Will Cashman

Full Stack Go/Python Engineer

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WORK EXPERIENCE

LAE LAE LAE *Software Engineer, Remote*   **Dec 2022 - Sep 2023**

- Developed internal tooling and microservices in Python and Golang on AWS and Kubernetes to increase developer productivity and reliability of the LogScale product.
- Coordinated upgrades of 80,000+ fleet of Ubuntu servers using Python and Ansible, in addition to general Linux administration.
- Spearhead implementation and deployment of better targeted testing procedures in CI/CD.
- Routinely resolved performance bottlenecks to improve efficiency and reduce infrastructure costs.

TikTok *Software Engineer, Shenzhen, CN*   **Aug 2021 - Aug 2022**

- Follow an agile release train to design and develop core CI/CD capabilities for company release platform by building Go and Python microservices and tooling.
- Lead the sucessful integration of a competing internal product. Involving a complete system migration and the development of a bespoke cross platform data migration tool.
- Actively engaged with users to seek feedback and resolve obstacles, resulting in a 85% user retention rate over a couple of months of release.
- Used Python to perform system migrations, automate tasks, and SQL database maintenance.

Countersight *Full Stack Software Engineer, Canberra, AUS*   **Jan 2021 - Jul 2021**

- Lead a team of two engineers using Agile methods to develop a React/NodeJS web app with GitLab and Jenkins for CI/CD.
- Automate deployment and maintenance of company email servers, Zabbix monitoring, and DNS servers using Ansible and Jenkins, and further integrating the services into the ELK stack.

The Australian National University *Workshop Demonstrator, Canberra, AUS*   **2019 - 2020**

- Lead tutor for undergraduate algorithms course. Ensured comprehensive learning experience by leading online forum discussions, designed weekly student workshops as well as course assignments.

CONFERENCES

Maple Conference *Remote*   **2020**

- Rust for developing fast parallelised Computer Algebra Systems
- Demonstrated the suitability of the Rust programming language for implementing complex Computer Algebra systems which prioritise speed without sacrificing extensibility and memory safety.

EDUCATION

MSc in Mathematics and Foundations of Computer Science *Oxford, UK*   **2023 - Present**

- Specialising in Quantum algorithms supported by foundations in category theory.
- Will matriculate in October 2024.

Bachelor of Philosophy - Science *The Australian National University, Australia*   **2017 - 2020**

- Graduated with First Class Honours, GPA 6.5/7, and received Chancellor's Letter of Commendation.
- Specialised in Algorithm design for Computational Algebraic Geometry and Machine learning.

RESEARCH PROJECTS

Honours Thesis *The Australian National University*   **2020**

- A study of the most popular practical and theoretical polynomial multiplication algorithms including the recent Harvey Van der Hoeven integer multiplication algorithm.
- Developed the nPoly open source Rust library for polynomials that implements several of the algorithms studied with a focus on performance.

  `https://github.com/wlcsm/nPoly`

Study and attack of NTRUEncrypt *The Australian National University*   **2019**

- Guided research into the NTRUEncrypt Public Key Encryption system for post-quantum cryptography.
- Implemented the NTRUEncrypt cryptosystem in Python, and developed a lattice-based attack in Magma.

  `https://github.com/wlcsm/NTRU-Python-with-Lat-Attack`

Drum Transcribing Platform *Beijing Institute of Technology*   **2018 - 2019**

- Three weeks of private lectures on the topic of "Internet of Things" given by Beijing Institute of Technology.
- Developed an online platform to automatically transcribe drum compositions in real time and upload the musical score to a remote sever via WIFI.
- Implemented software for micro-controllers to process information from vibration sensors and upload information, as well as full-stack development of a website to process the uploaded information and provide a user interface for clients to interact with their data.

  `https://github.com/wlcsm/Drum_Transcriber_ASC`

REFEREES

Dr Martin Helmer
Associate Professor of Mathematics at North Carolina State University

Role: Honours Supervisor
Email: mhelmer@ncsu.edu

Dr Hanna Kurniawati
Senior Lecturer of Computer Science at the Australian National University

Email: Hanna.Kurniawati@anu.edu.au
Role: Course Convener when demonstrating for Algorithms course

Dr Pierre Portal
Associate Professor of Mathematics at the Australian National University

Email: pierre.portal@anu.edu.au
Role: Supervisor for Fourier Analysis research course