

# Will Cashman

E-mail: [wcashman1351@gmail.com](mailto:wcashman1351@gmail.com)    GitHub: [wlcsn](#)    LinkedIn: [Will Cashman](#)

## RESEARCH PROJECTS

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

- A study of the most popular practical and theoretical polynomial multiplication algorithms.
- Developed the nPoly open source Rust library for polynomials that implements several of the algorithms studied with a focus on performance.

<https://github.com/wlcsn/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/wlcsn/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/wlcsn/Drum\\_Transcriber\\_ASC](https://github.com/wlcsn/Drum_Transcriber_ASC)

## 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.

## EDUCATION

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

- 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.

## WORK EXPERIENCE

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### Software Engineer

*CrowdStrike*

**Nov 2022 - Present**

*Remote*

- Managed infrastructure for the LogScale product as well as internal logs.
- Designed advanced automation workflows and testing to increase developer productivity in LogScale product.
- Coordinate upgrades of entire fleet of machines.
- Developed internal tools to increase developer productivity and increase reliability/robustness of procedures.

### TikTok

*Go Software Engineer*

**Aug. 2021 - Present**

*Shenzhen, CN*

- Follow an agile release train to design and develop core CI/CD capabilities for company release platform in Go.
- Lead the integration of a competing internal product. Perform system integration, developed interactive cross platform data migration tool, and seeked and resolved user issues.
- Actively engaged with users to seek feedback and resolve obstacles, results 85% user retention rate.
- Used Python to perform system migrations, automate repetitive tasks, and SQL database maintenance.

### Countersight

*Full Stack Software Engineer*

**Jan. 2021 - Jul. 2021**

*Canberra, AUS*

- Lead a team of two engineers using Agile methods to develop a React/NodeJS project with GitLab and Jenkins test validation.
- 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*

**2019 - 2020**

*Canberra, AUS*

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

## SKILLS

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- **Technical:** Go, Python, JavaScript (NodeJS/React), Docker, MySQL, Git/GitHub, Rust, Latex, GNU Troff, Bash.
- **Languages:** English - Native, Mandarin - Working proficiency.

## REFEREES

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### 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