

## Google Internships in Programming Languages, Compilers, Performance/Optimization, and Software Engineering (2023)

Google is looking for great interns and fulltime engineers with backgrounds in programming languages, compilers, optimization, and software engineering!  
Slots do fill very quickly, so please apply soon.

We are leading many active development projects relating to hardware performance/acceleration, Android, Chrome OS, Fuchsia, LLVM, MLIR, Tensorflow, V8, and XLA. We work with a wide range of languages such as C++, JavaScript, Go, Dart, Java, Python, Swift, Rust and we have some great projects in mind. Interns will be exposed to Google's extensive internal developer tools and massive computing infrastructure. Some projects will have a strong emphasis on research and publication, with recent interns submitting to conferences including ASPLOS, CGO, HiPEAC, HPCA, ISCA, MICRO, PLDI, OOPSLA, ICSE, ISSTA, and Supercomputing.

Areas of interest include, but are not limited to:

- Software Developer Diversity and Inclusion
- Performance analysis of large datacenter applications
- Improving performance for x86, ARM (aarch32 and aarch64), GPUs, TPUs, and RISC-V
- Improving security via code sandboxing or hardening
- Compiler transformations and optimizations for machine learning systems
- Code generation for GPUs and hardware accelerators for Machine Learning and image processing (e.g. TPU)
- Sourcetosome automatic differentiation
- Metaprogramming & advanced language features (for Swift and TensorFlow)
- Software correctness and race detection
- Static/dynamic program analyses & fuzzing
- Large scale static analysis
- Machine learning
- Domainspecific languages & compilation
- Autotuning and staged compilation
- Large-scale, automated refactoring
- Application colocation performance studies
- Hardware performance monitoring
- Feedbackdirected optimization
- Profiling tools, perf\_events, Linux perf tool
- Lowoverhead instrumentation
- Type inference, type checking, gradual typing
- Garbage collection and memory management
- Managed runtime optimization
- Power and energy optimizations for the datacenter
- Mining software repositories
- Understanding engineering productivity
- Correlation analysis of software metrics
- Machine learning based filtering and clustering of compiler and tool errors
- Anomaly detection, time series analysis
- Optimizing silicon compiler tools
- Profileguided automatic hardware accelerator extraction
- Performance data visualization

- Performance analysis and optimization of memory allocators

If you are interested, please submit your resume to us [1]. Please be sure to be descriptive in openended questions about skills and preferences; e.g., "Compilers and Performance" (or something specific to your area). We accept applications and host interns year round, but most positions are for summer and begin to fill in October/November, so apply now.

Thanks! We look forward to hearing from you.

[1] <https://careers.google.com/students/engineeringandtechnicalinternships/>

PS: We are looking for fulltime hires too!