# Matthew Gharrity

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## EDUCATION

**Cornell University**
Bachelor of Arts, December 2017
Computer Science, *summa cum laude*
GPA 4.12 (4.3 scale)

## COURSEWORK

*Computer Science*
Advanced Systems
Advanced Algorithms
Compilers
Operating Systems
Distributed Computing
Machine Learning
Databases
Parallel Computing
Honors OO Design and Data Structs
Functional Programming

*Informally Audited*
Advanced Programming Languages
Systems Principles

*Math*
Linear Algebra
Multivariable Calculus
Combinatorics
Probability

## MISC

*Tools*
C++, C, Java, Kotlin,
Git, Unix/Bash, LLVM, JVM

*Interests*
Compilers and language tools
Performance and optimization

*Links*
*github.com/gharrma*
*linkedin.com/in/gharrma*

## EXPERIENCE

**Google** | **Senior Software Engineer** 2021 – Present
**Software Engineer** 2018 – 2021

- Tech Lead, Android Studio IDE Platform team, Mountain View, CA
- Areas of focus: IntelliJ Platform; Kotlin IDE plugin; Android Lint (static analysis)
- Joined in 2018 → promoted to L4 in 2019 → promoted to L5 in 2021
- Designed and released *IDE Perf*, an IntelliJ performance analysis tool used at both Google and JetBrains: *github.com/google/ide-perf*
- Gave a talk on Android Lint at Android Dev Summit: *youtu.be/ffH-LD5uP4s*
- Optimized Android Lint performance: *link.medium.com/ppyrkiQEPV*
- Contributed fixes and optimizations in the Kotlin IDE plugin

### Competitive Programming

- ACM-ICPC World Finalist, 2017
- Bloomberg Global CodeCon Finalist, 2017, 2018
- 1st place, Microsoft College Code Competition at Cornell, 2017
- Maintained a code library at *github.com/gharrma/contest-library*

### Research Project | JLang 2016 – 2018

- Paid work with Prof. Andrew Myers while studying at Cornell
- Added an LLVM backend to the Polyglot compiler, supporting ahead-of-time compilation for Java 7
- Co-authored most translations: dynamic dispatch, exceptions, arrays, enums, local classes, etc., and implemented most of the Java Native Interface (JNI)
- Released at *github.com/polyglot-compiler/JLang*

### Google | SWE Intern (x2) Summer 2016, 2017

- Android Studio: shipped a whole-program thread annotation analyzer
- Android Runtime: developed a register allocator that reduced code size by 3%, and identified areas of improvement for the existing allocator

### Course Consultant 2015 – 2016

- Honors Object-Oriented Design and Data Structures (1 semester)
- Operating Systems with Practicum (1 semester)

### iD Tech | Instructor Summer 2015

- Led a Java programming class with eight high school students each week

### Notable Course Projects

- Compilers practicum (A+): translated strongly-typed source to optimized x86
- OS practicum (A+): preemptive threads, UDP, TCP, file system (written in C)
- Distributed systems (A+): Paxos protocol and Bayou protocol (written in C++)