

Wenchao Li

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Boston, MA 02215 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](#)

Journal Publications

1. Zhilu Wang, Chao Huang, Hyoseung Kim, Wenchao Li and Qi Zhu.
Cross-Layer Adaptation with Safety-Assured Proactive Task Job Skipping,
ACM Transactions on Embedded Computing Systems (TECS), Volume 20, Issue 5s, Article No.:
100, pp 1 – 25, October 2021.
2. 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.

3. 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.
4. Sanjit A. Seshia, Shiyuan 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*)
5. 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.

Conference Publications

6. Chao Huang, Jiameng Fan, Xin Chen, Wenchao Li and Qi Zhu.
POLAR: A Polynomial Arithmetic Framework for Verifying Neural-Network Controlled Systems,
The 20th International Symposium on Automated Technology for Verification and Analysis (ATVA), 2022.
7. Jiameng Fan and Wenchao Li.
DRIBO: Robust Deep Reinforcement Learning via Multi-View Information Bottleneck,
The 39th International Conference on Machine Learning (ICML), 2022.
8. Weichao Zhou and Wenchao Li.
A Hierarchical Bayesian Approach to Inverse Reinforcement Learning with Symbolic Reward Machines,
The 39th International Conference on Machine Learning (ICML), 2022.
9. Feisi Fu and Wenchao Li.
Sound and Complete Neural Network Repair with Minimality and Locality Guarantees,
The 10th International Conference on Learning Representations (ICLR), 2022.
10. Weichao Zhou and Wenchao Li.
Programmatic Reward Design by Example,
The 36th AAAI Conference on Artificial Intelligence (AAAI), 2022.
11. Kacper Wardega, Wenchao Li, Hyoseung Kim, Yawen Wu, Zhenge Jia and Jingtong Hu.
Opportunistic Communication with Latency Guarantees for Intermittently-Powered Devices,
Design, Automation and Test in Europe Conference (DATE), 2022.
12. Panagiota Kiourti, Wenchao Li, Anirban Roy, Karan Sikka and Susmit Jha.
MISA: Online Defense of Trojaned Models using Misattributions,
Annual Computer Security Applications Conference (ACSAC), 2021.
13. Jiameng Fan and Wenchao Li.
Adversarial Training and Provable Robustness: A Tale of Two Objectives,
In Proceedings of the 35th AAAI Conference on Artificial Intelligence (AAAI), February 2021.
14. 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. (*Invited*)
15. 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.
16. 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.

17. 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.
18. 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.
19. 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.
20. 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*)
21. 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.
22. 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.
23. Weichao Zhou and Wenchao Li.
Safety-Aware Apprenticeship Learning,
In Proceedings of the 30th International Conference on Computer Aided Verification (CAV), July 2018.
24. 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*)
25. 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.
26. Xiaodao Chen, Yuchen Zhou, Hong Zhou, Chaowei Wan, Qi Zhu, Wenchao Li and Shiyuan 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*)
27. 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.
28. 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.
29. 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.

30. 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.
31. 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*)
32. 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.
33. 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 25th International Conference on Computer Aided Verification (CAV), July 2013.
34. 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*)
35. 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.
36. 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*)
37. Wenchao Li, Sanjit A. Seshia and Somesh Jha.
CrowdMine: Towards Crowdsourced Human-Assisted Verification,
In Proceedings of the 49th ACM/EDAC/IEEE Design Automation Conference (DAC), June 2012.
38. Wenchao Li, Lili Dworkin and Sanjit A. Seshia.
Mining Assumptions for Synthesis,
In Proceedings of the 9th ACM/IEEE International Conference on Formal Methods and Models for Codesign (MEMOCODE), July 2011.
39. Wenchao Li, Alessandro Forin and Sanjit A. Seshia.
Scalable Specification Mining for Verification and Diagnosis,
In Proceedings of the 47th ACM/EDAC/IEEE Design Automation Conference (DAC), June 2010.
40. 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.
41. 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.
42. 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.

43. 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.
44. Roozbeh Jafari, Wenchao Li, Ruzena Bajcsy, Steven Glaser and Shankar Sastry.
Physical Activity Monitoring for Assisted Living at Home,
In Proceedings of the 4th International Conference on Wearable and Implantable Body Sensor Networks (BSN), March 2007.

Workshop Papers

45. 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.
46. 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.
47. 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.
48. 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.
49. Wenchao Li, Susmit Jha and Sanjit A. Seshia.
Power-Aware Dynamic Control of Error-Resilience Mechanisms,
The 9th Workshop on Silicon Errors in Logic – System Effects (SELSE), March 2013.
50. 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.

