Wen Fan

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EDUCATION

Purdue University West Lafayette, USA
Major: Computer Science *Aug. 2022 – Present*
Degree: Master (expected)
Advisor: Prof. Yongle Zhang

University of Science and Technology of China (USTC) Hefei, China
Major: Computer Science and Technology *Sept. 2018 – Jun. 2022*
Degree: Bachelor
GPA: 3.75/4.3

RESEARCH INTEREST

Distributed Protocols

RESEARCH EXPERIENCE & PROJECTS

Consensus Protocol Synthesis Purdue University
Advisor: Prof. Yongle Zhang *May. 2023 – Mar. 2024*

Vicious Cycles in Distributed Systems Purdue University
Advisor: Prof. Yongle Zhang *June. 2022 – Apr. 2023*
We investigated a type of failure in distributed systems, where an event causes a system degradation and it further causes more events. I joined half-way in this project.

- Collected some cases of those failures on Apache Jira.
- Tried implementing a static analyzer on retry pattern in distributed systems such as Hadoop.

Cflow: Static Taint Analysis on Java Application Remote summer intern at UIUC
Advisor: Prof. Tianyin Xu *Jul. – Oct. 2021*
Cflow is a static taint analysis tool with two limitations: non-deterministic output and many false-positives, and I tried to solve these problems as my first attempt in research.

- Analyzed the source code and output of Cflow to find out the reasons for these two problems.
- Added flow information for each statement to solve the non-deterministic path reconstruction.
- Implemented points-to analysis and field-use analysis to reduce false positives.

DSLAB (Sharded and Fault Tolerant Distributed Key-Value Store) CS505 project at Purdue University
Developed from University of Washington, DSLAB is a framework for building and debugging distributed systems for educational purposes. I did this lab with my friend and passed most of the tests.

- Implemented Primary-Backup, Paxos and Two Phase Commit protocols.
- Debugged to pass more than 90% of tests (including searching tests on corner cases).

Compiler Lab Extra work at USTC

I wrote the compiler lab from other classes in USTC, in order to have a better understanding of basic compilers. The project generates the Intermediate Representation for a simplified C programming language.

String Analysis in Java Bachelor thesis at USTC

I adopted the program analysis tool cpachecker to do some simple analysis on Java String. For example, tracking the value and relation of strings after doing concatenation operations.

TEACHING ASSISTANT EXPERIENCE

Mathematical Logic, USTC *Spring 2021*

CS252 Systems Programming, Purdue University *Fall 2022, Spring 2023, Spring 2024*

CS251 Data Structures, Purdue University *Fall 2023*

AWARDS

Huawei Scholarship *Nov. 2020*

Huaxia Talent Program at USTC *June 2022*

SKILLS

Programming Languages: C, C++, Java, Python, Go, Verilog, SQL, Latex
Frameworks: Django, Soot
Algorithms: Leetcode 100+, CS584 (Computation complexity)
Languages: English, Chinese