Wenchao Li

CONTACT INFORMATION	336 PHO 8 Saint Mary's St. Boston, MA 02215	(617) 353-0115 wenchao@bu.edu Dependable Computing Lab

RESEARCH INTERESTS
Formal Methods; A.I. Safety; Cyber-Physical Systems; Design Automation; Machine Learning

EMPLOYMENT

Boston University, Boston, Massachusetts, USA.

Assistant Professor of Electrical and Computer Engineering	July 2016 – Present
Peter J. Levine Career Development Professor	2018 – Present

SRI International, Menlo Park, California, USA.

Computer Scientist	March 2015 – June 2016
Postdoctoral Fellow	November 2013 – March 2015

EDUCATION

University of California, Berkeley, California, USA.

Ph.D. in Electrical Engineering and Computer Sciences	2007 – 2013

- Dissertation: Specification Mining: New Formalisms, Algorithms and Applications
- **ACM Outstanding Ph.D. Dissertation Award in Electronic Design Automation**
- Committee: Sanjit A. Seshia (Advisor), Andreas Kuehlmann, Francesco Borrelli

University of California, Berkeley, California, USA.

M.S. in Electrical Engineering and Computer Sciences

- Thesis: Formal Methods for Reverse Engineering Gate-Level Netlists
- Committee: Sanjit A. Seshia (Advisor), Robert K. Brayton

University of California, Berkeley, California, USA.

B.S. in Electrical Engineering and Computer Sciences	2003 – 2007
B.A. in Economics	2003 – 2007

HONORS AND AWARDS

Peter J. Levine Career Development Professorship, Boston University	2018
Junior Fellow, Hariri Institute for Computing	2018
Hariri Institute Research Incubation Award	2018
ACM SIGDA Outstanding Ph.D. Dissertation Award	2015
Leon O. Chua Award for Outstanding Achievement in Nonlinear Science, UC Berkeley	2013
Vodafone-US Foundation Fellows Initiative Scholarship	2007
Singapore Ministry of Education Scholarship	1999 – 2002

PEER-REVIEWED PUBLICATIONS

Google Scholar Profile

1. Jiameng Fan and Wenchao Li.
   Adversarial Training and Provable Robustness: A Tale of Two Objectives,
   The 35th AAAI Conference on Artificial Intelligence (AAAI), February 2021 (to appear).

2. Qi Zhu, Wenchao Li, Hyoseung Kim, Yecheng Xiang, Kacper Wardega, Zhilu Wang, Yixuan Wang, Hengyi Liang, Chao Huang, Jiameng Fan, Hyunjong Choi.
   Know the Unknowns: Addressing Disturbances and Uncertainties in Autonomous Systems,
   In Proceedings of the 39th International Conference on Computer Aided Design (ICCAD), November 2020.

3. Weichao Zhou, Ruihan Gao, BaekGyu Kim, Eunsuk Kang and Wenchao Li.
   Runtime-Safety-Guided Policy Repair,
   In Proceedings of the 20th International Conference on Runtime Verification (RV), October 2020.

4. Chao Huang, Jiameng Fan, Xin Chen, Wenchao Li and Qi Zhu.
   Divide and Slide: Layer-Wise Refinement for Output Range Analysis of Deep Neural Networks,
   IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), 39(11):3323–3335, November 2020.

5. Jiameng Fan, Chao Huang, Xin Chen, Wenchao Li and Qi Zhu.
   ReachNN: A Tool for Reachability Analysis of Neural-Network Controlled Systems,*
   In Proceedings of the 18th International Symposium on Automated Technology for Verification and Analysis (ATVA), October 2020.

6. Panagiota Kiourti, Kacper Wardega, Susmit Jha and Wenchao Li.
   TrojDRL: Evaluation of Backdoor Attacks on Deep Reinforcement Learning,
   In Proceedings of the 57th ACM/EDAC/IEEE Design Automation Conference (DAC), July 2020.

