

Thu D. Nguyen

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Education

- PhD, Computer Science and Engineering, University of Washington, Seattle, 1999.
- MS, Electrical Engineering and Computer Science, Massachusetts Institute of Technology, 1988.
- BS, Electrical Engineering and Computer Science, University of California, Berkeley, 1986.

Professional Appointments

- 1999–present: Rutgers University.
 - 2019–present: Dean of Mathematical and Physical Sciences, School of Arts and Sciences.
 - 2017–2019: Chair, Department of Computer Science.
 - 2012–2017: Associate Chair, Department of Computer Science.
 - 2015–2020: Associate Director for Research Cyberinfrastructure, Rutgers Discovery Informatics Institute.
 - 2015–present: Professor, Department of Computer Science.
 - 2006–2015: Associate Professor, Department of Computer Science.
 - 1999–2006: Assistant Professor, Department of Computer Science.
- 2019–present: Member of Scientific Advisory Board, Vingroup.
- 2020–present: Member of Advisory Council and Pre-selection Committee, VinFuture Prize.
- 2000–2001, 2006–2008: IAC Search & Media Inc. (Ask.com).
 - 2006–2007: Director of Web Crawling.
 - 2000–2001, 2007–2008: Consultant.
- 1986–1991: AT&T Bell Laboratories. Member of Technical Staff.

Honors and Awards

- Rutgers Big Ten Academic Alliance (BTAA) Department Executive Officers (DEO) Fellow, AY 2018.
- I. Manousakis, S. Sankar, G. McKnight, T. D. Nguyen, and R. Bianchini. Environmental Conditions and Disk Reliability in Free-cooled Datacenters. In *Proceedings of the USENIX Conference on File and Storage Technologies (FAST)*, Feb 2016. **Best paper award.**
- I. Goiri, W. Katsak, K. Le, T. D. Nguyen, and R. Bianchini. Designing and Managing Datacenters Powered by Renewable Energy. *IEEE Micro (Top Picks from the Computer Architecture Conferences)*, 34(3), 2014.

- F. M. Cuenca-Acuna, C. Peery, R. P. Martin, and T. D. Nguyen. PlanetP: Using Gossiping to Build Content Addressable Peer-to-Peer Information Sharing Communities. In *Proceedings of the IEEE International Symposium on High Performance Distributed Computing (HPDC)*, June 2003. Republished in *Best Papers from the Last 20 Years of HPDC*, June 2012.
- K. Le, O. Bilgir, R. Bianchini, M. Martonosi, and T. D. Nguyen. Capping the Brown Energy Consumption of Internet Services at Low Cost. In *Proceedings of the International Green Computing Conference (IGCC)*, Aug 2010. **Best paper award. IEEE Sustainable Computing Register Pick of the Month** April 2012.
- NSF Faculty Early Career Development (**CAREER**) award: Recipe for the Taming of a Chimaera: Toward No-Futz Computing. 2005–2010.
- **Faculty of the Year Award for Excellence in Teaching**, Computer Science Graduate Student Society of Rutgers University, awarded in two separate years, 2000 and 2002.

Grants

- PI. Simons Foundation. Junior Faculty Fellows – COVID-19 Recovery Hiring in Computer Science, Math, and Physics. Amount \$2,250,000. Duration: 2021–2024.
- Co-PI. Northeastern Center for Inclusive Computing (CIC). Inclusive Computing at Rutgers. Amount \$490,000. Duration: 2020–2022.
- Co-PI. PAWR, LLC (NSF CNS PAWR and the PAWR Industry Consortium). PAWR Platform COSMOS: Cloud Enhanced Open Software Defined Mobile Wireless Testbed for City-Scale Deployment. Amount: \$6,500,000. Duration: 2018–2021.
- Co-PI. NSF OAC CISE Research Resources. CC* Integration: Rutgers University Next-Generation Edge Testbed (RU-NET). Amount: \$999,024. Duration: 2019–2021.
- Co-PI. Defense Intelligence Agency. Intelligence Community Centers for Academic Excellence Critical Technology Studies Program at Rutgers. Amount: \$2,000,000. Duration: 2018–2021.
- Co-PI. NSF CISE CNS Special Projects. Addressing Issues of Equity and Engagement in Computer Science (CS) through a Research Practice Partnership: The CS Teaching and Learning Collaboratory. Amount: \$1,000,000. Duration: 2019–2020.
- PI. NSF CISE CNS Computing Research Infrastructure. II-EN: Collaborative Research: Enhancing the Parasol Experimental Testbed for Sustainable Computing. Amount: \$691,713. Duration: 2017–2020.
 - PI. NSF CISE CNS Computing Research Infrastructure – Research Experiences for Teachers: Supplement Opportunity (RET). Amount: \$10,000. Duration: 2017.
- SP. NSF CISE OAC DATANET. CIF21 DIBBs: EI: Virtual Data Collaboratory: A Regional Cyberinfrastructure for Collaborative Data Intensive Science. Amount: \$4,000,000. Duration: 2016–2020.
- Co-PI. NSF EHR DUE Scholarships in Science, Technology, Engineering, and Mathematics, Improving Undergraduate STEM Education. Computer Science Living-Learning Community for Women at Rutgers. Amount: \$249,999.00. Duration: 2015–2019.