Technical Reports

51. 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.
52. 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**, BU PI (Team: SRI International + BU + Stony Brook University), \$350,000 (BU portion), 8/2020 – 12/2022.

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 \approx 50%), 9/2019 – 8/2023.

Building Adaptive, Dependable and Secure Systems with a Cross-Layer Weakly-Hard Paradigm, **ONR**, BU PI (Team: Northwestern + BU + UC Riverside), \$190,500 (BU portion), 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 (Unrestricted Gift), 2018.

Safe Learning for Intelligent Transportation Systems, **Toyota InfoTechnology Center, USA**, Sole PI, \$40,000 (Unrestricted 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 (Team: BU + Northwestern), \$225,000 (total: \$425,000), 9/2016 – 8/2020.

Dynamic Adaptive Embedded Software (DyAdEm), **DARPA**, BU PI (Team: SRI International + BU + UC Berkeley + Honeywell), ~\$250,000 (BU portion), 7/2016 – 10/2019.

Programmers Assistant Synthesizing Code via Abstraction & Logical Inference (PASCALI), **DARPA**, BU PI (Team: SRI International + BU + MIT + University of Washington + University of Waterloo), ~\$200,000 (BU portion), 7/2016 – 10/2018.

TALKS AND
PRESENTATIONS

Invited Talks/Panels

1. *REASSURE: Sound and Complete Neural Network Repair with Minimality and Locality Guarantees*,

Given at the following venues:

- Dept. of Electrical and Computer Engineering, University of California, Santa Barbara, May 11, 2022. (virtual)
- Workshop on Verified Software – Verified Machine-Learning and Cyber-Physical Systems, Isaac Newton Institute for Mathematical Sciences, Cambridge, UK, July 26, 2022. (virtual)

2. *The Road to Safe Autonomy: Neural Networks Meet Formal Reasoning*,
Invited Talk at Department Colloquium, Dept. of Electrical and Computer Engineering, University of California, Riverside, November 1, 2021.

3. *(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.

4. Invited Panel on Formal Verification at the MathWorks Research Summit, June 1, 2019.
5. *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.

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

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

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

9. *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.
10. *Specification Mining: New Formalisms, Algorithms and Applications*, Research in Software Engineering (RiSE), Microsoft Research, Mar 27, 2014.
 11. *Dealing with the Missing Pieces: Specification Mining and Model Checking with Uncertainties*, Computer Science Laboratory, SRI International, May 3, 2013.
 12. *Analysis and Synthesis of Formal Specifications for Dependable Computing*, Systems and Technology Group, IBM Poughkeepsie, Dec 12, 2012.
 13. *Verification-Guided Soft Error Resilience*, ASIC Engineering, NVIDIA, Feb 2009.
 14. *Verification-Guided Error Resilience*, Invited Talk at Dagstuhl Seminar on Verifying Reliability, Schloss Dagstuhl, Germany, Aug 20, 2012.

Selected Conference and Workshop Presentations

15. *Towards Assured Autonomy: From Software Architecture to Algorithm*, IEEE International Workshop on Design Automation for Cyber-Physical Systems, Jun 24, 2018.
16. *Safety-Aware Apprenticeship Learning*, The 30th International Conference on Computer Aided Verification, Jul 15, 2018.
17. *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.
18. *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.
19. *Sparse Coding for Specification Mining and Error Localization*, The 12th International Conference on Runtime Verification (RV), Sep 26, 2012.
20. *Reverse Engineering Circuits Using Behavioral Pattern Mining*, IEEE International Symposium on Hardware-Oriented Security and Trust (HOST), Jun 3, 2012.
21. *Mining Assumptions for Synthesis*, The 9th ACM/IEEE International Conference on Formal Methods and Models for System Design (MEMOCODE), Jul 11, 2011.
22. *Scalable Specification Mining for Verification and Diagnosis*, The 47th ACM/EDAC/IEEE Design Automation Conference (DAC), Jun 2010.
23. *Localizing Transient Faults Using Dynamic Bayesian Networks*, IEEE International High Level Design Validation and Test Workshop (HLDVT), Nov 2009.
24. *Optimizations of an Application-Level Protocol for Enhanced Dependability in FlexRay*, Conference on Design, Automation and Test in Europe (DATE), Apr 2009
25. *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 EXPERIENCE

Teaching at Boston University

- EC545: Cyber-Physical Systems Fall 2021, 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 2022, Spring 2021, 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.

