Ziteng Yang

ziteng.yang@gatech.edu · Youngzt998 · youngzt998.github.io/

Education

Georgia Institute of Technology, Atlanta, Ga, USA Sept. 2021 – Present

Ph.D. in Computer Science, School of Computer Science, College of Computing

Shanghai Jiao Tong University (SJTU), Shanghai, China Sept. 2017 – Jul. 2021

B.E. in Computer Science and Technology, Department of Computer Science and Engineering

- GPA: overall 3.61 / 4.0, *Peking University Standard*
- Selected Courses: , Programming Languages (98), Computing Theory (91), Project Workshop of Operating System (100), Linux Kernel (91), Discrete Mathematics (92), Linear Algebra (90)

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

Research Projects

Verification-aided Compiler Optimization Jul. 2020 – Present

Research Assistant Advisor: *Qinxiang Cao*, John Hopcroft Center for Computer Science, SJTU.

An expedition to implement compiler optimization using verification code of a program:

- Designed a semantics framework based on general small step semantics framework in CompCert Certified Compiler, aiming for verifying compiler optimization methods for certified program using hints of annotated Hoare-logic-style assertions
- Designed the verification routine of "forward / backward simulation" relation as well as the preservation of annotation's consistency between source and compiled program for the newly proposed optimization method
- implemented the routine as a framework on CompCert's Clight intermideate program.

Finite Canonical Model for Completeness Theory in Coq Nov. 2019 – Apr. 2020

Research Assistant Advisor: *Qinxiang Cao*, John Hopcroft Center for Computer Science, SJTU.

A work for extension of a logic library in a proof assistant from infinite method to finite method:

- Formalized Propositional Dynamic Logic (PDL) which has finite model property for the framework of mathematical logic library *UnifySL* in proof assistant *Coq* with efficient code reuse
- Formally proved crucial lemmas of proof theory, finite set, (finite) maximally consistent set of general logics etc. as supplement to *UnifySL* library
- Formally proved PDL's completeness theories in Coq using the method of finite canonical model which is distinctive from any previously formalized logics in this library

Supervisor Control of Timed Discrete-Event Systems Aug. 2018 – Aug. 2019

Research Assistant Advisor: *Xiang Yin*, Department of Automation, SJTU.

Research field: formal methods in Automata Theory and Control Theory

- Proposed a method for synthesizing a safe and maximally-permissive supervisor for Timed Discrete Event System (TDES, a finite-automata-style model) which models time into conventional automata, by applying a two-player game structure from recent breakthrough in non-timed setting
- Proved the correctness of such methods formally, i.e. the closed-loop language which depicts the behavior of the system under the synthesized supervisor is within a safe specification language

Teaching Experience

Teaching Assistant, MA208: Discrete Mathematics, SJTU, lectured by *Qinxiang Cao* 2020 Fall

- Courses for the *IEEE Honor Class* (for top 20% students selected from EECS)

Teaching Assistant, MA239: Discrete Mathematics (Honor), SJTU, lectured by *Xiang Yin* 2020 Fall

- Courses for the *Zhiyuan Honor Program* (only for top 5% students selected from Engineering majors)

Course Projects (Selected)

Interpreter for "SimPL" Programming Language 2020 Spring

- Implemented an interpreter in Java following given semantic specification of simplified dialect of ML

Naive Airdrop 2019 Fall

- Designed a file synchronizing application from Android phone to PC within local area network
- Implemented auto connection, changes detecting of the observed files on client devices, encryption in transfer, both auto and manual transmission etc.

Re-implementation of deque and map in STL 2018 Fall

Honors and Awards

- Rongchang Scholarship for Science and Technology Innovation, Finalist, 10,000 CNY (30 persons school-wide including 10 winners with 30,000 CNY per year;) 2020
- Undergraduate Excellent Scholarship, 500 CNY Third-class Oct. 2018
- 1st Prize in National High School Mathematics League in Provinces Sep. 2016

Skills

Programming: Coq, C / C++, Java, Python
Languages: Mandarin,

- Native: Standard Mandarin, Sichuanese Mandarin
- Fluent: English