RCA Professor Boon Thau Loo
University of Pennsylvania, School of Engineering and Applied Science
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EXECUTIVE LEADERSHIP SUMMARY

Academic leader with over a decade of graduate education leadership experience and a demonstrated record of program development, research impact, innovation, and institution-scale execution. Currently serve as Senior Associate Dean overseeing graduate and professional programs, online learning initiatives, global academic collaborations, student experience and advising infrastructure, and academic operations. Under my leadership, Penn Engineering's professional master's enrollment grew from 1,300 students in 2018 to approximately 5,500 students in 2025, while the Ph.D. population expanded from just over 600 in 2019 to nearly 1,000 by 2025. Revenue growth from professional master's programs directly supported major research and educational initiatives across the School.

Founded Penn Engineering Online and scaled it into a large, sustainable professional education platform. Led the launch of the first Ivy League online computer science master's degree for non-CS undergraduates, followed by online MSE programs in Data Science and Artificial Intelligence, graduate certificates, and accelerated pathways. Established cross-school collaborations with Wharton, Perelman School of Medicine, Penn Carey Law, and the College of Liberal and Professional Studies, broadening access, expanding global reach, and diversifying the graduate program portfolio.

Maintain strong alumni and industry engagement through speaking engagements across the United States and Asia, executive visits to companies including Amazon, Apple, Google, and Microsoft, and global alumni events. Partner closely with development leadership to steward donor-funded fellowships and expand Ph.D. scholarship support, working with advisory and innovation boards to strengthen philanthropic and corporate partnerships.

Research innovator in networking, distributed systems, and operating systems, with sustained impact in funding, mentoring, and technology transfer. Elected Fellow of the National Academy of Inventors. Principal Investigator on major NSF and DARPA programs totaling more than US$30M in external funding. Graduated twenty Ph.D. students and three postdoctoral researchers who are now faculty at institutions including the University of Toronto, Stony Brook University, Illinois Institute of Technology, ShanghaiTech University, City University of Hong Kong, and Georgetown University, as well as research leaders in industry. Student distinctions include three Rubinoff Best Dissertation Awards, a SIGMOD Jim Gray Dissertation Honorable Mention, Best Paper Awards at USENIX NSDI and EDBT, and recognition at SIGCOMM and N2Women.

Recipient of numerous honors for research, teaching, innovation, and service, including the David J. Sakrison Memorial Prize for the most outstanding EECS dissertation at UC Berkeley, the ACM SIGMOD Dissertation Award, NSF CAREER Award, AFOSR Young Investigator Award, Penn Emerging Inventor of the Year, International Student Advocate of the Year (ISAY) awarded by Penn ISSS, and election as a Fellow of the National Academy of Inventors. Recipient of Google and AT&T Faculty Research Awards and author of over 180 peer-reviewed publications. Co-founded two startups, one acquired by Nutanix for approximately US$74M and another by Frontiir Inc., with continued SBIR-funded commercialization activity. Extensive experience in intellectual property development, corporate partnerships, investor engagement, and post-acquisition advisory roles.

Maintain a consistent teaching record every fall, spring, and summer across undergraduate, graduate, and online programs, including large-enrollment courses regularly exceeding 200 students, even while serving in senior administrative roles. Recipient of the University of Pennsylvania's Lindback Award for Distinguished Teaching (the University's highest teaching honor) and the Ruth and Joel Spira Award for Excellence in Teaching. Developed curriculum innovations in distributed systems, networking, operating systems, and senior design, achieving sustained improvements in course outcomes and evaluations. Core strengths include academic program building, enrollment growth, online education strategy, research innovation, entrepreneurship, industry engagement, faculty mentorship, and student-centered leadership, grounded in a forward-looking vision centered on access, research translation, interdisciplinary collaboration, experiential learning, and institutional impact.

Current Appointments

Senior Associate Dean, School of Engineering and Applied Science, University of Pennsylvania. Oversee all graduate and professional academic programs, including doctoral programs, on-campus and online professional master's programs, global initiatives, and professional development at all levels.	07/2024 - present
Associate Dean for Graduate Programs (Ph.D. and Master's), School of Engineering and Applied Science, University of Pennsylvania. Served as Associate Dean for Master's and Professional Programs for first 2.5 years	01/2018 – 06/2024
Director of Penn Distributed Systems Lab (DSL)	01/2019 – 08/2024
RCA Professor (primary), Computer and Information Science (CIS) Department**,** University of Pennsylvania	06/2017 – present
Professor (secondary), Electrical and Systems Engineering (ESE) Department, University of Pennsylvania	06-2017 – present
Executive Advisor to CEO/CTO, Frontiir Inc (following Termaxia acquisition)	03/2020 – 02/2024

Previous Appointments

CIS Master's Chair and CIS Master's Program Director, University of Pennsylvania	07/2015 – 12/2018
Associate Professor (secondary), ESE Department, University of Pennsylvania	10/2015 – 06/2017
Co-founder and Chief Scientist of high-performance data storage company Termaxia. Acquired by Frontiir Inc.	01/2016 – 03/2020
Associate Professor (primary), CIS Department**,** University of Pennsylvania	07/2013 – 06/2017
Co-founder and Lead Scientist of cloud analytics company Gencore (rebranded as Netsil). Acquired by public cloud company Nutanix Inc. (NTNX)	05/2013 – 03/2018
Assistant Professor**,** CIS Department**,** University of Pennsylvania	01/2007 – 06/2013
Post-doctoral Researcher**,** Microsoft Research Silicon Valley	07/2006 – 12/2006

Education

University of California at Berkeley — 2006
Ph.D. in Computer Science
Thesis: *The Design and Implementation of Declarative Networks*
Advisors: Joseph M. Hellerstein and Ion Stoica.
Winner of the 2007 ACM-SIGMOD Dissertation Award
Winner of the 2006 David J. Sakrison Memorial Prize (UC Berkeley)

Stanford University — 2000
Master's of Science in Computer Science (MSCS).
GPA: 4.0 / 4.0

University of California at Berkeley — 1999
B.S. (Highest Honors) Electrical Engineering and Computer Science.
GPA: 4.0 / 4.0
9 A+s in technical courses (computer science, engineering, mathematics, and physical science)

University Services and Leadership

- Senior Associate Dean (07/2024 – present)
  - Oversee all graduate and professional educational initiatives, including doctoral programs, on-campus and online professional master's programs (5,500 students), global initiatives, engineering entrepreneurship, and professional development at all levels.
- Associate Dean of Graduate Programs (01/2018 - 06/2024)
  - Oversees all Ph.D. programs and master's programs in Penn Engineering.
- Master's Chair in the Computer and Information Science department (07/2015 – 12/2017)
  - As CIS Master's chair, oversees all CIS-affiliated master's program (Master of Computer and Information Technology, Computer and Information Science, Embedded Systems, Robotics, and Computer Graphics and Game Technology).
- University and school committees:
  - Provost Technology Planning Council (2026 – present) - Appointed by the Provost and Executive Vice President to serve on the university's primary governing body for enterprise technology strategy, investments, and cybersecurity posture. Oversees major program approvals and aligns cross-institutional IT priorities across academic, research, and administrative domains.
  - First Penn Experience working group, a university-wide initiative led by senior Penn leadership focused on enhancing undergraduate and graduate/professional student engagement, belonging, and academic experience across schools and programs, 2026
  - Penn Forward Graduate and Professional Programs Working Group, 2025
  - Penn Medicine Strategic Planning Committee (2023)
  - Teaching and research faculty policy reevaluation committee (2015). Outcome: the creation of Professor of Practice teaching track at Penn Engineering
- Curriculum steering committee:
  - Computer Engineering (CMPE) curriculum steering committee (2014 - present)
  - Jerome Fisher M&T Academic Steering Committee (2018 -)
- Organizer of Penn Engineering virtual research seminar in collaboration with Penn Wharton China Center on emerging research technologies, featuring engineering faculty (2022). Seminar attracted ~2000 audience per virtual event.
- Inter-school search committees:
  - Chair, Professor of Practice in Entrepreneurship Search (2024): hiring of Prof. of Practice Dr. Brian Halak
  - Professor of Practice in Entrepreneurship Search (2017): hiring of Prof. of Practice Dr. Vanessa Chan
  - Jerome Fisher M&T Director Hiring (2016) - hiring of Prof. Gad Allon as M&T Director
- Student entrepreneurship:
  - Faculty adviser to Jerome Fisher M&T Innovation Fund for Penn student-led startups (2015 - 2020)
  - Mentor for the National University of Singapore (NUS) College in Bio Valley, an undergraduate work-study exchange program between Penn Engineering and NUS. Promotes startups and entrepreneurship by getting undergraduates to experience first-hand on working in a startup while taking classes at Penn (2008 - 2013)

Key Highlights as Senior Associate Dean (2018 – today)

- **Co-organizer, Penn Engineering Faculty Leadership Forum**. Co-founded and co-organized a cross-departmental faculty forum to foster peer mentorship, leadership development, and collaborative exchange among engineering faculty. Designed and facilitated interactive sessions on PhD mentoring, large-scale research collaborations, and academic leadership, promoting practical strategy-sharing and community building across Penn Engineering.
- **2030 Graduate Education Strategic Planning Leadership.** Co-led Penn Engineering's Strategic Plan (Education Pillar), directing PhD curriculum reforms, integrated master's-to-PhD pathways, and experiential learning programs. Spearheaded growth across master's education by launching multiple new professional degrees (MSE-SSC, MESE, MSE-TI) and online stackable credentials (AM Online) to strengthen institutional sustainability.
- **Graduate student growth, revenue generation, and research expansion.** Under my leadership, the professional master's programs at Penn Engineering grew from 1300 (2018) to approximately 5500 students (2026). Ph.D. student population grew from 600+ (2019) to close to 1000 (2026). Professional master's revenue growth supported several research and educational initiatives at Penn Engineering.
- **Engineering school-wide curriculum and academic innovations.** I led the conceptualization and creation of the following programs:

- **Ph.D. Technology Commercialization Certificate:** Launched a school-wide certificate enabling Ph.D. students to explore the real-world translation of their dissertation research through technology-commercialization coursework, industry mentorship and engagement, and integration of industry perspectives into doctoral training.
- **Doctoral Academic Field Studies:** Established a pathway for Ph.D. students to undertake industry work aligned with their dissertation research during the academic year while remaining engaged in doctoral research and continuing progress toward their degree. Penn Engineering now permits research-aligned full-time internships during the Fall and Spring semesters with advisor approval.
- **Accelerated Master's Programs:** Penn undergraduates can pursue an accelerated path to earn a Penn Engineering master's degree alongside their bachelor's degree with three double-counted classes.
- **Accelerated Master's Online Pathway:** Launched an accelerated pathway enabling qualified Penn undergraduates to begin coursework toward a Penn Engineering Online master's degree while completing their bachelor's degree, creating a more flexible route to advanced study and allowing eligible coursework to count toward graduate-degree requirements.
- **MCIT (rebranded as MAS-CS) Online:** The first online computer science master's degree offered by any Ivy League university, designed for students without prior CS experience. Later rebranded as Master of Applied Science in Computer Science (MAS-CS).
- **MSE-DS Online:** An online Master's in Data Science delivered jointly by Computer Science and Electrical & Systems Engineering faculty.
- **MSE-AI Online:** The first online Artificial Intelligence master's program among Ivy League institutions, intended for learners with a computer science background.
- **MSE-TI Online:** Created the online Master of Science in Engineering in Technology and Innovation, combining advanced engineering coursework with product development, entrepreneurship, engineering economics, intellectual property, and technology ethics. The program prepares engineers to move technologies from concept to implementation, with concentrations in Artificial Intelligence, Data Science, and Software Systems & Cybersecurity.
- **MSE-SSC:** Created the Master of Science in Engineering in Software Systems and Cybersecurity, offered in both residential and online formats. The program integrates advanced software systems and cybersecurity training, emphasizing security-by-design and preparing engineers to build, defend, and lead complex digital infrastructure.
- **Master's Academic Field Studies:** Enables second-year master's students to complete a six-month industry internship as part of their academic training.
- **Professional Development Graduate Course:** A master's-level offering taken annually by hundreds of professional master's students across programs, covering job search skills, entrepreneurship, and research exposure.
- **Online Graduate Certificates:** Programs available in software fundamentals, data science, artificial intelligence, and software systems.
- **Wharton–Penn Engineering Dual Degree:** Established the Penn Wharton MBA + MSE in Data Science dual program, expanding on existing Wharton collaborations with MCIT, Systems Engineering, and Integrated Product Design.
- **Cross-School Online Credentials:** Includes the Graduate Certificate in Computer Science Fundamentals for Perelman School of Medicine Health Care Innovation master's students, and the Graduate Certificate in Health Care and Technology for MCIT Online students.

- **Alumni engagements and development funds stewardship.**
  - Regularly headline alumni events for Penn Engineering at various venues (SF Bay Area, Seattle, Beijing, Shanghai, Singapore, Shenzhen, Toronto, etc.) and at company sites (Amazon, Apple, Google, Microsoft).
  - Worked with the business office and development office to consolidate several development funds to provide scholarships for Ph.D. students, meet donors, and provide stewardship to several donor fellowships for graduate students.
  - Frequently interact with Penn Engineering Board of Advisers, Penn Engineering Online Board of Advisers, Penn Engineering Technology Innovation and Entrepreneurship Board, and the Penn Engineering Technology Advisory Board.
- **Stakeholder Engagement & Institutional Leadership.** I work closely with academic leaders, faculty, staff, and students across the Engineering School and University to drive initiatives, develop policies, and support organizational effectiveness. Key engagements include:
  - **School Leadership:** Chair the Graduate Administrative Committee (GAC) of 6 graduate group chairs and the Master's Administrative Committee (MAC) of 22 program directors, guiding decisions on graduate policies, academic operations, and program governance.
  - **Graduate Student Leadership:** Chair the Dean's Doctoral Advisory Board and Engineering Master's Advisory Board (EMAB), ensuring student input informs school-wide decisions, policies, and student experience initiatives.
  - **University Liaison:** Serve on the Council of Graduate Deans and Council of Professional Master's Deans, collaborating with the Vice Provost for Education to shape university-wide graduate policies and operational frameworks.

- **Academic Staff Management:** Oversees a combined team of staff across the Office of Academic Services and the Office of Academic Innovation, responsible for admissions, graduate student administration, academic support services, and strategic operations.
- **Engineering Entrepreneurship Leadership:** Partner with the Director and Vice Dean for Innovation & Entrepreneurship and faculty teams to define strategy, implement initiatives, and expand Penn Engineering's entrepreneurship and technology commercialization ecosystem.
- **Faculty Oversight & Recruitment:** Oversee program directors and course staffing; recruited 30+ faculty from engineering, business, law, medicine, and industry for online master's programs, ensuring instructional quality and operational scalability.
- **Faculty Search Leadership:** Chaired the 2024 school-wide search for Professor of Practice in Innovation and Entrepreneurship, leading candidate screening and interviews; resulted in hiring Prof. Brian Halak and part-time lecturers Liz Golden and Steven Weiner.
- **Global Initiatives.** Developed new partnerships and strengthened existing collaborations with ShanghaiTech University, VinUniversity, Plaksha University, and Ashoka University to support educational initiatives such as 4+1 BS-to-Accelerated Master's programs.

- **Student well-being.**
  - Launched the Dean's Master's Scholarships to enhance recruitment of students from diverse backgrounds and broaden pathways into graduate education.
  - Hired the inaugural Director of Graduate Student Programming to strengthen academic support structures, improve retention, and assist students facing academic challenges.
  - Established a graduate student awards program to formally recognize excellence among master's and Ph.D. students and elevate academic and research achievements.
  - Implemented a research support plan to assist Ph.D. students experiencing research difficulties, improving persistence and degree progress.
  - Engaged an external wellness consultant to run school-wide workshops and peer discussion groups, advancing mental health, community building, and resilience across Ph.D. cohorts.

