, Dept. of Computer Science, Dartmouth College, November 1996.

FUNDED RESEARCH

1. **CSR: Medium: Collaborative Research: NVM-enabled Host-side Caches.** National Science Foundation (CNS-1563883). PI: Raju Rangaswami, Co-PIs: Giri Narasimhan, Jason Liu. \$648.1K, 2016-2019.
2. **Security Analyses and Applications of Complex Networks: From Theory to Practice.** Florida Center for Cybersecurity at University of South Florida. PI: Jason Liu. \$25K, 2016-2017.
3. **Creating and Composing SDN Security Modules.** Florida Center for Cybersecurity at University of South Florida. PI: Xin Sun. SI: Jason Liu. \$25K, 2016-2017.
4. **Scalable Discrete Event Simulation for Performance Prediction.** Los Alamos National Laboratory. PI: Jason Liu. \$252K, 2015-2017.
5. **Vulnerability and Survivability of Cyberspace: Basic Science to Applications.** Florida Center for Cybersecurity at University of South Florida. PI: Jason Liu (replacing Dr. Ming Zhao). \$25K, 2015-2016.
6. **EAGER: SwitchOn - Exploring and Strengthening US-Brazil Collaborations in Future Internet Research.** National Science Foundation (CNS-1443285). PI: Jason Liu. Co-PIs: Julio Ibarra, Heidi Alvarez. \$200K, 2014-2016.
7. **Enabling Time-sensitive Applications on Virtualized Computing Systems.** Department of Defense (#W911NF-13-1-0157). PI: Jason Liu (replacing Dr. Ming Zhao). \$642.7K, 2013-2017.

8. **PrimoGENI Constellation for Distributed At-Scale Hybrid Network Experimentation.** National Science Foundation (through Raytheon/GENI Project Office, CNS-1346688). PI: Jason Liu. \$269K, 2013-2015.
9. **SoftPM: Streamlining High-End Computing with Software Persistent Memory.** National Science Foundation, CCF-0937964. PI: Raju Rangaswami. Co-PIs: Jason Liu, Ming Zhao. \$712K, 2010-2013.
10. **PrimoGENI--Developing GENI Aggregates for Real-time Large-scale Network Simulation.** National Science Foundation (through Raytheon/GENI Project Office, CNS- 0714770). PI: Jason Liu. Co-PIs: Julio Ibarra, Heidi Alvarez. \$502K, 2009-2013.
11. **CREST: Center for Innovative Information Systems Engineering, Subproject 5: Complex System Modeling, Analysis and Realization (CS-MAR).** National Science Foundation, HRD-0833093. PI: Xudong He; Co-PIs: Shu-Ching Chen, Peter Clarke, Jason Liu, S. Masoud Sadjadi. \$825K, 2008-2013.
12. **CAREER: Immersive Large-Scale Network Simulations.** National Science Foundation, CNS-0546712, CNS-0836408. PI: Jason Liu. \$436K, 2006-2012.

INVITED TALKS (excluding paper presentations)

1. **Faster and better hybrid testbeds for future network research,** *Future Network Theory and Application Laboratory (FNL), Beijing University of Posts and Telecommunications*, Beijing, China, June 2017.
2. **High-performance modeling and simulation of computer networks,** *Department of Computer Science, Tsinghua University*, Beijing, China, May 2017.
3. **High-performance modeling and simulation of computer networks,** *Laboratory of Information, Networking and Communication Sciences (LINCS)*, Paris, France, April 2017.
4. **Extending PrimoGENI for symbiotic distributed network emulation,** *GENI Regional Workshop*, Miami, Florida, March 2017.
5. **Codesign performance prediction for computational physics 3rd year review - Interconnect models,** *Los Alamos National Laboratory*, Los Alamos, New Mexico, January 2017.
6. **Symbiotic modeling and high-performance simulation,** *Colorado School of Mines*, Golden, Colorado, January 2017.
7. **Modeling and simulation with performance & accuracy tradeoff,** *Arizona State University*, Tempe, Arizona, November 2016.
8. **Toward integrated multi-resolution HPC modeling for rapid performance prediction,** *Workshop on Modeling & Simulation of Systems and Applications*, Seattle, Washington, August 2016.
9. **Integrated modeling for rapid assessment and performance prediction of HPC applications,** *Salishan Conference on High-Speed Computing*, Gleneden Beach, Oregon, April 2016.
10. **Scalable experimentation of SDN applications,** *GEFI Workshop*, Brussels, Belgium, April 2016.
11. **High-performance simulation & modeling of computer systems and computer networks at scale,** *CENTRA Kickoff Meeting*, Taipei, Taiwan, March 2016.