7. Chao Huang, Shichao Xu, Zhilu Wang, Shuyue Lan, Wenchao Li and Qi Zhu.
   Opportunistic Intermittent Control with Safety Guarantees for Autonomous Systems,
   In Proceedings of the 57th ACM/EDAC/IEEE ACM/IEEE Design Automation Conference (DAC), July 2020.

8. Kacper Wardega and Wenchao Li.
   Application-Aware Scheduling of Networked Applications over the Low-Power Wireless Bus,
   In Proceedings of the Conference on Design, Automation and Test in Europe (DATE), March 2020.

9. Jiameng Fan, Chao Huang, Wenchao Li, Xin Chen and Qi Zhu.
   Towards Verification-Aware Knowledge Distillation for Neural-Network Controlled Systems,
   In Proceedings of the 38th ACM/IEEE International Conference on Computer Aided Design (ICCAD), November 2019. (*Invited*)

10. Chao Huang, Jiameng Fan, Wenchao Li, Xin Chen and Qi Zhu.
    ReachNN: Reachability Analysis of Neural-Network Controlled Systems,
    ACM Transactions on Embedded Computing Systems (TECS), 18(5s):Article 106, October 2019.

11. Kacper Wardega, Roberto Tron and Wenchao Li.
    Resilience of Multi-Robot Systems to Physical Masquerade Attacks,
    In Proceedings of the IEEE Workshop on the Internet of Safe Things (SafeThings), May 2019.

12. Kacper Wardega, Roberto Tron and Wenchao Li.
    Masquerade Attack Detection Through Observation Planning for Multi-Robot Systems,
    In Proceedings of the 18th International Conference on Autonomous Agents and Multiagent Systems (AAMAS), May 2019.

13. Jiameng Fan and Wenchao Li.
    Safety-Guided Deep Reinforcement Learning via Online Gaussian Process Estimation,
    International Conference on Learning Representation (ICLR), Workshop on Safe Machine Learning: Specification, Robustness, and Assurance, May 2019.

14. Chao Huang, Kacper Wardega, Wenchao Li and Qi Zhu.
    Exploring Weakly-hard Paradigm for Networked Systems,
    In Proceedings of the 1st Workshop on Design Automation for CPS and IoT (DESTION), April 2019.

15. Chao Huang, Wenchao Li and Qi Zhu.
    Formal Verification of Weakly-Hard Systems,
    In Proceedings of the 22nd ACM International Conference on Hybrid Systems: Computation and Control (HSCC), April 2019.

16. Weichao Zhou and Wenchao Li.
    Safety-Aware Apprenticeship Learning,
    In Proceedings of the 30th International Conference on Computer Aided Verification (CAV), July 2018.

17. Sanjit A. Seshia, Shiyan Hu, Wenchao Li and Qi Zhu.
Design Automation of Cyber-Physical Systems: Challenges, Advances, and Opportunities,
IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD),
36(9):1421–1434, September 2017. (*Keynote*)

18. Qi Zhu, Hengyi Liang, Licong Zhang, Debayan Roy, Wenchao Li and Samarjit Chakraborty.
Extensibility-Driven Automotive In-Vehicle Architecture Design,
In Proceedings of the 54th ACM/EDAC/IEEE Design Automation Conference (DAC), June 2017.
(*Invited*)

19. Bowen Zheng, Chung-Wei Lin, Hengyi Liang, Shinichi Shiraishi, Wenchao Li and Qi Zhu.
Delay-Aware Design, Analysis and Verification of Intelligent Intersection Management,
In Proceedings of the IEEE International Conference on Smart Computing (SMARTCOMP),
May 2017.

