Hyunjoon Kim

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Military service: seeking a Technical Research Personnel (석사 전문연구요원) position.

Research Interests

Program analysis and automated testing for programming language specifications and their implementations: static analysis of mechanized specifications, specification-guided test synthesis, and conformance testing of JavaScript engines.

Education

Korea University, M.S. in Computer Science Mar 2025 – Feb 2027 (expected)
PLRG @ Korea University, advised by Prof. Jihyeok Park

Korea University, B.S. in Cyber Defense Mar 2021 – Feb 2025

Research Experience

PLRG @ Korea University Jun 2023 – Present
Graduate Researcher (Mar 2025 – Present); Undergraduate Research Intern (Jun 2023 – Feb 2025)

- **ESMeta.** Extended the type checker of ESMeta, a framework that compiles ECMA-262 into an intermediate representation (IR), and maintained its interpreter, fuzzer, and assertion injector.
- **Specification type analysis.** Contributed to a precise static type analysis of ECMA-262 whose findings led to fixes by TC39.
- **Conformance test synthesis.** Repurposed the type analysis into a test synthesizer that turns the types narrowed at each uncovered branch into constraints on test inputs, with an oracle that checks how engines interact with the generated programs. The tests revealed dozens of previously unknown bugs in major JavaScript engines.

Publications

- 2 papers under review (first and second author) and 1 paper in preparation (first author)
- **JSSpecVis: A JavaScript Language Specification Visualization Tool**
  Minseok Choe*, Kyungho Song*, **Hyunjoon Kim**, Jihyeok Park†
  FSE 2025 Tool Demonstrations, 33rd ACM International Conference on the Foundations of Software Engineering [Paper]

*Equal contribution, †Corresponding author

Open Source

ESMeta 2023 – Present
Member of the maintainer group

JavaScript engines
Reported 100+ conformance bugs, most of them confirmed or fixed
V8, JavaScriptCore, SpiderMonkey, GraalJS, QuickJS-ng, and Moddable XS

ECMA-262 / Test262
Contributed editorial fixes to the specification and new test coverage

Teaching

TA, Theory of Computation (COSE215), Korea University Spring 2025, Spring 2026

TA, Programming Languages (COSE212), Korea University Fall 2025, Fall 2026

Skills

Programming Proficient: Scala · Comfortable: C/C++, Python, OCaml, Go, JavaScript/TypeScript · Familiar: Rust, Lean
AI coding tools Claude Code, Codex (daily use)
Languages Korean (native), English (TOEIC 825, Jun 2026)