

SHANGYIN TAN

(+1) 765 - 427 - 2861 ◊ tan279@purdue.edu ◊ shangyit.me

EDUCATION

Purdue University

Bachelor of Science in Computer Science Honors

2018 - 2022

West Lafayette, US

- GPA: 3.98/4.0, Major GPA: 4.0
- Corporate Partner Scholarship
- PurPL Undergraduate Researcher
- Graduate Courses: *Algorithms, Programming Languages, Program Reasoning, Numerical Analysis*

RECENT PROJECTS

Compiling Symbolic Execution

Undergraduate Researcher (advised by Guannan Wei and Tiark Rompf)

May 2020 - Present

West Lafayette, US

- <https://github.com/Kraks/sai>
- Build backend to generate SMT solver calls via metaprogramming
- Develop *LLVM* symbolic compilation with free monads from scratch
- See publication for details.

W²: Synthesising Webpage from Wireframe

Undergraduate Researcher (advised by Roopsha Samanta)

March 2020 - Aug 2020

West Lafayette, US

- <https://github.com/TigerHix/W2>
- Design an algorithm to infer hierarchical layout from static structure
- Transform static graph to responsive webpage (HTML)

MiniScala: a Small Scala Compiler

Developer

Jan 2020 - May 2020

West Lafayette, US

- Parse and compile **Scala** source code to X86-64 assembly
- Infer and check types of input programs
- Optimize via Dead Code Elimination, Constant Folding, CPS Transformation, etc

Gomoku Go

Developer

July 2017

Pittsburgh, US

- Design and build a Gomoku game
- Use Minimax algorithm to implement an AI player

PUBLICATION

1. Guannan Wei, Shangyin Tan, Oliver Bračevac, and Tiark Rompf. LLSC: A Parallel Symbolic Execution Compiler for LLVM IR. *ESEC/FSE 2021 Demo*. To Appear.
2. Guannan Wei, Oliver Bračevac, **Shangyin Tan**, and Tiark Rompf. Compiling symbolic execution with staging and algebraic effects. *Proc. ACM Program. Lang.*, 4(OOPSLA), November 2020

PRESENTATION

PurPL Reading Group

Data types a la carte

Aug 2020

EXPERIENCE

Student Volunteer

Nov 2020

- SPLASH 2020: Review talk videos. Monitor Q&A sessions.

Undergraduate Teaching Assistant

Jan 2019 - Present

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

West Lafayette, US

- Conduct recitations to help students with problem solving
- Advise students in lab debugging

Selected Coding Contests

2018 - 2020

Higher Ranked Participant

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, Linux, Bash, Git, SAT/SMT solvers (Minisat, STP, Z3)

(Skills in the same row are in random order)