PATRICK LEE

Final Year MEng Computer Science Student
Due to Graduate Summer 2024

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SUMMARY

Self-directed and adaptable final year student with a solid background in Computer Science fundamentals, data structures and algorithms, with later specialism in more applied areas such as security, machine learning and computational neuroscience.

Currently looking for a software developer role, particularly at a startup where I can use my skills to really impact an exciting project.

SKILLS

Languages:

C, Javascript/Typescript, Python, PostgreSQL, React Native, Vue JS, PHP, Symfony, C++, Go, Julia

Technologies: AWS, Docker, Git

PROJECTS

PHP, Typecript, PostgreSQL, AWS
QR/Landing Page Management Platform (Independent) **github.com/patrick1ee/keypin-web**
Built both front and back end from the ground up, collborating with a designer using Figma. A company acting as a tester recorded over 700 interactions with their page which they had created using our platform, placing the generated QR codes on some of their product packaging.

Go, Typescript, React Native
Peer-to-peer futures betting app (Independent) **github.com/patrick1ee/slips**
Implemented the front and back end of the platform using the Gin HTTP framework as well as writing unit and integration testing and ensuring database transactions adhere to ACID principles.

C, Python
AES Power Analysis Attacks & Countermeasures (Course) **github.com/patrick1ee/AttackHW**
Developed AES encryption firmware for a micro-controller and created an efficient key recovery attack against it, revising to give a 10x speed increase on the initial version . Implemented succesfull counter-measures for this attack, with consideration of device constraints. I also wrote a specification considering further threats and counter-measures for other functionality required for TLS communication.

Assembly, Python
ROP Shellcode Compiler For Antivirus Evasion (Course) **github.com/patrick1ee/CROPgadget**
Group project in which we successfully built a tool that take certain Shellcodes and compile them into a ROPchain exploit, given binary vulnerable to buffer overflow, bypassing defences such as executable space protection, code signing and ASLR. We wrote a report evaluating our work and presenting research on possible countermeasures.

EDUCATION

9/2020 - present
MEng Computer Science (projected First Class Hons.) **University of Bristol**
Specialising in Security, Machine Learning & Computational Neuroscience/AI

9/2012 - 8/2019
A-Level Maths, Computing, Physics & Further Maths at grades A*AAB **The Grange School**
9 GCSEs at grades A*/9 and 1 at grade 7

EMPLOYMENT

7/2023 – present
Research Assistant & Software Engineer **University of Bristol**

Python, Kotlin
Typescript
React Native

- Successfully added features to experimental neuroscience software and decreased overhead.
- Designed and implemented mobile app which, operated via a UI, uses audio-based hardware to provide stimulation as part of experimental treatment for Dystonia.
- Used patient feedback and data to improve the design and features of this app.

github.com/peafischer/EEGVIBE-dev **github.com/peafischer/stop-dystonia-app**

8/2021 – present **Club/Events DJ** **Truth Tribe Ltd.**
4/2020 – 8/2020 **Warehouse Picker** **Morrisons**
11/2019 – 4/2020 **Ski Instructor** **Vail Resorts**
9/2019 – 11/2019 **Maths Tutor** **Self-employed**
5/2022 – 8/2022 **Front of House** **Brewhouse & Kitchen**
2/2020 – 4/2020 **Security** **Moe Joe's Nightclub**
9/2019 – 11/2019 **Factory Worker** **Robert's Bakery**
4/2017 – 9/2019 **Lifeguard/Instructor** **Manley Mere**

HOBBIES/INTERESTS

I've always been a keen musician, playing both piano and saxophone to grades 5 and 7 respectively. In recent years I've worked as a DJ and event organiser as part of a collective started with friends from University, and this in turn has led to a recent interest in the development and modification of both music production software and hardware. This tied in well with my third year group project in which building a drum MIDI controller was a key aspect.

I also enjoy all things fitness related, from my captaincy of the rowing team during school and expeditions as part of the Duke of Edinburgh award to mountaineering and ski touring, developed from my time spent teaching skiing in Whistler.