ANGUS M. F. PARSONSON

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EDUCATION

Bristol University: Computer Science (MEng) 2017-2021

- Year Three: achieved **first-class honours** overall, including Machine Learning (81%), Cryptography (78%), Computer Vision (78%), Computational Neuroscience (72%), Computer Graphics (82%) and acted as team leader for a VR games project
- Year Two: achieved **first-class honours** overall, including in Statistics, Number and Group Theory, Software Product Engineering and Computer Science in Society
- Year One: achieved **first-class honours** in Haskell Programming, Computer Architecture, Databases and Cloud Concepts and Algorithms. Overall result 2:1.

Secondary School 2012-2017

- A2 Levels: **Mathematics(A*)**, **Further Mathematics(A*)**, **Physics(A)**, **Chemistry(A)**
- EPQ (dissertation): **"How close are we to Artificial General Intelligence?"(A)**

TECHNICAL SKILLS

- C, Java, C#, XC, Python and Haskell: knowledgeable in efficient software design and abstract data types.
- C++: good understanding of a wide range of design patterns and concepts.
- HTML, CSS, SQL and Node.js: experience in web development
- Swift and Firebase: simple app and database development
- Other: Linux, Git, GDB, Ceph, Unity, Maya

WORK EXPERIENCE

Qualcomm, Cambridge Summer 2020

- Completed a project over the course of 13 weeks to improve Qualcomm's current android development workflow. Using a combination of Ceph, Kubernetes, Python and C - I was able to decrease the time it takes for an Android Developer (there were 1200 such developers at Qualcomm) to work on a project from 20+ hours to less than a minute. The new system was designed using copy-on-write technology, so storage space needed for their projects was also decreased (references available from mentor and manager on request).

CyberFirst bursary scheme - Academy, Cheltenham Summer 2019

- Awarded £6500 a year CyberFirst bursary (Government and industry backed Cyber Security initiative, currently still enrolled) in April 2018. Attended the Academy to develop skills in Cyber Security to prepare for industry. The course included but was not limited to: PC hardware, Operating Systems, Internet/WWW, Network technologies and security, IoT devices and security, Penetration testing, Security controls, Digital footprints and forensics, Malware analysis and CTF building/challenges (reference available from trainer on request).

Freelance web development (Global Beer Shop) September 2018 - June 2019

- In team of four, conceptualised and built an e-commerce website for a craft beer company. Completed using Spring, HTML, CSS and SQL. Implemented an agile development strategy and kept consistent contact with client for feedback and instruction.

Undo Ltd, Cambridge (www.undo.io) Summer 2018

- Worked at an Angel and VC-funded software business specialising in reverse-debugging from July to September. This entailed writing technical articles for the website and for publication on behalf of the CEO, giving technical advice to clients on the product, website maintenance and Marketing (reference available from the CEO on request).

RELEVANT TECHNICAL PROJECTS

Multiplayer virtual reality naval battle survival game

Was the team leader of 6 in a third year university games project. Technologies used included Oculus Rifts, Unity networking for multiplayer game modes both over LAN and the internet, responsive voice controls and a custom-built ship wheel controller. Art was created in Maya and the game was programmed in C# with Unity.

3D graphics renderer

Using SDL and GLM libraries in C++, built a 3D raytrace, rasterize and wireframe renderer from scratch and produced three short animated films. Features included glass and mirror materials, Phong shading, Gouraud shading, Wu line anti-aliasing, camera movement, perspective corrected texture mapping, plane culling, diffuse lighting and super sampling anti-aliasing.

Kernel for ARM 32bit Cortex-A8 processor

Used POSIX for general architecture and implemented an age-based priority scheduling algorithm to run user processes. Completed using C.

Dartboard detection algorithm - computer vision

In a team of two, created a piece of software to detect dartboards in an image. The techniques used included Sobel and Canny edge detection, Viola Jones object detection and our own custom implementations of the Circle Hough transform, the regular Hough transform and a weighted mean clustering algorithm. Completed using C++.

Implementation of AES-128 on external development board

Implemented AES-128 using limited processing power and memory (incorporating trade-offs such as calculating s-box rather than using a lookup table). Also executed a malicious key-recovery attack by using a PicoScope to acquire power consumption traces from the development board.

Phishing website generator

Together with two colleagues, completed a project which generates an exact replica of a website after a user inputs a url. The UI also contains a browser to compare to the real website and allows the user to edit the HTML to include a malicious download or to collect login details from a victim. We were able to present to various industry partners and to other fellow students at the end of the CyberFirst academy. The GUI was coded in Java using JavaFX and FXML (MVC design pattern), the back end in Python using BeautifulSoup.

IOS Promotion App

Created an app to connect club promoters with clubs as (personal project, not released to the App Store). The user database was created using Firebase.

HOBBIES AND INTERESTS

- *Organisational and leadership roles include:*
  - Golf, Journalism and Computer Science society at University
  - School teams for Rugby, Cricket, Hockey and 1st team Golf
  - Competed in numerous University Hackathons
- *Other interests include:*
  - Sailing (qualified level 4), Chess, Skiing, Tennis, Downhill Mountain Biking, Hiking
  - Clarinet (6 years)