Research Overview

At the NetDB research group at the University of Pennsylvania, I lead a team that applies data-centric techniques and formal methods to design, analyze, and implement distributed systems. Our work spans databases, networking, security, operating systems, programming languages, and formal methods, and has received multiple Best Paper Awards at top conferences including USENIX NSDI, IEEE ICDE, EDBT, ACM HPDC, and ACM ICAC. Our research is supported by the National Science Foundation (CISE IIS, CNS, CCF, TC, SBIR) and the Department of Defense. I co-founded two companies: Netsil, acquired by Nutanix, and Termaxia, acquired by Frontiir Inc. Over the years, I have supervised 18 Ph.D. students, 3 postdoctoral researchers, and numerous undergraduate and master's students. My former students and postdocs have gone on to successful careers, including earning tenure at Georgetown University and Temple University, joining as tenure-track faculty at the University of Toronto, Stony Brook University, Illinois Institute of Technology, ShanghaiTech University, and City University of Hong Kong, and receiving several prestigious dissertation awards.

Research Funding

- **NSF IIS-2436080: EAGER: Synthesizing and Optimizing Declarative Smart Contracts,** (PI: Boon Thau Loo), $150K, 01/01/2025-12/31/2025
- **CNS Core: Small: Towards Internet-scale Permissioned Blockchain Infrastructure for the Mobile Internet,** NSF CNS Small (PI: Boon Thau Loo, co-PI: Mohammad Javad Amiri), $500K, 10/01/2021 – 09/30/2024
- **Secure Handling of Isolated Executables without Leaking (SHIELD),** under DARPA Guaranteed Architecture for Physical Security (GAPS) program. (Lead Penn PI: Boon Thau Loo, Nik Sultana). Subcontract to Perspecta Labs. $600K as Penn portion. 09/19 – 02/24.
- **Collaborative Research: CNS Core: Medium: Movement of Computation and Data in Splitkernel-disaggregated, Data-intensive Systems**, NSF CNS Medium (PI: Vincent Liu, co-PI Boon Thau Loo and Sebastian Angel), $900K, 2021-2024.
- **Dynamic Cost-Performance Optimizations in Multipath Video Delivery.** Google Research Award, $73,500, 2016.
- AT&T Labs-Research University Gift, $25K, 2014.
- **NeTS: Medium: Collaborative Research: Diagnosing Datacenter Networks with Quantitative Provenance**, co-PI with Andreas Haeberlen and Linh Phan, $900K, 2017 – 2023.

- **CCF: Medium: Enabling Real-Time Quantitative Decision Making over Streaming Data**, NSF CCF Medium (PI: Rajeev Alur, co-PIs Sanjeev Khanna, Zachary Ives, and Boon Thau Loo), $1.2M, 2018-2023.
- **ASPIRE: Automatically Subsetting Protocol Implementations Reliably and Efficiently,** ONR TPCP, co-PI with Mayur Naik, Rajeev Alur, Insup Lee, and Oleg Sokolsky, $6.1M, 2018 – 2022.
- **Accountable Protocol Customization, ONR TPCP,** Penn PI with Benjamin Pierce, Andre Scedrov and Steve Zdancewic. $7.5M (Penn's portion is $2.5M), subcontact to CMU, 2018 – 2022.
- **CSR Nets: Medium: Network Functions Virtualization with Timing Guarantees**, NSF CSR Medium (PI: Linh Thi Xuan Phan, co-PI: Andreas Haeberlen, Boon Thau Loo), $1.1 million, 09/16 – 08/21.
- **NeTS: Medium: Collaborative Research: DEFIND: Declarative Formal Interactive Network Design**, NSF NeTS Medium, (Penn PI: Boon Thau Loo, collaboration with CMU and Georgetown University). $1.2 million, 09/15 – 08/.
- **ProNet: Programmable Networks Enabled by Fast In-Path Analytics.** DARPA Dispersed Computing program, lead Penn PI, with Andre Dehon, Andreas Haeberlen, and Linh Thi Xuan Phan. Subcontract to Vencore, $12.5M, 01/17 – 04/21.
- **DeDOS: Declarative Dispersion-Oriented Software, DARPA Extreme DDoS Defense (XD3)**, (PI: Boon Thau Loo, co-PI: Andreas Haeberlen, Linh T.X. Phan, Micah Sherr, Clay Shields, Wenchao Zhou), $3.5 million with $800K options apprpved, 04/16 – 08/20.
- **DEDUCE: Distributed Enclave Defense Using Configurable Edges.** Joint project with ACS, Apogee Research, MIT, and Texas A&M university, DARPA EdgeCT, $1.17M, 07/2015-06/2018.
- **I-Corps: NetEgg: Toolkit for Programming Network Policies by Examples**, NSF IIP-1564730 (PI: Boon Thau Loo), $50K, 11/01/2015 – 04/30/2018.
- **Collaborative Research: Expeditions in Computer Augmented Program Engineering (ExCAPE): Harnessing Synthesis for Software Design**, NSF Expedition, with Rajeev Alur, Milo Martin, George Pappas, Steve Zdancewic (Penn) and several others, $3.75 million (Penn), 04/01/2012-03/31/2018.
- **Probalogical Hybrid Defense (PHD).** Office of Naval Research (ONR) grant, Jonathan M. Smith (PI), $1.09M, Rajeev Alur, Andre Dehon, Sampath Kannan, Boon Thau Loo, A. Rahklin, Andre Scedrov, Oleg Soloksly (co-Pis), 10/2014 – 09/2017.
- **NeTS: Small: Routing Design and Analysis with Incomplete Information**, NSF CNS-1218066, Boon Thau Loo (PI). $400K, 9/12-8/2017.
- **CSR: Small: Resource Management for Real-time Cloud Computing**, with Linh P.X. Phan and Insup Lee, $450K, 09/01/2011 – 08/31/2016.
- **TC: Medium: Collaborative Research: Tracking Adversarial Behavior in Distributed Systems with Secure Networked Provenance,** NSF TC-1065130, (PI: Andreas Haeberlen, Co-PI: Zachary Ives, Boon Thau Loo, Micah Sherr), $1.2 million, 09/01/2011 – 08/31/2016.
- **TC:Small: Collaborative Research: Towards a Formal Framework for Analyzing and Implementing Secure Routing Protocols**, with Limin Jia (CMU) and Wenchao Zhou, $499K, 3 years. 09/01/2011 – 08/31/2016.
- **CAREER: Towards a Unified Declarative Platform for Composable Verifiable Networks**, NSF CNS-0845552, (**PI: Boon Thau Loo**), $450,000, 06/01/2009 – 05/31/2016.
- **A Unified Algebraic and Logic-based Framework towards Safe Routing Implementations.** Air Force Office of Scientific Research (AFOSR) Young Investigator Program (YIP) award, $360K, 6/2012 – 6/2015.
- **SBIR Phase 1: Declarative Platform for Software-defined Networking Applications.** NSF IIP- 1345294, $150K (1/2014-12/2014). Technology transfer from NetDB@Penn research.
- **FIA: Collaborative Research: NEBULA: A Future Internet That Supports Trustworthy Cloud Computing,** NSF Future Internet Architecture, (PI: Jonathan M. Smith, Co-Pis from various universities), $1.47 million (Penn's award), 09/01/2010 – 31/08/2014.
- **Collaborative Research: Scalable Knowledge-based Middleware for Networked and Mobile Systems**, NSF CCF-0820208/0819845 (**PI: Boon Thau Loo**, Co-PI: William Regli from Drexel University), $499,866, 09/01/2008-08/31/2012.
- **AFOSR MURI: Collaborative Policies and Assured Information Sharing,** AFOSR grant number FA9550-08-1-0352, (Penn PI: Andre Scedrov, Co-PI: Boon Thau Loo), $850K (Penn's award), (2008-2013).
- **Selectable Anonymity for Enabling SAFER Telecommunications,** part of the DARPA SAFER program, (PI: Jonathan M. Smith, Co-PI: Matthew Blaze, Boon Thau Loo, Micah Sherr, Clay Shields), $3.3 million, 10/2011 – 09/2014.
- **CSR-EHCS(CPS) TM: Robust Composition and Interoperability of CPS Components**, NSF CSR-0834524. (PI: Insup Lee, Co-PI: Oleg Sokolsky, Boon Thau Loo, and Rahul Mangharam), $950,000, 09/01/2008-08/31/2011.
- **NGNI-Small: Declarative Secure Networked Information Systems,** NSF IIS-0812270 (PI: Boon Thau Loo), $450,000, 09/01/2008 – 08/31/2014.
- **Amazon Web Services (AWS)** in Education grant, 2011-2012.

- **Network Opposing Botnets (NoBot**), ONR N00014-09-1-0770, (PI: Jonathan M. Smith, Co-Pis from Princeton University and Harvard University, $2.2 million for three years, 2009 – 2012.
- **CT-S: Application-Aware Anonymity (A3) for the Masses**, NSF CNS-0831376. (PI: Boon Thau Loo, Co-PI: Matthew Blaze), $400,000, 09/01/2008-08/31/2011.
- **Policy-based Information centric Reliable Ad hoc Network (PIRANA)**, part of the Wireless Network After Next Program, sponsored by DARPA-STO AFRL #FA8750-07-C-0169, $245,391 (Penn's subcontract total), (10/2007 – 12/2008)
- **FIND: Wireless Knowledge Infrastructure (WiKI)**, NSF CNS-0721845, (PI: Boon Thau Loo, Co-Pis: Zachary Ives and Jonathan M. Smith), $235,300, (08/01/2007 – 07/31/2009).

Selected Awards and Honors

- ACM SIGMOD Distinguished Associate Editors List (2026)
- National Academy of Inventors (Class of 2025)
- International Student Advocate of the Year (ISAY), presented by the University of Pennsylvania International Student and Scholar Services (ISSS), 2024.
- Outstanding paper award, 21st USENIX Symposium on Networked Systems Design and Implementation (NSDI '24)
- IEEE Senior Member, 2023
- Lindback Award for distinguished teaching, 2022
- Ruth and Joel Spira award for excellence in teaching, 2021
- Best paper award, 23rd International Conference on Extending Database Technology (EDBT), 2020
- RCA Professor of Computer and Information Science, 2019
- Penn emerging inventor of the year award, 2018
- Google Research Award, 2016.
- One of five papers nominated for the best paper award at ACM CoNEXT 2015
- Selected best papers of the 22nd ACM High Performance and Distributed Computing (HPDC), 2013
- Air Force Office of Scientific Research (AFOSR) Young Investigator Program (YIP) award, 2012
- Honorable mention for best demonstration competition in SIGMOD 2009.
- Selected best papers of the 25th International Conference on Data Engineering (ICDE), 2009
- NSF's Faculty Early Career Development (CAREER) Award, 2009
- ACM SIGMOD Dissertation Award, 2007
- UC Berkeley David J. Sakrison Award made annually to a graduate student who has completed what is deemed by a faculty committee to be a truly outstanding piece of research, 2006
- Computing Research Association (CRA) Outstanding Undergraduate Awards (Honorable mention), 1999

Selected Award and Honors (by my doctoral students while at Penn)

- Morris and Dorothy Rubinoff Award for best dissertation in the CIS department at the University of Pennsylvania
  - Qizhen Zhang (2022)
  - Benhaz Arzani (2017)
  - Micah Sherr (2009)
- Outstanding paper award, 21st USENIX Symposium on Networked Systems Design and Implementation (NSDI '24) – Chenyuan Wu
- Best paper award, 23rd International Conference on Extending Database Technology (EDBT), 2020 - Hui Lyu
- Runner-up award, ACM SIGCOMM 2020 Networking Women Professional Development Workshop (N2Women), Aug 2020. – Heena Nagda
- 1st prize at ACM Student Research Competition at SIGCOMM'17 – Henri Max Demoulin
- Honorable Mention for SPEC Distinguished Dissertation Award (2014) – Zhuoyao Zhang
- Honorable Mention for SIGMOD Jim Gray Doctoral Dissertation Award (2013) – Wenchao Zhou.
- Best student paper award, 9th ACM International Conference on Autonomic Computing (ICAC), 2012. – Zhuoyao Zhang
- Runner-up at ACM Student Research Competition at SIGCOMM'11 – Wenchao Zhou

Technology Transfer and Entrepreneurship Leadership

- Termaxia (10/2015 – 4/2020)
  - Founding Chief Scientist of exabyte-scale data storage platform company

- Raised seed round from City of Philadelphia (Startup PHL), Ben Franklin Technology Partners and angel investors.
- Enterprise customers in US, China, and Southeast Asia.
- **Acquired by Frontiir Inc, one of the fastest growing technology companies in Southeast Asia.** Served as executive adviser to CEO and CTO at Frontiir Inc post acquisition

- Gencore/Netsil Inc. (5/2013 – 3/2018)
  - Co-founder and Lead Scientist role on a cloud-based microservices analytics company, commercializing research on declarative network analytics (2007-2013)
  - Served as PI on National Science Foundation Small Business Innovation Research (SBIR) funding; supported early fundraising, including seed funding from Startup PHL and angel investors; the company later raised Series A institutional financing.
  - **Company acquired by Nutanix Inc. in March 2018 in a transaction valued at up to US$74 million in stock.**

Students and post-docs

Current PhD Students:

- Lan Lu (5th year)
- Tao Luo (6th year)
- Issac Yang (1st year)

Graduated Ph.D. Students and Postdocs

1. **Dr. Gerald Whitters**
   Thesis: Leveraging SMT Solvers for Reachability Analysis, Jun 2026.
2. **Dr. Alyssa Hwang (with Andrew Head)**
   Thesis: User Interfaces for Fine-grained Integration of Information, Dec 2025.
3. **Dr. Bhavana Mehta (with Mohammad Javad Amiri)**
   Member of Technical Staff at Zphyra AI
   Thesis: Adaptive Sharding and Fault Tolerance in Distributed Systems, Dec 2025
4. **Dr. Heena Nagda (with Mohammad Javad Amiri)**
   Research Scientist at Meta
   Thesis: Data-dependent Order Fairness in BFT Consensus, Oct 2025
5. **Dr. Chenyuan Wu**
   Assistant Professor at City University of Hong Kong
   Thesis: AI-driven Adaptive Distributed Systems in Untrusted Environments, Dec 2024
6. **Mohammad Java Amiri (postdoc from University of California at Santa Barbara)**
   Assistant Professor at Stony Brook University (2023)
7. **Dr. Haoxian Chen**
   Assistant Professor at ShanghaiTech University
   Thesis: Program Synthesis for Declarative Systems, Feb 2023
8. **Dr. Qizhen Zhang (with Vincent Liu)**
   Assistant Professor at University of Toronto (2023)
   Microsoft Research postdoc (2022)
   Thesis: Hyperscale Data Processing with Network-centric Designs, Aug 2022
   Morris and Dorothy Rubinoff Award for best computer science dissertation at the University of Pennsylvania
9. **Dr. Lei Shi (with Rajeev Alur)**
   Huawei
   Thesis: Practical Network Programming Automation, May 2022
10. **Nicholai Sultana (postdoc from Cambridge University)**
    Assistant Professor at Illinois Institute of Technology (2021)
11. **Max Demoulin (co-advise with Linh Phan)**
    First employment: Senior software engineer at Astronomer. Currently at DBOS Inc. as founding engineer (2023)
    Thesis: Service Boosters: Library Operating Systems for the Data Center, May 2022
12. **Behnaz Arzani (co-advise with Roch Guerin).**
    First employment: Post-doctoral researcher at Microsoft Research (2017)
    Currently Principal Researcher at Microsoft Research
    Thesis: Improving Network Performance Through Endpoint Diagnostics and Multipath Communications, 2017
    Morris and Dorothy Rubinoff Award for best computer science dissertation at the University of Pennsylvania
13. **Chen Chen (co-advise with Limin Jia).**
    Researcher at Megagon Labs

Thesis: Unifying Static and Runtime Analysis in Declarative Distributed Systems, 2017.

