Tom Brereton

BEng(Civil Engineering), MSc(Computer Science)

☎ +4474 9003 0044
@ admin@thomasbrereton.com

https://github.com/tombrereton
https://uk.linkedin.com/in/tbrereton
http://thomasbrereton.com

Academic Details

MSc Computer Science, University of Birmingham, 2017

Machine Learning, Intelligent Data Analysis, Data Structures, Databases, Operating Systems & Networks, Software Engineering, Human-Computer Interaction, Evaluation Methods & Statistics, Desired thesis topic: machine learning, semantic analysis of text

BEng Civil & Structural (Honours), University of Adelaide, 2013

Mathematics IA, Mathematics IB, Engineering Mathematics II, Engineering Modelling Analysis II, Engineering Modelling Analaysis III, Water Engineering IV (covered genetic algorithms)

Experience

► **Junior Developer (Must Race Ltd)** (August 2016 - present)

- Must Race Ltd has built a web application that lets you find and book any endurance event in UK.
- I assist with both the front and back end of the website which is written in Typescript using the Angular2 framework and Node.js. I am currently building the 'mailer' api, which automates the processing of standard emails such as event confirmation.
- For the mailer api, I use object oriented programming (in Typescript) to inject dynamic user data into html formatted emails using the embedded javascipt (EJS) templating system.
- We practice test driven development (TDD) to test the email rendering and provide small incremental goals for writing the software. I use the Typescript libraries; Chai and Cheerio, to write the tests.

Projects (Skills)

► Robotics (Python, C++, Computer Vision)

- A member of the university robotics club, where we compete in the international Eurobot competition.
- Whilst I am a recent member, I plan to spend most of my time programming the robots computer vision on a raspberry pi.

► Web Scraper (Python, Vim, XPath)

- Built a web scraper using the Python Scrapy framework.
- This scraper pulled down prices of any item off gumtree and outputted the data in JSON format.
- I also learnt about robot.txt legislations so the scraping was kept to a minimum

► University Java Workshop (Java, object oriented design, IntelliJ IDEA, data structures, algorithms, concurrent programming, network communication)

- In this intensive Java workshop spanning over 2 semesters we learn object oriented design and programming, concurrent programming using threads, network communication via sockets, unit testing, GUI classes, and data structures and algorithm implementation.

► Machine Learning Projects (Matlab, supervised learning, classification, dimensionality reduction)

- In this course we implement machine learning algorithms in Matlab.
- To name one project, I used linear regression by least squares to find the polynomial function of order **n** which best fit some data.
- The model was generalised using the λ value to prevent over fitting.
- I also used 10-fold cross-validation to choose the "best" order **n**.

► Statistics Projects (R, Rstudio, statistics)

- In this course, we use RStudio to perform statistical analysis and investigation via graphical representation of data.

[**Other skills**] LaTeX(This CV is was done in LaTeX)

Experience Continued

► **Design Engineer (Robert Bird Group)** (July 2015 - August 2016)

- Robert Bird Group is an international civil, structural, and specialist construction engineering consultancy. I was in the structures team and worked on the projects of 100 Bishopsgate, One Leadenhall, and Central House.
- Specialised in steel member design and footfall analysis
- Mentored graduates and interns in structural design and footfall analysis.
- Was a key member of an exceptional team (size varied from 15 to 25) for the 100 Bishopsgate project. The detailed design took over a year to complete so culture fit was important.
- Founded the "Digital Design Department" at RBG, which, among many things, reduced design time by improving data communication between CAD models and structural analysis programs. This meant a weeks worth of work could be done in a matter of hours.
- A task I worked on involved developing an Excel spreadsheet with VBA scripts to analyse differential axial shortening of columns - this spreadsheet parsed the construction programme and enabled the user to view the axial shortening of each column at any stage of construction due to the varied loading

► **Graduate Engineer (FMG Engineering)** (December 2013 - June 2015)

- FMG Engineering is a structural, forensic, civil and environmental engineering consultancy. Whilst there, I specialised in commercial, remedial and residential design.

► **Customer Service Officer (Engineers Australia)** (May 2012 - November 2013)

- Worked in a customer service role answering queries regarding the process of chartered status for engineers and also assisting with administration of these applications.

Interests

► Reading

- I am an avid reader of Reddit and Hacker News. Topics that interest me include machine learning, new technology, Internet of Things, data science, science, and interesting posts on the subreddit "Explainlikeimfive"

► Snowboarding

- I am a snow enthusiast and have snowboarded for most of my life. My family and I regularly travelled to Falls Creek in Australia but also went to Whistler in Canada. Next trip, France or Japan!

► Muay Thai Boxing

- I enjoy physical and mental challanges so I recently joined the university Muay Thai Boxing club.

► Travelling

- I have the travel bug and enjoy experiencing new places. I backpacked throughout South America and Vietnam with friends. I also travelled to New Zealand, Indonesia, Germany, Italy, Spain, Iceland, and want explore the rest of Europe and North America.

About Me

I enjoy learning the ins and outs of tools I use for programming and I'm continually improving my mastery of R Studio, Vim, and IntelliJ IDEA to make producing and navigating code quicker and more enjoyable.

I read and research about new technology and relish opportunities to try them out, especially if they help with automating my work-flow.

References

References provided upon request.