20. Xiaodao Chen, Yuchen Zhou, Hong Zhou, Chaowei Wan, Qi Zhu, Wenchao Li and Shiyan Hu.
Analysis of Production Data Manipulation Attacks in Petroleum Cyber-Physical Systems,
In Proceedings of the 35th IEEE/ACM International Conference on Computer-Aided Design
(ICCAD), November 2016. (*Invited*)

21. Devesh Bhatt, Arunabh Chattopadhyay, Wenchao Li, David Oglesby, Sam Owre and Natarajan
Shankar.
Contract-Based Verification of Complex Time-Dependent Behaviors in Avionic Systems,
In Proceedings of the 8th International Symposium on NASA Formal Methods (NFM), June
2016.

22. Shalini Ghosh, Daniel Elenius, Wenchao Li, Patrick Lincoln, Natarajan Shankar and Wilfried
Steiner.
ARSENAL: Automatic Requirements Specification Extraction from Natural Language,
In Proceedings of the 8th International Symposium on NASA Formal Methods (NFM), June
2016.

23. Wenchao Li, Hassen Saïdi, Huascar Sanchez, Martin Schäf and Pascal Schweitzer
Detecting Similar Programs via the Weisfeiler-Leman Graph Kernel,
In Proceedings of the 15th International Conference on Software Reuse (ICSR), June 2016.

24. Wenchao Li, Léonard Gérard and Natarajan Shankar.
Design and Verification for Multi-Rate Distributed Systems,
In Proceedings of the 13th ACM/IEEE International Conference on Formal Methods and Models
for Codesign (MEMOCODE), September 2015.

25. Bowen Zheng, Wenchao Li, Peng Deng, Léonard Gérard, Qi Zhu and Natarajan Shankar.
Design and Verification for Transportation System Security,
In Proceedings of the 52nd ACM/EDAC/IEEE Design Automation Conference (DAC), June
2015. (*Invited*)

26. Wenchao Li, Dorsa Sadigh, S. Shankar Sastry and Sanjit A. Seshia.
Synthesis for Human-in-the-Loop Control Systems,
In Proceedings of the 20th International Conference on Tools and Algorithms for the Construction
and Analysis of Systems (TACAS), April 2014.

27. Dorsa Sadigh, Katherine Driggs-Campbell, Alberto Puggelli, Wenchao Li, Victor Shia, Ruzena
Bajcsy, Alberto Sangiovanni-Vincentelli, S. Shankar Sastry and Sanjit A. Seshia.
Data-Driven Probabilistic Modeling and Verification of Human Driver Behavior,
Formal Verification and Modeling in Human-Machine Systems, AAAI Spring Symposium, March
2014.

28. Pramod Subramanyan, Nestan Tsiskaridze, Wenchao Li, Adrià Gascón, Wei Yang Tan, Ashish
Tiwari, Natarajan Shankar, Sanjit A. Seshia and Sharad Malik.
Reverse Engineering Digital Circuits Using Structural and Functional Analyses,
IEEE Transactions on Emerging Topics in Computing (TETC), 2(1):63–80, March 2014.

29. Alberto Puggelli, Wenchao Li, Alberto Sangiovanni-Vincentelli and Sanjit A. Seshia.
Polynomial-Time Verification of PCTL Properties of MDPs with Convex Uncertainties,

In Proceedings of the 25$^{\text{th}}$ International Conference on Computer Aided Verification (CAV), July 2013.

30. Wenchao Li, Adrià Gascón, Pramod Subramanyan, Wei Yang Tan, Ashish Tiwari, Sharad Malik, Natarajan Shankar and Sanjit A. Seshia.
WordRev: Finding Word-Level Structures in a Sea of Bit-Level Gates,
In Proceedings of the IEEE International Symposium on Hardware-Oriented Security and Trust (HOST), June 2013. (*Best Presentation Award*)

31. Wenchao Li, Susmit Jha and Sanjit A. Seshia.
Power-Aware Dynamic Control of Error-Resilience Mechanisms,
The 9$^{\text{th}}$ Workshop on Silicon Errors in Logic – System Effects (SELSE), March 2013.