14. **Yang Li (co-advise with Sanjeev Khanna).**
    Software engineer at Meta
    Thesis: Computing with Distributed Information, May 2017.
15. **Yifei Yuan (co-advised with Rajeev Alur)**
    First employment: Post-doctoral researcher at Carnegie-Mellon University. Currently at Alibaba (2020).
    Thesis: High-level Abstractions for Programming Network Policies, Aug 2016.
16. **Mengmeng Liu (co-advised with Zachary Ives)**
    Principal Product Manager at WalmartLabs
    Thesis: Incremental Processing and Optimization of Update Streams, May 2016.
17. **Dong Lin**
    First employment as Software engineer at LinkedIn. Currently at ByteDance (2023).
    Thesis: Scalable Anonymous Group Communication, May 2015.
18. **Alex Gurney (postdoc)**
    First employment: Senior software engineer at Comcast, 2014. Currently at Slack (2023)
19. **Zhuoyao Zhang (co-advised with Insup Lee)**
    Software engineer at Google.
    Thesis: Performance Modeling and Resource Management for MapReduce Applications, May 2014.
    SPEC Distinguished Dissertation Award (Runner-up), 2014
20. **Anduo Wang (co-advised with Andre Scedrov)**
    Post-doctoral researcher at the University of Illinois, Urbana-Champaign (2013-2016)
    Tenure-track Assistant Professor at Temple University (2016)
    Currently: Tenured Associate Professor at Temple University (2023)
    Thesis: Automated Formal Analysis of Internet Routing Systems, Aug 2013.
21. **Wenchao Zhou**
    Tenured Associate Professor at Georgetown University. Currently at Alibaba (2021)
    Thesis: Secure Time-aware Provenance towards Forensics in Distributed Systems, Aug 2012.
    Jim Gray SIGMOD Doctoral Dissertation Award (Runner-up), 2013
22. **Changbin Liu**
    First employment: AT&T Labs Research (2012-2015)
    Founding CEO/CTO of Termaxia (acquired by Frontiir Inc.) (2015 – 2020).
    VP Engineering of Frontiir Inc. (2020) after acquisition
    Thesis: Transactional Automated Cloud Resource Orchestration, Aug 2012
23. **Micah Sherr (co-advised with Matt Blaze)**
    Callahan Family Professor at Georgetown University.
    Thesis: Coordinate-Based Routing for High Performance Anonymity, Aug 2009.
    Morris and Dorothy Rubinoff Award for best computer science dissertation at the University of Pennsylvania
24. **Yun Mao (co-advised with Jonathan M. Smith)**
    AT&T Labs Research (2008-2012), Meta (2012)
    Thesis: A Unified Data-centric Approach towards an Extensible Internet Architecture, Aug 2008.

Highlighted Master's Research Students (several with publications):

- **2024** Neelesh C A (Canopy), Prashanth S Iyer (ASML), Zhenping Khor (Penn CIS PhD student), and Brendan Massey (UNC Chapel-Hill PhD student).
- **2022** Shubhendra Pal Singhal (Georgia Tech Ph.D. student)
- **2021** Stephen Carrasquillo (Extron), Heena Nagda (Penn PhD student), Rakesh Nagda (Amazon), Saket Saket (6sense), Junyong Zhao (University of Arizona)
- **2020** Shivani Burad (Apple), Nishanth Shyamkumar (Frontiir Inc.), Henry Zhu (Amazon), Garvit Khandelwal (Microsoft), Manqiu Zhang (Amazon), Ritika Gupta (Meta), Ritvik Sadana (Qualcom), Hui Lyu (PwC Beijing)
- **2019** Nishant Prabhu (Nutanix), Deepika Vasudevan (Amazon), Shilpi Bose (VMware)
- **2018:** Akash Acharya, Shilpi Bose, Anirudh Chelluri (Meta), Mark Lippincott (Netflix), Nishant Prabhu, Achala Rao (Bloomberg), Bowen Wang.
- **2017:** Anupam Alur (Bloomberg), Siri Anil (Bloomberg), Robert Dimaiolo (Cognescent), Harshal Lehri (Google), Sajal Marwaha, Chirag Shah (Real time Innovations), Hitali Sheth, Akshay Sriraman (Bloomberg), Prahalad Venkataramanan, Harsh Verma.
- **2016:** Jitesh Gupta, Nicholas Iodice (Audible), Ankit Mishra (MSc. 2016, Microsoft), Sudarshan Muralidhar (MSc. 2016, Igneous), Prithvi Kapara (MSc. 2016), Anand Sriramalu (Oracle), Shanni Xi (Qualcomm)

- **2015:** Jatin Sharma (Taser Inc.), Nikhilesh Behera (Taser Inc.), Sibi Vijayakumar (GitStar), Rahul Nafde (ColdLight), Sonal Ektaa (Goldman Sachs),
- **2014:** Sitian Cheng (Box Inc.), Tanveer Gill (Netsil), Bo Li (Google), Anh Nguyen (Netsil), Eric Xiang (Yahoo Inc.),
- **2013:** Shuotian Cheng (Amazon), Sanchit Aggrawal (Microsoft), Harjot Gill (Netsil), Xianglong Han (Oracle), Lohit Sarna (Intel), Hao Xu (Google), Yuankai Zhang (Ph.D. program at Georgetown University)
- **2012:** Yiqing Ren (Georgetown University), Suyog Mapara (Microsoft). Saravana Soundararajan (Oracle), Sangeetha A Jyothi (UIUC Ph.D. in Computer Science),
- **2011:** Ren Lu (Bank of America), Taher Saeed (DramaFever), Qiong Fei (Amazon), Qi Zheng (Microsoft),
- **2010:** Saumya Jain (Microsoft), Xiaozhou Li (Princeton Ph.D. in Computer Science, Barefoot Networks), Shivkumar Muthukumar (Amazon), Tao Tao (Microsoft),
- **2008:** Ricardo Correa (Google)

Highlighted Undergraduate Research Students:

- Haoyun Qin (BSc. 2025). CRA Outstanding Undergraduate Award honorable mention. 2005 John Grist Brainerd Award winner. Co-author of VLDB 2024 paper.
- Jared Asch (BSc. 2023) : Co-author of VLDB 2022 paper. CIS appreciation award.
- Andrew Zhao (BSc. 2023): Co-author of IEEE/ACM Transactions on Networking (ToN), 2022. CIS appreciation award. Currently Princeton University as Ph.D. student.
- Siddharth Sankhe (BSc. 2021): Co-author of SIGMOD 2026, SOCC 2025, SIGMOD 2022 papers.
- Zhilei Zheng (BSc. + MSc. 2021): Co-author of ACSAC 2022 and SIGMOD 2022 paper. Ph.D. program in Computer and Information Science at University of Pennsylvania (2021)
- Liana Patel (BSc. 2021). Ph.D. program in Computer Science at Stanford University (2021).
- Henry Zhu (MSc. 2020, BSc. 2019). Ph.D. program in Computer Science at University of Illinois at Urbana-Champaign (2022).. Winner of Master's Outstanding Research award (2020)
- Simran Arora (BSc. 2019). Co-author of SIGMOD 2019 paper. Ph.D. program in Computer Science at Stanford University (2019). Caltech Assistant Professor (2026)
- Meryem Essaidi (BSc. 2016). Co-author of CIKM 2017 paper. Ph.D. program in Computer Science at Princeton University (2017).
- Jinyan Cao (B.Sc. 2014). Participated in ACM SIGCOMM'12 demonstration.
- Kenton Lee (B.Sc. 2014). Ph.D. program in Computer Science at University of Washington-Seattle (2014). Participated in ACM SIGCOMM'12 demonstration.
- Robert Mead (B.Sc. 2014). Participated in ACM SIGCOMM'12 demonstration.
- Trisha Kothari (B.Sc. 2014). Co-author of DAMP (POPL) 2012 workshop paper. Winner of the Microsoft Undergraduate Scholarship, 2012-2013.
- Sandy Shengzhi Sun (B.Sc. 2013). Co-author of SIGMOD 2011 demonstration. Winner of the Microsoft Undergraduate Scholarship, 2011-2012.
- Cam Nguyen (B.Sc. 2012). Co-author on Scalanytics paper at HPDC 2012. Co-founder at Gencore/Netsil, spinoff from NetDB@Penn research group (acquired by Nutanix Inc.)
- Cheng Luo (B.Sc. and MSc 2012). Co-author of FORTE 2014. Ph.D. program at Harvard University in Finance (2012)
- Andrew Quishi Mao (B.Sc. 2009). First author of NDSS 2010 paper. Ph.D. program in Computer Science at Harvard University (2009)
- William Marczak (B.Sc. 2009). First-author of SIGMOD 2010 and NDSS 2010 papers. Honorable mention for the CRA Outstanding Undergraduate 2009. University of Pennsylvania SEAS Computer Science Academic Award, 2009. Ph.D. program in Computer Science at the University of California-Berkeley (2009)

Undergraduate senior projects and capstone projects mentored

- 2023: 7 senior design teams (one winner of CS Impact award and one winner for Societal Impact award. One team chosen to represent CIS in school-wide competition)
- 2022: 1 capstone and 6 senior design teams (one winner for most technically challenging project)
- 2021: 2 senior design teams (one winner of best creativity award)
- 2020: 3 BAS capstone projects, and 1 senior design team (winner of alumni's choice award)
- 2019: 2 capstone projects, and 2 senior design teams (honorable mention for senior design competition)
- 2018: 5 senior design teams, including first prize for senior design competition, honorable mention for senior design competition, finalist for M&T senior design competition, and runner-up for school-wide competition.

- 2017: 2 capstone projects, and 3 senior design teams, including one honorable mention for senior design competition.
- 2016: 2 capstone projects, and 2 senior design teams (1st and 2nd place for CIS senior design competition)
- 2015: 2 senior design teams (honorable mention for CIS senior design competition)
- 2014: on sabbatical leave and did not supervise any teams
- 2013: 7 senior design teams (1st prize and honorable mention for CIS senior design competition. Runner-up for school-wide competition.)
- 2012: 3 senior design teams (3rd prize and honorable mention for CIS design competition)
- 2011: 1 senior design team (honorable mention for senior design project competition)
- 2010: 1 senior design team
- 2009: 3 senior design teams, including SIGMOD 2010 and NDSS 2010 papers, and 3rd prize for senior design project competition (project directly contributed toward a SIGCOMM 2009 demonstration.)

Undergraduate student academic advising

- As a faculty adviser, I primarily focus on advising undergraduate M&T students majoring in Wharton and Computer Science, and our Computer Engineering program. I am passionate about undergraduate advising, and take on many undergrad advisees, ranging round 40-60 students annually.

Dissertations /Thesis Committees

Chair of thesis committee:

- Karan Newatia (adviser: Andreas Haeberlen and Linh Phan), 2026
- Peizhi Wu (adviser: Zachary Ives and Ryan Marcus), 2025
- Xinyi Chen (advisor: Vincent Liu), 2025
- Liangcheng Yu (advisor: Vincent Liu), 2024
- Kelly Shiptoski (adviser: Joseph Devietti), 2022
- Nofel Yaseen (advisor: Vincent Liu), 2022
- Shaanan Cohney (advisor: Jonathan M. Smith and Nadia Heninger), 2019
- Alex Marder (advisor: Jonathan M. Smith), 2019
- John Sonchack (advisor: Jonathan M. Smith), 2019
- Ang Chen (advisor: Andreas Haeberlen), 2017
- Antonis Papadimitriou (advisor: Andreas Haeberlen), 2017
- Yang Wu (advisor: Andreas Haeberlen), 2017
- Bongho Kim (adviser: Insup Lee), 2016
- Mingchen Zhao (adviser: Andreas Haeberlen), 2016
- Shaohui Wang (adviser: Insup Lee and Oleg Sokolsky), 2015
- Arjun Ravi Narayan (advisor: Andreas Haeberlen), 2015
- Jian Chang (advisor: Insup Lee and Sampath Kannan), 2013
- Svilen Mihaylov (advisor: Zachary Ives), 2012
- Adam Aviv (advisor: Jonathan M. Smith and Matt Blaze), 2012
- Nicholas Taylor (advisor: Zachary Ives), 2010
- Grigoris Karvounarakis (advisors: Zachary Ives and Val Tannen), 2009

Member of PhD. thesis committee:

- Yifan Cai (adviser: Linh Phan), 2026
- Robert Gifford (adviser: Linh Phan and Andreas Haeberlen), 2025
- Nick Rioux (adviser: Steve Zdancewic), 2025
- Kelvin Ng (adviser: Vincent Liu), 2025
- Haoran Zhang (adviser: Sebastian Angel and Vincent Liu), 2024
- Serene Assi (adviser: Robert Mauck), 2024
- Ziliang Lai (advisor: Eric Lo from Chinese University of Hong Kong), 2023 – external committee member
- Jiachi Zhang (advisor: Wenchao Zhou from Georgetown University), 2023 – external committee member
- Yuanlong Xiao (adviser: Andre Dehon), 2023

- Jialiang Zhang (adviser: Jing Li), 2023
- Pardis Pashakhanloo (adviser: Mayur Naik), 2022
- Yi Zhang (adviser: Zachary Ives), 2022
- Yishuai Li (adviser: Benjamin Pierce), 2022
- Omar Navarro Lejia (advisor: Joseph Devietti), 2022
- Joel Hypolite (advisor: Jonathan M. Smith), 2022
- Nan Zheng (advisor: Zachary Ives), 2021
- Bai Ran (advisor: Eric Lo from Hong Kong Polytechnic University), 2019 – external committee member
- Luke Valenta (advisor: Jonathan M. Smith and Nadia Heninger), 2019
- Nikos Vasilakis (advisor: Jonathan M. Smith), 2019
- Nan Zheng (advisor: Zachary Ives), 2019.
- Yuankai Zhang (advisor: Wenchao Zhou), 2019
- Tavish Vaidya (advisor: Micah Sherr), 2018
- Christian DeLozier (advisor: Joseph Devietti), 2018
- Gaurav Shah (advisor: Matthew Blaze), 2009
- Arvind Easwaran (advisors: Insup Lee and Oleg Sokolsky), 2008

Member/chair of WPE-II (research qualifier) committee:

- Karan Newatia, 2025 (Chair), Peizhi Wu, 2025 (Chair); Lan Lu, 2024; Yifan Cai, 2024; Bhavana Mehta, 2023; Gerald Whitters, 2023; Heena Nagda, 2023; Zhilei Zheng, 2023; Liangcheng Yu, 2022; Xinyi Chen, 2022; Chenyuan Wu, 2021; Soonbo Han, 2021; Phillip Hilliard, 2021; Liangcheng Yu, 2021 (Chair); Edo Roth, 2019 (Chair); Omar Navarro Leija, 2019 (Chair); Haoxian Chen, 2019; Joel Hypolite, 2016 (Chair); Kyle Super, 2016 (Chair); Antonis Papadimitriou, 2016 (Chair); John Sonchack, 2014 (Chair); Yang Wu, 2014 (Chair); Nimit Singhania, 2014 ; Mingchen Zhao, 2014 (Chair); Shaohui Wang, 2012.; Zhuoyao Zhang, 2012; Jian Chang, 2011; Changbin Liu, 2009; Svilen Mihaylov, 2009 (Chair); Eric Cronin.2009; Rafi Rubin, 2009; Karl Mazurak, 2008; Nichoas Taylor, 2008. (Chair); Gaurav Shah, 2008; Aaron Bohannon, 2008; Micah Sherr, 2007.

Master's thesis supervision:

- Sanchit Aggrawal, 2013 (advisor); Dhruv Arya, 2013 (committee member); Yuankai Zhang, 2013 (advisor); Dong Lin, 2012 (advisor); Saravana Soundararajan, 2012 (advisor); Prakashkumar Thiagarajan (committee member); Sumanth Mysore Sathyanarayana, 2012 (committee member); Geetika Vasuedeo, 2011 (committee member); Ruchir Jha, 2010 (committee member).

