DONGJAE LEE

dongjael@mit.edu • dongjaelee1.github.io • github.com/dongjaelee1

SUMMARY

I am currently a PhD student at MIT PDOS. My research interests include verification of computer systems, concurrency, and security. I have research experience with the Coq proof assistant, compiler verification, concurrent program verification, and security.

EDUCATION

Ph.D., Computer Science and Engineering Current
Massachusetts Institute of Technology, Cambridge, MA, USA

M.S., Computer Science and Engineering 02.2024
Seoul National University, Seoul, South Korea

- Advised by Chung-Kil Hur
- Thesis: Operational Semantics for Expressing and Reasoning about Fairness Properties

B.S., Physics, Computer Science and Engineering (Double Major) 08.2021
Seoul National University, Seoul, South Korea

EXPERIENCE

Software Foundations Lab, Seoul National University 03.2024 - 08.2024
Research Assistant: Seoul, South Korea

Max Planck Institute for Security and Privacy 03.2023 - 08.2023
Research Intern: Bochum, Germany

- Advised by Cătălin Hriţcu
- Worked on secure compilation

Software Foundations Lab, Seoul National University 09.2020 - 08.2021
Research Intern: Seoul, South Korea

- Advised by Chung-Kil Hur
- Worked on Conditional Contextual Refinement

ROK Army (Mandatory Military Service) 01.2019 - 08.2020
Sergeant: South Korea

Integrated Quantum Systems Lab, Seoul National University 04.2017 - 08.2017
Research Intern: Seoul, South Korea

- Advised by Dohun Kim
- Worked on NV center qubits, programming and developing devices for experiments

PUBLICATIONS

*equal contribution

Lilo: A Higher-Order, Relational Concurrent Separation Logic for Liveness
Dongjea Lee, Janggun Lee, Taeyoung Yoon, Minki Cho, Jeehoon Kang, Chung-Kil Hur.
International Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA 2025)

Refinement Composition Logic
Youngju Song, **Dongjea Lee**.
International Conference on Functional Programming (ICFP 2024)

SECOMP: Formally Secure Compilation of Compartmentalized C Programs
Jérémy Thibault, Roberto Blanco, **Dongjae Lee**, Sven Argo, Arthur Azevedo de Amorim, Aïna Linn Georges, Cătălin Hriţcu, Andrew Tolmach.
Conference on Computer and Communications Security (CCS 2024)

Stuttering for Free
Minki Cho*, Youngju Song*, **Dongjea Lee**, Lennard Gäher, Derek Dreyer.
International Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA 2023)

Fair Operational Semantics
Dongjae Lee*, Minki Cho*, Jinwoo Kim, Soonwon Moon, Youngju Song, Chung-Kil Hur.
Conference on Programming Language Design and Implementation (PLDI 2023)

Conditional Contextual Refinement
Youngju Song, Minki Cho, **Dongjae Lee**, Chung-Kil Hur, Michael Sammler, Derek Dreyer.
Symposium on Principles of Programming Languages (POPL 2023)

Sequential Reasoning for Optimizing Compilers under Weak Memory Concurrency
Minki Cho*, Sung-Hwan Lee*, **Dongjae Lee**, Chung-Kil Hur, Ori Lahav.
Conference on Programming Language Design and Implementation (PLDI 2022)

HONORS AND AWARDS

Master's Thesis Award 02.2024
Department of Computer Science and Engineering, Seoul National University: Seoul, South Korea

TALKS

Fair Operational Semantics 06.2023
PLDI 2023: Orlando, Florida, United States

Overview of Fair Operational Semantics (as a part of introducing Software Foundations Lab) 02.2023
SIGPL Winter School 2023 (The Korean Institute of Information Scientists and Engineers): Seoul, South Korea

TEACHING

(TA) Topics in Programming Languages (Logic in computer science) 09.2023 - 12.2023
by Makoto Tatsuta: Seoul National University, Graduate level course

(TA) Principles of Programming 09.2022 - 12.2022
by Chung-Kil Hur: Seoul National University, Undergraduate level course

(TA) Principles and Practices of Software Development 03.2022 - 06.2022
by Chung-Kil Hur: Seoul National University, Undergraduate level course

ACTIVITIES

Developing a Coq tutorial for refinement-based verification: https://github.com/dongjaelee1/refinement-tutorial