32. Wenchao Li and Sanjit A. Seshia.
Sparse Coding for Specification Mining and Error Localization,
In Proceedings of the International Conference on Runtime Verification (RV), September 2012.

33. Wenchao Li, Zach Wasson and Sanjit A. Seshia.
Reverse Engineering Circuits Using Behavioral Pattern Mining,
In Proceedings of the IEEE International Symposium on Hardware-Oriented Security and Trust (HOST), June 2012. (*Best Paper Finalist*)

34. Wenchao Li, Sanjit A. Seshia and Somesh Jha.
CrowdMine: Towards Crowdsourced Human-Assisted Verification,
In Proceedings of the 49$^{\text{th}}$ ACM/EDAC/IEEE Design Automation Conference (DAC), June 2012.

35. Wenchao Li, Lili Dworkin and Sanjit A. Seshia.
Mining Assumptions for Synthesis,
In Proceedings of the 9$^{\text{th}}$ ACM/IEEE International Conference on Formal Methods and Models for Codesign (MEMOCODE), July 2011.

36. Wenchao Li, Alessandro Forin and Sanjit A. Seshia.
Scalable Specification Mining for Verification and Diagnosis,
In Proceedings of the 47$^{\text{th}}$ ACM/EDAC/IEEE Design Automation Conference (DAC), June 2010.

37. Susmit Jha, Wenchao Li and Sanjit A. Seshia.
Localizing Transient Faults Using Dynamic Bayesian Networks,
IEEE International High Level Design Validation and Test Workshop (HLDVT), November 2009.

38. Wenchao Li, Marco D. Natale, Wei Zheng, Paolo Giusto, Alberto Sangiovanni-Vincentelli and Sanjit A. Seshia.
Optimizations of an Application-Level Protocol for Enhanced Dependability in FlexRay,
In Proceedings of the Conference on Design, Automation and Test in Europe (DATE), April 2009.

39. Daniel Holcomb, Wenchao Li and Sanjit A. Seshia.
Design as You See FIT: System-Level Soft Error Analysis of Sequential Circuits,
In Proceedings of the Conference on Design, Automation and Test in Europe (DATE), April 2009.

40. Orna Kupferman, Wenchao Li and Sanjit A. Seshia.
A Theory of Mutations with Applications to Vacuity, Coverage, and Fault Tolerance,
In Proceedings of the IEEE International Conference on Formal Methods in Computer-Aided Design (FMCAD), November 2008.

41. Sanjit A. Seshia, Wenchao Li and Subhasish Mitra.
Verification-Guided Soft Error Resilience,
In Proceedings of the Conference on Design, Automation and Test in Europe (DATE), April 2007.

42. Roozbeh Jafari, Wenchao Li, Ruzena Bajcsy, Steven Glaser and Shankar Sastry.
Physical Activity Monitoring for Assisted Living at Home,
In Proceedings of the 4$^{\text{th}}$ International Workshop on Wearable and Implantable Body Sensor Networks (BSN), March 2007.

Technical Reports

43. Daniel Holcomb, Wenchao Li and Sanjit A. Seshia.
    Algorithms for Green Buildings: Learning-Based Techniques for Energy Prediction and Fault Diagnosis,
    Technical Report, University of California, Berkeley, UCB/EECS-2009-138, October 2009.

44. Orna Kupferman, Wenchao Li and Sanjit A. Seshia.
    On the Duality between Vacuity and Coverage,
    Technical Report, University of California, Berkeley, UCB/EECS-2008-26, March 2008.

FUNDING

Trojan Detection using Attribution, Counterfactuals, and Topological Analysis (DECANT), **IARPA**, Subcontract PI to SRI International, $300,000 (total: ∼$2,000,000), 8/2020 – current.

CPS: Medium: Collaborative Research: Multiagent Physical Cognition and Control Synthesis Against Cyber Attacks, **National Science Foundation**, Co-PI (PI: Roberto Tron), $835,405 (personal portion ≈ 50%), 9/2019 – 8/2022.

