**Joshua Waters**

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**Key Skills**

* **Programming Languages**: MATLAB, Python, Arduino, C, C++, C#, HTML, JavaScript, CSS, and SQL.
* **Other Technical Skills and Tools:** MySQL, MongoDB, Bug testing, Agile Development, Rapid Application Development, GitHub, Trello, Object-Oriented Programming, Simulink, AutoDesk Fusion, SolidWorks, LABVIEW, Unity.
* **Soft Skills**: Effective communication, teamworking, report writing, problem-solving, creative thinking, attention to detail, multi-tasking, working well under pressure, good punctuality, and excellent time management skills.

**Profile**

A highly motivated graduate in Automatic Control and Systems Engineering from the University of Sheffield, with a passion for software engineering. Seeking a challenging role as a graduate software engineer to leverage a solid foundation in programming languages and technical skills. Eager to contribute a diverse skillset and passion to drive success in a dynamic company.

**Education**

**The University of Sheffield (2017 – 2022) – Bachelors/BEng**

**Automatic Control and Systems Engineering - 2:1 with honours**

Studying Mechatronics and robotic engineering has allowed the development of a broad range of skills including team working, report writing and communication skills through group project work, research assignments and oral presentations.

* Dissertation - ‘Sparse Data Injection in Cyber-Physical Systems,’ an individual project in understanding the dangers that sparse data injection attacks present for important systems. Achieved high marks displaying excellent written communication and project management skills, along with an ability to meet strict deadlines, and learn novel concepts quickly.
* First year:
  + Intro to systems engineering and software - Acquired foundational knowledge in systems engineering and software, gaining an understanding of basic principles and concepts. Acquired foundational knowledge in C programming language. Various projects demonstrating ability to use C and work within a team.
  + Systems engineering maths - Established a strong mathematical foundation for systems analysis and applied mathematical concepts to solve engineering problems.
  + Modelling, analysis, and control - Explored various techniques for system modelling and analysis and acquired fundamental knowledge of control systems principles. Introduction to MATLAB through project work to simulate and analyse system dynamics.
  + Physical Systems - Acquired foundational knowledge in physical systems based on real-world case studies reinforcing modelling and analysis work.
  + Digital and Embedded Systems - Acquired foundational knowledge to embedded systems, gaining fundamentals in core knowledge of ‘how hardware works.’
  + Introduction to Electric and Electronic Circuits - Acquired knowledge of electric and electronic circuit fundamentals, applying circuit analysis techniques to solve engineering problems.
  + Global Engineering Challenge” – Worked as part of a team to develop affordable internet coverage for poorer areas such as Kibera in Nairobi, Africa. Led the team to make sure everything was completed on time and that a strong final pitch was delivered. Achieved this by delegating tasks amongst the team so we were all working in an area of strength. Valuable experience gained working in a multidisciplinary team.
* Second year:
  + Control systems design and analysis - Delved into advanced control system design techniques and analysed and optimized control systems for engineering applications. Gaining a solid theoretical foundation for understanding feedback control, system analysis, design, and application.
  + Mechatronics - Explored the integration of mechanical and electronic systems. Gained hands-on experience in designing, building and programming mechatronic systems. Project work demonstrating ability to design using 2D and 3D CAD, build and programme in Arduino.
  + Signals, systems, and communications - Fundamentals learnt to analyse and solve complex communication problems and evaluate technological constraints.
  + Systems Engineering and object-oriented programming - Expanding on systems engineering knowledge, understanding the systems engineering lifecycle (requirements capture, architecture definition, sub-system design and testing, integration, implementation, and validation). Group project work solidified project management skills, as well as build on UML/SysML requirements, utilising C++ to build on object-oriented programming.
  + Systems engineering maths II – Furthered mathematical foundation in system simulation and data-based modelling covering a variety of high level analytical mathematical techniques.
  + Engineering Mechanics – Acquired the fundamental in mechanical engineering and applied concepts to analyse and design engineering systems.
  + “Engineering You’re Hired” – Developed a swift and precise farming solution utilising swarm robotics, utilising my creativity and enhanced my teamworking, communication and problem-solving skills as we were required to deliver solution-oriented results within a tight deadline.
* Third year:
  + State-Space Control Design - Advanced control system design using state-space methods, applying sophisticated control techniques to complex multivariable engineering systems.
  + Digital Signal Processing; Acquired fundamentals in digital processing techniques, including sampling and analysis of digital signals in both discrete and continuous time. Frequency-domain analysis utilising MATLAB to gain an understanding of digital signals.
  + Intelligent systems – Gained an understanding of Fuzzy Systems and the interesting synergy between Fuzzy Systems and Artificial Neural Networks (ANN).
  + Space systems engineering – Gained engineering principles specific to space systems, analysing the challenges and solutions in space engineering.
  + Robotics – Developed expertise in robotic systems design and control. Additional hands-on experience in modelling, simulating, building, and programming robots.
  + Hardware-in-the-loop and rapid control prototyping – Gained hands-on experience of designing and implementing advanced controllers upon a challenging, real-world control problem. Learnt how to interface control hardware to LABVIEW industry standard software using a data-acquisition device, developed simulation models with MATLAB and Simulink. Rapid control prototyping used to refine the resultant controller.
  + Biomechatronics - Integrated principles of biomechanics and electronics exploring the application of mechatronic systems in biomedical engineering. Designed medical devices that integrated with the human body.
  + Machine Learning – Key foundational knowledge acquired of elements of machine learning gaining an understanding of multiple different algorithmic approaches and learning strategies. Python and MATLAB used in practical implementation of different machine learning methods.
  + Finance and Law for Engineers – Fundamentals of financial and legal risks within engineering in industrial environments, skills acquired include financial management, risk management and understanding of various legal issues such as environmental regulation, liability, and negligence.
* Social secretary for CardSoc committee – Attended regular committee meetings, collected feedback from peers, presenting these to other committee members to negotiate solutions and areas for improvement. Responsible for organising the socials at the card gaming society within the University, ensuring that all the society members were happy and safe during social activities. Responsibilities in addition to studies improved organisational skills and ability to prioritise heavy workloads.

