

Zhongye Wang

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Education

School of Electronic Information and Electrical Engineering, Shanghai Jiao Tong University

Shanghai, China

B.S. IN COMPUTER SCIENCE

Sep. 2017 - Present

- Attending IEEE Honor Class and expected in 2021.

Overall GPA: 91.5/100, Ranking: 6/107 (Before junior year)

Major GPA: 91.8/100, Ranking: 5/107 (Before junior year)

Programming (98/100), Data Structure (97/100), Signals and Systems (97/100), Circuits and Electronics (93/100),
Computer Organization (95/100), Software Engineering (93/100), Linear and Convex Optimization (97/100),

Core Courses Information Theory (97/100), Programming Languages (95/100), Design and Analysis of Algorithms (96/100),
Artificial Intelligence (92/100), Computer Systems Engineering (95/100), Digital Graphics Processing (91/100),
Parallel and Distributed Programming (91/100)

English Tests TOFEL 108/120 reading 30 listening 30 speaking 23 writing 25
CET6 627/710 listening 236 reading 227 writing 164

Research Experience

Current Research Interests: Concurrent Program Verification and Compiler

Shanghai, China

ADVISOR: QINXIANG CAO

Present

- Studying existing technique for concurrency verification including separation logic, Iris, and rely-guarantee.
- Following Stanford CS143, the online compiler course.

Reentrancy in Smart Contracts

Shanghai, China

ADVISOR: QINXIANG CAO

March. 2019 - Nov. 2019

- Proposed a coarse-grained logic and a fine-grained logic to reason about reentrancy in smart contracts, and formalized them in Coq.
- Proved the soundness and completeness of the coarse-grained logic, and proved the relationship between two logic by a theorem deriving coarse-grained judgments using fine-grained ones.
- Entered the poster session of Student Research Competition in POPL 2020, and submitted to PLDI 2020.

Honors & Awards

- 2019 **Honorable Mention (2nd Award)**, Interdisciplinary Contest in Modeling
- 2018 **Provincial 2nd Award**, Contemporary Undergraduate Mathematical Contest in Modeling
- 2018 **Meritorious Winner (1st Award)**, Interdisciplinary Contest in Modeling

Activities & Projects

CDRP Decomposition and Assembly (Course Project for Design and Analysis of Algorithms)

Shanghai, China

LEADER AND MAIN CONTRIBUTOR

Dec. 2019 - Jan. 2020

- Proposed a network model fusion framework based on assembly of multiple small networks, and instantiated the framework based on Critical Data Routing Path decomposition.
- Top 5 among all teams and enters the workshop hosted by the advisor Jiang Li.

A Program Logic for Asymptotic Time Complexity (Course Project for Programming Language)

Shanghai, China

LEADER AND MAIN CONTRIBUTOR

May. 2019 - June. 2019

- Upgrade the regular program logic for While-Language to reason about asymptotic time complexity of the program.
- Proved the soundness of the logic and time complexity of some example programs.

VEX Robotics Competition Selective Trial in SJTU

Shanghai, China

MAIN CONTRIBUTOR

July. 2018

- Built a robot able to lift obstacle and shoot balls from scratch, and wrote the program using Robotc for manual control and automated control.
- Our team achieved top 5 among 20+ teams but did not enter the final.

Skills & Others

Programming C/C++, Python, Coq, C#, Matlab, LaTeX, Java, PHP

Languages Chinese, English, Japanese

- As part of my research prerequisites, I learned to use Coq for formal verification and proof engineering.
- Have many experience with Coq projects, including

Formal Verification

- the programming language course project about a program logic with asymptotic time complexity,
- verifying a bitwise algorithm,
- and the recent project about reentrancy in smart contracts.

Machine Learning

- Interested in machine learning during the freshman and sophomore year, and taught myself about basic machine learning and data mining techniques and some advanced topics including computer vision with deep learning and reinforce learning.
- Familiar with libraries in Python for machine learning development, including Numpy, Pandas, Scikit-Learn, TensorFlow, and Keras.

Game Development

- As a hobby, learned to create games using Unity game engine and C# in the freshman year, and learned about Unreal engine for game programming in the sophomore year.
- Created a complete game using Unity engine and my own artworks in the sophomore year, and still interested in game development.

Web Development

- Gained some experience with web development in course projects of Introduction to Engineering for Electronic Information (B & C), both projects win the first price in both courses.
- Familiar with front-end development based on Bootstrap framework, certain familiarity with back-end development using PHP and Python.