Building Adaptive, Dependable and Secure Systems with a Cross-Layer Weakly-Hard Paradigm, **ONR**, Subcontract PI to Northwestern University, $190,500, 10/2019 – 9/2022.

Contract-Based and Scenario-Driven Safety Analysis of Learning-Enabled Cyber-Physical Systems, **Toyota InfoTechnology Center, USA**, Sole PI, $60,000 (Industry Gift), 2018.

Safe Learning for Intelligent Transportation Systems, **Toyota InfoTechnology Center, USA**, Sole PI, $40,000 (Industry Gift), 2018.

Hariri Institute Research Incubation Award, **The Rafik B. Hariri Institute for Computing and Computational Science & Engineering**, PI (joint with Roberto Tron), $12,327 (total: $24,655), 2018.

CPS: Breakthrough: Collaborative Research: A Framework for Extensibility-Driven Design of Cyber-Physical Systems, **National Science Foundation**, Lead PI, $225,000 (total: $425,000), 9/2016 – 8/2020.

Dynamic Adaptive Embedded Software (DyAdEm), **DARPA/AFRL**, Subcontract PI to SRI International, ∼$250,000 (total: ∼$5,100,000), 7/2016 – 10/2019.

Programmers Assistant Synthesizing Code via Abstraction & Logical Inference (PASCALI), **DARPA/AFRL**, Subcontract PI to SRI International, ∼$200,000 (total: ∼$6,300,000), 7/2016 – 10/2018.

TALKS AND PRESENTATIONS

Invited Talks/Panels

1. *(Im)proving Safety of Neural Network-Controlled Systems,*
   Invited Talk at DREAM/CPAR Seminar, Dept. of Electrical Engineering and Computer Sciences, University of California, Berkeley, October 7, 2019.
   - Also given at United Technologies Research Center, Berkeley, October 7, 2019.

2. Invited Panel on Formal Verification at the MathWorks Research Summit, June 1, 2019.

3. *The Rocky Road to Safe Autonomy: A Formal Methods Perspective,*
   Invited Talk at Fishbowl Seminar, Computer Engineering & Systems Group, Texas A&M University, April 25, 2019.

4. Invited Panel on Explainable AI at the MathWorks Research Summit, June 3, 2018.

5. *Towards Assured Autonomy: From System Design to Algorithm,*
   Invited Talk, Dept. of Computer Science, Yale University, Jan 19, 2018.

6. *Towards Dependable Robot Software,*
   Dept. of Electrical Engineering, University of California, Los Angeles, Apr 4, 2016.

7. *Human-Centric Formal Methods: From Circuits to Cyber-Physical Systems,*
   Given at the following venues:

- Dept. of Electrical and Computer Engineering, Northeastern University, Apr 11, 2016.
- Dept. of Electrical, Computer, and Energy Engineering, University of Colorado, Boulder, Apr 7, 2016.
- Dept. of Electrical and Computer Engineering, University of British Columbia, Mar 14, 2016.
- Dept. of Electrical and Computer Engineering, New York University, Mar 8, 2016.
- Dept. of Electrical and Computer Engineering, Utah University, Mar 3, 2016.
- Dept. of Electrical and Computer Engineering, Boston University, Feb 29, 2016.
- School of Electrical and Computer Engineering, Cornell University, Feb 22, 2016.
- Dept. of Electrical and Computer Engineering, University of Massachusetts, Amherst, Dec 4, 2015.
- Dept. of Electrical Engineering, University of California, Los Angeles, Mar 2, 2015.

8. *Specification Mining: New Formalisms, Algorithms and Applications,*
Research in Software Engineering (RiSE), Microsoft Research, Mar 27, 2014.

9. *Dealing with the Missing Pieces: Specification Mining and Model Checking with Uncertainties,*
Computer Science Laboratory, SRI International, May 3, 2013.