Teaching Experience

- **CIS 4000 / 4010 – Senior Design** (Spring 2026, Fall 2025, Spring 2025, Fall 2024, Spring 2024, Fall 2023)
  - Average teaching evaluations for CIS 4000: 3.12/4 (course), 3.50/4 (instructor)
  - Average teaching evaluations for CIS 4010: 3.17/4 (course), 3.57/4 (instructor)

- **CIT 5950 Online – Computer Systems Programming** (teaching every Fall, Spring and Summer since Fall 2019)
  - Average teaching evaluations: 2.91/4 (course), 3.31/4 (instructor)

- **CIS 5530 / TCOM 5120 Networked Systems** (teaching online every Fall, Spring, and Summer since Spring 2022; previously taught the on-campus version in Spring 2013, Spring 2012, Fall 2010, Fall 2009, Fall 2008, and Fall 2007)
  - Advanced undergraduate / master's level networking course
  - Course creator of on-campus version in 2007 and online version in 2022.
  - Average teaching evaluations: 3.11/4 (course), 3.27/4 (instructor)

- **CIS 5480 – Operating Systems Design and Implementation** (Spring 2023, Spring 2021, Spring 2020, Spring 2019, Spring 2018, Spring 2017)
  - Graduate-level project intensive operating systems class
  - Average teaching evaluations: 3.47/4 (course), 3.58/4 (instructor)

- **CIS 3800 Operating Systems** (Fall 2023, Fall 2022, Fall 2021, Fall 2020, Fall 2019, Fall 2018, Fall 2017, Fall 2016, Fall 2013, Fall 2012, Fall 2011)
  - Required undergraduate junior/senior course in operating systems

- Average teaching evaluations: 2.98/4 (course), 3.16/4 (instructor)

- **CIS 5050 Software Systems** (Spring 2016, Spring 2015, Spring 2011, Spring 2009, Spring 2008)
  - Core advanced undergraduate / master's level distributed systems course

- **CIS 8000 – Software Defined Data Centers** (Fall 2015)
  - Graduate-level seminar class on Software-defined Networking, Network Functions Virtualization, and virtualization techniques for storage and compute.
  - Reviewed and discussed papers from networking and systems conferences.
  - Invited guest speakers from Brocade, Comcast, and Juniper Networks.

- **PREC 712.001 Introduction to Computer Science and Enterpreneurship** (Fall 2015, Fall 2014)
  - Preceptorial seminar to Penn engineering and Wharton business school students on computer science startups.
  - Educate undergraduates interested in doing startups on fund raising, go-to-market strategy, customer discovery, and lean startup development methodologies.

- **CIS 7000/005 Networking meets Databases** (Spring 2007)
  - Research seminar on topics at the intersection of databases and networking.

- **CIS 8000/003 Rigorous Internet Protocol Engineering** (Fall 2011)
  - Research seminar on topics at the intersection of formal methods and networking.

- **CIS 19X: Mini-courses in programming** (Fall 2009 – Fall 2013)
  - Organizer of the popular CIS mini-courses in C#, C++, Haskell, Python, Unix, iPhone, Ruby-on-Rails, etc. (Fall 2009 – Fall 2013)

Coursework Development
URL: https://boonloo.cis.upenn.edu/about/teaching/

- **CIT 5950 Online: Computer Systems Programming**
  Introduces foundational concepts in computing systems. The first 75 percent covers operating system concepts including processes, threads, inter-process communication, traps, interrupts, scheduling, virtual memory, and file systems. The final 25 percent introduces networked systems, the Internet, and network programming. Students program in C and gain experience with system calls, process and thread manipulation, signal handling, and network communication. Offered as a core course in the MCIT Online program
- **CIS 8000: Software-defined Data Centers**
  Developed a graduate-level seminar focusing on the foundations of software-defined data centers, with emphasis on innovations in SDN, NFV, and virtualization for compute and storage. The course includes research paper readings, discussions, programming assignments, and a final project using open-source SDN and NFV platforms to develop automation solutions for data centers. Industry speakers from Brocade, Comcast, and Juniper Networks join to discuss practical applications.
- **CIS 3800: Operating Systems**
  A required core course for CIS undergraduates. Created a new project sequence based on PennOS in which students build a complete user-space operating system. A paper describing PennOS appeared in ACM SIGOPS Operating Systems Review. Course evaluations and enrollment have reached their highest levels in the past three years since CIS 381 was decoupled.
- **CIS 5050: Distributed Software Systems**
  In Spring 2008, redesigned the core course for advanced undergraduates and first-year graduate students. In addition to distributed computing fundamentals, the course introduces topics related to large-scale data management in cloud platforms and data centers. The semester-long project involves building a POP3 and SMTP compliant mail server and extending it for fault tolerance and distribution, later evolved into a distributed chat server project. The head TA received the Outstanding Teaching Assistant Award for 2008 to 2009.
- **CIS 5530 / TCOM 5120: Networked Systems**
  Created an advanced undergraduate and graduate networking course cross listed with TCOM. Students work in teams to develop routing protocols and a Chord Distributed Hash Table, demonstrated on a cluster using the ns 3 network simulator. Students also build a p2p keyword search engine above their Chord layer, based on the original SIGCOMM publication. Work from this class led to the PennSearch paper presented at the SIGCOMM Education

Workshop. Enrollment grew from 34 in Spring 2008 to 107 in Spring 2012. A version of the course was later developed for MCIT Online in 2022.

- **CIS 7000: Networking meets Databases**
  Developed a course exploring research at the intersection of networking and data management. The first offering attracted PhD students in networking, databases, and security. Several final project papers were later published in security, peer to peer, networked data management, and mobile networking workshops, with several follow up conference submissions.
- **CIS 8000: Rigorous Internet Protocol Engineering**
  Introduced a graduate course in Fall 2011 covering formal modeling, high assurance protocol design, verification, and protocol programming languages. Topics include mathematical models of Internet protocols, domain specific languages for specifying protocols, and verification techniques for correctness and security. Case studies include IP routing, BGP policy configuration, secure BGP, transport protocols, overlay networks, and OpenFlow based protocol development. Students gain experience with formal modeling and verification tools such as model checking and automated theorem proving.
- **CIS 19X Mini Course Series**
  Administrator for the CIS undergraduate mini course sequence consisting of half credit programming courses in C++, C#, Python, Unix/Linux and later Haskell, iPhone programming, and Ruby on Rails. Typical enrollment is approximately 30 students per course, with the Unix/Linux course as high as 90 students. Courses are taught weekly by graduate students, providing practical programming experience for undergraduates and valuable instructional experience for graduate instructors. From 2010 to 2012 the program saw expansion in enrollment, new course offerings, industry guest instructors, offerings in both Fall and Spring, and several teaching awards for instructors and TAs.
- **CIS 4000 / CIS 4010: Senior Design Project Sequence**
  Coordinate the year long capstone sequence in which students propose, design, and implement a substantial project in software, hardware, or theory. CIS 4000 (Fall) requires project abstracts with adviser approval, an intermediate report, and a progress presentation. CIS 4010 (Spring) concludes with a final written report and a project presentation and demonstration. Evaluations are based on technical writing, oral communication, and project completion, assessed jointly by advisers and the course instructor. Since assuming leadership of the sequence, course and instructor evaluations have shown significant improvement relative to long term historical averages.

Press Coverage and Interviews

- Penn Engineering – Congratulations to the Penn Engineering Online 2026 Graduates (June 5, 2026).
- Penn Engineering – Behind the Scenes of the New Online Master of Applied Science in Computer Science (MAS-CS Online) Degree (May 15, 2026).
- Penn Engineering – Solving Real-World Problems at Penn Engineering Senior Design (May 11, 2026).
- Penn Engineering – New Name, Same Mission: MCIT Evolves to Master of Applied Science in Computer Science (Apr 6, 2026)
- The Daily Pennsylvanian - Penn Engineering master's student launches 'PortaDash' app to map public restrooms (Apr 1, 2026)
- The Daily Pennsylvanian - Board of Trustees discusses Penn's financial future, global tensions at winter meeting (Mar 10, 2026)
- Penn Engineering Online – Beyond Algorithms: Engineering Judgment in the Age of AI (Feb 26, 2026). Also featured in Penn Today (April 10).
- The Daily Pennsylvanian – Penn Engineering announces accelerated online master's program (Jan 15, 2026).
- Penn Today – Awards and Accolades for Penn Faculty (Jan 9, 2026).
- Penn Engineering – Three Penn Engineers Named 2025 NAI Fellows (Dec 12, 2025).
- Penn Engineering – Penn Engineering and Ashoka University Launch New Partnership to Advance Research, Innovation and Graduate Study (Nov 17, 2025).
- Penn Engineering Online Blog – Penn Engineering: The Why behind the How (Sept 30, 2025).
- Technically Philly article – Penn dean is a startup founder and 'engineer at heart' who loves the connection between education and business (Oct 3, 2024).
- University of Pennsylvania Almanac – Penn's Ivy Plus Provost Leadership Fellows (Sept 17, 2024).
- Penn Engineering - Innovation in Action: Penn Engineering's 2024 Senior Design Project Competition (July 18, 2024)
- Penn Engineering Online - Boon Thau Loo: Senior Associate Dean for Education and Global Initiatives (Jul 2, 2024).
- Penn Engineering GRASP - The 2024 SEAS Graduate Awards Ceremony Shines a Spotlight on GRASP Student Achievements (May 28, 2024)
- Wharton Business Daily podcast - UPenn Impact of Tech/AI in the online/digital learning landscape (May 2024)

- Penn Engineering – Opening Doors and Changing Lives: Five Years of Penn Engineering Online Master's Degrees (March 25, 2024).
- Penn Engineering Graduate Education – The University of Pennsylvania hosts 2023 DEEPenn STEM Event (Nov 6, 2023)
- Penn Engineering Graduate Admissions – Penn Engineering Celebrates Annual Meyerhoff Day (June 21, 2023)
- Penn CIS Blog – DSL and SIG lab Renovations: Out with the Old, In with the New (Oct 6, 2022)
- Penn Engineering Online – Boon Thau Loo and Amish Patel Receive Lindback Teaching Awards (Apr 6, 2022).
- The Daily Pennsylvanian – Over 150 Penn faculty rebuke U.S. government for racial profiling of Chinese academics (Feb 11, 2022).
- Penn Engineering Online – Expanding Our Reach – Introducing Scholarships (Dec 8, 2021)
- Penn SEAS – The 2021 Ruth and Joel Spira Award for Excellence in Teaching: Professors Susan Davidson and Boon Thau Loo (Sept 3, 2021)
- PR Newswire – Myanmar's Frontiir acquires Termaxia, cloud storage high-tech firm in the US (Mar 6, 2020)
- Online Education – The rise of MOOC-based Master's Degrees at Elite Universities (Sept 17, 2019).
- Penn Engineering Medium – Penn Engineering announces four new scholarly chairs. (Aug 29, 2019).
- Penn Today – A cybersecurity boot camp to grow Philadelphia's digital workforce (Aug 23, 2019).
- Technically Philly article – Penn is launching a 24-week cybersecurity bootcamp (Aug 14, 2019).
- Penn LPS press release – Penn LPS and Penn Engineering launch Cybersecurity bootcamp to grow Philadelphia's digital workforce (Aug 7, 2019).
- Penn Engineering Online article – Why Boon Thau Loo says that Teaching Online is an opportunity of a lifetime (Jul 22, 2019).
- Coursera blog – Stories from Penn Engineering's MCIT Alumni and Faculty (July 3, 2019)
- Penn Engineering – Engineering Undergrads build fundamental of new peer-to-peer technology (May 20, 2019)
- The Daily Pennsylvanian – Penn Engineering sub-matriculants must now complete undergraduate degree in 4 years (Feb 28, 2019).
- Termaxia Medium.com – Termaxia Powers Leading Asia ISP's Cloud-based IPTV Service (Mar 2, 2019).
- Tech Target – Storage startup Termaxia stares at clouds (Jan 21, 2019).
- Penn Today – PCI event recognizes faculty trailblazers (Nov 27, 2018).
- Penn Engineering Medium.com – Computer Science Names 2018 J.P. Eckert Master's Fellows (Oct 12, 2018).
- University of Pennsylvania Almanac – SEAS Team: Naval Research Grant (Oct 16, 2018)
- Penn Engineering Medium.com – Reducing Complexity to Increase Security (Sept 24, 2018).
- PWCC News – Summer Networking Event at PWCC Connects Chinese Students and Alumni (Sept 11, 2018).
- Technical.ly Philly – How I crossed the academic chasm and entered the startup life (Aug 31, 2018).
- Technical.ly Philly – Penn Engineering launches its first online-only master's program on Coursera (July 25, 2018).
- Philadelphia Inquirer – University of Pennsylvania to offer fully-online master's program in computer science (July 25, 2018).
- Penn Engineering Medium.com - Taking Penn Engineering Technology to Market (Apr 16, 2018)
- Technical.ly Philly - One of StartUp PHL's original investments is finally out of stealth mode (Feb 8, 2018)
- Penn Engineering Medium.com - Penn Engineers Receive $6.1 Million Grant from Office of Naval Research to Reduce Software Complexity (Feb 7, 2018)
- Ben Franklin Technology Partners - Ben Franklin Approved $2.9M for 13 Early Stage Companies (Aug 18, 2016)
- Technical.ly Philly - This stealth-mode company nabbed $100K from StartUp PHL (July 20, 2016):
- PIDCPhila blog - Startup PHL initiative achieves success supporting entrepreneurs and startups in Philadelphia (July 20, 2016)
- The Daily Pennsylvanian - $1.9 million in government grants awarded to Penn researchers by National Science Foundation (June 13, 2016).
- Penn Engineering news - Penn's Distributed Systems Lab Receives $3.5M to Developing Innovative Defense (05/23/2016)
- NJ Tech Weekly - Juniper's OpenLab in Bridgewater Having Worldwide Impact (07/22/15).
- Network Computing - Lab Carries SDN-Based Software From Concept To Reality (06/01/15).
- The Daily Pennsylvanian article - Faculty startup raises $100K (04/07/2015).
- Technical.ly (Philly) article: Penn startup raises $100K from city's Startup PHL fund (03/27/2015).
- City of Philadelphia press release - Mayor Nutter announces Startup PHL Angel Fund Investment in Gencore Systems (03/27/2015).
- Philadelphia Business Journal - Penn startup raises $100K from Startup PHL Angel Fund (03/26/2015).
- The Daily Pennsylvanian - Penn researchers develop technology to improve computer networks (07/28/2014).

- Technical.ly (Philly) article - Meet one of the first faculty startups from Penn's Comp. Sci. department (Nov 6, 2013).
- Juniper networks press release - Juniper Networks launches production-ready Software-defined Networking Solution to Bring Networking into Cloud Era (Sept 16, 2013).
- Press releases on NSF Expeditions on Program Synthesis - Penn to Lead $10 Million Project on Computer-assisted Programming (Apr 3, 2013).
- Technical.ly Philly - A Penn startup gets a $150,000 National Science Foundation grant (Dec 4, 2013)
- Penn Current - Penn engineers participate in two $10 million projects (Apr 5, 2013).
- Technical.ly Philly - ExCAPE: Penn researchers will lead 5 yr, $10M project to program with talking computers (April 12, 2012).
- Penn engineering press release - Boon Thau Loo Receives AFOSR Young Investigator Award (2/12/2012).
- Press release on Air Force Office of Scientific Research (AFOSR) Young Investigator Program - AFOSR awards grants to 48 scientists and engineers through its Young Investigator Research Program (11 Jan 2012).

Professional Activities

Organizational Activities:

- **Best paper award selection committee chair,** Symposium on SDN Research (SOSR), 2017.
- **Program co-chair**, 1st International Workshop on Rigorous Protocol Engineering (WRiPE), co-located with ICNP 2011.
- **Local arrangements chair**, 6th International Conference on emerging Networking EXperiments and Technologies (CoNEXT), 2010
- **Program co-chair**, 5th International Workshop on Networking meets Databases (NetDB), co-located with SOSP, 2009.
- **Program co-chair**, 4th International Conference on emerging Networking EXperiments and Technologies (CoNEXT) Student Workshop, 2008
- **Steering committee**, International Workshop on Networking-meets-Databases (NetDB), 2009-2011

Selected Program Committees:

- ACM SIGMOD, 2011, 2012, 2017 (demo), 2018, 2020, 2022 (Associate Editor), 2025 (Associate Editor), 2026 (Associate Editor), 2027 (Associate Editor), 2028 (Associate Editor)
- ACM SIGCOMM 2022
- ACM International Conference on emerging Networking EXperiments and Technologies (ACM CoNEXT), 2009, 2020, 2021
- 2nd ACM Symposium on Cloud Computing (SOCC), 2011, 2014, 2020, 2026.
- European Conference on Computer Systems (Eurosys), 2019.
- Asia-Pacific Workshop on Networking (APNet), 2018, 2019.
- USENIX Symposium on Networked Systems Design and Implementation (NSDI), 2017, 2018.
- 25th International Conference on Data Engineering (ICDE), 2009, 2010, 2012, 2017.
- Conference on Information and Knowledge Management (CIKM), 2017.
- 17th Privacy Preserving Technologies Symposium (PETS), 2017.
- Symposium on SDN Research (SOSR), 2016, 2017.
- Symposium on Operating Systems Design and Implementation (OSDI), 2016.
- Database Systems for Advanced Applications (DASFAA), 2014.
- Usenix Annual Technical Conference (ATC), 2013.
- 27th International Conference on Logic Programming (ICLP), 2012.
- WWW (Data and Content management track), 2012.
- ACM Symposium on Principle of Database Systems (PODS), 2012.
- ACM SIGMOD Dissertation Award, 2010.
- 34th Conference on Very Large Databases (VLDB), 2007, 2008, 2009, 2010, 2012, 2013.
- 4th Biennial Conference on Innovative Data Systems Research (CIDR), 2009, 2011.
- Conference on Computer Communications (IEEE INFOCOM), 2009.
- International Conference on Distributed Computing Systems (ICDCS) Operating Systems and Middleware track, 2007.