12. **Applications of future network technologies to disaster management**, *NSF Workshop on Looking Beyond the Internet: Applications and Services in the Year 2021*, January 2016.
13. **Interconnect model and integration of MPI applications**, *Los Alamos National Laboratory*, Los Alamos, New Mexico, January 2016.
14. **Scalable emulation of SDN applications with simulation symbiosis**, *2nd SwitchOn Workshop*, Sao Paulo, Brazil, October 2015.
15. **Introducing SwitchOn project for strengthening US-Brazil collaborations for Future Network research**, *WPEIF Workshop at SBRC'15*, Vitoria, Brazil, May 2015.
16. **What about high-performance network simulation, seriously?** *Oak Ridge National Laboratory*, Oak Ridge, Tennessee, July 2014.
17. **Introduction to parallel simulation of large-scale networks**. *Huawei Co.*, Chengdu, China, April 2012.
18. **Can we really model the Internet?** *Florida International University*, School of Computing and Information Sciences, Miami, Florida, October 2011.
19. **Parallel simulation and high-performance network modeling**, *Beijing University of Technology*, Beijing, China, June 2011.
20. **Parallel simulation and high-performance network modeling**, *Tsinghua University*, Beijing, China, June 2011.
21. **Parallel simulation and high-performance network modeling**, *Beihang University*, Beijing, China, June 2011.
22. **Parallel simulation and high-performance network modeling**, *National University of Defense Technology*, Changsha, China, July 2011.
23. **Parallel simulation toward extreme-scale network experimentation**. *Los Alamos National Laboratory*, Los Alamos, New Mexico, May 2010.
24. **Parallel simulation toward extreme-scale network experimentation**. *Sandia National Laboratories*, Albuquerque, New Mexico, May 2010.
25. **Model-driven emulation of large-scale networks**. *University of Bonn*, Bonn, Germany, June 2009.
26. **Somewhere between network simulation and emulation**. *Florida International University*, Telecommunications and Information Technology Institute (IT2), Miami, Florida, February 2008.
27. **The PRIME project & hybrid traffic modeling**. *Florida International University*, School of Computing and Information Sciences, Miami, Florida, October 2007.
28. **Immersive real-time network simulation**. *Sandia National Laboratories*, Albuquerque, New Mexico, July 2007.
29. **The PRIME research: virtually all for real**. *Florida International University*, School of Computing and Information Sciences, Miami, Florida, April 2007.
30. **PRIME time research: virtually all for real**. *Colorado School of Mines*, Department of Mathematical and Computer Sciences, Golden, Colorado, January 2007.
31. **Parallel real-time immersive network modeling environment (PRIME)**. *University of Colorado at Boulder*, Boulder, Colorado, Department of Computer Science, September 2006.

32. **Parallel real-time immersive network modeling environment (PRIME).** *Los Alamos National Laboratory*, Los Alamos, New Mexico, August 2006.
33. **Toward parallel real-time simulation of global-scale networks.** *University of Colorado at Denver*, Department of Computer Science and Engineering, Denver, Colorado, February 2005.
34. **The “real” life of network simulations: research in real-time network simulations and validations.** *Colorado School of Mines*, Department of Mathematical and Computer Sciences, Golden, Colorado, January 2005.
35. **Riding the curve: scalable parallel simulation for networking research.** *Colorado School of Mines*, Golden, Colorado, Department of Mathematical and Computer Sciences, March 2004.
36. **Riding the curve: scalable parallel simulation for networking research.** *Virginia Polytechnic Institute and State University (Virginia Tech)*, Department of Computer Science, Blacksburg, Virginia, March 2004.
37. **Parallel simulation using DaSSF.** *Cray Inc.*, Seattle, Washington, April 2002.
38. **DaSSF and simulation of large-scale wireless ad-hoc networks.** *BBN Technologies*, Cambridge, Massachusetts, February 2002.
39. **Enabling large-scale discrete-event simulation with DaSSF.** *Los Alamos National Laboratory*, Los Alamos, New Mexico, January 2002.

HONORS AND AWARDS

- Honorary Visiting Professor, Tsinghua University, 2017-2020.
- ACM Distinguished Scientist, 2014.
- SIGSIM-PADS Best Paper Award, 2014.
- CNS Best Paper Award, 2012.
- NSF CAREER Award, 2006.
- FIU 2010 Top Scholars in Research, 2010.
- FIU SCIS Excellence in Service Award, 2009.
- GEC Travel Grant (several times).
- Beijing Outstanding Student Award in Physics and Engineering, 1992.
- University Academic Excellence Award, 1990–1993.
- University Scholarship, 1988–1989.