10. *Analysis and Synthesis of Formal Specifications for Dependable Computing,*
Systems and Technology Group, IBM Poughkeepsie, Dec 12, 2012.

11. *Verification-Guided Soft Error Resilience,*
ASIC Engineering, NVIDIA, Feb 2009.

12. *Verification-Guided Error Resilience,*
Invited Talk at Dagstuhl Seminar on Verifying Reliability, Schloss Dagstuhl, Germany, Aug 20, 2012.

Selected Conference and Workshop Presentations

13. *Towards Assured Autonomy: From Software Architecture to Algorithm,*
IEEE International Workshop on Design Automation for Cyber-Physical Systems, Jun 24, 2018.

14. *Safety-Aware Apprenticeship Learning,*
The 30th International Conference on Computer Aided Verification, Jul 15, 2018.

15. *Design and Verification of Multi-Rate Distributed Systems,*
The 13th ACM/IEEE International Conference on Formal Methods and Models for System Design (MEMOCODE), Sep 21, 2015.

16. *WordRev: Finding Word-Level Structures in a Sea of Bit-Level Gates,*
IEEE International Symposium on Hardware-Oriented Security and Trust (HOST), Jun 2, 2013.

17. *Sparse Coding for Specification Mining and Error Localization,*
The 12th International Conference on Runtime Verification (RV), Sep 26, 2012.

18. *Reverse Engineering Circuits Using Behavioral Pattern Mining,*
IEEE International Symposium on Hardware-Oriented Security and Trust (HOST), Jun 3, 2012.

19. *Mining Assumptions for Synthesis,*
The 9th ACM/IEEE International Conference on Formal Methods and Models for System Design (MEMOCODE), Jul 11, 2011.

20. *Scalable Specification Mining for Verification and Diagnosis,*
The 47th ACM/EDAC/IEEE Design Automation Conference (DAC), Jun 2010.

21. *Localizing Transient Faults Using Dynamic Bayesian Networks,*
IEEE International High Level Design Validation and Test Workshop (HLDVT), Nov 2009.

22. *Optimizations of an Application-Level Protocol for Enhanced Dependability in FlexRay,*
Conference on Design, Automation and Test in Europe (DATE), Apr 2009

23. *A Theory of Mutations with Applications to Vacuity, Coverage, and Fault Tolerance,*
International Conference on Formal Methods in Computer Aided Design (FMCAD), Nov 20, 2008.

Teaching at Boston University

- EC545: Cyber-Physical Systems   Fall 2019
  Graduate course on cyber-physical systems. Topics covered include specification, modeling, design, and analysis of cyber-physical systems, and applications in robotics, medical devices, and smart home and factories.
    - Created this graduate course at Boston University, taught for the first time in Fall 2019.
- EC330: Applied Algorithms for Engineers   Spring 2020, Fall 2018
  Undergraduate course on algorithms. Topics covered include the general concept of algorithms, efficiency and run-time of algorithms, graph algorithms, priority queues, search trees, various approaches to design of algorithms and data structures, together with their applications to numerical and non-numerical problems.
- EC754: Computer-Aided Verification and Synthesis   Fall 2020, Fall 2017
  Advanced graduate course on computer-aided verification and synthesis. Topics covered include formal specifications, modeling formalisms, verification techniques, inductive synthesis, and emerging applications such as autonomous robots and vehicles.
    - Created this advanced graduate course at Boston University, taught for the first time in Fall 2017.
- EC535: Introduction to Embedded Systems   Spring 2017
  Graduate course on embedded systems. Topics covered include system specification languages, embedded computer architecture, real-time operating systems, hardware-software co-design, modeling formalisms, verification techniques, and embedded system applications.
- EC551: Advanced Digital Design with Verilog and FPGAs   Fall 2016
  Graduate course on digital design and computer-aided design algorithms for FPGAs. Topics covered include hardware description language (Verilog), specification, design, simulation, verification and synthesis of digital designs on FPGAs.