External Review Committee:

- Institute for Enterprise Engineering (IEnE), Pratt School of Engineering, Duke University, 2025.

- Penn School of Dental Medicine Master of Science in Oral Biology (MSBO) external reviewer (2023)
- Engineering for Professional division, John Hopkins University Whiting School of Engineering, 2019.

Funding Review Panels:

- Ministry of Education (Singapore) Tier-3 proposal whitepaper review, 2024
- Singapore Agency for Science, Technology and Research (A*STAR) Advanced Manufacturing Engineering – Programmatic (AME Programmatic) funding initiative review panel, Jan 2023.
- USA National Science Foundation panelist (approximately 1 panel a year on average). Participated in several program reviews including CISE (CNS, CRS, NETS, SATC, FMitF), NRT, SBIR, etc.
- Ministry of Education (Singapore) Tier-2 proposal panel reviews (2017 – present). Twice a year review panels to determine research proposals for funding in Singapore

Other Activities:

- Ivy Plus Provost Fellows program, 2024-2025
- Milken-Penn GSE Education Business Plan Competition, 2016.
- Workshop on Hot Topics in Middleboxes and Network Function Virtualization (HotMiddlebox), co-located with SIGCOMM, 2016.
- ACM CoNEXT Cloud-Assisted Networking (CAN) workshop, 2016.
- Program Committee, SIGMOD/PODS PhD Workshop, 2012.
- Program Committee, Datalog 2.0 workshop, 2012.
- Program Committee, Usenix Workshop on Hot Topics in Management of Internet, Cloud, and Enterprise Networks and Services (Hot-ICE), 2012.
- Program Committee, Off the Beaten Track (OBT): Underrepresented Problems for Programming Language Researchers (co-located with POPL), 2012.
- DARPA Information Science and Technology Study Group (ISAT) on Programming Functional Networks, 2012.
- DARPA Information Science and Technology Study Group (ISAT) on Program Synthesis, 2011.
- Program Committee, Workshop on Programmable Routers for Extensible Services of Tomorrow (PRESTO), 2010.
- Program Committee, IEEE International Symposium on Policies for Distributed Systems and Networks (POLICY), 2010.
- Program Committee, 6th International Workshop on P2P Systems (IPTPS), 2007, 2009, 2010.
- Program Committee, 3rd International Workshop on Networking meets Databases (NetDB), 2007, 2008.
- Program Committee, 2nd SIGMOD PhD Workshop on Innovative Database Research (IDAR) 2008.
- Program Committee, VLDB PhD Workshop, 2008
- Program Committee, 9th International Workshop on Web Information and Data Management (WIDM), 2007.
- DARPA Information Science and Technology Study Group (ISAT) on Engineering Ensemble Effects, 2007.
- GENI project office proposal reviewer, 2008.
- Journal Reviewer: reviewer of several journals including VLDB Journal, ACM Transactions of Programming Languages and Systems (TPLS), ACM Transactions of Parallel and Distributed Databases (TPDS), IEEE/ACM Transactions on Networking (ToN), International Journal for Information Technology (IJIT), IEEE Transactions on Knowledge and Data Engineering (TKDE), ACM Transaction of Computer Systems (TOCS), Distributed and Parallel Databases (Springer), ACM Transactions on Databases Systems (TODS).

Invited Keynotes

- **Programming Network Policies by Examples: Platform, Abstraction, and User Studies.** Invited talk at the Third Workshop on Networking and Programming Languages (NetPL), collocated with ACM SIGCOMM 2017.
- **A Declarative Perspective on Programmable Networking.** Invited keynote speaker at the Workshop on Software Defined Networking (SDN), co-located with the IEEE International Conference on Communications (ICC), 2012.
- **Recent Advances in Declarative Networking.** Invited keynote speaker at the 14th International Symposium on Practical Aspects of Declarative Languages (PADL), co-located with ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages, Jan 2012.
- **Declarative Policy-based Networking.** Invited keynote speaker at the IEEE International Symposium on Policies for Distributed Systems and Networks (POLICY), Jul 2010.

Invited Seminars

- **Transforming Learning: The Story of Penn Engineering Online.** Provost's Conversation on Online Learning (PCoOL), Columbia University, Jan 2025
- **Towards Full-Stack Adaptivity in Permissioned Blockchain Systems.** Institute of Infocom Research Singapore, Nanyang Technological University, National University of Singapore, Aug 2024
- **Towards Full-Stack Adaptivity in Permissioned Blockchain Systems.** University of California, Irvine, Oct 2023
- **Towards Full-Stack Adaptivity in Permissioned Blockchain Systems.** University of Delaware, Sept 2023
- **Towards Full-Stack Adaptivity in Permissioned Blockchain Systems.** Shanghai Tech University, Sept 2023
- **Declarative Programming in Software-defined Networks: Past, Present, and Future.** Chinese University of Hong Kong, Hong Kong Baptist University, Hong Kong Polytechnic University, and Hong Kong University of Science and Technology, Jul 2019.
- **Declarative Dispersion-Oriented Software.**
  National University of Singapore, July 2017.
- **Data Provenance at Internet Scale: Architecture, Experiences and the Road Ahead**
  Conference on Innovative Data Systems Research (CIDR), 2017.
- **Scenario-based Programming for SDN Policies.**
  National University of Singapore, Nanyang Technological University, July 2016.
- **Cloud: What's Next?**
  Wharton Technology Conference (panel moderator), Nov 2015.
- **Scenario-based Programming for SDN Policies.**
  Open Networking User Group (ONUG), Nov 2015.
- **Declarative Cloud Performance Analytics.**
  2015 Informs Annual Meeting -- Big Data in the Cloud Track, Nov 2015.
- **Declarative Network Programming: Implementation, Verification and Synthesis.**
  University of Pennsylvania ESE Colloquia, Sept 2015.
- **Automated Analysis and Actuation for Software Defined Infrastructure.**
  Software Defined Networking Symposium for Defense and National Security, Dec 2014.
- **Data Center, Co-location, Hosted Solutions - What is Best for my Business?**
  New Jersey Technical Council Data Summit and Expo (panel moderator), Dec 2014.
- **Faculty Start-Up Companies.**
  Penn Center for Innovation (PCI) Seminar, Nov 2014.
- **Declarative Networking.**
  Nanyang Technological University (NTU), Aug 2014.
- **Building a Start-Up in a Marketplace Ripe For Disruption.**
  National University of Singapore, Aug 2014.
- **Perspectives on University Technology Transfer.**
  National University of Singapore iLEAD guest lecture (held at the University of Pennsylvania), Jul 2014.
- **Declarative Networking.**
  Air Force Research Laboratory, Jul 2014.
  AFOSR Young Investigator Meeting, Jun 2014.
- **Innovation Process and Core Methodology.**
  Comcast Innovation Summit, Sept 2013.
- **Automated Formal Analysis of Internet Routing Configurations.**
  National University of Singapore, 2013.
- **Declarative Networking.** Harvard University, Fall 2012 (Invited).
- **Declarative Constraint Optimizations in Distributed Systems**. New England Database Society, Sept 2012.
- **Declarative Networking.** Temple University, Sept 2012.
- **Declarative Networking.** Nanyang Technological University (NTU), Aug 2012.
- **Declarative Networking.** Singapore University of Technology and Design (SUTD), Aug 2012.
- **Declarative Constraint Optimizations in Distributed Systems**. National University of Singapore, Aug 2012.
- **Declarative Constraint Optimizations in Distributed Systems.** University of California Davis, May 2012
- **Declarative Distributed Constraint Optimization Platform.** Cornell University, Apr 2012.
- **Evolving the Internet with Declarative Networking.** Carnegie Mellon University, Feb 2012.
- **Evolving the Internet with Declarative Networking.** University of Washington-Seattle, Oct 2011.

- **Evolving the Internet with Declarative Networking.** University of California Berkeley, Sept 2011.
- **Evolving the Internet with Declarative Networking.** Rutgers University, Sept 2011.
- **Declarative Secure Distributed Systems.** Singapore Management University, Jul 2011.
- **Declarative Networking: Present and Future.** National University of Singapore, Jul 2011.
- **Secure Time-aware Provenance for Distributed Systems.** Advanced Digital Sciences Center, Singapore, Jun 2011.
- **Declarative Networking: Present and Future.** Advanced Digital Sciences Center, Singapore, Jun 2011.
- **Declarative Secure Distributed Systems.** University of California San Diego Database Seminar, Dec 2010.
- **Declarative Policy-based Networking.** NEC Labs Princeton, Aug 2010.
- **Declarative Policy-based Networking.** Keynote speaker at IEEE POLICY, Jul 2010,
- **Declarative Networking**. Lockheed Martin Advanced Technologies Laboratory (ATL), Apr 2010.
- **Declarative Secure Distributed Systems.** Stanford University, Security seminar, March 2010.
- **Declarative Techniques for Secure Network Routing.** DIMACS Workshop on Secure Routing, Rutgers University, March 2010.
- **Declarative Networking**. Telcordia Technologies, Mar 2010.
- **Datalog and Its Application to Network Routing Design.** Princeton University Research Seminar on *Formal Methods in Networking*, Feb 2010.
- **DS2: Declarative Secure Distributed Systems.** University of California-Berkeley Database Seminar, Dec 2009.
- **Applying PL and Database Techniques to Networking.** DIMACS Workshop on Designing Networks for Manageability, Rutgers University, Nov 2009.
- **DS2: Declarative Secure Distributed Systems.** University of Waterloo Database seminar, June 2009.
- **Declarative DSL: A Declarative Networking Perspective.** Panelist, ICDE 2008 panel on Declarative domain-specific languages.
- **Boon Thau Loo Speaks Out.** ACM SIGMOD Record (Sept 2007 edition)
- **The Design and Implementation of Declarative Networks.** AT&T Labs Research, New Jersey, Jul 2007.
- **The Design and Implementation of Declarative Networks.** National University of Singapore, June 2007.
- **The Design and Implementation of Declarative Networks.** ACM SIGMOD dissertation award presentation, Beijing, China, Jun 2007.
- **The Design and Implementation of Declarative Networks.** AT&T Labs Research, New Jersey, Jul 2007. BBN Technologies, Boston, Apr 2007.
- **Declarative Networking: Extensible Networks with Declarative Queries**. UC Santa Cruz Database Seminar, June 2006.
- **Declarative Networking: Extensible Networks with Declarative Queries**. Academic Job Talk, [Yale University, California Institute of Technology, University of Pennsylvania, University of Toronto, IBM Almaden, Cornell University, Microsoft Research Silicon Valley, Duke University, University of Texas-Austin, ETH Zurich, University of Michigan-Ann Arbor, University of California at Los Angeles], Feb-Apr 2006

Invited Panels

- **Penn China Engagement Forum (Jan 2024).** Participated in a panel with Deans from Graduate School of Education, Wharton, and Weitzman School of Design on academic collaborations and engagement with China.
- **Penn Global / GSE conference on the Future of Global Higher Education (Mar 2023).** Participated in a panel on future research collaborations.
- **Penn and Mellon Fellows Leadership panel (Feb 2023).** Participated in a panel with two other Associate Deans, discussing leadership roles at the University with Penn and Mellon Fellows.

Books

- **Logic, Language, and Security: Essays Dedicated to Andre Scedrov on the Occasion of His 65th Birthday**, Edited by Vivek Nigam, Tanjanan Ban Kirigin, Carolyn Talcott, Joshua Guttman, Stepan Kuznetsov, Boon Thau Loo, and Mitsuhiro Okada, Lecture Notes in Computer Science, 12300, Springer International Publishing, Oct 2020.
- **Datalog and Recursive Query Processing.**
  Todd J. Green, Shan Shan Huang, Boon Thau Loo, and Wenchao Zhou.
  Foundations and Trends in Databases, Nov, 2013.
- **Declarative Networking.**
  Boon Thau Loo, and Wenchao Zhou.

Morgan & Claypool's Synthesis Lectures on Data Management, 2012.

Journal Publications

- **Towards Truly Adaptive Byzantine Fault-Tolerant Consensus.** Chenyuan Wu, Haoyun Qin, Mohammad Javad Amiri, Boon Thau Loo, Dahlia Malkhi, and Ryan Marcus. ACM SIGOPS Operating Systems Review, Volume 58, Issue 1, 2024.
- **Synthesizing Formal Network Specifications from Input-Output Examples.** Haoxian Chen, Chenyuan Wu, Andrew Zhao, Mukund Raghothaman, Mayur Naik, and Boon Thau Loo. IEEE/ACM Transactions on Networking (ToN), Sept 2022.
- **The Use of Crowdfunding and Social Media Platforms in Strategic Start-up Communication: A Big-data Analysis**. Sun-Young Park and Boon Thau Loo. International Journal of Strategic Communication 16 (2), 313-331, Mar 2022
- **NetEgg: A Scenario-based Programming Toolkit for SDN Policies.** Yifei Yuan, Dong Lin, Anil Siri, Harsh Verma, Anirudh Chelluri, Rajeev Alur, and Boon Thau Loo. ACM/IEEE Transactions on Networking (ToN), 2018.
- **Data Center Diagnostics with Network Provenance** Ang Chen, Chen Chen, Lay Kuan Loh, Yang Wu, Andreas Haeberlen, Limin Jia, Boon Thau Loo, Wenchao Zhou. IEEE Data Eng. Bull. 41(1): 74-85 (2018)
- **Scalable and Anonymous Group Communication with MTor** Dong Lin, Micah Sherr, and Boon Thau Loo. Proceedings on Privacy Enhancing Technologies (PoPETS), 2016
- **A Program Logic for Verifying Secure Routing Protocols.** Chen Chen, Limin Jia, Hao Xu, Cheng Luo, Wenchao Zhou, and Boon Thau Loo. Logical Methods in Computer Science Journal, 2015.
- **Exploiting Cloud Heterogeneity to Optimize Performance and Cost of MapReduce Processing.** Zhuoyao Zhang, Lucy Cherkasova, and Boon Thau Loo. ACM SIGMETRICS Performance Evaluation Review, (PER), Special Issue on Performance and Resource Management in Big Data Applications, March, 2015, Pages 38-50.
- **Private and Verifiable Interdomain Routing Decisions.** Mingchen Zhao, Wenchao Zhou, Alexander J. T. Gurney, Andreas Haeberlen, Micah Sherr, and Boon Thau Loo IEEE/ACM Transactions on Networking (ToN), 2014, Pages 383-394.
- **A Brief Overview of the NEBULA Future Internet Architecture**. The Nebula FIA team. ACM SIGCOMM Computer Communication Review, 2014, Pages 81-86.
- **Declarative Platform for High-Performance Network Traffic Analytics.** Harjot Gill, Dong Lin, Cam Nguyen, Tanveer Gill, and Boon Thau Loo. Cluster Computing journal, 2014, Pages 1121-1137. *Special Issue on selected best papers of HPDC 2013.*
- **Parameterizable Benchmarking Framework for Designing a MapReduce Performance Model.** Zhuoyao Zhang, Ludmila Cherkasova, and Boon Thau Loo. Concurrency and Computation: Practice and Experience journal, 2014, Pages 2005-2026. ICPE 2013 special issue.
- **PUMA: Policy-based Unified Multi-radio Architecture for Agile Mesh Networking.** Changbin Liu, Ricardo Correa, Harjot Gill, Tanveer Gill, Xiaozhou Li, Shivkumar Muthukumar, Taher Saeed, Boon Thau Loo, and Prithwish Basu. IEEE/ACM Transactions on Networking (ToN), 2013, Pages 1897-1910,
- **The Design and Implementation of the A3 Application-Aware Anonymity Platform.** Micah Sherr, Harjot Gill, Taher Aquil Saeed, Andrew Mao, William R. Marczak, Saravana Soundararajan, Wenchao Zhou, Boon Thau Loo, and Matt Blaze. Computer Networks (COMNET), Elsevier Publishing, 2013, Pages 206-227.
- **Performance Modeling and Optimization of Deadline-Driven Pig Programs.** Zhuoyao Zhang, Ludmila Cherkasova, and Boon Thau Loo. ACM Transactions on Autonomous and Adaptive Systems (TAAS), 2013. *Journal version of ACM ICAC'12 best student paper award.*
- **The NEBULA Future Internet Architecture.** The NSF NEBULA FIA Team.