- Co-PI. NSF CISE CNS STEM + Computing (STEM+C) Part. The CS Teaching and Learning Collaboratory (CS-TLC): Building Capacity, Rigor, and Equity in Computer Science Education. Amount: \$250,000. Duration: 2018.
- Co-PI. Google. Increasing Scalability and Diversity in the Face of Large Growth in Computer Science Enrollment. Amount: \$693,000. Duration: 2015–2018.
- PI. Microsoft Research Award for the Software Engineering Foundation (SEIF). CoolProvision: Provisioning of Cooling Systems for Datacenters. Amount: \$40,000. Duration: 2014–2015.
- Co-PI. Google Faculty Research Award: Remembrance of Data Past: Using Context in Personal Information Search. Amount: \$62,500. Duration: 2013–2014.
- Co-PI. NSF EHR DGE CyberCorps: Scholarship for Service. Enhancing the Capacity for Information Assurance Education Through Interdisciplinary Collaboration. Amount: \$292,670. Duration: 2012–2014.
- Co-PI. NSF CISE CNS Computer Systems Research. Scheduling Energy Consumption in Green Datacenters. Amount: \$420,000. Duration: 2011–2014.
- PI. NSF CISE CNS Computer Systems Research. Operator Proof Systems Management. Amount \$498,596. Duration: 2009–2013.
- PI. NSF CISE CNS Advanced Network Infrastructure and Research, Networking Technology and System. Recipe for the Taming of a Chimaera: Toward No-Futz Computing. Amount:\$400,000. Duration: 2005–2010. **CAREER Award**.
- PI. NSF CISE CNS Computer Systems Research. Guiding and Validating Operator Behavior in Internet Services. Amount: \$600,000. Duration: 2005–2008.
- Co-PI. NSF CISE CNS Major Research Instrumentation. Multisensory Human Interaction Measurement and Synthesis for Computer Graphics and Interactive Virtual Environments. Amount: \$259,598. Duration: 2002–2005.
- PI. NSF CISE CNS Next Generation Software. System and Compiler Support for Component-Based Construction of Scalable Internet Services. Amount: \$539,370. Duration: 2001–2004.
- Co-PI. New Jersey Commission on Science and Technology. Software Engineering on Distributed Computing. Amount: \$2,063,907. Duration: 2001–2005.
- PI. Panasonic Technologies, Inc. Securing Peer-to-Peer Networked Systems. Amount: \$50,000. Duration: 2001–2002.
- PI. NSF CISE EIA Research Resources. System Support for Scalable, Fault-Tolerant Computing and Services on PC Clusters. Amount: \$144,510. Duration: 2000–2003.
- Co-PI. USENIX. High-Performance Fault-Tolerant Distributed Shared-Memory for Linux-based PC Clusters. Amount: \$44,000. Duration: 1999–2000.

Publications

- G. Haldeman, A. Tjang, M. Babes-Vroman, and T. D. Nguyen. CSF2: Formative Feedback in Auto-grading. *ACM Transactions on Computing Education (TOCE)*. To appear
- S. Muller, M. Babes-Vroman, M. Emenike, and T. D. Nguyen. Exploring Novice Programmers' Homework Practices: Initial Observations of Information Seeking Behaviors. In *Proceedings of the ACM Technical Symposium on Computer Science Education (SIGCSE)*, March 2020

- D. Vianna, V. Kalokyri, A. Borgida, A. Marian, and T. D. Nguyen. Searching Heterogeneous Personal Digital Traces. In *Proceedings of the Annual Meeting of the Association for Information Science and Technology (ASIS&T)*, Oct. 2019
- G. Hu, S. Rigo, D. Zhang, and T. D. Nguyen. Approximation with Error Bounds in Spark. In *Proceedings of the IEEE International Symposium on the Modeling, Analysis, and Simulation of Computer and Telecommunication Systems (MASCOTS)*, Oct. 2019
- W. Katsak, H. Nguyen, K. Nagaraja, J. Halen, N. Radia, and T. D. Nguyen. Catalyst : A Cloud-based Media Processing Framework. In *Proceedings of the IEEE International Conference on Distributed Computing Systems (ICDCS), Workshop on Data Science*, jul 2019
- R. Wright, S. Nadler, T. D. Nguyen, C. S. Gomez, and H. Wright. Computer Science Living-Learning Community for Women at Rutgers. In *Proceedings of the ACM Technical Symposium on Computer Science Education (SIGCSE)*, Feb 2019
- I. Manousakis, R. Bianchini, I. Goiri, S. Rigo, and T. D. Nguyen. Uncertainty Propagation in Data Processing Systems. In *Proceedings of the ACM Symposium on Cloud Computing (SoCC)*, Oct 2018
- G. Haldeman, A. Tjang, M. Babes-Vroman, S. Bartos, J. Shah, D. Yucht, and T. D. Nguyen. Providing Meaningful Feedback for Autograding of Programming Assignments. In *Proceedings of the ACM Technical Symposium on Computer Science Education (SIGCSE)*, Feb 2018.
- M. E. Haque, Y. He, S. Elnikety, T. D. Nguyen, R. Bianchini, and K. S. McKinley. Exploiting Heterogeneity for Tail Latency and Energy Efficiency. In *Proceedings of the IEEE/ACM International Symposium on Microarchitecture (MICRO)*, Oct 2017.
- M. Babes-Vroman, I. Juniewicz, B. Lucarelli, N. Fox, G. Haldeman, A. Mehta, R. Choksi, T. D. Nguyen, and A. Tjang. Exploring Gender Diversity in CS at a Large Public R1 Research University. In *Proceedings of the ACM Technical Symposium on Computer Science Education (SIGCSE)*, March 2017.
- I. Manousakis, S. Sankar, G. McKnight, T. D. Nguyen, and R. Bianchini. Environmental Conditions and Disk Reliability in Free-cooled Datacenters. In *Proceedings of the USENIX Conference on File and Storage Technologies (FAST)*, Feb 2016. **Best paper award.**
- W. Katsak, I. Goiri, R. Bianchini, and T. D. Nguyen. GreenCassandra: Using Renewable Energy in Distributed Structured Storage Systems. In *Proceedings of the International Green and Sustainable Computing Conference (IGSC)*, Dec 2015.
- X. Wang, D. K. Chandrashekhara, M. E. Haque, I. Goiri, R. Bianchini, and T. D. Nguyen. Grid-Aware Placement of Datacenters and Wind Farms. In *Proceedings of the International Green and Sustainable Computing Conference (IGSC)*, Dec 2015.
- I. Manousakis, I. Goiri, S. Sankar, T. D. Nguyen, and R. Bianchini. CoolProvision: Underprovisioning Datacenter Cooling. In *Proceedings of the ACM Symposium on Cloud Computing (SoCC)*, Aug 2015.
- M. E. Haque, I. Goiri, R. Bianchini, and T. D. Nguyen. GreenPar: Scheduling Parallel High Performance Applications in Green Datacenters. In *Proceedings of the International Conference on Supercomputing (ICS)*, June 2015.
- I. Goiri, R. Bianchini, S. Nagarakatte, and T. D. Nguyen. ApproxHadoop: Bringing Approximations to MapReduce Frameworks. In *Proceedings of the International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS)*, March 2015.

