Jonathan Shaw

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Summary

Software and Systems Engineer with 2 years of professional experience in GPU datapath development. Expertise in C++ modelling, CI/CD automation, formal verification strategies and the full life-cycle development of team wide internal Python tooling. Seeking to leverage analytical and problem solving skills to architect and deploy data-driven software solutions for organisations tackling world-critical challenges

Professional Experience

Imagination Technologies - Engineer 2 (HW/SW) Nov 2024 - Present

- Developed C++ models for subprocessor and microtile modules aimed at AI acceleration for our GPU
- Drove formal verification strategies for complex Level Of Detail module; debugging critical edge cases
- Led development and maintenance of Python internal tools across the team; developing a unified framework, automated testing, Jenkins CI/CD, and managing our internal PyPI repository
- Led technical interviews for internship positions

Imagination Technologies – Graduate Datapath Engineer Sep 2023 – Nov 2024

- Developed and deployed critical Python packages for internal use, improving scripting efficiency by >20%
- Led the migration of a legacy Perl codebase to Python, going beyond feature parity with improvements.
- Designed and debugged C++ models of GPU sub-module components. Improvements to standard procedures led to a reduction of up to 8% in verification time.
- Led verification on GPU sub-modules in an Agile team of 12.
- Identified and resolved 2 common mode bugs through additional testing techniques

Imagination Technologies - Datapath Engineer Summer Placement Jul 2022 - Sep 2022

- Researched data storage techniques for the complex arithmetic logic unit (CoALU).
- Implemented wavelet compression algorithm in Python, reducing the area of lookup tables by up to 10%.

Projects - jsh4w.dev

Live Stock Analysis Platform

- Architected and developed a custom full-stack web application with FastAPI backend for handling live stock and news feeds via webscockets, combined with API integrations for accessing portfolios.
- Serverless inference via Modal, Finbert and custom analysis scripts for market sentiment

Rental Property Hunting Programme

- Designed, built, and published a Python package utilising Google APIs, NLP, and Web Search tools to automate data collection and processing.
- Published as SiteToSheet with documentation and automated workflows

Floating Point Multi-Tool https://floatvar.netlify.app/

- Created an optimised web application for variable-width floating-point conversions using HTML, JavaScript, and CSS

Education

University of Cambridge Sep 2019 – 2023

- **MEng** Computer Engineering (Merit) | relevant modules: Statistical Signal Analysis, Software Engineering and Design, Deep Learning and Structured Data, Computer Systems, Strategic Management
- Final year project: Nanotechnology research of molecular devices as alternative transistor technology
- **Bachelor of Arts** Engineering (2.1) | relevant modules: Statistical Signal Processing, Medical Imaging and 3D Computer Graphics, Mathematical Methods, Information Theory & Coding, Modelling risk

Bishop Wordsworth's Grammar School: Sep 2012 - 2019

- **A-levels :** Further mathematics A* (95%), Mathematics A* (97%), Physics A*, Chemistry A*

Technical Skills

Languages: Python (advanced), C++ (intermediate), JavaScript, TCL, SystemVerilog, HTML, CSS, SQL
Tools: Git, Perforce, Jenkins, PyPI, Docker, GitHub, React, FastAPI, DuckDB
Other: Formal Verification, Linux, WebSocket APIs, Agile Methodology

Organisations and Awards

- **Cambridge University Drone Society** (CUDS) - Social Secretary October 2020 - July 2023
- **Magdalene College Boat Club** - Lower Boats Captain October 2020 - July 2021
- **Arkwright Scholar** – sponsored by Stannah Lifts 2017