**Sir John Lawes, Harpenden (2010 – 2017)**

* A Levels: Maths (A)­­, Physics (B) Computing (B)
* GCSE: 11 GCSEs (grades A\* - B), including Maths (A\*) and English (B)
* Free-Standing Mathematics Qualification (FSMQ): Additional maths (B)

**Career Summary / Work experience**

**Bar One / Foundry at Students’ Union, Sheffield (part-time, 2021 - present):**

* Effective time management required to balance over 18 hours a week working the job and studies to keep excellent grades.
* Working in a busy, high-pressure environment, demonstrated ability to work fast and perform well under pressure/stress, balancing customers, and other duties, to ensure a swift service whilst maintaining exceptionally high standards. Number 2 top taker of the academic year 2021/2022 in foundry.
* Liasing with other staff members to ensure a smooth high quality of service, demonstrating good teamworking skills.
* Shown leadership skills and responsibility that surpassed expectations, asked to fulfil managerial duties at times (train new staff fully, manage some of the nightclub bars)

**Stagedoor Harpenden (part time, 2016-19):**

* Soley managed the business for an extended period, showcasing a high level of trust from the owner. Applied financial management skills to ensure efficient business performance.
* Demonstrated strong organisational in coordinating various aspects of business activities and interpersonal skills while managing customer interactions and addressing their needs.
* Gained firsthand experience in customer sales, enhancing customer service skills, and utilizing point-of-sale systems effectively.
* Conducted stocktaking and efficiently managed stock lists, demonstrating attention to detail.
* Successfully managed the process of recalling and documenting stock, showcasing further meticulous organisational skills.
* Displayed intuition and a rapid learning curve, adapting quickly to new tasks and responsibilities.

**Harpenden Town Council (work experience, 2014):**

* Proficient in essential software tools, including word processing, databases, and spreadsheets. Applied data analysis skills to interpret and present information effectively.
* Demonstrated creativity through shop-front photography for the council's records, highlighting an eye for detail.
* Rapidly acquired proficiency in software for creating a traffic management plan, illustrating a quick grasp of technical tools.
* Successfully created and printed a traffic management plan, displaying the ability to work with specialized software.

**Voluntary Work**

**Charity fundraising:**

* Successfully raised over £600 for Keech Hospice. Applied effective fundraising strategies and demonstrated strong commitment to charitable causes, excellent teamworking skills and adaptability to unknowns.
* Organized and participated in the "Miles for Mental Health" initiative, contributing to the raising of over £100 for Rethink. Demonstrated dedication to mental health advocacy through active involvement in fundraising activities.

**Cancer Research:**

* Acquired new skills in using equipment, showcasing a proactive approach to learning, and adapting to new technologies.
* Demonstrated the ability to quickly learn and apply technical skills in a dynamic environment.
* Effectively collaborated with team members, emphasising strong interpersonal and teamwork skills.

**Hobbies & Interests**

• Indoor rock climbing / Bouldering • Model making

• Guitar / Music making • Hiking / Walking and running

• Photography • Programming