Bozhen Liu

230 L.F. Peterson Building, College Station, TX 77843
Email : april1989@tamu.edu Mobile : +1-607-379-2549

Education

- **Texas A&M University** College Station, TX
  PhD in Computer Science *Jan 2020 - Present*
  Dissertation Title: "Continuous Reasoning of Large Complex Software via Incremental Analysis"
  Committee: Jeff Huang, Dilma Da Silva, Riccardo Bettati, Paul Gratz
- **Texas A&M University** College Station, TX
  Master of Science in Computer Science *Jan 2016 - Dec 2019*
  Dissertation Title: "An Instantaneous Framework for Concurrency Bug Detection"
  Committee: Jeff Huang, Riccardo Bettati, Peng Li
- **Conell University** Ithaca, NY
  Master of Engineering in Mechenical Engineering *Aug 2012 - May 2013*
- **Beijing Institute of Technology** Beijing, China
  Bachelor of Engineering in Automotive Engineering *Sep 2007 - Jun 2011*
  Dissertation Title: "Aided Design of Auxiliary Power Unit (APU) Electric Vehicle Controller"

Research Experience

- **Graduate Research Assistant** Jan 2016 - Present
  Prof. Jeff Huang, Department of Computer Science and Engineering, Texas A&M University *College Station, TX*
  - Developed various incremental pointer analysis algorithms for Java, C/C++, OpenMP and Golang programs.
  - Formulated two sets of algorithms for static concurrency bug detection.
  - Designed and implemented CI/CD tools and backend to support program analysis as a service.
- **Graduate Research Assistant** Aug 2011 - Jun 2012
  Prof. Jun Wang, Electric Vehicle Engineering and Technology Center, Beijing Institute of Technology *Beijing, China*
  - Assisted to design the models of brake master cylinder, and dual-wheel dual-channel ABS models considering brake conditions on bisectional road.
  - Simulated vehicle dynamics and tires in Matlab/Simulink, and brake system with different road conditions.

Teaching & Mentoring Experience

- **Teaching Assistant - CSCE 110: Programming I** Fall 2017
  Texas A&M University *College Station, TX*
  - Led the lab section to teach Python and coding, planned coding projects.
  - Ran office hours, graded in-lab coding projects.
- **Teaching Assistant - CSCE 222: Discrete Structures for Computing** Sprint 2017
  Texas A&M University *College Station, TX*
  - Ran office hours, helped grading homework and exams.
- **Mentor - O2 Lab** 2019 - Presnet
  Texas A&M University *College Station, TX*
  - Mentored several students from high school, freshman, sophomore, senior and graduate.
  - Guided the students to conduct research in static program analysis and machine learning.
  - Assigned coding and reading tasks to prepare the students for future career or research.
  - Discussed with and inspired the students to discover their research findings.

Industry Experience

- **Software Engineer Intern** Jun 2021 - Aug 2021
  Coderrect Inc. *College Station, TX*
  - Developed and implemented algorithms to model OpenMP directives for static data race detection.
  - Spearheaded and assisted in the developing, troubleshooting, and debugging of software development processes by collaborating with four team members.
  - Attained 2nd position on DataRaceBench by defeating Google's ThreadSanitizer.

Publications

Bozhen Liu, Jeff Huang. "SHARP: Fast Incremental Context-Sensitive Pointer Analysis for Java." In Proceedings of the ACM on Programming Languages 6.OOPSLA1 (2022): 1-28.

Bradley Swain, Jeff Huang, **Bozhen Liu**, Peiming Liu, Yanze Li, Addison Crump, Rohan Khera. "OpenRace: An Open Source Framework for Statically Detecting Data Races." International Workshop on Software Correctness for HPC Applications (SC Correctness 2021).

Bozhen Liu, Peiming Liu, Yanze Li, Chia-Che Tsai, Dilma Da Silva, and Jeff Huang. "When Threads Meet Events: Efficient and Precise Static Race Detection with Origins." In Proceedings of the 42nd ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI). ACM, 2021

Bozhen Liu, Jeff Huang and Lawrence Rauchwerger. "Rethinking Incremental and Parallel Pointer Analysis", ACM Transactions on Programming Languages and Systems (TOPLAS), 41(1), 6.

Yanze Li, **Bozhen Liu** and Jeff Huang. "SWORD: a scalable whole program race detector for Java", In Proceedings of the 41st International Conference on Software Engineering: Companion Proceedings (pp. 75-78). IEEE Press.

Bozhen Liu, and Jeff Huang. "D4: fast concurrency debugging with parallel differential analysis." In Proceedings of the 39th ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI). ACM, 2018

CONFERENCE PRESENTATIONS

"When Threads Meet Events: Efficient and Precise Static Race Detection with Origins.", PLDI 2022, Jun. 15, 2022, San Diego, US.

"D4: fast concurrency debugging with parallel differential analysis.", PLDI 2018, Jun. 21, 2018, Philadelphia, US.

Honors and Awards

- PLMW@PLDI'18 scholarship.

PROFESSIONAL AFFILIATIONS AND REVIEW ACTIVITIES

- ACM student member
- Reviewer:
  ACM Transactions on Software Engineering and Methodology (TOSEM) 2022
  Artifact Evaluation Committee (AEC) for CGO 2018
- Sub-Reviewer:
  TPDS'20, STVR'19, LCPC'18, PPoPP'17,
  OOPSLA, FSE, PLDI, ICSE (2016 - Present)

References

Dr. Jeff Huang, Associate Professor
Department of Computer Science and Engineering
Texas AM University, College Station, TX, USA
979-845-5485, jeff@cse.tamu.edu

Dr. Dilma Da Silva, Professor
Department of Computer Science and Engineering
Texas AM University, College Station, TX, USA
979-458-8008, dilma@cse.tamu.edu

Dr. Lawrence Rauchwerger, Professor
Department of Computer Science
University of Illinois at Urbana-Champaign, Urbana, IL, USA
217-244-0968, rwerger@illinois.edu