- I. Goiri, T. D. Nguyen, and R. Bianchini. CoolAir: Temperature- and Variation-Aware Management for Free-Cooled Datacenters. In *Proceedings of the International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS)*, March 2015.
- I. Goiri, M. E. Haque, K. Le, R. Beauchea, T. D. Nguyen, J. Guitart, J. Torres, and R. Bianchini. Matching Renewable Energy Supply and Demand in Green Datacenters. *Ad Hoc Networks*, 25(Part B), Feb 2015.
- J. Berral, I. Goiri, T. D. Nguyen, R. Gavaldà, J. Torres, and R. Bianchini. Building Green Cloud Services at Low Cost. In *Proceedings of the International Conference on Distributed Computing Systems (ICDCS)*, July 2014.
- I. Goiri, W. Katsak, K. Le, T. D. Nguyen, and R. Bianchini. Designing and Managing Datacenters Powered by Renewable Energy. *IEEE Micro (Top Picks from the Computer Architecture Conferences)*, 34(3), 2014.
- D. Vianna, A.-M. Yong, C. Xia, A. Marian, and T. D. Nguyen. A Tool for Personal Data Extraction. In *Proceedings of the International Workshop on Information Integration on the Web (IIWeb)*, March 2014.
- M. E. Haque, K. Le, I. Goiri, R. Bianchini, and T. D. Nguyen. Providing Green SLAs in High Performance Computing Clouds. In *Proceedings of the International Green Computing Conference (IGCC)*, June 2013.
- C. Li, I. Goiri, A. Bhattacharjee, R. Bianchini, and T. D. Nguyen. Quantifying and Improving I/O Predictability in Virtualized Systems. In *Proceedings of the IEEE/ACM International Symposium on Quality of Service (IWQoS)*, June 2013.
- I. Goiri, W. Katsak, K. Le, T. D. Nguyen, and R. Bianchini. Parasol and GreenSwitch: Managing Datacenters Powered by Renewable Energy. In *Proceedings of the Symposium on Architectural Support for Programming Languages and Operating Systems (ASPLOS)*, March 2013.
- M. Etinski, M. Martonosi, K. Le, R. Bianchini, and T. D. Nguyen. Optimizing the Use of Request Distribution and Stored Energy for Cost Reduction in Multi-Site Internet Services. In *Proceedings of the IFIP Conference on Sustainable Internet and ICT (SustainIT)*, Oct 2012.
- T. Vu, A. Baid, Y. Zhang, T. D. Nguyen, J. Fukuyama, R. P. Martin, and D. Raychaudhuri. DMap: A Shared Hosting Scheme for Dynamic Identifier to Locator Mappings in the Global Internet. In *Proceedings of the International Conference on Distributed Computing Systems (ICDCS)*, June 2012.
- F. M. Cuenca-Acuna, C. Peery, R. P. Martin, and T. D. Nguyen. PlanetP: Using Gossiping to Build Content Addressable Peer-to-Peer Information Sharing Communities. In *Proceedings of the IEEE International Symposium on High Performance Distributed Computing (HPDC)*, June 2003. Republished in *Best Papers from the Last 20 Years of HPDC*, June 2012.
- I. Goiri, K. Le, T. D. Nguyen, J. Guitart, J. Torres, and R. Bianchini. GreenHadoop: Leveraging Green Energy in Data-Processing Frameworks. In *Proceedings of the Eurosys Conference*, April 2012.
- W. Wang, C. Peery, A. Marian, and T. D. Nguyen. Efficient Multi-dimensional Fuzzy Search for Personal Information Management Systems. *IEEE Transactions on Knowledge and Data Engineering (TKDE)*, 24(9), 2012.
- K. Le, J. Zhang, J. Meng, R. Bianchini, Y. Jaluria, and T. D. Nguyen. Reducing Electricity Cost Through Virtual Machine Placement in High Performance Computing Clouds. In *Proceedings of the Supercomputing Conference (SC)*, Nov 2011.

- I. Goiri, K. Le, M. E. Haque, R. Beauchea, T. D. Nguyen, J. Guitart, J. Torres, and R. Bianchini. GreenSlot : Scheduling Energy Consumption in Green Datacenters. In *Proceedings of the Supercomputing Conference (SC)*, Nov 2011.
- W. Wang, A. Marian, and T. D. Nguyen. Unified Structure and Content Search for Personal Information Management Systems. In *Proceedings of the International Conference on Extending Database Technology (EDBT)*, March 2011.
- W. Zheng, R. Bianchini, and T. D. Nguyen. MassConf: Automatic Configuration Tuning By Leveraging User Community Information. In *Proceedings of the ACM/SPEC International Conference on Performance Engineering (ICPE)*, March 2011.
- K. Le, O. Bilgir, R. Bianchini, M. Martonosi, and T. D. Nguyen. Capping the Brown Energy Consumption of Internet Services at Low Cost. In *Proceedings of the International Green Computing Conference (IGCC)*, Aug 2010. **Best paper award. IEEE Sustainable Computing Register Pick of the Month** April 2012.
- F. Oliveira, A. Tjang, R. Bianchini, R. P. Martin, and T. D. Nguyen. Barricade: Defending Systems Against Operator Mistakes. In *Proceedings of the Eurosys Conference*, April 2010.
- K. Le, R. Bianchini, M. Martonosi, and T. D. Nguyen. Cost- and Energy-Aware Load Distribution Across Data Centers. In *Proceedings of the Workshop on Power Aware Computing and Systems (HotPower)*, Oct 2009.
- A. Tjang, F. Oliveira, R. Bianchini, R. P. Martin, and T. D. Nguyen. Model-Based Validation for Internet Services. In *Proceedings of the IEEE International Symposium on Reliable Distributed Systems (SRDS)*, Sept 2009.
- C. Peery, W. Wang, A. Marian, and T. D. Nguyen. Fuzzy Multi-Dimensional Search in the Wayfinder File System. In *Proceedings of the International Conference on Data Engineering (ICDE) – Demo Track*, April 2008.
- C. Peery, W. Wang, A. Marian, and T. D. Nguyen. Multi-Dimensional Search for Personal Information Management Systems. In *Proceedings of the International Conference on Extending Database Technology (EDBT)*, March 2008.
- K. Le, R. Bianchini, and T. D. Nguyen. A Cost-Effective Distributed File Service with QoS Guarantees. In *Proceedings of the ACM/IFIP/USENIX 2007 International Conference on Middleware*, Nov 2007.
- W. Zheng, R. Bianchini, and T. D. Nguyen. Automatic Configuration of Internet Services. In *Proceedings of the Eurosys Conference*, March 2007.
- C. Peery, F. M. Cuenca-Acuna, and T. D. Nguyen. Reducing the Availability Management Overheads of Federated Content Sharing Systems. In *Proceedings of the IEEE International Symposium on Reliable Distributed Systems (SRDS)*, Oct 2006.
- A. Tjang, F. Oliveira, R. P. Martin, and T. D. Nguyen. A : An Assertion Language for Distributed Systems. In *Proceedings of the Workshop on Linguistic Support for Modern Operating Systems (PLOS)*, Oct 2006.
- F. Oliveira, K. Nagaraja, R. Bachwani, R. Bianchini, R. P. Martin, and T. D. Nguyen. Understanding and Validating Database System Administration. In *Proceedings of the USENIX Annual Technical Conference (ATC)*, May 2006.

- T. Phan, Z. He, and T. D. Nguyen. Using Firewalls to Enforce Enterprise-Wide Policies over Standard Client-Server Interactions. *Journal of Computers*, 1(1), 2006.
- Z. He, T. Phan, and T. D. Nguyen. Enforcing Enterprise-wide Policies Over Standard Client-Server Interactions. In *Proceedings of the IEEE International Symposium on Reliable Distributed Systems (SRDS)*, Oct 2005.
- R. Bianchini, R. P. Martin, K. Nagaraja, T. D. Nguyen, and F. Oliveira. Human-Aware Computer System Design. In *Proceedings of the Workshop on Hot Topics in Operating Systems (HotOS)*, June 2005.
- Y. Coady, R. Cox, J. DeTreville, P. Druschel, J. Hellerstein, A. Hume, K. Keeton, T. D. Nguyen, C. Small, L. Stein, and A. Warfield. Falling off the Cliff: When Systems Go Nonlinear. In *Proceedings of the Workshop on Hot Topics in Operating Systems (HotOS)*, June 2005.
- K. Nagaraja, G. Gama, R. Bianchini, R. P. Martin, M. J. Wagner, and T. D. Nguyen. Quantifying the Performability of Cluster-Based Services. *IEEE Transactions on Parallel and Distributed Systems*, 16(5), 2005.
- K. Nagaraja, F. Oliveira, R. Bianchini, R. P. Martin, and T. D. Nguyen. Understanding and Dealing with Operator Mistakes in Internet Services. In *Proceedings of the USENIX Symposium on Operating Systems Design and Implementation (OSDI)*, Dec 2004.
- F. M. Cuenca-Acuna and T. D. Nguyen. Self-Managing Federated Services. In *Proceedings of the IEEE International Symposium on Reliable Distributed Systems (SRDS)*, Oct 2004.
- G. Gama, K. Nagaraja, R. Bianchini, R. P. Martin, M. J. Wagner, and T. D. Nguyen. State Maintenance and its Impact on the Performability of Multi-tiered Internet Services. In *Proceedings of the IEEE International Symposium on Reliable Distributed Systems (SRDS)*, Oct 2004.
- X. Li, T. D. Nguyen, and R. P. Martin. Using Adaptive Range Control to Maximize 1-Hop Broadcast Coverage in Dense Wireless Networks. In *Proceedings of the IEEE International Conference on Sensor and Ad hoc Communications and Networks (SECON)*, Oct 2004.
- C. Peery, F. M. Cuenca-Acuna, R. P. Martin, and T. D. Nguyen. Wayfinder: Navigating and Sharing Information in a Decentralized World. In *Proceedings of the International Workshop on Databases, Information Systems and Peer-to-Peer Computing (DBISP2P)*, Aug 2004.
- X. Li, T. D. Nguyen, and R. P. Martin. An Analytic Model Predicting the Optimal Range for Maximizing 1-Hop Broadcast Coverage in Dense Wireless Networks. In *Proceedings of the Conference on Ad-Hoc, Mobile, and Wireless Networks*, July 2004.
- M. Ionescu, N. Minsky, and T. D. Nguyen. Enforcement of Communal Policies for P2P Systems. In R. De Nicola, G. Ferrari, and G. Meredith, editors, *Coordination Models and Languages, Lecture Notes in Computer Science*, volume 2949. Springer, Feb 2004.
- K. Nagaraja, N. Krishnan, R. Bianchini, R. P. Martin, and T. D. Nguyen. Quantifying and Improving the Availability of High-Performance Cluster-Based Internet Services. In *Proceedings of the Supercomputing Conference (SC)*, Nov 2003.
- F. M. Cuenca-Acuna, R. P. Martin, and T. D. Nguyen. Autonomous Replication for High Availability in Unstructured P2P Systems. In *Proceedings of the IEEE International Symposium on Reliable Distributed Systems (SRDS)*, Oct 2003.
- F. M. Cuenca-Acuna, C. Peery, R. P. Martin, and T. D. Nguyen. PlanetP: Using Gossiping to Build Content Addressable Peer-to-Peer Information Sharing Communities. In *Proceedings of the IEEE International Symposium on High Performance Distributed Computing (HPDC)*, June 2003.

- C. Fu, R. P. Martin, K. Nagaraja, D. Wonnacott, T. D. Nguyen, and B. G. Ryder. Compiler-directed Program-fault Coverage for Highly Available Java Internet Services. In *Proceedings of the International Conference on Dependable Systems and Networks (DSN)*, June 2003.
- K. Nagaraja, X. Li, R. Bianchini, R. P. Martin, and T. D. Nguyen. Using Fault Injection and Modeling to Evaluate the Performability of Cluster-Based Services. In *Proceedings of the USENIX Symposium on Internet Technologies and Systems (USITS)*, March 2003.
- K. Nagaraja, N. Krishnan, R. Bianchini, R. P. Martin, and T. D. Nguyen. Evaluating the Impact of Communication Architecture on the Performability of Cluster-Based Services. In *Proceedings of the International Symposium on High-Performance Computer Architecture (HPCA)*, Feb 2003.
- K. Nagaraja, R. Bianchini, R. P. Martin, and T. D. Nguyen. Using Fault Model Enforcement to Improve Availability. In *Proceedings of the Workshop on Evaluating and Architecting System dependability (EASY)*, Oct 2002.
- F. M. Cuenca-Acuna and T. D. Nguyen. Text-Based Content Search and Retrieval in Ad-hoc P2P Communities. In *Proceedings of the International Workshop on Peer-to-Peer Computing, Lecture Notes in Computer Science*, volume 2376. Springer-Verlag, May 2002.
- T. Heath, R. P. Martin, and T. D. Nguyen. Improving Cluster Availability Using Workstation Validation. In *Proceedings of the ACM SIGMETRICS International Conference on Measurement and Modeling of Computer Systems*, June 2002.
- X. Ao, N. Minsky, and T. D. Nguyen. A Hierarchical Policy Specification Language, and Enforcement Mechanism, for Governing Digital Enterprises. In *Proceedings of the International Workshop on Policies for Distributed Systems and Networks*, June 2002.
- X. Li, R. P. Martin, K. Nagaraja, T. D. Nguyen, and B. Zhang. Mendosus: A SAN-Based Fault-Injection Test-Bed for the Construction of Highly Available Network Services. In *Proceedings of the Workshop on Novel Uses of System Area Networks (SAN)*, Feb 2002.
- F. M. Cuenca-Acuna and T. D. Nguyen. Cooperative Caching Middleware for Cluster-Based Servers. In *Proceedings of the International Symposium on High Performance Distributed Computing (HPDC)*, Aug 2001.
- T. Heath, R. P. Martin, and T. D. Nguyen. The Shape of Failure. In *Proceedings of the Workshop on Evaluating and Architecting System dependability (EASY)*, July 2001.
- R. P. Martin, K. Nagaraja, and T. D. Nguyen. Using Distributed Data Structures for Constructing Cluster-Based Services. In *Proceedings of the Workshop on Evaluating and Architecting System dependability (EASY)*, July 2001.
- T. D. Nguyen, C. Peery, and J. Zahorjan. DDDDRRaW: A Prototype Toolkit for Distributed Real-Time Rendering on Commodity Clusters. In *Proceedings of the International Parallel and Distributed Processing Symposium (IPDPS)*, May 2001.
- T. Heath, S. Kaur, R. P. Martin, and T. D. Nguyen. Quantifying the Impact of Architectural Scaling on Communication. In *Proceedings of the International Symposium on High-Performance Computer Architecture (HPCA)*, Jan 2001.
- F. Sultan, T. D. Nguyen, and L. Iftode. Scalable Fault-Tolerant Distributed Shared Memory. In *Proceedings of the Conference on Supercomputing (SC)*, Nov 2000.
- X. Ao, N. Minsky, T. Nguyen, and V. Ungureanu. Law-Governed Internet Communities. In *Proceedings of the International Conference on Coordination Models and Languages (COORDINATION)*, Sept 2000.

- T. D. Nguyen and J. Zahorjan. Image Layer Decomposition for Distributed Rendering on NOWs. In *Proceedings of the International Parallel and Distributed Processing Symposium (IPDPS)*, May 2000.
- R. E. Anderson, T. D. Nguyen, and J. Zahorjan. Cascaded Execution : Speeding Up Unparallelized Execution on Shared-Memory Multiprocessors. In *Proceedings of the Merged IPPS/SPDP Symposium*, April 1999.
- T. D. Nguyen and J. Zahorjan. Scheduling Policies to Support Distributed 3D Multimedia Applications. In *Proceedings of the ACM SIGMETRICS/PERFORMANCE Joint International Conference on Measurement and Modeling of Computer Systems*, June 1998.
- T. D. Nguyen, R. Vaswani, and J. Zahorjan. Maximizing Speedup through Self-Tuning of Processor Allocation. In *Proceedings of the International Parallel Processing Symposium (IPPS)*, April 1996.
- T. D. Nguyen, R. Vaswani, and J. Zahorjan. Parallel Application Characterization for Multiprocessor Scheduling Policy Design. In D. G. Feitelson and L. Rudolph, editors, *Job Scheduling Strategies for Parallel Processing, Lecture Notes in Computer Science*, volume 1162. Springer-Verlag, April 1996.
- T. D. Nguyen, R. Vaswani, and J. Zahorjan. Using Runtime Measured Workload Characteristics in Parallel Processor Scheduling. In D. G. Feitelson and L. Rudolph, editors, *Job Scheduling Strategies for Parallel Processing, Lecture Notes in Computer Science*, volume 1162. Springer-Verlag, April 1996.
- T. D. Nguyen and Lawrence Snyder. Performance Analysis of a Minimal Adaptive Router. In K. Bolding and L. Snyder, editors, *Proceedings of the Parallel Computer Routing and Communication Workshop (PCRC), Lecture Notes in Computer Science*, volume 853. Springer-Verlag, May 1994.
- C. A. Thekkath, T. D. Nguyen, E. Moy, and E. D. Lazowska. Implementing Network Protocols at User Level. *IEEE/ACM Transactions on Networking*, 1(5), 1993.
- C. A. Thekkath, T. D. Nguyen, E. D. Lazowska, and E. Moy. Implementing Network Protocols at User Level. In *Proceedings of the ACM SIGCOMM Conference*, Sept 1993.
- E. Amoroso, T. D. Nguyen, J. Weiss, J. Watson, P. Lapiska, and T. Starr. Toward an Approach to Measuring Software Trust. In *Proceedings of the IEEE Symposium on Research in Security and Privacy*, May 1991.
- E. Amoroso and T. D. Nguyen. An Approach to Ada Compiler Acceptance Testing. In *Proceedings of the National Ada Technology Conference*, 1989.

Graduate Student Advising

Current PhD Students

- Ning Gu, Georgiana Haldeman, William Katsak, and Kuo Zhang.

PhD Thesis Advisor

- Guangyan Hu, graduated 2020. Thesis: “Distributed Frameworks for Approximate Data Analytics.”
- Ioannis Manousakis, graduated 2018. Co-advised by Ricardo Bianchini. Thesis: “Cooling Provisioning and Reliability Implications for Cost-Efficient Datacenters.”
- Md E. Haque, graduated 2016. Co-advised by Ricardo Bianchini. Thesis: “Managing Tail Latency in Interactive Services for Multicore Servers.”

- Cheng Li, graduated 2015. Co-advised by Ricardo Bianchini. Thesis: “Improving and Tuning the Performance of Server Systems.”
- Andrew Tjang, graduate 2014. “Model-based Validation for Improving Availability of Internet Services.”
- Kien Le, graduated 2012. Co-advised by Ricardo Bianchini. Thesis: “Managing Energy Usage and Cost Through Load Distribution in Multi-Data-center Services.”
- Wei Wang, graduated 2012. Co-advised by Amelie Marian. Thesis: “Unified Structure and Content Search for Personal Information Management Systems.”
- Christopher Peery, graduated 2009. Thesis: “Wayfinder: A Federated Information Sharing and Management System.”
- Kiran Nagaraja, graduated 2005. Thesis: “A Systematic Approach to Quantifying and Improving the Availability of Internet Services.”
- Francisco Matias Cuenca-Acunca, graduated 2004. Thesis: “A Probabilistic Approach to Building Large Scale Federated Systems.”

PhD Thesis Committee Member

- Jan Vesely, graduated 2020. Thesis: “Integrating Accelerators in Heterogeneous Systems.”
- Daniela Vianna, graduated 2019. Thesis: “Searching Heterogeneous Personal Data.”
- Ana Paula Centeno, graduated 2019. Thesis: “Optimizing Task Scheduling in Emergency Departments.”
- Hai Nguyen, graduated 2018. Thesis: “Exploring Security Support for Cloud-based Applications.”
- David Menendez, graduated 2018. Thesis: “Practical Formal Techniques and Tools for Developing LLVM’s Peephole Optimizations.”
- Daehan Kwak, graduated 2017. Thesis: “Supporting Route Choices via Real-Time Visual Traffic Information and Counterfactual Arrival Times.”
- Long Le, graduated 2017. Thesis: “Extracting Users in Community Question-Answering in Particular Contexts.”
- Minji Wu, graduated 2016. Thesis: “Corroborating Information from Multiple Sources.”
- John Austen, graduated 2015.
- Qingyuan Deng, graduated 2014. Thesis: “Active Low-Power Modes for Main Memory.”
- Wei Zheng, graduated 2012. Thesis: “Experiment-based Management of Data Centers.”
- Tin Lam, graduated 2012. Thesis: “Making SOA-based Systems Coherent and Trustworthy.”
- Rekha Bachwani, graduated 2012. Thesis: “Preventing and Diagnosing Software Upgrade Failures.”
- Fabio Oliveira, graduated 2010. Thesis: “Towards Mistake-Aware Systems.”
- Chen Fu, graduated 2008. Thesis: “Improving Software Reliability Using Exception Analysis of Object Oriented Programs.”
- Xiaoyan Li, graduated 2006. Thesis: “Characterizing and Accommodating Spatial Aspects of Wireless Networks.”
- Eduardo Pinheiro, graduated 2005. Thesis: “Energy Conservation for Server Systems.”
- Xuhui Ao, graduated 2004. Thesis: “A Hierarchical Model for Distributed Access Control Policies.”

- Sudeept Bhatnagar, graduated 2004. Thesis: “Distributed Admission Control in Core-Stateless Networks.”
- Brian Davison, graduated 2002. Thesis: “The Design and Evaluation of Web Prefetching and Caching Techniques.”
- Safiullah Faizullah, graduated 2001. Thesis: “Measuring and Pricing the Delivered QoS in QoS-enabled Internetworks.”

MS Thesis Advisor

- Longhao Shu, graduated 2014. Thesis: “The Design and Implementation of Cloud-Scale Live Migration.”
- Zhijun He, graduated 2004. Thesis: “Enforcing Enterprise-wide Policies Over Standard Client-Server Interactions.”
- Samian Kaur, graduated 2001. Thesis: “Performability Modeling and Analysis of Fault Tolerance Support in Communication Protocols.”

