Adam Kirchel

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Education

University of Bath **MEng (Hons) Mechanical engineering (5 year sandwich)** **2017 - 2022**

First Year Average: 85.5% **Second Year Average: 79.8%**

Relevant Module Results:

Mathematics 1	92%	Mathematics 2	91%
Solid Mechanics 1	93%	Solid Mechanics 2	87%
Thermodynamics	98%	Design, Materials and Manufacture 2	83%
Design, Materials and Manufacture 1	74%	Modelling Techniques	89%
Systems and Control	88%	Instrumentation, Electronics and Electrical Drives	89%

King Edward VI Grammar School, Chelmsford, Essex **2010 - 2017**

A-levels: 5 (A*-A): Maths, Physics, Chemistry, Further Maths, Art 2015 - 2017
GCSEs: 12 A*s, including Maths, Physics and French 2013 - 2015
Other qualifications: A* EPQ (Aeronautical Engineering) 2015 - 2017

Experience

QinetiQ, Cody Technology Park, Farnborough **2019-2020**

Currently, I am working at the global defence firm QinetiQ as an industrial placement engineer. My role involves designing, manufacturing and testing novel technologies. Given a problem, I conceptualise solutions and create technical drawings using SolidEdge CAD software. I am asked to perform manufacturing tasks in the workshop involving equipment such as the CNC router or band saw. I use software such as MATLAB and Python to process and interpret data, for example when a batch of products fails to comply with standards. This involves computing statistical models, using Pandas and visual data packages. I have made several GUIs to make computing data easier and more accessible to our workforce. After conducting analysis, I present my findings via a report or presentation and seek suggestions on what action to take next.

Project Work

Django and PyQT5 Financial Application

I completed a 3-week long project creating the front and back end of a financial website application using the website framework Django. The front end was developed using HTML, CSS and JavaScript, while the backend was developed using Python and a SQLite database. The website is able to register multiple users, and allow them to analyse and track multiple investments over time using regularly updated datasets of the FTSE 100 and its component companies. A GUI was designed that would be able to accomplish similar objectives using PyQT5, however lacked the user interaction.

Aeronautical Ceramic Tile Modelling

This project aimed to model the temperature variated through the thickness of a spacecraft heat shield tile, and provide an accurate value of the ideal thickness using MATLAB. This involved solving a Partial Differential Equation

numerically with the Crank-Nicolson algorithm, and implementing Neuman boundaries. The optimum thickness was found using the shooting method.

Data Analysis using Machine Learning

From a large database of user inputs collected by a dating website, it was investigated whether the sex of a user could be predicted by using multiple machine learning techniques. For this task I used Random Forests and Logistical Regression to perform a supervised classification, that gave an accuracy of 87.3%. I also classified the users' written answers using a Naïve-Bayes classifier.

Tennis Serve Simulator

This task involved creating a program that would be able to simulate the trajectory of a tennis serve given a set of user-generated inputs. This problem consisted of performing the shooting method in 3D space and using the Runge-Kutta method to solve the Ordinary Differential Equation derived from the flight of the ball. It also incorporated a bot that was would attempt to return the serve.

Employment/Volunteering

Personal Tutor, Chelmsford **2017 – 2018**
I am currently self-employed as a tutor of maths, physics and chemistry. I tutor up to A-level in each subject, which needs a great understanding of the syllabus. I find this job rewarding as I help students to achieve their individual goals.

Lock Fyne, Chelmsford **2017**
I worked as a runner at the restaurant chain Loch Fyne. This involved clearing tables and dealing with customer complaints. The overall experience helped me develop my interpersonal skills. Furthermore, as this job was in a fast-paced environment I have learnt to deal with multiple tasks under significant pressure.

Peer Mentor, University of Bath **2018-2019**
I volunteered alongside a group of young individuals to raise money for the charity Kids Inspire. We raised money for this great cause through bucket donations and organising a charity pub quiz night.

Computer skills

CAD – Competent in Autodesk Fusion, Autodesk Inventor, SolidEdge and Hypermesh, which I have used at university and in the workplace.
Microsoft – Highly competent in Word, PowerPoint and Excel. I have used these in University presentations and in several lab reports.
Programming Languages – Competent in Java, Python, CSS, HTML, SQL and MATLAB.

Personal interests

Sports - I play tennis, squash and table tennis regularly, competing in local team and league events. I was also on the University tennis committee 2018-2019, with my role as recreational coordinator involving managing groups of up to 50 people at recreational sessions. I am also a keen runner, specialising in 5K events, and attend regular yoga sessions.
The Arts –I draw in my spare time, having a wide preference of subjects, from mechanical elements in cars to animals. Also, I enjoy watching films and am an avid fan of recent and classic cinematography.
Coding – I am regularly setting myself new code-based challenges. I have completed projects on machine learning and natural language processing using Python to name a few.
Entrepreneurship – I frequently read about new and upcoming business strategies with the hope of running my own business one day. I have just finished reading "The Lean Startup" by Eric Ries which details the lean method of operating a company, which is taking the world of technology by storm.