

# Nashe Mncube

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Warwick, UK

## EXPERIENCE

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- **Arm - Software Engineer**

Warwick, UK

- **Arm Forge**

Worked on the Arm Forge suite of tools for debugging HPC applications.

- Was part of the development team working on providing support for Python debugging functionality in Forge.

- Was part of the development team delivering support for CUDA-11 on Arm hardware in Forge.

- Was responsible for delivering support for the NVIDIA HPC compiler v20.9 in Forge.

- **LLVM**

- Was part of the development team working on support for Arm's scalable-vector-extension (SVE2) hardware feature in LLVM.

- Made general improvements and bug-fixes to LLVM and it's suite of tools. Developed technical skills in open source compiler development.

- **Performance Libraries, 5G**

- Worked on the development team for the Arm's 5G performance libraries improving benchmark performance on 5G kernels.

*September 2020 Onwards*

## EDUCATION

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- **MEng Computer Science - 2:1**

University of Bristol

My final year dissertation, graded as 1st class, involved working on the compiler for a research programming language called EasyCrypt. I extended the type system to support type-classes, a concept from type theory. This involved rigorous theoretical work as well as practical application. My subjects of interest were low-level software, computer architecture, high-performance computing and functional programming.

[nasherm.github.io/./diss]

2020

## SKILLS

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- **Technologies**

C, C++17, Haskell, LLVM, Rust, Python, x86-64 assembly, aarch64 assembly, RISC-V

- **Patterns & Practices & Tools**

GDB, Linux OS Internals, Compiler Development, Modern Computer Architecture, Reverse Engineering, High-Performance Computing, Object Oriented Programming, Functional Programming, CI & CD, Jenkins, Ansible, Artifactory, Git

- **Project Management**

Agile, Scrum, Jira

## PROJECTS

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- **Plox & Rox** [Lox Box]

A two fold project in writing compilers. Plox is a compiler in the style of an interpreter for the Lox programming language, written in Python, and Rox is a compiler, written in Rust, based on the bytecode virtual machine approach to compiler design.

*Python, Rust*

- **rustyrisicy** [rustyrisicy]

An open source operating system built in Rust targeting RISC-V cores. This seeks to explore the effectiveness of the RISC-V open-source instruction set as a platform for low-level software development. Currently supports I/O communication, and memory management.

*Rust, RISC-V assembly*