Francis Nixon

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Education

Imperial College London

London UK

Bachelor of Engineering in Maths and Computer Science

September 2017 - July 2020

- Expected Upper Second
- Relevant Courses: Advanced Computer Architecture, Compilers, Software Engineering Design

Los Altos High School

Los Altos, CA

High School Diploma

2013 - 2017

Skills

Languages Java, Kotlin, Rust, C, Python, Haskell, LaTeX

Tools Docker, Git, Bash, IntelliJ, Maven

Projects

C++ Autograder with Cambridge Spark

- An industry-university collaboration to develop software which evaluates C++ code quality.
- Worked with 7 other students
- Organised into four 2-week sprints, with continuous feedback from Cambridge Spark
- Relevant Skills: Python, C++, Agile, Docker, Pair Programming, Continuous Integration, Make, CMake

Rust JVM

- Personal project with the goal of creating a working JVM from the ground up.
- Written primarily in Rust and capable of running simple programs, including basic File IO and Reflection.
- Relevant skills: Rust, C, Java Internals, VMs, Shared Libraries, OS Signalling, Multithreading, Concurrency, Java Reflection

Pintos

- Implemented parts of an Operating System, in conjunction with an Operating Systems Course
- Worked with a team of two other students
- I personally implemented the majority of system calls, as well as a scheduler
- Relevant skills: C, Operating Systems, System Calls, Concurrency, Concurrency primitives

WACC Compiler

- Compilers project with 3 other students
- Implemented a compiler for a simple imperative programming language, in Kotlin
- Relevant skills: Kotlin, Java, ARM assembly, Parser Generators, Continuous Integration

ARM Emulator and Assembler

- A four part university project with two other students
- Developed an emulator for a subset of ARM
- Developed an assembler for ARM assembly
- Used aforementioned assembler and emulator to design and test a simple assembly program, which was later run on a Raspberry Pi
- Extended the emulator to cover all ARM instructions.
- Relevant skills: C, ARM assembly, Raspberry Pi, Bare Metal, Make

Intellij DLanguage Plugin

- An open source project to add language support for the D programming Language in Intellij
- Made a number of contributions surrounding parsing and intellisense, as well as debugger integration and built in error reporting
- Relevant Skills: Java, Kotlin, Intellij Plugin API, Gradle

Named Pipe IPC Library

- Personal project, published on Maven-Central
- A Java/Kotlin library for inter-process communication, using unix named pipes
- Relevant skills: Concurrency, Unix pipes, Kotlin, Maven, Maven Jar Deployment, Java