

SHANGYIN TAN

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EDUCATION

University of California, Berkeley

Doctor of Philosophy (Ph.D.) in Computer Science

Aug 2022 - Present

Berkeley, US

- Research Interests: programming languages, compilers, testing, sparse computation
- Advised by *Koushik Sen*

Purdue University

Bachelor of Science in Computer Science Honors

Aug 2018 - Dec 2021

West Lafayette, US

- Graduated with Highest Distinction, GPA: 3.98/4.0, Major GPA: 4.0
- CRA Outstanding Undergraduate Researcher Honorable Mention
- Outstanding Research Effort by an Undergraduate Student Award

WORK EXPERIENCES

Microsoft Research, Asia

Research Assistant (manager: Quanlu Zhang and Fan Yang)

March 2022 - Aug 2022

Beijing, China

- Build a program synthesis system for deep learning config file generation
- Develop a deep learning testing framework

Purdue University

Undergraduate Researcher (advised by Guannan Wei and Tiark Rompf)

June 2020 - Dec 2021

West Lafayette, US

- Compile efficient symbolic executions via multi-stage programming
- Lead the development of multiple *LLVM* symbolic execution compilers
- Publications: [OOPSLA 20], [ESEC/FSE 21], [PEPM 22], [ICSE 23]

PAPERS UNDER SUBMISSION

1. [PLDI 23] Chaofan Shou, **Shangyin Tan**, and Koushik Sen. Ityfuzz: Snapshot-based fuzzer for on-chain smart contract auditing. In *PLDI*. ACM, 2023

PUBLICATIONS

1. [ICSE 23] Guannan Wei, Songlin Jia, Ruiqi Gao, Haotian Deng, **Shangyin Tan**, Oliver Bračevac, and Tiark Rompf. Compiling parallel symbolic execution with continuations. In *ICSE*. IEEE/ACM, 2022
2. [UIST 22] Zhanhui Zhou, Man To Tang, Qiping Pan, **Shangyin Tan**, Xinyu Wang, and Tianyi Zhang. INTENT: interactive tensor transformation synthesis. In *UIST*, pages 89:1–89:16. ACM, 2022
3. [PEPM 22] **Shangyin Tan**, Guannan Wei, and Tiark Rompf. Towards partially evaluating symbolic interpreters for all (short paper). In *PEPM at POPL*. ACM, 2022
4. [ESEC/FSE 21] Guannan Wei, **Shangyin Tan**, Oliver Bračevac, and Tiark Rompf. LLSC: a parallel symbolic execution compiler for LLVM IR. In *ESEC/SIGSOFT FSE*, pages 1495–1499. ACM, 2021

5. [OOPSLA 20] Guannan Wei, Oliver Bracevac, **Shangyin Tan**, and Tiark Rompf. Compiling symbolic execution with staging and algebraic effects. *Proc. ACM Program. Lang.*, 4(OOPSLA):164:1–164:33, 2020

PRESENTATIONS

1. **ACM SIGPLAN Workshop on Partial Evaluation and Program Manipulation**
Towards Partially Evaluating Symbolic Interpreters for All Jan 2022
2. **SPLASH 2021 SIGPLAN Papers Track**
Compiling Symbolic Execution with Staging and Algebraic Effects Oct 2021
3. **PurPL Reading Group**
Data types a la carte Aug 2020

AWARDS

1. CRA Outstanding Undergraduate Researcher Honorable Mention 2022
2. Outstanding Research Effort by an Undergraduate Student, Purdue University 2022
3. Corporate Partner Scholarship, Purdue University 2020

PROFESSIONAL ACTIVITIES

Artifact Evaluation Committee Member

- ACM SIGPLAN Conf. on Programming Language Design and Implementation (PLDI) 2022

Sub-reviewer

- The ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA) 2023

Student Volunteer

- The ACM SIGPLAN conference on Systems, Programming, Languages, and Applications: Software for Humanity (SPLASH) 2021, 2020

OTHER EXPERIENCES

Undergraduate Teaching Assistant

Discrete Math, System Programming, Algorithms Analysis, ...

Jan 2019 - Jan 2021

West Lafayette, US

- Conduct recitations to help students with problem solving
- Advise students in lab debugging
- Monitor online Q&A forums like Piazza

Selected Coding Contests

Higher Ranked Participant

2018 - 2020

Midwest, US

- 3rd in Tech Challenge Google 2019, Chicago
- 2nd in Sandia Coding Challenge 2018, West Lafayette

SKILLS

Familiar with

C, Scala, Python, C++

Have worked with

Haskell, Coq, X86-64, Java, Javascript, Scheme, L^AT_EX, LLVM, MatLab

Tools

GDB, Git, QuickCheck, SAT/SMT solvers (Minisat, STP, Z3)

(Skills in the same row are in random order)