JINSEONG JEON

Meta-program enthusiast: programs that input and/or output programs

@ jsjeon@cs.umd.edu ✉ 425 Urban Plz 📍 Kirkland, WA 🌐 jsjeon.github.io 🔗 jsjeon

EXPERIENCE

Tech Lead / Staff Software Engineer
Google

📅 Mar 2023 / Nov 2024 – Present 📍 Kirkland, WA

- *Kotlin compiler at Google*: Leading Kotlin frontend and JVM compiler efforts within Google
  - Spearheaded K2 adoption in Google monorepo
  - Guided Android Studio migration to K2 and K2 IDE plugin
  - Drove tooling migrations: Android Lint and Metalava in AndroidX

Senior Software Engineer
Google

📅 May 2019 – Oct 2024 📍 Kirkland, WA

- *IntelliJ IDEA* (contributions): Designed and built K2 UAST from scratch:
  - Unified AST for Java and Kotlin, backbone of Android Lint
  - Landed to AndroidX: average 1.31x, up to 1.72x faster
  - Adopted by external companies: Meta, Square, and Mozilla
- *Kotlin compiler* (contributions): Contributed to K2, the new Kotlin compiler frontend, end-to-end:
  - Deserialization: to load Kotlin stdlib, other libraries or modules
  - Frontend IR generation (a.k.a. parsing)
  - Resolution: types, declarations, call targets, SAM/`suspend` conversion
  - Static analyses: control-flow / data-flow analysis, diagnostics
  - Conversion to backend IR
  - Serialization: to generate `@Metadata` for reflection

Software Engineer
Google

📅 Feb 2016 – Apr 2019 📍 Kirkland, WA

- *Android Compiler Toolchain*: D8 dexer and R8 shrinker (contributions): Researched; designed; implemented; and deployed optimizations and obfuscations, such as:
  - local type/nullability analysis, call-site optimization (e.g., remove Kotlin intrinsics calls)
  - `StringBuilder` optimization, compile-time reflection simplification, constant/call canonicalization
  - Kotlin `@Metadata` rewriting, identifier string obfuscation, package obfuscation
- *Google Compute Engine*: Sole-tenant nodes, Committed use discounts

Research Assistant
University of Maryland

📅 Jun 2011 – Feb 2016 📍 College Park, MD

- Pasket: *Synthesizing Framework Models for Symbolic Execution*: Researched and developed scalable synthesis of models for object-oriented, event-driven frameworks, such as Android
- *Redexer: Dalvik Bytecode Instrumentation Framework*: Developed a general-purpose bytecode rewriting framework for Android

Software Engineering Intern
Google

📅 May – Aug 2015 📍 Mountain View, CA

- *Espresso Test Recorder*: Designed and prototyped an Android Studio plugin that records user interactions via instrumentation and synthesizes repeatable Espresso test code from the logs

PROUD OF

🏆 **4 Spot bonuses**
Kotlin compiler testing and UAST migration at Google scale

❤️ **18 Peer bonuses**
Helping several partner teams and colleagues; fixing long-standing issues; beefing up tests; etc.

📈 **K2 adoption**
AGP 8.6+ and 1/3 Android Studio users while K2 IDE is not supported yet

SKILLS

- Compiler, Compiler Optimization
- Static Program Analysis
- Program Synthesis
- Automated Software Testing
- JVM Application Performance Optimization

PROGRAMMING LANGUAGES

- Java, Kotlin: Professional Proficiency
- Python, Ruby, OCaml: Working Proficiency
- C#, C++, C, Bash: Basic Working Knowledge

LANGUAGES

- Korean: Native
- English: Professional Proficiency

EDUCATION

Ph. D. in Computer Science
University of Maryland, College Park

📅 Aug 2010 – Feb 2016

M.S. in Computer Science
KAIST

📅 Mar 2005 – Feb 2007

B.S. in Computer Science
KAIST

📅 Mar 2001 – Feb 2005