

# Will Cashman

Oxford MFoCS Candidate, Full Stack Go/Python Engineer

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## WORK EXPERIENCE

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**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.
- Ensured comprehensive learning experience by leading online forum discussions, and designing weekly student workshops as well as course assignments.

## CONFERENCES

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**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.  
[Video recording]

## EDUCATION

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

- Specialising in Circuit optimisation for Fusion-Based Quantum Computing.
- Assisting the development of the ZXLive tool for interacting with ZX diagrams.

**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

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### **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/wlscsm/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/wlscsm/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/wlscsm/Drum\\_Transcriber\\_ASC](https://github.com/wlscsm/Drum_Transcriber_ASC)

## REFEREES

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### **Dr Martin Helmer**

Associate Professor of Mathematics at North Carolina State University

**Role:** Honours Supervisor

**Email:** [mhelmer@ncsu.edu](mailto:mhelmer@ncsu.edu)

### **Nikhil Chordia**

Engineering Leader at CrowdStrike

**Role:** Manager while working at CrowdStrike

**Phone:** +14246725533

### **Dr Hanna Kurniawati**

Senior Lecturer of Computer Science at the Australian National University

**Role:** Course Convener when tutoring Algorithms course

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