ADVISING AND
MENTORING
EXPERIENCE

Graduated Ph.D. students at Boston University

- Jiameng Fan (ECE), Fall 2017 – Summer 2022
 - Dissertation: Towards Provable Safe and Robust Learning-Enabled Systems
 - First job: Google

Ph.D. Advisees at Boston University

- Feisi Fu (SE), Fall 2019 – Present
- Weichao Zhou (ECE), Fall 2018 – Present
- Panagiota Kiourti (ECE), Fall 2018 – Present
- Kacper Wardega (ECE), Fall 2017 – Present
- H M Sabbir Ahmad (SE), Summer 2022 – Present

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

- Harshang Umesh Chhaya (ECE), Spring 2022
- 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 Raghieb (ECE), Spring 2017 – Spring 2018

Undergraduate Students

- Merna Alghannam (CS, UROP), Jiahui Zhu (ECE), Michael Aliberti (ECE), Zhiyuan Liu (ECE), Quinn Meurer (ECE), Madiul Chowdhury (ECE), Joaquin Giorgi (ECE), Jennifer Norell (ECE)

Visiting Undergraduate 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

- Andy Cheng (BU RISE Intern), Summer 2022
- 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

- Shiza Ali (ECE),
- Mohammad Saeed (ECE)
- Suhail Alsalehi (SE)
- Max Cohen (ME)
- Ziqi Yang (ME)
- Rushi Patel (ECE)
- Kasra Ghasemi (ME)
- Yenai Ma (ECE)
- Guang Yang (ME)
- Giuseppe Bombara (ECE)
- Emre Ates (ECE)
- Francisco Penedo (SE)
- Iman Haghighi (ME)
- Xiao Li (ME)
- Prashant Vaidyanathan (ECE)
- Sadra Sadraddini (ME)
- Boyou Zhou (ECE), as Oral Defense Chair
- Ozan Tuncer (ECE), as Oral Defense Chair

M.S. Thesis Committees

- Pierre-François Wolfe (ECE), Spring 2021
- Anthony Ducimo (ECE), Fall 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, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, 2022 – present.
- 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, Embedded, Cyberphysical and IoT Systems Track, 28th Asia and South Pacific Design Automation Conference (ASP-DAC), 2023.
- Member, 29th International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS), 2023
- Member, 41st International Conference on Computer-Aided Design (ICCAD), 2022.
- Member, 52nd IEEE/IFIP International Conference on Dependable Systems and Networks (DSN), 2022.
- Member, Conference on Design, Automation and Test in Europe (DATE), 2022.
- Member, 27th Asia and South Pacific Design Automation Conference (ASP-DAC), 2022.
- Chair, 31st ACM SIGDA University Demonstration at DAC, 2021.
- Chair, Autonomous Systems Track, 58th ACM/EDAC/IEEE Design Automation Conference (DAC), 2021.
- Member, 40th ACM/IEEE International Conference On Computer Aided Design (ICCAD), 2021.
- Member, Conference on Design, Automation and Test in Europe (DATE), 2021.
- Member, 51st 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, 30th ACM SIGDA University Demonstration at DAC, 2018.
- Member, 55th ACM/EDAC/IEEE Design Automation Conference (DAC), 2018.
- Member, 37th ACM/IEEE International Conference On Computer Aided Design (ICCAD), 2018.
- Member, ACM SIGBED International Conference on Embedded Software (EMSOFT), 2018.
- Member, 9th ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS), 2018.
- Member, 9th 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, 4th Workshop on Design Automation for Understanding Hardware Designs (DUHDe), 2017.
- Member, 13th IEEE International Conference on Embedded Software and Systems (ICCESS), 2016.
- Member, 3rd Workshop on Design Automation for Understanding Hardware Designs (DUHDe), 2016.
- Member, 12th IEEE International Conference on Embedded Software and Systems (ICCESS), 2015.
- International Workshop on Formal Techniques for Safety-Critical Systems (FTSCS), 2015.
- Session Chair, Special Session on CAD for Next-Generation Vehicles, 33rd ACM/IEEE International Conference On Computer Aided Design (ICCAD), 2014.
- Member, 1st Workshop on Design Automation for Understanding Hardware Designs (DUHDe), 2014.

Other Professional Services

- NSF Panel, 2018.
- NSF Panel, 2017.

UNIVERSITY AND
DEPARTMENT
SERVICES

- Publicity Committee, ECE Department, Boston University, 2017 – 2020
- Doctoral Committee, ECE Department, Boston University, 2022 – 2023, 2016 – 2020
- Master Committee, ECE Department, Boston University, 2020 – 2022, 2016 – 2017