MS Thesis Committee Member

- Bharath Pichai, graduated 2013. Thesis: “Architectural Support for Virtual Memory in GPUs.”
- Aparna Vaikuntam, graduated 2012. Thesis: “Ads in Mobile Applications.”
- Viswanathan Vaidyanathan, graduated 2012. Thesis: “Characterization of TLB and Page Allocation Behavior on Modern Processors.”

Professional Activities

Conferences and Workshops

- 2021 IEEE International Conference on Cloud Engineering (IC2E), PC.
- 2021 The Web Conference (previously WWW), PC Senior Member.
- 2021 ACM Technical Symposium on Computer Science Education (SIGCSE), PC Member for Workshops.
- 2020 IEEE International Conference on Distributed Computing Systems (ICDCS), PC.
- 2019 IEEE International Conference on Distributed Computing Systems (ICDCS), PC.
- 2019 IEEE International Symposium on the Modeling, Analysis, and Simulation of Computer and Telecommunication Systems (MASCOTS), PC.
- 2019 International Green and Sustainable Computing Conference (IGSC), PC.
- 2018 IEEE International Conference on Distributed Computing Systems (ICDCS), PC.
- 2018 International Green and Sustainable Computing Conference (IGSC), PC.
- 2018 IEEE International Symposium on the Modeling, Analysis, and Simulation of Computer and Telecommunication Systems (MASCOTS), PC.
- 2018 International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS), External Review Committee.
- 2018 IEEE International Conference on Cloud Engineering (IC2E), PC.

- 2017 IEEE International Symposium on the Modeling, Analysis, and Simulation of Computer and Telecommunication Systems (MASCOTS), PC.
- 2017 ACM SIGOPS Asia-Pacific Workshop on Systems (APSys), PC.
- 2017 IEEE International Conference on Distributed Computing Systems (ICDCS), PC.
- 2017 Greenmetrics Workshop 2017, Co-organizer.
- 2017 Summit on Scalability and Diversity in Computer Science Education 2017, Co-organizer.
- 2017 Workshop on Big Data and Cloud Performance (DCPERF), PC member
- 2017 IEEE International Conference on Cloud Engineering (IC2E), PC.
- 2016 International Green and Sustainable Computing Conference (IGSC), PC.
- 2016 IEEE Workshop on Big Data for Cloud Operations Management (BDCOM), PC.
- 2016 International Workshop on Big Data and Cloud Performance (DCPerf), PC.
- 2016 IEEE RIVF International Conference on Computing and Communication Technologies, PC.
- 2016 International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS), External Review Committee.
- 2015 Workshop on Content-Centric Networking (CCN), PC.
- 2015 International Green and Sustainable Computing Conference (IGSC), PC.
- 2015 Workshop – Heterogeneous and Unconventional Cluster Architectures and Applications (HUCAA), PC.
- 2015 Journal – Special Issue of Concurrency and Computation, Practice and Experience (CCPE) on Heterogeneous and Unconventional Cluster Architectures and Applications (HUCAA), Review Board.
- 2015 International Symposium on Modeling, Analysis and Simulation of Computer and Telecommunication Systems (MASCOTS), PC.
- 2015 International Conference on Supercomputing (ICS), PC.
- 2015 IEEE Workshop on Cloud Analytics (IWCA), PC.
- 2015 IEEE International Conference on Cloud Engineering (IC2E), PC.
- 2015 International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS), External Review Committee.
- 2014 ACM Symposium on Cloud Computing (SoCC), PC.
- 2014 International Green Computing Conference (IGCC), PC.
- 2014 International Conference on Parallel Processing (ICPP), PC.
- 2014 SIGMETRICS Conference, PC.
- 2014 GreenMetrics Workshop, Co-organizer.
- 2014 & 2013 Annual Symposium on Information Assurance (ASIA), PC.
- 2013, 2012, 2010, 2009, 2008 IEEE RIVF International Conference on Computing and Communication Technologies, PC.
- 2012 Power Grid-Friendly Workshop, PC.
- 2010 Secure Knowledge Management Workshop (SKM), Web Chair & PC.

- 2009 Personal Information Management Workshop (PIM), PC.
- 2009 International Conference on Dependability (DEPEND), PC.
- 2008 International Conference on Dependable Systems and Networks (DSN), PC.
- 2007 International Conference on Distributed Computing Systems (ICDCS), PC.
- 2006 International World Wide Web Conference (WWW), PC.
- 2006 International Conference on Parallel and Distributed Systems (ICPADS), PC.
- 2005 International Conference on High Performance Computing and Communications (HPCC), PC.
- 2005 Workshop on Information Retrieval in Peer-to-Peer Networks, PC.
- 2005 International Workshop on Adaptive and Self-Managing Enterprise Applications (ASMEA), PC.
- 2005 Workshop on Cluster Security, the Paradigm Shift (ClusterSec), PC.
- 2004 Workshop on Information Retrieval in Peer-to-Peer Networks, PC.
- 2004 International Workshop on Databases, Information Systems and Peer-to-Peer-Computing, PC.
- 2003 International Conference on Parallel Processing (ICPP), PC.
- 2002 & 2001 International Conference on Computer Communications and Networks (ICCCN), PC.
- 2002 Workshop on Self-Healing, Adaptive and self-MANaged Systems (SHAMAN), PC.
- 2002 & 2001 Workshop on Evaluating and Architecting System dependability (EASY), PC.

NSF Proposal Review

- Member of NSF Panels 2014, 2006, 2005, 2003, 2002.