The Future Internet, Springer Berlin Heidelberg publisher, 2013.

- **Declarative Secure Distributed Information Systems.**
  Wenchao Zhou, Tao Tao, Boon Thau Loo, and Yun Mao
  Computer Languages, Systems & Structures (COMLAN), Elsevier Publishing, 2012, Pages 1-24.
- **Experiences in Teaching an Educational User-Level Operating Systems Implementation Project**.
  Adam J. Aviv, Vin Mannino, Thanat Owlarn, Seth Shannin, Kevin Xu, and Boon Thau Loo
  Operating Systems Review (OSR) journal, 2012, Pages 80-86.
- **AS-CRED: Reputation and Alert Service for Inter-domain Routing.**
  Jian Chang, Krishna Venkatasubramanian, Andrew West, Sampath Kannan, Insup Lee, Boon Thau Loo, and Oleg Sokolsky.
  IEEE Systems Journal (Special Issue on Security and Privacy of Complex Systems), 2012.
- **Maintaining Distributed Logic Programs Incrementally.**
  Vivek Nigam, Limin Jia, Boon Thau Loo and Andre Scedrov.
  Computer Languages, Systems & Structures (COMLAN), Elsevier Publishing, 2012, Pages 158-180.
- **MOSAIC: Declarative Platform for Dynamic Overlay Composition.**
  Yun Mao, Boon Thau Loo, Zachary Ives and Jonathan M. Smith
  Computer Networks (COMNET), Elseiver Publishing, Pages 64-84, 2012.
- **FSR: Formal Analysis a Implementation Toolkit for Safe Inter-domain Routing**
  Anduo Wang, Limin Jia, Wenchao Zhou, Yiqing Ren, Boon Thau Loo, Jennifer Rexford, Vivek Nigam, Andre Scedrov, Carolyn L. Talcott.
  IEEE/ACM Transactions on Networking (ToN), 2012.
- **Declarative Policy-based Adaptive Mobile Ad Hoc Networking.**
  Changbin Liu, Ricardo Correa, Xiaozhou Li, Prithwish Basu, Boon Thau Loo, Yun Mao.
  IEEE/ACM Transactions on Networking (ToN), 2012, Pages 770-783.
- **SmartCIS: Integrating Digital and Physical.**
  Mengmeng Liu, Svilen R. Mihaylov, Zhuowei Bao, Marie Jacob, Zachary G. Ives, Boon Thau Loo, and Sudipto Guha.
  ACM SIGMOD Record, Mar 2010. Pages 48-53.
- **5th International Workshop on Networking Meets Databases (NetDB 2009)**
  Boon Thau Loo, and Stefan Saroiu
  ACM SIGMOD Record and the ACM Operating Systems Review (OSR), Dec 2009.
- **Declarative Networking**
  Boon Thau Loo, Tyson Condie, Minos Garofalakis, David E. Gay, Joseph M. Hellerstein, Petros Maniatis, Raghu Ramakrishnan, Timothy Roscoe, Ion Stoica
  Communications of the ACM, 2009. Pages 87-95.
- **Maintaining Recursive Views of Regions and Connectivity in Networks**
  Mengmeng Liu, Nicholas E. Taylor, Wenchao Zhou, Zachary Ives, and Boon Thau Loo.
  IEEE Transactions of Knowledge and Data Engineering (TKDE) Journal, 2009. Pages 1126-1141.
  Special Issue on Best papers of the 25th International Conference on Data Engineering (ICDE), 2009

Highly Selective Conference Publications

- **DAG of DAGs: Order-Fairness Made Practical.** Heena Nagda, Sidharth Sankhe, Sakshi Sinha, Keon Attarha, Mohammad Javad Amiri, and Boon Thau Loo. SIGMOD International Conference on Management of Data, June 2026.
- **Adaptive Sharding in Untrusted Environments.** Bhavana Mehta, Nupur Baghel, Mohammad Javad Amiri, Boon Thau Loo, and Ryan Marcus. SIGMOD International Conference on Management of Data, June 2026.
- **Privacy Meets Regulations: Shaping the Future of Work.** Mohammad Javad Amiri, Tristan Allard, Boon Thau Loo, Divyakant Agrawal, and Amr El Abbadi. Conference on Innovative Data Systems Research (CIDR), Jan 2026.
- **Stage-Aligned Multiplexing for Multi-LLM Serving**. Tao Luo, Kelvin Ng, Zhen Ping Khor, Sidharth Sankhe, Boon Thau Loo, and Vincent Liu. 16th ACM Symposium on Cloud Computing (SOCC '25), Dec 2025
- **On the Automated Verification of BGP Convergence.** Haoyun Qin (*), Gerald Whitters (*), Boon Thau Loo, and Carolyn Talcott. Principles and Practice of Declarative Programming (PPDP), Sept 2025. We gratefully acknowledge Vivek Nigam's significant contributions to the development of this work. (*) Joint first authors with equal contributions.
- **BFTBrain: Adaptive BFT Consensus with Reinforcement Learning.** Chenyuan Wu, Haoyun Qin, Mohammad Javad Amiri, Boon Thau Loo, Dahlia Malkhi, and Ryan Marcus. USENIX Symposium on Networked Systems Design and Implementation (NSDI), April 2025.

- **Practical Declarative Smart Contracts Optimization.** Lan Lu, Tao Luo, Jingui Li, Hongxun Ding, Brendan Massey, Haoxian Chen, and Boon Thau Loo. Sixth International Workshop on Foundations and Applications of Blockchain (co-located with VLDB), 2024.
- **BFTGym: An Interactive Playground for BFT Protocols.** Haoyun Qin, Chenyuan Wu, Mohammad Javad Amiri, Ryan Marcus, and Boon Thau Loo. 50th International Conference on Very Large Databases (VLDB) Demo, 2024.
- **Rashnu: Data-Dependent Order-Fairness.**
  Heena Nagda, Shubhendra Pal Signal, Mohammad Javad Amiri, and Boon Thau Loo.
  50th International Conference on Very Large Databases (VLDB), 2024.
- **Towards Full Stack Adaptivity in Permissioned Blockchains [Vision Paper].**
  Chenyuan Wu, Mohammad Javad Amiri, Haoyun Qin, Bhavana Mehta, Ryan Marcus, and Boon Thau Loo.
  50th International Conference on Very Large Databases (VLDB), 2024.
- **Verifying Declarative Smart Contracts.**
  Haoxian Chen, Lan Lu, Brendan Massey, Yuepeng Wang, Boon Thau Loo.
  46th International Conference on Software Engineering (ICSE), April, 2024.
- **The Bedrock of Byzantine Fault Tolerance: A Unified Platform for BFT Protocols Analysis, Implementation, and Experimentation.**
  Mohammad Javad Amiri, Chenyuan Wu, Divyakant Agrawal, Amr El Abbadi, Boon Thau Loo, and Mohammad Sadoghi.
  USENIX Symposium on Networked Systems Design and Implementation (NSDI), April 2024.
- **AdaChain: A Learned Adaptive Blockchain.**
  Chenyuan Wu, Bhavana Mehta, Mohammad Javad Amiri, Ryan Marcus, and Boon Thau Loo.
  49th conference on Very Large Databases (VLDB), Aug 2023.
- **FlexChain: An Elastic Disaggregated Blockchain**.
  Chenyuan Wu, Mohammad Javad Amiri, Jared Asch, Heena Nagda, Qizhen Zhang, and Boon Thau Loo.
  49th conference on Very Large Databases (VLDB), Aug 2023.
- **Saguaro: An Edge Computing-enabled Hierarchical Permissioned Blockchain.**
  Mohammad Javad Amiri, Ziliang Lai, Liana Patel, Boon Thau Loo, Eric Lo, and Wenchao Zhou.
  39th IEEE International Conference on Data Engineering (ICDE), Apr 2023.
- **Templating Shuffles.**
  Qizhen Zhang, Jiacheng Wu, Ang Chen, Vincent Liu, and Boon Thau Loo.
  Conference on Innovative Data Systems Research (CIDR), Jan 2023.
- **Towards Practical Application-level Support for Privilege Separation**. Nik Sultana, Henry Zhu, Ke Zhong, Zhilei Zheng, Ruijie Mao, Digvijay Chauhan, Stephen Carrasquillo, Junyong Zhao, Lei Shi, Nikos Vasilaki, and Boon Thau Loo. Annual Computer Security Applications Conference (ACSAC), Dec 2022.
- **Declarative Smart Contracts.**
  Haoxian Chen, Gerald Whitters, Mohammad Javad Amiri, Yuepeng Wang, and Boon Thau Loo.
  21st ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE), Nov 2022.
- **Qanaat: A Scalable Multi-Enterprise Permissioned Blockchain System with Confidentiality Guarantees.**
  Mohammad Javad Amiri, Boon Thau Loo, Divy Agrawal, and Amr El Abbadi,
  48th conference on Very Large Databases (VLDB), Aug 2022.
- **Optimizing Data-intensive Systems in Disaggregated Data Centers with TELEPORT**.
  Qizhen Zhang, Xinyi Chen, Sidharth Sankhe, Zhilei Zheng, Ke Zhong, Sebastian Angel, Ang Chen, Vincent Liu, and Boon Thau Loo.
  ACM SIGMOD International Conference on Management of Data, June 2022.
- **Automatic Repair for Network Programs.**
  Lei Shi, Yuepeng Wang, Boon Thau Loo and Rajeev Alur.
  International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS), Apr 2022.
- **Optimizing Data-intensive Systems in Disaggregated Data Centers with TELEPORT**.
  Qizhen Zhang, Xinyi Chen, Sidharth Sankhe, Zhilei Zheng, Ke Zhong, Sebastian Angel, Ang Chen, Vincent Liu, Boon Thau Loo.
  ACM SIGMOD International Conference on Management of Data, June, 2022.
- **CompuCache: Remote Computable Caching with Spot VMs.**
  Qizhen Zhang, Philip Bernstein, Daniel Berger, Badrish Chandramouli, Vincent Liu, and Boon Thau Loo.
  Conference on Innovative Data Systems Research (CIDR), 2022.
- **When Idling is Ideal: Optimizing Tail-Latency for Highly-Dispersed Datacenter Workloads with Perséphone.**
  Max Demoulin, Josh Fried, Issac Pedisich, Marios Kogias, Boon Thau Loo, Linh Thi Xuan Phan, and Irene Zhang.
  28th ACM Symposium on Operating Systems Principles (SOSP), October 2021.

- **Network Traffic Classification by Program Synthesis.**
  Lei Shi, Yahui Li, Boon Thau Loo and Rajeev Alur.
  International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS), 2021.
- **Flightplan: Automatic Disaggregation and Placement for P4 Programs.**
  Nik Sultana, John Sonchack, Hans Giesen, Isaac Pedisich, Zhaoyang Han, Nishanth Shyamkumar, Shivani Burad, Andre Dehon, and Boon Thau Loo.
  USENIX Symposium on Networked Systems Design and Implementation (NSDI), 2021.
- **Understanding the Effect of Data Center Resource Disaggregation on Production DBMSs.**
  Qizhen Zhang, Yifan Cai, Xinyi Chen, Sebastian Angel, Ang Chen, Vincent Liu, and Boon Thau Loo
  46th conference on Very Large Databases (VLDB), Aug 2020.
- **Provenance for Probabilistic Logic Programs**.
  Shaobo Wang, Hui Lyu, Jiachi Zhang, Chenyuan Wu, Xinyi Chen, Wenchao Zhou, Boon Thau Loo, Susan B. Davidson and Chen Chen.
  23rd International Conference on Extending Database Technology, (EDBT), Apr 2020. **Best paper award.**
- **Rethinking Data Management Systems for Disaggregated Data Centers.**
  Qizhen Zhang, Yifai Cai, Sebastian Angel, Ang Chen, Vincent Liu, and Boon Thau Loo.
  Conference on Innovative Data Systems Research (CIDR), Jan, 2020.
- **Detecting Application-layer Denial-of-Service Attacks with FineLame.**
  Henri Maxime Demoulin, Isaac Pedisich, Nikos Vasilakis. Vincent Liu, Boon Thau Loo, Linh Thi Xuan Phan.
  2019 USENIX Annual Technical Conference (USENIX ATC), July 2019.
- **DeDoS: Defusing DoS with Dispersion Oriented Software.**
  Henri Maxime Demoulin*, Tavish Vaidya*, Isaac Pedisich, Bob Dimaiolo, Jingyu Qian, Chirag Shah, Yuankai Zhang, Ang Chen, Andreas Haeberlen, Boon Loo, Linh Phan, Micah Sherr, Clay Shields and Wenchao Zhou.
  Annual Computer Security Applications Conference (ACSAC), 2018. **Lead students are listed alphabetically.*
- **Optimizing Declarative Graph Queries at Large Scale.**
  Qizhen Zhang, Akash Acharya, Hongzhi Chen, Simran Arora, Ang Chen, Vincent Liu, and Boon Thau Loo.
  ACM SIGMOD International Conference on Management of Data, June, 2019.
- **An Extensible Evaluation System for DoS Research.**
  Nik Sultana, Shilpi Bose, and Boon Thau Loo.
  11th International Conference on COMmunication Systems & NETworkS (COMSNETS), Dec, 2019.
- **007: Democratically Finding The Cause of Packet Drops.**
  Behnaz Arzani, Selim Ciraci, Luiz Chamon, Yibo Zhu, Hongqiang Liu, Jitu Padhye, Geoff Outhred, and Boon Thau Loo.
  15th USENIX Symposium on Networked Systems Design and Implementation (NSDI), Apr, 2018.
- **Predicting Startup Crowdfunding Success through Longitudinal Social Engagement Analysis**.
  Qizhen Zhang, Tengyuan Ye, Meryem Essaidi, Shivani Agarwal, Vincent Liu and Boon Thau Loo
  International Conference on Information and Knowledge Management (CIKM), Nov 2017.
- **Architectural Implications on the Performance and Cost of Graph Analytics Systems** Qizhen Zhang, Hongzhi Chen, Da Yan, James Cheng, Boon Thau Loo, and Purushotham Bangalore
  ACM Symposium on Cloud Computing (SoCC), Sept, 2017.
- **Quantitative Network Monitoring with NetQRE**
  Yifei Yuan, Dong Lin, Ankit Mishra, Sajal Marwaha, Rajeev Alur, and Boon Thau Loo
  ACM SIGCOMM Conference on Data Communication, Aug, 2017.
- **Distributed Provenance Compression**
  Chen Chen, Harshal Lehri, Lay Kuan Loh, Anupam Alur, Limin Jia, Boon Thau Loo, and Wenchao Zhou
  ACM SIGMOD International Conference on Management of Data, June, 2017.
- **One Primitive to Diagnose Them All: Architectual Support for Internet Diagnostics**
  Ang Chen, Andreas Haeberlen, Wenchao Zhou, and Boon Thau Loo
  EuroSys, Apr, 2017.
- **Automated Bug Removal for Software-Defined Networks**
  Yang Wu, Ang Chen, Andreas Haeberlen, Wenchao Zhou, and Boon Thau Loo.
  14th USENIX Symposium on Networked Systems Design and Implementation (NSDI), Apr, 2017.
- **Data Provenance at Internet Scale: Architecture, Experiences, and the Road Ahead**
  Ang Chen, Yang Wu, Andreas Haeberlen, Boon Thau Loo, and Wenchao Zhou.
  8th Biennial Conference on Innovative Data Systems Research (CIDR) Proceedings Track, 2017.
- **The Good, the Bad, and the Differences: Better Network Diagnostics with Differential Provenance**
  Ang Chen, Yang Wu, Andreas Haeberlen, Wenchao Zhou, and Boon Thau Loo.
  ACM SIGCOMM Conference on Data Communication, Aug, 2016.