Ph.D. Advisees at Boston University

- Feisi Fu (SE), Fall 2019 – Present
- Weichao Zhou (ECE), Fall 2018 – Present
- Panagiota Kiourti (ECE), Fall 2018 – Present
- Jiameng Fan (ECE), Fall 2017 – Present
- Kacper Wardega (ECE), Fall 2017 – Present

M.Eng./M.S. Students at Boston University

- Yuhao Zhou (ECE), Summer 2020 – Fall 2020
- Shidong Sun (ECE), Summer 2019
- Xiaoyue Wang (ECE), Fall 2016 – Spring 2018
- Weichao Zhou (ECE), Fall 2016 – Spring 2018
- Hongchen Guo (ECE), Fall 2016 – Spring 2017
- Yaqin Huang (ECE), Fall 2016 – Spring 2017
- Qifan He (ECE), Summer 2017
- Akash Mehta (ECE), Spring 2017 – Spring 2018
- Muhammad Zuhayr Raghib (ECE), Spring 2017 – Spring 2018

Visiting Students

- Ruihan Gao (Nanyang Technological University), Summer 2019
- Panyang Qi (Peking University), Summer 2018
- Yishuang Lin (University of Science and Technology of China), Summer 2018

High School Students

- Nashita Rahman (BU RISE Intern), Summer 2019
- Edward Yang (BU RISE Intern), Summer 2018
- Eddie Hew (BU RISE Intern), Summer 2017

Ph.D. Prospectus/Dissertation Committees
- Guang Yang (ME)
- Xiao Li (ME)
- Sadra Sadraddini (ME)
- Giuseppe Bombara (ECE)
- Emre Ates (ECE)
- Iman Haghighi (ME)
- Francisco Penedo (SE)
- Prashant Vaidyanathan (ECE)
- Ozan Tuncer (ECE), as Oral Defense Chair
- Boyou Zhou (ECE), as Oral Defense Chair

M.S. Thesis Committees
- Anthony Ducimo (ECE), Fall 2020
- Pierre-François Wolfe (ECE), Spring 2020
- Xinwei Zhang (ME), Spring 2020
- Weichao Zhou (ECE), Spring 2018, as Advisor
- Yannan Bai (ECE), Spring 2018
- Kiran Vishal Thanjavur Bhaaskar (ECE), Spring 2017

PROFESSIONAL
SERVICES

Editorial Positions
- Associate Editor, Electronic Newsletter, ACM Special Interest Group on Design Automation, 2019.
- Guest Editor, Special Issue on (Industrial) Internet of Things for Smart & Sensing Systems: Issues, Trends and Applications, IEEE Internet of Things Journal, 2018.
- Guest Editor, Special Issue on Cyber-Physical Aspects of EVs and HEVs, IET Cyber-Physical Systems: Theory & Applications, 2017.

Technical Program Committee
- Chair, Autonomous Systems Track, 58th ACM/EDAC/IEEE Design Automation Conference (DAC), 2021.
- Member, Conference on Design, Automation and Test in Europe (DATE), 2021.
- Member, IEEE/IFIP International Conference on Dependable Systems and Networks (DSN), 2021.
- Co-organizer, Panel on Design of Autonomous Systems, 57th ACM/EDAC/IEEE Design Automation Conference (DAC), 2020.
- Member, 23rd ACM International Conference on Hybrid Systems: Computation and Control (HSCC), 2020.
- Member, 57th ACM/EDAC/IEEE Design Automation Conference (DAC), 2020.
- Member, International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS), 2020.
- Member, Conference on Design, Automation and Test in Europe (DATE), 2020.
- Co-organizer, Special Session on Safe Autonomy, 38th ACM/IEEE International Conference on Computer-Aided Design (ICCAD), 2019.
- Member, 56th ACM/EDAC/IEEE Design Automation Conference (DAC), 2019.

