# ALEXANDER J KERNOT

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## Education

**The University of Adelaide**                                          **March 2022 – October 2025**
*Bachelor of Science in Computer Science*                                                *Adelaide, SA*

**42 Adelaide**                                                         **March 2022 – August 2025**
*Coding school focusing on learning through completing real projects and collaboration with peers.*        *Adelaide, SA*

## Experience

**Defence and Security Institute – The University of Adelaide**        **November 2024 – February 2025**
*Research Intern*                                                                         *Adelaide, SA*
- Collaborated with the Defence Science and Technology Group to apply Artificial Intelligence methods to Network Criticality Analysis.
- Produced a technical report and presented my findings to academic and defence audiences.
- Developed a polynomial-time approximation of the NP-complete Node Criticality Detection Problem with domain specific constraints, achieving a time complexity of $O(V(V + E))$.

## Volunteer Experience

**SA Country Fire Service**                                             **July 2021 – July 2024**
*Emergency Services Volunteer – Firefighter*                                              *Concordia, SA*
- Trained to work in a high intensity, time critical environment where teamwork and communication are paramount.
- On call to respond to grass and structure fires, medical emergencies, and other natural disasters.
- Completed weekly training drills; practicing leadership and teamwork skills through tailored scenarios.

**42 Adelaide**                                                        **November 2023 – February 2024**
*C coding mentor*                                                                         *Adelaide, SA*
- Mentored 20 new students. Provided assistance integrating into 42 Adelaide and taught course structure.
- Met with students daily in a group environment while also allowing one-on-one communication to gauge progress, answer questions, and help with unfamiliar topics.

## Projects

**Evolutionary Algorithm library** | *Collaborative, Python*            **September 2024**
- Led a team of 6 creating a library which approximates solutions to complex problems with a permutation based representation as part of a University course.
- Followed object-oriented design practices to plan and construct an easily understood, and extendible library.

**Bash shell recreation** | *Collaborative, C* [View Code]             **October 2024**
- Worked collaboratively to create a working shell that handles commands, sub-shells, re-directions, and environment variables.
- Planned and allocated task to team member based on comfort with C, splitting it into 2 distinct parts for development.

## Certifications

**Japanese Language Proficiency Test Level 5 (JLPT N5)**               **December 2024**
*Japan Foundation*                                                                       *Adelaide SA*
- Signifies proficiency in the Japanese language up to a novice level.

## Technical Skills

**Languages**: C & C++ (proficient), Python (intermediate), Java (beginner), HTML & CSS
**Technologies/Frameworks**: Docker, Linux, macOS, GitHub