Tom Aston

www.tomaston.dev
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tomaston96

Skills Summary

- **Languages:** JavaScript, TypeScript, Python, Java, C++, HTML, CSS, MATLAB
- **Frameworks:** React, Redux, Node, Spring Boot, Pandas, Plotly, NumPy, Matplotlib, Tkinter
- **Tools:** Amazon Web Services (AWS), Lambda, DynamoDB, S3, CloudFormation, API Gateway, CloudFront, Power BI, Power Apps, Power Automate, Postman, Figma, Wireshark, GitLab CI, GitHub Actions, PostgreSQL, MySQL, DOORS, Nmap, Wireshark, GitHub, GitLab
- **Platforms:** Visual Studio Code, IntelliJ IDEA, Jupyter Notebooks
- **Design:** Scalable Systems, Cloud Architecture, Serverless, Data Structures & Algorithms, Object Oriented Programming

Professional Experience

Associate Software Engineer, Siemens Mobility UK – Rolling Stock September 2023 – