

ALEXANDER WILSON

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WORK EXPERIENCE

Software Engineer II, FactSet, London

Aug 2018 - Present

Systems Infrastructure - Database Technologies

- C++/Python: Used profiling driven methodology to improve database disk footprint and cold read performance by up to 5x (5s to 1s), by using bloom filters. Created a low risk deployment plan to ensure smooth release.
- Migrated untested python infrastructure to GitHub adding CI/CD and unit tests.
- Designed and implemented (using TDD) cloud deployed services, automated processes, monitoring, alerting, and tooling to aid in managing databases on the on-prem clusters.
- Evaluation of systems scalability to on-board new clients or provide substantial new features. Organised meetings and worked with multiple teams globally. Profiling/measuring actual performance of systems.
- Regular maintenance of a legacy codebase. E.G. Bugfixes and refactors.

Software Engineer Intern, KAL, Edinburgh

Jun 2017 - Sept 2017

- C++/C#/.NET: Integrated a legacy C++ app with a newer C apps using .NET. Learnt in-house tooling and application architecture. Presented my work to the entire company to kick off the product's next-gen development.

EDUCATION

BSc Computer Science, University of Edinburgh

Sept 2014 - July 2018

Courses of Interest:

1st Class with Honours

Compiling Techniques, Computer Architecture,

Operating Systems, and Elements of Programming Languages.

PROJECTS

Microbenchmarking Intel Knights Landing

Wrote C++ with inline x86 to measure latencies and bandwidths of the different memory components of the multicore processor. Extensive research into computer architecture and compilers.

[WIP] Bootstrapping a C/C++ Compiler

Attempting to bootstrap a C/C++ compiler (Lexing, Parsing, Semantic Analysis, Code Gen) from scratch in order to learn more about C++. Implemented some of my own [standard library](#) classes to aid the project.

llvm-dxr

Docker image that uses Debian with [DXR](#) to index the LLVM codebase and serve the frontend webapp using docker-compose. Future plans to deploy on the public cloud and regularly index the LLVM monorepo.

LLVM Dead Code Elimination Pass

Implemented an LLVM pass to eliminate dead code using liveness analysis as part of a university coursework.

SKILLS/INTERESTS

Languages:

C++ 11/14/17, Python 2/3, C, x86, BASH

Technologies:

Linux, macOS, git, perforce, valgrind, perf, cmake, clang, LLVM, Docker

Misc/Hobbies:

Reported a [bug](#) in LLDB related to runtime-thunks.

Attend C++ London Meetups Regularly and keep up to date with C++ releases.

Teaching myself Piano