

Samuel Jake Broughton

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Work Experience

Academic Assistant, The University of Sheffield (Sept 2019 - June 2020)

Helping first year students in their Web and Internet Technology lab classes by answering queries relating to HTML5, CSS3 and Javascript. Also student note taker for the Disability and Dyslexia Support Service.

Industrial Placement Trainee, HSBC Digital Hong Kong (Sept 2018 - July 2019)

I sought the opportunity to work abroad in Hong Kong to develop myself as a person and provide me with the industry experience that will aid my final year of studies at university and future career. It enabled me to put my academic knowledge from university into practice in an international, real-world application.

Projects / experience gained includes:

- Use of AWS S3 Buckets and Google Cloud Platform Compute Engine, App Engine and Storage Buckets.
- Creating computer vision models using CNNs built off of Resnet architecture and image augmentation techniques with help from libraries such as Pytorch and Fastai.
- Independently building an e-signature capture solution for Hong Kong and Asian markets in React. Estimated to be released before 2020 and to be included as an HSBC global component.
- Use of Haskell programming language and grammars to produce a dataset for NLP intent recognition for benchmarking an internal solution against certain cloud provider solutions.
- Using the Spring Framework for the creation of restful APIs and specifically Spring Integration for the handling of internal processes.
- Agile methodology and frameworks such as Scrum.

sambroughton.com (Sept 2017 - Present)

- **spidfier.com** - design and implementation
- **benchwrite.com** - design and implementation
- **matthardydrums.com** - design and implementation
- **markbroughtonsound.com** - design and implementation
- **AMBS Logo** - design

Education

BSc. (Hons) Artificial Intelligence and Computer Science with a Year in Industry, University of Sheffield (Sept 2016 - June 2020)

University of Sheffield modules cover wide aspects of Computer Science with a working style incorporating both individual and team work. In my final year I taking the opportunity to present at the British Conference of Undergraduate Research and am working towards a publication for Interspeech 2020. Also a member of the High Performance Computing group.

- **Final year (2019 - 20):**
 - Dissertation Project: Non-Parallel Conditional Generative Adversarial Neural Networks for Voice Conversion.
 - Currently taking: Cognitive and Biomimetic Robotics, Adaptive Intelligence, The Intelligent Web and Software Reengineering.
 - Speech Processing: covering both the biological mark-up of speech and signal processing. Pure Data programming language to create a speech mixer.
 - Text Processing: creation of an Information Retrieval system, also covered Sentiment Analysis, NER, Information Extraction, Relation Extraction and Text Compression.
 - IOT: use of Arduino and Espressif development frameworks for projects making use of OTA and sensor input. Programming C, C++ on ESP32 and the unPhone.
 - Finance and Law for Engineers: covering Contract, IP, Tort and Environmental Law and financial and management accounting.
- **Third year (2018 - 19):**
 - On placement with HSBC Digital Hong Kong.
- **Second year (2017 - 18):**
 - Advanced Programming Topics: functional programming through use of the Haskell programming language and algorithm completeness proofs.
 - Bio-Inspired Computing and Robotics: python used to supplement a Game of Life project to model the propagation of a forest fire near a fictitious town.

- Software Hut: agile methodology helped our team create an IT booking system for our client, the University's Education Department. Framework used was Ruby on Rails.
- Data Driven Computing: using python to improve the accuracy of an OCR system through implementing PCA and the K-Nearest Neighbour algorithm.
- Human Centred System Design: covering the accessibility of a system its UML representation. Java Swing used to create a fictitious dental practice appointment booking system.
- "Engineering You're Hired" challenge gave me insight into working on real world problems with engineers from a multitude of disciplines.
- **First year (2016 - 17):**
 - Modules: Introduction to Software Engineering, Foundations of Computer Science, Java Programming, Machines and Intelligence, Web and Internet Technology, Introduction to Algorithms and Data Structures and Discovering Psychology.
 - Skills learned: Java programming, Ruby programming, SQL, HTML5, CSS3, Scrum framework, search algorithms such as Breadth-First and various version of A*.

Individual Learning

- Completed - "Machine Learning A-Z™: Hands-On Python In Data Science"
- Completed - "Scrum Certification Prep + Scrum Master + Agile Scrum Training"
- In Progress - "fast.ai course v3, Practical Deep Learning for Coders v3"

Gosforth Academy, Newcastle (Sept 2011 - June 2016)

A Levels: Maths (A), Computing (A), Music (A)

GCSE's: 5A*s, 7A's including English (A*) and Maths (A)

Additional Experience

Squash Coaching, Newcastle and Sheffield (Sept 2014 - Present)

Being a certified England Squash Club Coach allows me to run group sessions for people of all ages. My coaching experience is mostly with children from ages as young as 5 to 17. In my second year of university I signed up to be a Social Squash Sports Leader, which involved teaching university beginner students.

President, University of Sheffield Squash Club (June 2019 - June 2020)

As President of the University of Sheffield Squash Club, I am responsible for the entire running and organisation of the club, committee and our 100+ members. In this position, I am the main link between the University, Fulwood Squash Club and the University Squash Club. It is a highly demanding job that requires dedication throughout the entire year and my high attention to detail, organisation and leadership skills are vital for the ongoing success of the club.

Social Secretary, University of Sheffield Squash Club (June 2017 - June 2018)

Being a Social Secretary on the University of Sheffield Squash Club Committee involved the organisation and delivery of social events and being responsible for money collected from event ticket sales. As a member of the committee, I contributed to group decisions as to how the club is run and portrays itself.

Interests and Achievements

ABRSM Qualifications

Grade 8 with distinction in Piano.

Grade 6 with merit in Clarinet.

Grade 5 with merit in Music Theory.

Charity

Ran the Great North Run in 2015 for the

Make A Wish Foundation and in 2016

and 2017 for St Oswald's Hospice.

Sporting Achievements, Squash

Member of a team in the top division of the Sheffield and District league; a member of the Fulwood first team in the Yorkshire league and the University of Sheffield first team which was promoted to the premiership division for the 2017 academic year. In 2018/19 I was involved with squash teams in Hong Kong. Formerly 2nd in the under-19 Northumbria Squash County.

References

Prof. Roger Moore

Chair of Spoken Language Processing

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