Zhanwei Zhang (张展玮)

(+86) 13380806800 | zhangzw@mail.sustech.edu.cn | https://it-bill.github.io/
No. 1088 Xueyuan Avenue, Nanshan District, Shenzhen, Guangdong

Education

B.Sc. in Computer Science and Technology, Southern University of Science and Technology (SUSTech) **Sep. 2021 ~ Now**

Turing Master Class

Advisor: Prof. Yepang Liu

GPA: 3.79 / 4.0 | Weight Avg Score: 90.92 | Ranking: 36 / 195

Main courses: Introduction to Math Logic(A+), Introduction to Computer Programming(A+), Calculus(A), Linear Algebra(A), Data Structures and Algorithm Analysis(A), Principles of Database Systems(A-), Machine Learning(A), Compilers(B+)

Internships

Large Language Model Intern in Lingsome, Shenzhen **Aug. 2024 ~ Now**

Integrated multi-type Retrieval Augmented Generation (RAG) and GraphRAG systems.

Optimized GraphRAG code to extract better entities & relationships and construct domain-specific knowledge graphs.

Developed and refined pipelines to extract improved entities and relationships.

Visiting Researcher in Wuhan University, Wuhan **May. ~ Aug. 2024**

Advisor: Prof. Jinfu Chen (WHU); Prof. Weiyi Shang (UWaterloo)

Focused on software logging and failure workarounds.

Developed an automated analysis pipeline to extract, filter, and sample code commits containing try-catch blocks.

Publications

Numerical Error Detection (Under Review) **Aug. 2024 ~ Mar. 2025**

Contributed as the second author and co-first author under the supervision of Prof. Weiyi Shang (UWaterloo), Prof. Jinfu Chen (WHU), and Prof. Zishuo Ding (HKUST, GZ). One paper is currently under review, and the other has been published on arXiv.

Developed novel methods and LLVM pass-based analysis for detecting numerical errors, focusing on improving the efficiency and accuracy of error detection processes.

Our approach showed strong alignment (correlation over 0.8) with high-precision programs and required only about 1/1000 of the time needed by high-precision programs.

A Comprehensive Analysis of Interflight Variability in Carbon Dioxide Emissions from Global Aviation **Apr. ~ Oct. 2022**

Implemented MATLAB-based interpolation techniques to impute missing flight trajectories, enhancing data completeness and reliability.

Analyzed 10 TB data (1 billion records) using statistical and machine learning methods.

Research

LLM-Based JSON Parser Fuzzing for Bug Discovery and Behavioral Analysis **Sep. 2023 ~ Jan. 2024**

Used opensource LLMs such as Llama2-7B/13B to generate test cases.

13 JSON Parsers and over 100 types of cases have been tested. Over 26 behavioral diversities have been found.

Privacy Inference Testing for LLM **Nov. 2024 ~ Jan. 2025**

Synthesized the ZhihuSim dataset with 300 user profiles and over 3000 comments to simulate diverse Chinese Q&A discussions and capture a wide range of personal attributes.

Evaluated the performance of 8 pre-trained LLMs, comparing their accuracy across various tasks and attribute types to uncover significant privacy vulnerabilities.

Selected Projects

Othello Game through Java and Python Programming with Strong AI **Oct. ~ Dec. 2021 & Mar 2023**

Developed visually appealing interface and implemented Monte Carlo & Alpha Beta Pruning algorithm.

Rank: 3/29 | Win Rate: 81% (In Turing Class)

Capacitated Arc Routing Problem Solver **May 2023**

Implemented a memetic algorithm and hybrid metaheuristic approach to produce high-quality solutions efficiently.

Achieved optimal solutions in small and medium-sized instances within 180 seconds.

Produced comparable results with 20% deviation for larger instances with up to 255 vertices and 347 routes.

Canteen Traffic Monitoring **Dec. 2023 ~ Jan. 2024**

Calculated the length of the queue by monitoring data and displayed a chart showing the changes in queue length.

Won award for finalist in National College Students' Innovation and Entrepreneurship Training program.

About 30,000 visits within three months.

Simple Compiler **Sep. 2023 ~ Jan. 2024**

Developed a compiler that translates C language files into Intermediate Representation (IR) and MIPS32.

Supported essential features such as I/O operations, control flow and function calls.

Included lexical, syntax, and semantic analysis, along with informative error messages.

Patents

一种点餐方法、系统、终端及介质（Innovative Ordering Method, System, Terminal, and Medium Patent） **May 2023**

Innovated a method and system to alleviate peak-hour traffic in cafeterias.

Applied on May 5, 2023; Application no: 202310498065

Skills

Languages: English (Fluent; IELTS: 6.5), Mandarin (Native), Cantonese (Native)

Programming Languages & Frameworks: Java, Python, C/C++, SQL, Spring Boot, Vue

Tools: IntelliJ IDEA, PyCharm, Visual Studio Code, Anaconda, Git, CMake

Honors & Scholarships

Honorable Mention, Mathematical Contest in Modeling	May 2023
Finalist, National College Students' Innovation and Entrepreneurship Training program	June 2023
Third Prize, China Undergraduate Mathematical Contest in Model	Sep. 2023
Outstanding Student	Jan. 2024