

# Alex Chitham

## Computer Science Graduate / Software Engineer

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### PERSONAL PROFILE

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I am a motivated, conscientious, and focused graduate looking to challenge myself and develop my IT and working skills in a software engineering position. With a solid academic record and a year-long software engineering internship, I've developed a strong IT skill set with a passion for technology. I have an excellent track record of successful teamwork and the ability to learn quickly, and I am therefore confident that I can make an excellent contribution to any team or project.

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### EDUCATION

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2021 – 2025

#### Computer Science BSc with Placement – First Class

[University of Bath](#)

- **Overall Average:** 76%, First Class
- **Final Year Dissertation:** 78%, First Class
  - Implemented two state-of-the-art methods for explaining reinforcement learning agents on an autonomous driving environment in Python.
  - Assessed how effective each method could explain the agent and performed a comprehensive comparison between their outputs.

2014 – 2021

#### A-Levels and GCSEs

[Norton Knatchbull Grammar School](#)

- **A-Level:** Computer Science (A\*), Maths (A\*), Further Maths (A\*), Physics (A\*)
- **GCSE:** Five 9s, three 8s, two 7s, including Maths (9) and English (7)

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### TECHNICAL SKILLS

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- Professional experience using:
  - **C** and the **CMake** build system, used extensively throughout my placement.
  - **Git**, including advanced commands like interactive rebases.
  - **Linux** for software development.
  - **Agile / Scrum** and **Kanban** methodologies, using weekly stand-up meetings and **Jira** boards.
  - **Static analysis** tools to ensure CERT-C and Clang compliance.
- Competent using:
  - Other procedural and OO languages including **Python**, **C++**, **C#**, **Java**.
  - **PyTorch**, **NumPy**, and **OpenAI Gym** to implement and train artificial intelligence agents in Python.
  - **Latex** typesetting for technical report writing.
  - Windows, Mac, and Linux, and Microsoft Office and Google Workspace applications.
- Experience using:
  - **CI / CD** pipelines in GitLab throughout my placement for automated builds and verification.
  - **Docker** to build and run large commercial products with multiple docker files.
  - **Haskell** for functional programming at university.
  - **Unity** and OOP in **C#** to make an animated stealth game with ¾ view.
  - IDEs such as **VS Code**, Android Studio, Eclipse for programming projects.
- In the process of building my own portfolio website from scratch using **HTML** and **CSS**.
- Currently completing a course on **Flutter** and **Dart** on Udemy for app development.

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## EXPERIENCE AND SKILLS

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**2023 – 2024**

### Software Engineering Intern (Year-long Placement)

#### PQShield (Post Quantum Cryptography Specialists)

- Researched Software Bill of Materials (SBOM) to recommend how best PQShield could make them. Learnt about the importance of SBOMs for software security.
- Using C and C#, wrote two APIs to wrap around PQShield's cryptographic software library, to aid with its portability. One was delivered to a client.
- Produced a compatibility demo in C showing two of their products working together. I modified their software development kit (SDK) for secure communication, to offload its cryptographic operations onto their specialised hardware product, that performs accelerated cryptography. I loaded the hardware onto a KV260 FPGA board and the used its API to add it as a new backend compilation option to the SDK, removing the reliance on the software cryptography library. Using docker containers and the Make build system, I added this modified SDK to their existing post-quantum web browsing demo. Been turned into a full product for a key client.
- Implemented a post quantum secure communication protocol, PQNoise, in C, and used a static analyser to comply with CERT-C. Created known answer tests and used the Unity testing framework to thoroughly verify the implementation.
- Gained interview skills by participating in the hiring of new interns. I provided insight from my student experience, CV sifted, questioned candidates during interviews and was involved in the final decision making.

**Summer 2022**

#### The White Lion Pub/Hotel

Serving and waiting on customers helped develop my communication and customer service skills. Busy shifts at weekends taught me how to multi-task under pressure, prioritise and improved my ability to make quick decisions.

**Summer 2021**

#### Work Experience - Secretariat (Forensic Accounting & Investigating Company)

I prepared spreadsheets to model cash flows for potential new projects by examining relevant data. This improved my analytical skills and taught me how to operate within a team in the workplace. I improved Excel record sheets using Microsoft Power Query, gaining an insight into their business systems and processes.

**2021 – Present**

#### Tutoring

I worked for both a local tutoring company for 11+ students, and privately through the Tutor Hunt website teaching A-level Maths. I learnt to communicate effectively in both a group setting and 1-to-1, adapting my methods to suit a pupil's ability and understanding.

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## OTHER INTERESTS

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- I read the TLDR newsletter, a daily email about the biggest tech stories that day.
- A keen tennis player: represented school and Club teams in regional competitions and coached junior players alongside Head Coach.
- I keep physically active: attend the gym, play tennis, badminton, and table tennis.
- A team player: enjoyed Duke of Edinburgh (achieved Bronze and Silver) and National Citizen Service.
- I enjoy meeting new people and socialising in my free time.
- Full clean driving licence.

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## REFERENCES

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**Simon Maytum**  
**Secondary School Maths Teacher**  
Norton Knatchbull School  
SMaytum@nks.kent.sch.uk

**Luke Mather**  
**Mentor during Placement**  
PQShield  
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