

JACOB INWALD

Computer Science Student

🌐 coming soon

✉ inwald.jacob@gmail.com

📞 +44 7717386378

🐙 github.com/JacobInwald

📍 London, UK

🌐 /in/jacob-inwald-6b7889268

SUMMARY

I am a Computer Science student at the University of Edinburgh, pursuing cyber security related fields. I have a strong background in programming, with a focus on Python and C, and I have experience in a variety of fields, from image manipulation to network security. My honours project - containerizing CVE exploit-code pairs to address the replication crisis in Cyber Security, has required me to hone skills with Docker, Makefile, Bash and C programming, alongside skilled use of Linux. My courses at University have required me to interact with a breadth of knowledge, from PCAP analysis to melanoma recognition with deep learning, and my achievements at university demonstrate my success. My interests lie in the intersection of computer science and security, with a focus on security research and network security. While I have enjoyed my time at university, pushing the boundaries of my knowledge, *applying* this knowledge to real-life high-stakes scenarios is something I believe I would excel in.

SKILLS

Python	★★★★★
C	★★★★☆
Docker	★★★★☆
Linux	★★★★☆
Haskell	★★★★☆
Pcap Analysis	★★★★☆
Bash	★★★★☆
ML/DL	★★★★☆

EDUCATION

2021 - 2025	BSc (Hons) Computer Science - predicted 1st Modules include: Computer Security, Reasoning and Agents, and Machine Learning	University of Edinburgh
2019 - 2021	Secondary Education 4 A-Levels at grade A* in Mathematics, Further Mathematics, Computer Science, and Physics	JCoSS
2017 - 2019	10 GCSEs at grade A* and A** equivalent	JCoSS

PROJECTS

Security Research	Honours Project - Containerizing Exploits For my honours project, I am working on containerizing CVE exploit-code pairs to investigate gcc's security hardening features. This has required me to do extensive research into security hardening methods, and research a variety of different memory corruption errors in C. As part of this project, I have had to replicate years old security vulnerabilities, often with little documentation. As such, this project has honed my Linux, Dockerfile, C and Bash skills, and taught me a lot about the intricacies of exploits. <code>python</code>	github available on request
Hash Cracking	pwdtools A library of password-related tools, from cracking plaintext passwords to cracking hashes. I also included a GPU-accelerated brute-force password cracker, achieving a rate of 4 billion passwords tested a second. <code>python / metals-framework / Obj-C</code>	github.com
Dynamic Programming	Seam Carving I wrote a program to implement the seam-carving technique defined by Avidan and Shamir (2012). It was interesting to apply the concept of dynamic programming to a concrete example. <code>python</code>	github.com
Classification	Optical Character Recognition - A-Level Project (achieved 98%) I wrote a neural network that achieved 90% accuracy on the MNIST (Modified National Institute of Standards and Technology) character set. To make this a challenge, I did not allow myself to use any external libraries, apart from one for random number generation. <code>python</code>	github.com

EMPLOYMENT

9/2024 - 12/2024	Course Instructor - Introduction to Computation I led tutorials for a first year university course - Introduction to Computation. This course focused on functional programming and computational logic. I taught first year university students how to program in Haskell, as well as marking weekly tutorials and giving feedback and guidance. This required a deep understanding of functional programming in order to teach it at a university level. <code>teaching / functional programming / haskell</code>	University of Edinburgh, Edinburgh EH1
7/2024 - 9/2024	Tech Lead - Cyber Summer Placement I worked in a small group to create an automated threat report generator. This program worked by scraping data from trusted sources, structuring and linking it, and then crafting prompts for a LLM to produce a legible and correct report. As the Tech Lead on the team, I had to work at all levels of the project, but I mainly focused on data collection and linking. An additional part of my role was setting up and organizing our GitHub page to ensure smooth development. <code>management / teamwork / python / OSINT / risk management</code>	AtkinsRéalis, London SW3

7/2023 – 9/2023 **Bartender and Waiter** **Greenmantle, Greenmantle Group, Edinburgh EH8**
I ran a one-man box bar during the Fringe Festival in Edinburgh. This was located directly outside the ZOO playground venue and therefore had many customers. My role was to manage this bar, maintain the correct levels of stock, ensure that the customer experience was as good as possible, to close and open the box bar. This required initiative as well as good management of resources. After the Fringe was over, I worked as a bartender at other pubs part of the Greenmantle Group, which required an ability to adapt quickly to new environments as well the ability to mesh well with new colleagues and co-workers.
management / teamwork / high-pressure

VOLUNTEERING

1/2018 – 7/2018 **Teaching Assistant** **The Castle Climbing Centre, London N4**
I assisted in teaching climbing techniques and safety to children from ages 9-15 every Saturday. This role involved leading warm-ups, creating engaging activities, and managing classes of 6 children to ensure their safety.
teaching

EXPERIENCE

7/2022 – 7/2022 **Work Experience – Software design** **HELIX Centre, Imperial College London, London W2**
I was involved in projects, coding a program to quantify differences between medical guidelines. I had to think critically and learn and adapt to complex tools in a short period, this included becoming proficient with the SNOMED database, made by the NHS.
python / database

2019 **Google Code In** **Google**
I participated in the code-in where I had to complete various tasks for different companies. This ranged from creating boot-up scripts for Fedora to writing a simple zipcracker. This gave me some insight into how open-source projects worked properly.
python / bash / open-source development

AWARDS

2021 **Climbing Wall Instructor Training** **Mountain Training**
I learnt how to teach climbing and safety to new climbers effectively, learning how to lead sessions well.
teaching

2019 **DofE Silver** **Duke of Edinburgh**

HOBBIES

2021 – current **Edinburgh University Climbing Team** **University of Edinburgh**

- Competed in British University Climbing Series 2022, 2023, and 2024 event.
- Competed in National Universities Lead and Speed CLimbing Competition 2023.
- Organized and ran coaching sessions for the Edinburgh University Mountaineering Club

high-pressure performance / team-work / teaching

2019 – 2021 **The Castle Competition Squad** **The Castle Climbing Centre**

- Competed in the national British Mountaineering Club Youth Climbing Series, coming 4th at one event.
- Volunteered as an instructor for the younger classes.

high-pressure performance / team-work / teaching

2013 – current **Guitar and Piano** **Self-Taught**
I have played guitar since I was 10 and taught myself jazz piano over lockdown. I have found comfort in music and take pride in being able to express myself with it.
music