- Publicity Chair, 30$^{\text{th}}$ ACM SIGDA University Demonstration at DAC, 2018.
- Member, 55$^{\text{th}}$ ACM/EDAC/IEEE Design Automation Conference (DAC), 2018.
- Member, 37$^{\text{th}}$ ACM/IEEE International Conference On Computer Aided Design (ICCAD), 2018.
- Member, ACM SIGBED International Conference on Embedded Software (EMSOFT), 2018.
- Member, 9$^{\text{th}}$ ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS), 2018.
- Member, 9$^{\text{th}}$ International Symposium on NASA Formal Methods (NFM), 2017.
- Member, Conference on Design, Automation and Test in Europe (DATE), 2017.
- Member, Automated Formal Methods Workshop (AFM), 2017.
- Member, 4$^{\text{th}}$ Workshop on Design Automation for Understanding Hardware Designs (DUHDe), 2017.
- Member, 13$^{\text{th}}$ IEEE International Conference on Embedded Software and Systems (ICESS), 2016.
- Member, 3$^{\text{rd}}$ Workshop on Design Automation for Understanding Hardware Designs (DUHDe), 2016.
- Member, 12$^{\text{th}}$ IEEE International Conference on Embedded Software and Systems (ICESS), 2015.
- International Workshop on Formal Techniques for Safety-Critical Systems (FTSCS), 2015.
- Session Chair, Special Session on CAD for Next-Generation Vehicles, 33$^{\text{rd}}$ ACM/IEEE International Conference On Computer Aided Design (ICCAD), 2014.
- Member, 1$^{\text{st}}$ Workshop on Design Automation for Understanding Hardware Designs (DUHDe), 2014.

Other Professional Services
- NSF Panel, 2018.
- NSF Panel, 2017.

Reviewer for Journals and Conference Articles (apart from TPC and editorial services)
- *Journals*: Transactions on Information Forensics & Security (T-IFS), Proceedings of the IEEE (PIEEE), ACM Transactions on Cyber-Physical Systems (TCPS), IEEE Transactions on Big Data (TBD), IEEE Computer Architecture Letters (CAL), ACM Transaction on Embedded Computing (TECS), IEEE Transactions on Multi-Scale Computing Systems (TMSCS), IEEE Transactions on Automation Science and Engineering (T-ASE), IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), IEEE Transactions on Emerging Topics in Computing (TETC), IEEE Transactions on Computers (TC), IEEE Embedded System Letters (ESL), ACM Transaction on Design Automation of Electronic Systems (TODAES), IET Cyber-Physical Systems: Theory & Applications, Integration, the VLSI Journal, Journal of Intelligent Manufacturing (JIMS), Integration, the VLSI Journal, IEEE Transactions on VLSI Systems (TVLSI).
- *Conferences*: Computer Aided Design (CAV), International Test Conference (ITC), USENIX Security Symposium (USENIX), Formal Methods in Computer-Aided Design (FMCAD), Automated Software Engineering (ASE), International Conference on Formal Methods and Models for System Design (MEMOCODE), Formal Modeling and Analysis of Timed Systems (FORMATS), International Symposium on Circuits and Systems (ISCAS), International Conference on Logic for Programming, Artificial Intelligence and Reasoning (LPAR), International Colloquium on Theoretical Aspects of Computing (ICTAC), International Symposium on Industrial Embedded Systems (SIES), International Conference on Quantitative Evaluation of SysTems (QEST), International Conference on Embedded Software and Systems (ICESS).

UNIVERSITY AND DEPARTMENT SERVICES
- Publicity Committee, ECE Department, Boston University, 2017 – 2020
- Doctoral Committee, ECE Department, Boston University, 2016 – 2020
- Master Committee, ECE Department, Boston University, 2020 – 2021, 2016 – 2017