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SKILLS

Programming Languages	C++, Python, Haskell, JavaScript, Rust
Frameworks & Tools	LLVM/Clang LibTooling, CMake, Perf, Valgrind, SQLite, pkg-config
Web Technologies	Flask, PostgreSQL, Nginx

PROFESSIONAL EXPERIENCE & PROJECTS

Bloomberg L.P. <i>Software Engineer, Code Governance</i>	Apr 2018 – Present <i>New York City, NY</i>
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Patch Generation Framework	Python
<ul style="list-style-type: none">Created, maintained a tool to help a client base of 5000 Bloomberg developers run our refactoring tool offeringsIntegrated with internal code indexing service to generate on-demand patches from various refactoring presetsAutomated the end-to-end refactoring workflow for clients to ensure productivity and reduce review fatigue	

C++ Legacy Code Migration Tool	C++, LLVM/Clang LibTooling
<ul style="list-style-type: none">Maintained a Clang LibTooling-based tool to replace pointers to shared memory with equivalent function callsAdded features such as static bounds checking and redundant include deletionExposed critical bugs and misuses in a refactoring effort affecting ≈ 2000 legacy projects	

Service for Source Code Intelligence & Indexing	Flask, Python
<ul style="list-style-type: none">Created a pair of RESTful services to store, and retrieve projects and their metadataDesigned an API specification for queries on the metadata associated with these projectsEnabled periodic, background analysis of the entirety of our code base of roughly 13000 projects	

C++ Header Dependency Tracer	C++
<ul style="list-style-type: none">Optimized a tool that parses the <code>#include</code> statements in a C/C++ source file to list header dependenciesCached results by file path to reduce I/O, achieved speed-up of $\approx 2\times$Used <code>perf</code> to profile tool performance, and reduced the number of <code>open</code> syscalls, achieved speed-up of $\approx 6\times$Achieved performance match with <code>gcc</code>, <code>clang</code> for a single file, speeding up linearly in the size of bulk queries	

Cross Platform Symbol Demangler	Flex, C++, LLVM/Clang LibTooling
<ul style="list-style-type: none">Created a tool from scratch to parse mangled C++ names from various non-linux compilers like: <code>xlC</code>, <code>SunStudio</code>Reverse engineered patterns in mangled name generated by target compiler into a <code>flex</code> grammarCreated a comprehensive test suite to document the grammar's propertiesUsed in a large-scale structured code search project to index all of the code base of 13000 projects	

GNU Linker Script Parser	ANTLR4, Python
<ul style="list-style-type: none">Created a parser using ANTLR4 for GNU Linker Scripts to aid in parsing and tracking transitive link-line dependenciesUsed as a base component by tools that validate and fix linker dependency information of every C/C++ project	

University of Florida <i>Research Intern</i>	May 2017 – Dec 2017 <i>Gainesville, FL</i>
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Automatic Terrain Identification	C++, CUDA, gprof
<ul style="list-style-type: none">Responsible for accelerating part of the MPI code base with CUDA kernelsAchieved speed-up for $200\times$, reducing run-time from 65min to 20sec	

EDUCATION

Master of Science, Computer Science University of Florida <i>Coursework: Programming Languages, Analysis of Algorithms, Data Structures, Machine Learning</i>	Aug 2016 – Dec 2017 Gainesville, FL, USA
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Bachelor of Engineering, Electrical and Electronics Engineering Birla Institute of Technology and Science - Pilani <i>Coursework: Analog and Digital VLSI Design, Microelectronic Circuits, Communication Systems</i>	Aug 2010 – May 2014 Pilani, India
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