Ziteng **Yang**

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Education Background

Shanghai Jiao Tong University   *Shanghai, China*
B.S. IN COMPUTER SCIENCE AND ENGINEERING   *2017 - 2021 (Expected)*

Research Projects

Verification-aided Compiler Optimization
MAIN CONTRIBUTOR   *2020 - Now*
- **Supervisor:** *Qinxiang Cao*, John Hopcroft Center for Computer Science, Shanghai Jiao Tong University.
- **Field:** Program Verification, Compiler Optimization.
- **Current Result:**
    – Proposed a new "conditional forward and backward simulation" relation between the semantics of source and target language and formally proved crucial properties of such relation;
    – Implemented a translation path from CompCert C source language with annotation to RTL intermediate language with annotation;
    – Further details are confidential.

Finite Canonical Model for Completeness Theory in Coq Based on UnifySL
RESEARCH ASSISTANT   *2019 - 2020*
- **Supervisor:** *Qinxiang Cao*, John Hopcroft Center for Computer Science, Shanghai Jiao Tong University.
- **Field:** Mathematical Logic, Formal Methods, Program Verification.
- **Achievement:**
    – Formalized Propositional Dynamic Logic (PDL) in Coq based on the framework of *UnifySL*, with simplification from code reuse;
    – Proved PDL's completeness theories in Coq using the method of finite canonical model, which is distinctive from previously formalized logics in this library;
    – Proposed a frame work of formalizing finite canonical model and completeness theory proof from it;
    – Supplement a set of useful lemmas for *UnifySL*

Supervisor Control of Timed Discrete-Event Systems
MAIN CONTRIBUTOR   *2018 - 2019*
- **Supervisor:** *Xiang Yin*, Department of Automation, Shanghai Jiao Tong University.
- **Field:** Formal Methods, Automata and Control Theory, Discrete-Event Systems.
- **Achievement:**
    – Proposed a methods for synthesizing a maximally-permissive supervisor for Timed Discrete Event System (TDES);
    – Proved the correctness of such methods, i.e. the closed-loop language which depict the behavior of the system is within a safe specification language;

Publications

- **Z. Yang**, X. Yin and S. Li. "Maximally permissive supervisor control of timed discrete-event systems under partial observation," in 21st IFAC World Congress, 2020.

Teaching Experience

- **Teaching Assistant**, MA208: Discrete Mathematics, SJTU, lectured by *Qinxiang Cao*.

    – Courses for the IEEE Honor Class (an honor class for elite students in EECS) at SJTU;

    – Holding office hours

- **Teaching Assistant**, MA239: Discrete Mathematics(Honor), SJTU, lectured by *Xiang Yin*.

    – Courses for the Zhiyuan Honor Program (a program for top students in Engineering related majors) at SJTU

    – Holding tutorials for exercises, office hours and grading.

Non-academic Projects (Selected)

Interpreter for "SimPL" programming language

INDEPENDENT PROJECT   *2020*

- **Field:** Programming Language.
- Website: https://github.com/Youngzt998/SimPL-Interpreter
- **Description:**
    – A course project for Programming Language Theory.
    – Implemented an interpreter in Java following the specification of SimPL(:= a simplified dialect of ML), including type checking (let-polymorphism was realized) and evaluation.

Naive Airdrop

INDEPENDENT PROJECT   *2019*

- **Field:** Application of Computer Network.
- **Website:** https://github.com/Youngzt998/Naive-Airdrop
- **Description:**
    – Automatically synchronize some files from our mobile phone to PC without using USB or manually operating
    – Designed for the situation we do not trust a company's application, or even don't trust the Global Internet.
    – Implemented auto connection, auto detecting changes of the observed files on client devices, encryption in transfer, etc.
    – Implemented in Python (on PC) and Java (on Android)

In-The-Garden

GROUP PROJECT   *2018*

- **Field:** Game Design.
- **Description:** A mini puzzle game, developed based on the Unreal Engine, using free art resources as our 3D-model.

Re-implementation of deque and map in STL

INDEPENDENT PROJECT   *2018*

- **Field:** Basic Programming, course project for Data Structure.
- **Website:** https://github.com/Youngzt998/Re-implementation-of-deque-and-map
- **Description:** Re-implement the *deque* (Block List) and *map* (AVL Tree) in C++ Standard Template Library (STL);the class can be used almost in the same way as the original ones in STL.

Curriculum and Grades

- Overall GPA: 3.66/4.3; Major GPA:?/4.3

- Computer Science Related Curriculum (Selected):

Linear Algebra	90	Discrete Mathematics	92	Data Structures	93
Circuit Theory	90	Project Workshop of Operating System	100	Computing Theory	91
Cloud Computing	92	Database System Technology	91	Linux Kernel	91
Programming Languages	98				

Skills

Programming	• Skilled: C, C++, Python, Coq, Java; • Basic: TLA+, SQL • Operating System: Windows, Linux (including kernel programming) • Other Tools: Latex/Markdown for writing; Keras in Python for machine learning; Unreal Engine and Unity for game design.
Languages	Chinese (Native), English