- **Taking the Blame Game out of Data Centers Operations with NetPoirot**
  Behnaz Arzani, Selim Ciraci, Boon Thau Loo, Assaf Schuster, and Geoff Outhred.
  ACM SIGCOMM Conference on Data Communication, Aug, 2016
- **Enabling Incremental Query Re-Optimization**
  Mengmeng Liu, Zachary Ives, and Boon Thau Loo.
  ACM SIGMOD International Conference on Management of Data, June, 2016.
- **Network Functions Virtualization with Soft Real-Time Guarantees**
  Yang Li, Linh T.X. Phan, and Boon Thau Loo.
  IEEE International Conference on Computer Communications (INFOCOM), 2016.
- **Scenario-based Programming for SDN Policies.**
  Yifei Yuan, Dong Lin, Rajeev Alur, and Boon Thau Loo.
  11th Conference on emerging Networking EXperiments and Technologies (ACM CoNEXT), Heidelberg, Germany, Dec 2015.
- **Automated Verification of Safety Properties in Declarative Networking Programs.**
  Chen Chen, Lay Kuan Loh, Limin Jia, Wenchao Zhou, and Boon Thau Loo.
  17th International ACM SIGPLAN Symposium on Principles and Practice of Declarative Programming (PPDP), July, 2015.
- **A Scalable Multi-Datacenter Layer-2 Network Architecture.**
  Chen Chen, Changbin Liu, Pingkai Liu, Boon Thau Loo, and Ling Ding.
  Symposium on SDN Research (SOSR), 2015.
- **Deconstructing MPTCP Performance.**
  Behnaz Arzani, Alexander Gurney, Sitian Cheng, Roch Guerin, and Boon Thau Loo.
  22nd IEEE International Conference on Network Protocols (ICNP), 2014. (short paper)
- **Diagnosing Missing Events in Distributed Systems with Negative Provenance.**
  Yang Wu, Mingchen Zhao, Andreas Haeberlen, Wenchao Zhou, and Boon Thau Loo.
  ACM SIGCOMM Conference on Data Communication, 2014.
- **A Program Logic for Verifying Secure Routing Protocols.**
  Chen Chen, Limin Jia, Hao Xu, Cheng Luo, Wenchao Zhou and Boon Thau Loo.
  34th IFIP International Conference on Formal Techniques for Distributed Objects, Components and Systems (FORTE), 2014.
- **Optimizing Cost and Performance Trade-Offs for MapReduce Job Processing in the Cloud.**
  Zhuoyao Zhang, Ludmila Cherkasova, and Boon Thau Loo.
  IFIP/IEEE Network Operations and Management Symposium (NOMS 2014).
- **A Reduction-based Approach Towards Scaling Up Formal Analysis of Internet Configurations.**
  Anduo Wang, Alexander Gurney, Xianglong Han, Jinyan Cao, Boon Thau Loo, Carolyn Talcott, and Andre Scedrov.
  33rd Annual IEEE International Conference on Computer Communications (INFOCOM), 2014.
- **On the Feasibility of Automation for Bandwidth Allocation Problems in Data Centers.**
  Yifei Yuan, Anduo Wang, Rajeev Alur, and Boon Thau Loo.
  Formal Methods in Computer-Aided Design (FMCAD), 2013.
- **Distributed Time-aware Provenance**
  Wenchao Zhou, Suyog Mapara, Yiqing Ren, Yang Li, Andreas Haeberlen, Zachary Ives, Boon Thau Loo, and Micah Sherr.
  39th International Conference on Very Large Databases (VLDB), Aug 2013.
- **AutoTune: Optimizing Execution Concurrency and Resource Usage in MapReduce Workflows.**
  Zhuoyao Zhang, Ludmila Cherkasova, and Boon Thau Loo.
  9th ACM International Conference on Autonomic Computing (ICAC) Management of Big Data Systems (MBDS) track, June 2013.
- **Performance Modeling of MapReduce Jobs in Heterogeneous Environments.**
  Zhuoyao Zhang, Ludmila Cherkasova, and Boon Thau Loo.
  IEEE 6th International Conference on Cloud Computing (CLOUD), June, 2013.
- **Scalanytics: A Declarative Multi-core Platform for Scalable Composable Traffic Analytics.**
  Harjot Gill, Dong Lin, Xianglong Han, Cam Nguyen, Tanveer Gill, and Boon Thau Loo.
  22nd International ACM Symposium on High Performance and Distributed Computing (HPDC), June, 2013.
- **Benchmarking Approach for Designing a MapReduce Performance Model.**
  Zhuoyao Zhang, Ludmila Cherkasova, and Boon Thau Loo.
  4th ACM/SPEC International Conference on Performance Engineering (ICPE), Apr 2013.
- **Automated Profiling and Resource Management of Pig Programs for Meeting Service Level Objectives.**
  Zhuoyao Zhang, Ludmila Cherkasova, Abhishek Verma, and Boon Thau Loo.

IEEE/ACM International Conference on Autonomic Computing (ICAC), 2012.

- **Private and Verifiable Interdomain Routing Decisions.**
  Mingchen Zhao, Wenchao Zhou, Alexander J.T. Gurney, Andreas Haeberlen, Micah Sherr, and Boon Thau Loo
  ACM SIGCOMM Conference on Data Communication (SIGCOMM). Pages 383-394, Aug 2012.
- **Cologne: A Declarative Distributed Constraint Optimization Platform.**
  Changbin Liu, Lu Ren, Boon Thau Loo, Yun Mao, and Prithwish Basu.
  38th International Conference on Very Large Databases (VLDB), Pages 752-763, Aug 2012.
- **A Calculus of Policy-Based Routing Systems.**
  Anduo Wang, Carolyn Talcott, Alexander J.T Gurney, Boon Thau Loo and Andre Scedrov
  31st Annual ACM SIGACT-SIGOPS Symposium on Principles of Distributed Computing (PODC), Pages 343-344, July 2012. (Brief announcement)
- **TROPIC: Transactional Resource Orchestration Platform In the Cloud.**
  Changbin Liu, Yun Mao, Xu Chen, Mary F. Fernández, Boon Thau Loo, and Jacobus E. Van der Merwe.
  USENIX Annual Technical Conference (USENIX ATC), June, 2012.
- **Reduction-based Formal Analysis of BGP Instances**.
  Anduo Wang, Carolyn Talcott, Alexander J.T. Gurney, Boon Thau Loo and Andre Scedrov.
  18th International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS), Mar 2012.
- **PUMA: Policy-based Unified Multi-radio Architecture for Agile Mesh Networking**.
  Changbin Liu, Ricardo Correa, Harjot Gill, Tanveer Gill, Xiaozhou Li, Shivkumar Muthukumar, Taher Saeed, Boon Thau Loo, and Prithwish Basu.
  4th International Conference on Communication Systems and Networks (COMSNETS), Pages 1-10, Jan 2012.
- **Secure Network Provenance.**
  Wenchao Zhou, Qiong Fei, Arjun Narayan, Andreas Haeberlen, Boon Thau Loo, and Micah Sherr.
  23rd ACM Symposium on Operating Systems Principles (SOSP), Cascais, Portugal, Pages 295-310, October 2011.
- **PUMA: Policy-based Unified Multi-radio Architecture for Agile Mesh Networking**
  Changbin Liu, Ricardo Correa, Harjot Gill, Tanveer Gill, Xiaozhou Li, Shivkumar Muthukumar, Taher Saeed, Boon Thau Loo, and Prithwish Basu.
  4th International Conference on Communication Systems and Networks (COMSNETS), Jan 2012.
- **Declarative Automated Cloud Resource Orchestration**
  Changbin Liu, Boon Thau Loo, Yun Mao.
  2nd ACM Symposium on Cloud Computing (SoCC), 2011.
- **Efficient Querying and Maintenance of Network Provenance at Internet-Scale**
  Wenchao Zhou, Micah Sherr, Tao Tao, Xiaozhou Li, Boon Thau Loo, and Yun Mao
  ACM SIGMOD International Conference on Management of Data, June 2010. Pages 615-626.
- **SecureBlox: Customizable Secure Distributed Data Processing**
  William R. Marczak, Shan Shan Huang, Martin Bravenboer, Micah Sherr, Boon Thau Loo, and Molham Aref.
  ACM SIGMOD International Conference on Management of Data, June 2010. Pages 723-734.
- **A3: An Extensible Platform for Application-Aware Anonymity.**
  Micah Sherr, Andrew Mao, William R. Marczak, Wenchao Zhou and Boon Thau Loo.
  17th Annual Network & Distributed System Security Symposium (NDSS), Feb 2010.
- **Declarative Policy-based Adaptive MANET Routing.**
  Changbin Liu, Richardo Correa, Xiaozhou Li, Prithwish Basu, Boon Thau Loo, and Yun Mao.
  17th IEEE International Conference on Network Protocols (ICNP 2009), Princeton, New Jersey, Oct, 2009. Pages 354-363.
- **Scalable Link-Based Relay Selection for Anonymous Routing.**
  Micah Sherr, Matt Blaze, and Boon Thau Loo.
  9th Privacy Enhancing Technologies Symposium (PETS), Seattle, WA, Aug 2009. Pages 73-93.
- **Veracity: Practical Secure Network Coordinates via Vote-based Agreements.**
  Micah Sherr, Matt Blaze, and Boon Thau Loo.
  USENIX Annual Technical Conference (USENIX ATC), San Diego, CA, June 2009.
- **Recursive Computation of Regions and Connectivity in Networks.**
  Mengmeng Liu, Nicholas E. Taylor, Wenchao Zhou, Zachary Ives, and Boon Thau Loo.
  25th International Conference on Data Engineering (ICDE), Shanghai, China, Apr 2009. Pages 1108-1119.
- **Unified Declarative Platform for Secure Networked Information Systems.**
  Wenchao Zhou, Yun Mao, Boon Thau Loo, and Martín Abadi.
  25th International Conference on Data Engineering (ICDE), Shanghai, China, Apr 2009. Pages 150-161.
- **Declarative Reconfigurable Trust Management.**

William R. Marczak, David Zook, Wenchao Zhou, Molham Aref, and Boon Thau Loo.
4th Biennial Conference on Innovative Data Systems Research (CIDR) Proceedings Track, Pacific Grove, CA, Jan 2009.

- **MOSAIC: Unified Declarative Platform for Dynamic Overlay Composition.**
  Yun Mao, Boon Thau Loo, Zachary Ives and Jonathan M. Smith
  4th Conference on emerging Networking EXperiments and Technologies (ACM CoNEXT), Madrid, Spain, Dec 2008.
- **Declarative Networking: Language, Execution and Optimization**
  Boon Thau Loo, Tyson Condie, Minos Garofalakis, David E. Gay, Joseph M. Hellerstein, Petros Maniatis, Raghu Ramakrishnan, Timothy Roscoe, Ion Stoica
  ACM SIGMOD International Conference on Management of Data, Chicago, June 2006, Pages 97-108.
- **Implementing Declarative Overlays.**
  Boon Thau Loo, Tyson Condie, Joseph M. Hellerstein, Petros Maniatis, Timothy Roscoe, Ion Stoica.
  20th ACM Symposium on Operating Systems Principles (SOSP), October 2005. Pages 75-90
- **Declarative Routing: Extensible Routing with Declarative Queries.**
  Boon Thau Loo, Joseph M. Hellerstein, Ion Stoica, Raghu Ramakrishnan.
  ACM SIGCOMM Conference on Data Communication, Aug 2005. Pages 289-300
- **The Architecture of PIER: an Internet-Scale Query Processor.**
  Ryan Huebsch, Brent Chun, Joseph M. Hellerstein, Boon Thau Loo, Petros Maniatis, Timothy Roscoe, Scott Shenker, Ion Stoica, Aydan R. Yumerefendi.
  2nd Biennial Conf. on Innovative Data Systems Research (CIDR), Jan 2005. Pages 28-43.
- **Enhancing P2P File-Sharing with an Internet-Scale Query Processor.**
  Boon Thau Loo, Joseph M. Hellerstein, Ryan Huebsch, Scott Shenker, Ion Stoica.
  30th International Conference on Very Large Databases (VLDB), Sep 2004. Pages 432-443
- **Querying the Internet with PIER.**
  Ryan Huebsch, Joseph M. Hellerstein, Nick Lanham, Boon Thau Loo, Scott Shenker, Ion Stoica.
  29th International Conference on Very Large Databases (VLDB), Sep 2003. Pages 321-332.
- **Adaptive Precision Setting for Cached Approximate Values.**
  Chris Olston, Boon Thau Loo, Jennifer Widom.
  20th ACM SIGMOD Conference on Management of Data, May 2001. Pages 355-366.

Invited articles/papers

- **Enhancing University Technology Transfer through Juniper's Openlab.**
  Boon Thau Loo. Juniper Networks Partner Watch article, 2015.
- **University Spinoff's Take on SDN.**
  Boon Thau Loo, Open Networking Foundation (ONF) invited article, 2012.
- **Toward Automated Analysis and Actuation for Software Defined Infrastructure.**
  Boon Thau Loo. SDN Central Invited article, 2014.
- **Implementing Network Protocols as Distributed Logic Programs.**
  Boon Thau Loo.
  Association of Logic Programming (ALP) Newsletter, Mar 2012.
- **Recent Advances in Declarative Networking**.
  Boon Thau Loo, Harjot Gill, Changbin Liu, Yun Mao, William R. Marczak, Micah Sherr, Anduo Wang, and Wenchao Zhou.
  Fourteenth International Symposium on Practical Aspects of Declarative Languages (PADL), co-located with POPL, Pages 1-16, Jan 2012. *(invited paper and keynote speech)*

Patents Granted

- **Error correction for network packets.** Changbin Liu and Boon Thau Loo. US Patent US11863318B2, Jan 2024.
- **Offloading operations from a primary processing device to a secondary processing device**. Changbin Liu and Boon Thau Loo. US Patent US11568089B2, Jan 2023.
- **Switching between network protocols for a data storage system**. Changbin Liu and Boon Thau Loo. US Patent US11212349B1, Dec 2021.
- **Methods, systems, and computer readable media for generating Ssftware defined networking (SDN) Policies** Yifei Yuan, Rajeev Alur, and Boon Thau Loo US patent US20170093924 A1, July 2017.

- **Systems, methods, and articles of manufacture to provide cloud resource orchestration.** Yun Mao, Changbin Liu, Boon Thau Loo, and Jacobus Van der Merwe. US Patent 20130111033 A1, 2013.

Patents Pending

- **Methods, systems, and computer readable material for providing and using shuffle templates to distribute data among workers comprising compute resources in a data center.** Filed August 2024 by University of Pennsylvania.
- **Methods, systems, and computer readable media for synthesizing network specifications using input and output examples.** Filed Sept 2024 by the University of Pennsylvania.

