Vaibhav Yenamandra

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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. **Apr 2018 – Present**
Software Engineer, Code Governance *New York City, NY*

Patch Generation Framework `Python`

- Created, maintained a tool to help a client base of 5000 Bloomberg developers run our refactoring tool offerings
- Integrated with internal code indexing service to generate on-demand patches from various refactoring presets
- Automated the end-to-end refactoring workflow for clients to ensure productivity and reduce review fatigue

C++ Legacy Code Migration Tool `C++, LLVM/Clang LibTooling`

- Maintained a Clang LibTooling-based tool to replace pointers to shared memory with equivalent function calls
- Added features such as static bounds checking and redundant include deletion
- Exposed critical bugs and misuses in a refactoring effort affecting ≈ 2000 legacy projects

Service for Source Code Intelligence & Indexing `Flask, Python`

- Created a pair of RESTful services to store, and retrieve projects and their metadata
- Designed an API specification for queries on the metadata associated with these projects
- Enabled periodic, background analysis of the entirety of our code base of roughly 13000 projects

C++ Header Dependency Tracer `C++`

- Optimized a tool that parses the `#include` statements in a C/C++ source file to list header dependencies
- Cached results by file path to reduce I/O, achieved speed-up of $\approx 2\times$
- Used `perf` to profile tool performance, and reduced the number of `open` syscalls, achieved speed-up of $\approx 6\times$
- Achieved performance match with `gcc, clang` for a single file, speeding up linearly in the size of bulk queries

Cross Platform Symbol Demangler `Flex, C++, LLVM/Clang LibTooling`

- Created a tool from scratch to parse mangled C++ names from various from non-linux compilers like: `xlC, SunStudio`
- Reverse engineered patterns in mangled name generated by target compiler into a `flex` grammar
- Created a comprehensive test suite to document the grammar's properties
- Used in a large-scale structured code search project to index all of the code base of 13000 projects

GNU Linker Script Parser `ANTLR4, Python`

- Created a parser using ANTLR4 for GNU Linker Scripts to aid in parsing and tracking transitive link-line dependencies
- Used as a base component by tools that validate and fix linker dependency information of every C/C++ project

University of Florida **May 2017 – Dec 2017**
Research Intern *Gainesville, FL*

Automatic Terrain Identification `C++, CUDA, gprof`

- Responsible for accelerating part of the MPI code base with CUDA kernels
- Achieved speed-up for $200\times$, reducing run-time from 65min to 20sec

Education

Master of Science, Computer Science **Aug 2016 – Dec 2017**
University of Florida Gainesville, FL, USA
Coursework: Programming Languages, Analysis of Algorithms, Data Structures, Machine Learning

Bachelor of Engineering, Electrical and Electronics Engineering **Aug 2010 – May 2014**
Birla Institute of Technology and Science - Pilani Pilani, India
Coursework: Analog and Digital VLSI Design, Microelectronic Circuits, Communication Systems