Publication Review

- Journals and Magazines: IEEE Transactions on Parallel and Distributed Systems (TPDS), IEEE Transactions on Computers (TC), IEEE Transactions on Cloud Computing (TCC), IEEE/ACM Transactions on Networking (ToN), IEEE Internet Computing, ACM Computing Surveys, Computer Networks, Concurrency and Computation: Practice and Experience (CCPE), among others.
- Conferences: SIGCSE, DSN, ISCA, SIGMETRICS, HPCA, SenSys, USENIX Technical Conference, ICDCS, among others.

Teaching

Undergraduate Classes

- CS 111: Introduction to Computer Science.
- CS 211: Computer Architecture.
- CS 214: Systems Programming.
- CS 415: Compilers.
- CS 416: Operating System Design.

Undergraduate Research

- Supervised over 15 undergraduate students in different research projects.

Graduate Classes

- CS 505: Computer Structures.
- CS 519: Operating Systems Theory.
- CS 528: Parallel Numerical Computing.
- CS 545: Distributed Systems.
- CS 553: Design of Internet Services.
- CS 671: Seminar: Secure Computing in the Post PC-World.
- CS 672: Seminar: A World Without Servers. Joint with Liviu Iftode.

Curriculum and Community Development

- Co-leading the creation of an interdisciplinary undergraduate program in data science offering a certificate, minor, and major.
- Participating in an NSF funded project to develop and provide professional development for high school CS teachers and administrators.
- Collaborating with local high school to create a CS class that can earn college credits at Rutgers.
- Co-organizing a New Jersey Summit on Scalability and Diversity in CS Education that has taken place annually since 2016.
- Participated in the creation of the Douglass-SAS-DIMACS Living-Learning Community (LLC) for Women in Computer Science (<http://archive.dimacs.rutgers.edu/CSLLC/>) in 2016. Co-faculty-advisor for students in the LLC from 2016–present.
- Member of Steering Committee for creation of Minor in Intelligence Studies.
- Participated in creation of MS in Data Science program.
- Co-led a major redesign and expansion of MS program in 2014; grew program from ~50 to ~225 students.
- Led the development of tracks in CS undergraduate majors as Chair of the Undergraduate Curriculum Committee. Key motivation is to broaden the undergraduate program, allowing wider selection of advance elective classes constituting different specialties within CS, while preserving an important core CS foundation.
- Participated in the creation of the undergraduate CAVE (Collaborative Academic Versatile Environment) and HackerSpace. Participated in redesign of CS labs. Motivation is to create a strong undergraduate community, and support free-form learning and exploration.
- Created new undergraduate Systems Programming class (CS 214) and co-developed the class with Pradip Hari. This class seeks to teach students the relationship between a higher-level language such as C to the underlying computing hardware, as well as pragmatic software engineering skills such as building modularized code constructions with carefully designed interfaces, and use of tools such as source code revision control and debuggers. This class is a prerequisite for Operating Systems Design and Database Systems Implementation. Enrollment has grown to approximately 120-150 students per semester (both Fall and Spring).

- Redesigned undergraduate Computer Architecture class (CS 211) together with Christopher Peery to be synergistic with CS 214. The redesigned class teaches students how current computing hardware is designed from the level of transistors up, and how programs written in a higher level language is compiled into Assembly, and then ultimately machine code for execution on the hardware. This is a required class that now has enrollment of approximately 160 students per semester (both Fall and Spring).
- Participated in the creation of new undergraduate Software Methodology class (CS 113, which has evolved into CS 213).
- Undergraduate Operating Systems Design (CS 416):
 - Introduced projects requiring exploration and modification of the Linux kernel.
 - Obtained University funding for and participated in design of a Virtual Operating Systems Laboratory to support Linux-based projects – joint with Don Smith and DCS LCSR. This system has now evolved into a VM-based system.
- Participated in effort to decrease number of students failing or withdrawing from the undergraduate Introductory class (CS 111). Continuing to participate in design of a bridge class between the non-major introductory class (CS 110) and CS 111 to allow students without a CS background to transition to the CS major.
- Coordinator of undergraduate program scheduling and logistics (e.g., handling rapidly growing enrollment, including discussions with students and parents about challenges in registering for CS classes) as part of Associate Chair duties.
- Redesigned graduate Computer Architecture class (CS 505).
- Redesigned graduate Operating Systems class (CS 519) – joint with Liviu Iftode.
- Created graduate Distributed Systems class (CS 545) – joint with Liviu Iftode.
- Created graduate Advanced Computer Architecture (CS 507) – joint with Liviu Iftode.

Publicly Available Research Artifacts

- Detailed data for operator benchmark experiments, including experiment setup and all logged data. (Experiments and results described in OSDI 2004 paper: “Understanding and Dealing with Operator Mistakes in Internet Services.”) http://vivo.cs.rutgers.edu/op_results/.
- Mendosus: Fault Injection and Network Emulation for Commodity Clusters software package. <http://vivo.cs.rutgers.edu/mendosus.html>.
- Contributed package for monitoring program behavior using the Intel processor counters to the Jikes Research Virtual Machine for Java programs. <http://jikesrvm.sourceforge.net/>.

Recent Service to the Department of Computer Science

- Chair, AY 2017–2019.
- Associate Chair, AY 2012–2017.
- Chair of Academic Planning Committee, AY 2012–2017.

- Chair of MS Admission Committee, AY 2011–2013.
- Faculty Search Committee, AY 2010–2012.
- Chair of Undergraduate Curriculum Committee, AY 2010.
- Co-Chair of Faculty Search Committee, AY 2008–2010.
- Co-Chair of Infrastructure Committee, AY 2003–2011.

School and University Service

- Dean of Mathematical and Physical Sciences, 2019–present.
- School of Arts and Sciences Executive Committee, AY 2018/19.
- Rutgers New Jersey Innovation Hub Task Force, AY 2017/18.
- Rutgers Research Ideation Forum, Organizing Committee, 2018.
- School of Arts and Sciences Nominations and Election Committee, 2016–2018.
- Faculty Leading Change, AY 2016. Committee helped with producing faculty mentoring handbook.