Will Cashman

Oxford MFoCS Candidate, Full Stack Go/Python Engineer

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WORK EXPERIENCE

CrowdStrike *Software Engineer, Remote, AUS* **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.
- Spearheaded implementation and deployment of targeted testing procedures in CI/CD.
- Routinely resolved performance bottlenecks to improve efficiency and reduce infrastructure costs.
- Completed the internal Falcon Ignite program for leadership development.

TikTok *Software Engineer, Shenzhen, CN* **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 successful 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.

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

- Lead tutor for undergraduate algorithms course (C++) and was workshop demonstrator for Concurrency systems (Ada) and Computer Architecture (ARM Assembly) courses.

EDUCATION

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

- Designing an modular optimising compiler for Fusion-Based Quantum Computing with linear emitters.

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.

CONFERENCES

Maple Conference 2020 *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.
  `[Video recording]`

ACCOLADES

1st place in UK NQCC Quantum Computing Hackathon **2024**

- Used Quantinuum and IonQ technologies to strengthen risk aggregation evaluation for insurance losses in case of natural disaster for Mind Foundry and Aioi R&D labs.

RESEARCH PROJECTS

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

- A study of the most practically and asymptotically efficient polynomial multiplication algorithms including the recent Harvey Van der Hoeven integer multiplication algorithm.
  `[Thesis link]`
- 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

Nikhil Chordia
Engineering Leader at CrowdStrike

Role: Manager while working at CrowdStrike
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Dr Hanna Kurniawati
Senior Lecturer of Computer Science at the Australian National University

Role: Course Convener when tutoring Algorithms course
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