PROFESSIONAL SERVICES

- **Associate Editor**, ACM Transactions on Modeling and Computer Simulation (TOMACS), 2014-.
- **Associate Editor**, Simulation: Transactions of the Society for Modeling and Simulation International, 2009-.
- **Associate Editor**, International Journal of Multimedia, 2015-
- **Steering Committee Member**, ACM SIGSIM Conference on Principles of Advanced Discrete Simulation (**SIGSIM-PADS**), 2013-.
- **Guest Editor**, Simulation: Transactions of the Society for Modeling and Simulation International, Special Issue on Advanced and Distributed Simulation, 2009.
- **Steering Committee Member**, ACM/IEEE/SCS Workshop on Principles of Advanced and Distributed Simulation (**PADS**), 2008-2012.

- **General Co-Chair**, 26th ACM/IEEE/SCS Workshop on Principles of Advanced and Distributed Simulation (**PADS 2012**), Zhangjiajie, China, July 15-19, 2012.
- **General Chair**, 4th International ICST Conference on Simulation Tools and Techniques (**SIMUTools 2011**), Barcelona, Spain, March 21-25, 2011.
- **General Chair**, 18th Annual Meeting of the IEEE/ACM International Symposium on Modeling, Analysis and Simulation of Computer and Telecommunication Systems (**MASCOTS 2010**), Miami Beach, Florida, August 17-19, 2010.
- **General Chair**, 1st SwitchOn Workshop, Miami, Florida, January 8-9, 2015.
- **General Chair**, 2nd SwitchOn Workshop, São Paulo, Brazil, October 15-16, 2015.
- **Program Co-Chair**, 3rd International ICST Conference on Simulation Tools and Techniques (**SIMUTools 2010**), Torremolinos, Malaga, Spain, March 15-19, 2010.
- **Track Coordinator**, 2014 Winter Simulation Conference (WSC), Networks and Communications Track, Savannah, GA, December 7-10, 2014.
- **Local Coordinator**, 25th GENI Engineering Conference (**GEC25**), Miami, Florida, March 13-15, 2017.
- **Local Coordinator**, 4th GENI Engineering Conference (**GEC4**), Miami, Florida, March 31-April 2, 2009.
- **Program Chair**, 22nd Workshop on Principles of Advanced and Distributed Simulation (**PADS 2008**), Rome, Italy, June 3-6, 2008.
- **Proceedings Co-Editor**, 2006 Winter Simulation Conference (**WSC**), Monterey, California, December 2-5, 2006.
- **Publicity Chair**, 19th Workshop on Principles of Advanced and Distributed Simulation (**PADS 2005**), Monterey, California, June 1-3, 2005.
- **NSF Panelist**: 2008, 2009, 2014, 2016
- **Program Committee Membership**:
 - ACM SIGSIM Conference on Principles of Advanced Discrete Simulation (**SIGSIM-PADS**), and previously ACM/IEEE/SCS Workshop on Principles of Advanced and Distributed Simulation (**PADS**), 2005-2017.
 - Annual Meeting of the IEEE/ACM International Symposium on Modeling, Analysis and Simulation of Computer and Telecommunication Systems (**MASCOTS**), 2009-2012, 2015, 2017.
 - IEEE International Parallel & Distributed Processing Symposium (**IPDPS**), 2017.
 - Annual IEEE/IFIP International Conference on Dependable Systems and Networks (**DSN**), 2013.
 - IEEE Conference on Local Computer Networks (**LCN**), 2008-2012, 2015-2017.
 - International Conference on Testbeds and Research Infrastructures for the Development of Networks and Communities (**TRIDENTCOM**), 2009-2011, 2015.
 - IEEE/ACM International Symposium on Distributed Simulation and Real-time Applications (**DS-RT**), 2008-2012.
 - ICST International Conference on Simulation Tools and Techniques (**SIMUTools**), 2009-2012, 2016-2017.
 - Winter Simulation Conference (**WSC**), 2012, 2017
 - Others (many others unaccounted for): **SIMULTECH** 2015; **HPCC** 2011, 2012; **ICC** 2012; **SN** 2008-2011; **DCPerf** 2011; **ChinaCom** 2009, 2010; **WCNC** 2010,

2011; **ICISTM** 2009; **ICNSC** 2008, 2009; **ICCCN** 2008-2011, 2015; **IWCMC** 2007; **AsiaSim** 2013

- **Other Professional Activities**

- Member of ACM, 2003-current.
- Member of IEEE Computer Society, 2003-current.
- Member of IEEE Communication Society, 2006-2009.