

Xuyang Li

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EDUCATION

Nankai University

Bachelor of Engineering in Computer Science

Tianjin, China

Sep. 2017 – June. 2021

Nanjing University

Master of Engineering in Computer Science

Jiangsu, China

Sep. 2021 – Present

DETAILS

Undergraduate GPA: 3.85/4.

Language Skills: Mothertongue in Mandarin. Conversationally fluent in English.

Fields: *Formal Methods, Compilation, Software engineering.*

Programming Skills: Skilled in Coq. Familiar with C/C++, Java, OCaml, Python, Javascript/TypeScript, PHP.

RESEARCH

Verified Validation for Polyhedral Scheduling

2022.8 - 2023.10

- Mechanize a verified validator for affine polyhedral scheduling in Coq. Its algorithm checks Bernstein's condition within polyhedral model.
- Instantiate with semantic model of CompCert C.
- Adapt it to validate Pluto's core scheduling algorithm.
- Open souce at <https://github.com/verif-scop/PolCert/>. Its paper is under submission.

Verified Dataflow Optimization in the Promising Semantics

2021.8 - 2022.5

- Define the available expression analysis and common subexpression elimination algorithm in Coq, and machanize their properties in the promising semantics (a relaxed concurrency semantics).
- Contribute to the artifact of the PLDI'22 paper, see at: <https://plax-lab.github.io/publications/promisingcomp/>

EXPERIENCES

Internship in Huawei's Programming Language Lab

2021.2 – 2021.7

- Formalize the semantics of a newly-designed functional intermediate representation
- Engineer and debug the compiler mid-end (C++) of a newly-designed programming language

Teaching Assistants

- TA in *Compilation Technique* (2020) & *Information Retrieval* (2020) & *Structure and Interpretation of Computer Programs* (2021, 2022, 2023) Courses
- Responsible for material updates & online judge maintenance (if any).

Selected Personal or School Projects

2017.9 – Present

- System-level projects (C/C++): c compiler & x86 emulator & os kernel & smtp/ftp protocol
- Applications: search engine (Python) & shopping system (Java Spring) & activity management system (PHP Yii2)
- Algorithms: program analysis/instrumentation & machine learning & parallel programming

Honors And Awards

- The First Prize Scholarship (5%) in Nankai University (2018, 2019)
- The Second Prize of National Mathematical Modeling Contest (2019)