Highly Selective Workshop Publications

- **Towards Adaptive Fault-Tolerant Sharded Databases (Extended Abstracts).**
  Bhavana Mehta, Neelesh C A, Prashanth S Iyer, Mohammad Javad Amiri, Boon Thau Loo, and Ryan Marcus.
  5th International Workshop on Applied AI for Database Systems and Applications (AIDB), Aug 2023.
- **Automated Detection and Mitigation of Application-level Asymmetric DoS Attacks**
  Henri Maxime Demoulin, Isaac Pedisich, Linh Thi Xuan Phan, and Boon Thau Loo.
  ACM SIGCOMM Workshop on Self-Driving Networks (SDN), August 2018.
- **In-network Computing to the Rescue of Faulty Links** Hans Giesen, Lei Shi, John Sonchack, Anirudh Chelluri, Nishant Prabhu, Nik Sultana, Latha Kant, Anthony J. McAuley, Alexander Poylisher, Andre Dehon, and Boon Thau Loo.
  ACM SIGCOMM 2018 Workshop on In-Network Computing (NetCompute), August 2018.
- **Dispersing Asymmetric DDoS Attacks with SplitStack**
  Ang Chen, Akshay Sriraman, Tavish Vaidya, Yuankai Zhang, Andreas Haeberlen, Boon Thau Loo, Linh T. X. Phan, Micah Sherr, Clay Shields, and Wenchao Zhou.
  Fifteenth ACM Workshop on Hot Topics in Networks (HotNets), 2016.
- **Differential Provenance: Better Network Diagnostics with Reference Events.**
  Ang Chen, Yang Wu, Andreas Haeberlen, Wenchao Zhou, and Boon Thau Loo.
  14th ACM Workshop on Hot Topics in Networks (HotNets), 2015.
- **Automated Network Repair with Meta Provenance.**
  Yang Wu, Ang Chen, Andreas Haeberlen, Wenchao Zhou, and Boon Thau Loo.
  14th ACM Workshop on Hot Topics in Networks (HotNets), 2015.
- **NetEgg: Programming Network Policies by Examples.**
  Yifei Yuan, Rajeev Alur, and Boon Thau Loo.
  13th ACM Workshop on Hot Topics in Networks (HotNets-XIV), 2014.
- **Answering Why-Not Queries in Software-Defined Networks with Negative Provenance.**
  Yang Wu, Andreas Haeberlen, Wenchao Zhou, and Boon Thau Loo.
  Twelfth ACM Workshop on Hot Topics in Networks (HotNets-XII), 2013.
- **Having your Cake and Eating it too: Routing Security with Privacy Protections.**
  Alexander J. T. Gurney, Andreas Haeberlen, Wenchao Zhou, Micah Sherr, and Boon Thau Loo
  10th ACM Workshop on Hot Topics in Networks (HotNets-X), Cambridge, MA, November 2011.
- **Formally Verifiable Networking.**
  Anduo Wang, Limin Jia, Changbin Liu, Boon Thau Loo, Oleg Sokolsky, and Prithwish Basu.
  8th Workshop on Hot Topics in Networks (ACM SIGCOMM HotNets-VIII), New York, Oct 2009.
- **Towards Application-Aware Anonymous Routing**.
  Micah Sherr, Boon Thau Loo, and Matt Blaze
  2nd USENIX Workshop on Hot Topics in Security (HotSec), in conjunction with USENIX Security Symposium, Boston, MA, Aug 2007.
- **The Case for a Unified Extensible Data-centric Mobility Infrastructure**.
  Yun Mao, Boon Thau Loo, Zachary Ives, and Jonathan M. Smith.
  2nd ACM International Workshop on Mobility in the Evolving Internet Architecture (MobiArch), in conjunction with SIGCOMM, Kyoto, Japan, Aug 2007.
- **The Case for a Hybrid P2P Search Infrastructure.**
  Boon Thau Loo, Ryan Huebsch, Ion Stoica, Joseph M. Hellerstein.
  3rd International Workshop on Peer-to-Peer Systems (IPTPS), Feb 2004. Pages 141-150.
- **On the Feasibility of Peer-to-Peer Web Indexing and Search.**

Jinyang Li, Boon Thau Loo, Joseph M. Hellerstein, Frans Kaashoek, David Karger, Robert Morris.
2nd International Workshop on Peer-to-Peer Systems (IPTPS), Feb 2003. Pages 207-215.

- **Complex Queries in DHT-based Peer-to-Peer Networks.**
  Matthew Harren, Joseph M. Hellerstein, Ryan Huebsch, Boon Thau Loo, Scott Shenker, Ion Stoica.
  1st International Workshop on Peer-to-Peer Systems (IPTPS), Mar 2002. Pages 242-259.

Tutorials

- **Datalog and Emerging Applications: An Interactive Tutorial.**
  Shan Shan Huang, Todd J. Green, and Boon Thau Loo.
  ACM SIGMOD International Conference on Management of Data (tutorial), Athens, Greece, Jun 2011.

Demonstrations

- **BFTGym: An Interactive Playground for BFT Protocols.** Haoyun Qin, Chenyuan Wu, Mohammad Javad Amiri, Ryan Marcus, and Boon Thau Loo. 50th International Conference on Very Large Databases (VLDB) Demo, 2024.
- **FDP: A Teaching and Demonstration Platform for Networking**.
  Heena Nagda, Rakesh Nagda, Nik Sultana, Swapneel Sheth and Boon Thau Loo.
  SIGCSE Technical Symposium (Demo), Mar 2021.
- **A Demonstration of the DeDOS Platform for Defusing Assymetric DDoS Attacks in Data Centers**
  Henri Maxime Demoulin, Tavish Vaidya, Isaac Pedisich, Nik Sultana, Jingyu Qian, Bowen Wang, Yuankai Zhang, Ang Chen, Andreas Haeberlen, Boon Thau Loo, Linh Thi Xuan Phan, Micah Sherr, Clay Shields, Wenchao Zhou.
  ACM SIGCOMM 2017 demonstration. ***First prize for Student Research Competition at SIGCOMM 2017***
- **A Formal Framework for Secure Routing Protocols.**
  Chen Chen, Limin Jia, Hao Xu, Cheng Luo, Wenchao Zhou, and Boon Thau Loo.
  USENIX Symposium on Networked Systems Design and Implementation (NSDI), 2013.
- **SP4: Scalable Programmable Packet Processing Platform.**
  Harjot Gill, Dong Lin, Lohi Sarna, Robert Mead, Kenton C.T. Lee, and Boon Thau Loo.
  ACM SIGCOMM Conference on Data Communication, Helsinki, Finland, Aug, 2012.
- **Reduction-based Analysis of BGP Systems with BGPVerif.**
  Anduo Wang, Alexander J.T. Gurney, Xianglong Han, Jinyan Cao, Carolyn Talcott, Boon Thau Loo, and Andre Scedrov.
  ACM SIGCOMM Conference on Data Communication, Helsinki, Finland, Aug, 2012.
- **Route Shepherd: Stability Hints for the Control Plane.**
  Alexander J.T. Gurney, Xianglong Han, Yang Li, and Boon Thau Loo.
  ACM SIGCOMM Conference on Data Communication, Helsinki, Finland, Aug, 2012.
- **FSR: Formal Analysis and Implementation Toolkit for Safe Inter-domain Routing**
  Yiqing Ren, Wenchao Zhou, Anduo Wang, Limin Jia, , Alexander J.T. Gurney, Boon Thau Loo, Jennifer Rexford.
  ACM SIGCOMM Conference on Data Communication, Aug 2011. ***Runner-up for ACM Student Research Competition.***
- **NetTrails: A Declarative Platform for Provenance Maintenance and Querying in Distributed Systems.**
  Wenchao Zhou, Qiong Fei, Shengzhi Sun, Tao Tao, Andreas Haeberlen, Zachary Ives, Boon Thau Loo, and Micah Sherr.
  ACM SIGMOD International Conference on Management of Data, Athens, Greece, Jun 2011.
- **Towards Transactional Cloud Resource Orchestration**
  Changbin Liu, Yun Mao, Xu Chen, Mary F. Fernandez, Boon Thau Loo, Kobus Van der Merwe.
  USENIX Symposium on Networked Systems Design and Implementation (NSDI), 2011.
- **Secure Forensics Without Trusted Components**
  Wenchao Zhou, Qiong Fei, Arjun Narayan, Andreas Haeberlen, and Boon Thau Loo, Micah Sherr.
  USENIX Symposium on Networked Systems Design and Implementation (NSDI), 2011.
- **A Demonstration of the Rapidmesh Development Toolkit.**
  Xiaozhou Li, Shivkumar C. Muthukumar, Changbin Liu, Joseph B. Kopena, Mihai Oprea, Richardo Correa, Boon Thau Loo, and Prithwish Basu.
  4th ACM International Workshop on Wireless Network Testbeds, Experimental Evaluation and Characterization (WiNTECH 2009) demonstration, in conjunction with ACM MobiCom, Beijing, China, Sept, 2009.

- **Declarative Toolkit for Rapid Network Protocol Simulation and Experimentation.**
  Shivkumar C. Muthukumar, Xiaozhou Li, Changbin Liu, Joseph B. Kopena, Mihai Oprea, and Boon Thau Loo.
  ACM SIGCOMM Conference on Data Communication, Barcelona, Spain, Aug 2009.
- **SmartCIS: Integrating Digital and Physical Environments.**
  Mengmeng Liu, Svilen Mihaylov, Zhuowei Bao, Marie Jacob, Zachary G. Ives, Boon Thau Loo, and Sudipto Guha.
  ACM SIGMOD International Conference on Management of Data, Providence, RI, June 2009. Pages 1111-1114.
  Honorable mention for best demonstration competition.
- **Querying at Internet-Scale.**
  Brent Chun, Joseph M. Hellerstein, Ryan Huebsch, Shawn R. Jeffery, Boon Thau Loo, Sam Mardanbeigi, Timothy Roscoe, Sean C. Rhea, Scott Shenker, Ion Stoica.
  ACM SIGMOD 2004, Paris, France, Jun 2004. Pages 935-936.

Education related Publications

- **FDP: A Teaching and Demo Platform for P4-based SDN**. Heena Nagda, Rakesh Nagda, Isaac Pedisich, Nik Sultana, and Boon Thau Loo. 16th International Conference on emerging Networking EXperiments and Technologies (CONEXT 2020 Posters), Dec 2020.
- **Experiences in Teaching an Educational User-Level Operating Systems Implementation Project**.
  Adam J. Aviv, Vin Mannino, Thanat Owlarn, Seth Shannin, Kevin Xu, and Boon Thau Loo
  Operating Systems Review (OSR) journal, Pages 80-86, 2012.
- **An Open-source and Declarative Approach Towards Teaching Large-scale Networked Systems. Programming**.
  Harjot Gill, Taher Saeed, Qiong Fei, Zhuoyao Zhang, and Boon Thau Loo.
  ACM SIGCOMM 2011 Education Workshop, Aug 2011.

Other Publications

- **Towards Practical Application-level Support for Privilege Separation.** Nik Sultana, Henry Zhu, Ke Zhong, Zhilei Zheng, Ruijie Mao, Digvijaysinh Chauhan, Stephen Carrasquillo, Junyong Zhao, Lei Shi, Nikos Vasilakis and Boon Thau Loo. Hot Topics in the Science of Security (HotSoS), 2023.
- **IPC Evolution Through Declarative Interface Generation.** Nik Sultana, Saket Saket, Andrew Zhao, Shubhendra Pal Singhal, Michael Kaplan, Rajesh Krishnan, and Boon Thau Loo. Descriptive Approaches to IoT Security, Network, and Application Configuration (DAI-SNAC), Dec, 2021 (co-located with CoNEXT).
- **A Case Study of Fine-Grained Software Compartmentalization using cURL**. Stephen Carrasquillo, Junyong Zhao, Henry Zhu, Nil Sultana, and Boon Thau Loo. 2020 Annual Computer Security Applications Conference (ACSAC Posters), Dec 2020.
- **The Usability of a Debugger Designed for Compartmentalized Systems**. Junyong Zhao, Henry Zhu, Nik Sultana and Boon Thau Loo. 2020 Annual Computer Security Applications Conference (ACSAC Posters), Dec 2020.
- **FDP: A Teaching and Demo Platform for P4-based SDN**. Heena Nagda, Rakesh Nagda, Isaac Pedisich, Nik Sultana, and Boon Thau Loo. ACM SIGCOMM 2020 Networking Networking Women Professional Development Workshop (N2Women), Aug 2020. **Runner-up award.**
- **Debugging Strongly-compartmentalized Distributed Systems.** Henry Zhu, Nik Sultana and Boon Thau Loo. 22nd Workshop on Advances in Parallel and Distributed Computational Models (APDCM), May 2020.
- **Trace-based Behaviour Analysis of Network Servers.** Nik Sultana, Achala Rao, Zihao Jin, Pardis Pashakhanloo, Henry Zhu, Vinod Yegneswaran, and Boon Thau Loo. International Conference on Network and Service Management (CNSM), 2019.
- **TMC: Pay-as-you-Go Distributed Communication**. Max Demoulin, Nikos Vasilakis, John Sonchack, Isaac Pedisich, Vincent Liu, Boon Thau Loo, Linh Thi Xuan Phan, Jonathan M. Smith, Irene Zhang. 3rd Asia-Pacific Workshop on Networking (APNET), Aug 2019.
- **Hashtray: Turning the Tables on Scalable Client Classification.**
  Nik Sultana, Pardis Pashakhanloo, Achala Rao, Zihao Jin, and Boon Thau Loo. 4th IEEE/IFIP International Workshop on Analytics for Network and Service Management (AnNet 2019)
- **Making Break-ups Less Painful: Source-level Support for Transforming Legacy Software into a Network of Tasks.** Nik Sultana, Achala Rao, Zihao Jin, Henry Zhu, Ke Zhong, and Boon Thau Loo. Workshop on Forming an Ecosystem Around Software Transformation (FEAST), co-located with CCS, 2018.
- **Big data and crowdfunding for startups: An application of social capital theory.** Sun-Young Park, and Boon Thau Loo. Association for Education in Journalism and Mass Communication (AEJMC), August 2018.

- **BurstRadar: Practical Real-time Microburst Monitoring for Datacenter Networks.** Raj Joshi, Ting Qu, Mun Choon Chan, Ben Leong and Boon Thau Loo. ACM Asia-Pacific Workshop on Systems (APSys), August 2018.
- **Towards Example-Guided Network Synthesis** Haoxian Chen, Anduo Wang, and Boon Thau Loo. Second Asia-Pacific Workshop on Networking (APNet), August 2018.
- **Collection, Exploration and Analysis of Crowdfunding Social Networks.**
  Miao Cheng, Anand Sriramulu, Sudarshan Muralidhar, Boon Thau Loo, Laura Huang and Po-Ling Loh.
  3rd International Workshop on Exploratory Search in Databases and the Web (ExploreDB), co-located with SIGMOD, June, 2016.
- **Automating Platform Selection for MapReduce Processing in the Cloud.**
  Zhuoyao Zhang, Lucy Cherkasova, and Boon Thau Loo.
  2015 IEEE International Conference on Cloud and Autonomic Computing (ICCAC), 2015.
- **Impact of Path Selection and Scheduling Policies on MPTCP Performance.**
  Behnaz Arzani, Alexander Gurney, Shuotian Cheng, Roch Guerin and Boon Thau Loo.
  4th International Workshop on Protocols and Applications with Multi-Homing Support (PAMS 2014).
- **Logic-based Verification of Software Defined Networks.**
  Chen Chen, Limin Jia, Wenchao Zhou, and Boon Thau Loo.
  Open Networking Summit (ONS), 2014.
- **Automated Synthesis of Reactive Controllers for Software-Defined Networks.**
  Anduo Wang, Salar Moarref, Ufuk Topcu, Boon Thau Loo and Andre Scedrov.
  3rd International Workshop on Rigorous Protocol Engineering (WRiPE), 2013.
- **A Formal Framework for Secure Routing Protocols.**
  Chen Chen, Limin Jia, Hao Xu, Cheng Luo, Wenchao Zhou and Boon Thau Loo.
  Workshop on Foundations of Computer Security (FCS), co-located with CSF, New Orleans, Louisiana, June 2013.
- **Exploiting Cloud Heterogeneity for Optimized Cost/Performance MapReduce Processing.**
  Zhuoyao Zhang, Ludmila Cherkasova, and Boon Thau Loo.
  Fourth International Workshop on Cloud Data and Platforms (CloudDP 2014).
- **Towards Dynamic Pricing-Based Collaborative Optimizations for Green Data Centers.**
  Yang Li, David Chiu, Changbin Liu, Linh T.X. Phan, Tanveer Gill, Sanchit Aggarwal, Zhuoyao Zhang, Boon Thau Loo, David Maier, and Bart McManus.
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