Yonghyun Kim

Max Planck Institute for Security and Privacy
Universitätsstraße 142
44799 Bochum, Germany

Email: yonghyun.kim@mpi-sp.org

Current Research Topics

Currently, I am interested in researching (1) verified compilers, (2) software formal verification, and (3) property-based testing of security properties.

Research Interests

Compiler Verification; Compiler Optimization; Software Verification; Speculative Execution Defenses; Information Flow Control

Skills

Compiler; Formal Method (Formal Verification); Coq

Positions

2025.3-2025.4 Research Assistant, Seoul National University Institute of Computer Technology
2025.5- Postdoctoral Researcher, Max Planck Institute for Security and Privacy
Supervisor: Cătălin Hriţcu

Education

2017.3-2025.2 Ph.D student, Computer Science and Engineering, Seoul National University
Supervisor: Chung-Kil Hur
2009.2-2016.8 B.S. Student, Computer Science & Mathematical Sciences (double major), KAIST
2007.3-2009.2 Daejeon Science High School

Grants, honors & awards

2009-2013 Republic of Korea Presidential Science Scholarship, Korea Student Aid Foundation.

Publications

Conferences

Archmage and CompCertCast: End-to-End Verification Supporting Integer-Pointer Casting
Yonghyun Kim, Minki Cho, Jaehyung Lee, Jinwoo Kim, Taeyoung Yoon, Youngju Song, Chung-Kil Hur
In Proceedings of the 52nd ACM SIGPLAN Symposium on Principles of Programming Languages (POPL 2025)

VeriRT: An End-To-End Verification Framework for Real-Time Distributed Systems
Yoonseung Kim, Sung-Hwan Lee, Yonghyun Kim, Chung-Kil Hur
In Proceedings of the 52nd ACM SIGPLAN Symposium on Principles of Programming Languages (POPL 2025)

CompCertM: CompCert with C-Assembly Linking and Lightweight Modular Verification
Youngju Song, Minki Cho, Dongjoo Kim, Yonghyun Kim, Jeehoon Kang, Chung-Kil Hur
In Proceedings of the 47th ACM SIGPLAN Symposium on Principles of Programming Languages (POPL 2020).

Crellvm: Verified Credible Compilation for LLVM
Jeehoon Kang, Yoonseung Kim, Youngju Song, Juneyoung Lee, Sanghoon Park, Mark Dongyeon Shin, Yonghyun Kim, Sungkeun Cho, Joonwon Choi, Chung-Kil Hur, Kwangkeun Yi.
(The first three authors contributed equally and are listed alphabetically)
In Proceedings of the 39th annual ACM SIGPLAN conference on Programming Languages Design and Implementation (PLDI 2018).

Books

Software Foundations: Security Foundations
Cătălin Hriţcu and Yonghyun Kim.
Electronic textbook volume, January 2026.

Teaching

TA, Foundations of Programming Languages, Verification, and Security, 2025 Summer (Prof. Cătălin Hriţcu and Prof. Jana Hofmann)

TA, Principles and Practices of Software Development, 2017 Spring, 2018 Spring, 2019 Spring (Prof. Chung-Kil Hur)

TA, Principles of Programming, 2018 Fall, 2019 Fall, 2020 Fall (Prof. Chung-Kil Hur)

Experience

2021.9-2022.8 Student Researcher(Part Time), Google Korea, Host: Jieung Kim

Community Service

AEC, 53rd ACM SIGPLAN Symposium on Principles of Programming Languages (POPL 2026)
PC, 17th Conference on Interactive Theorem Proving (ITP 2026)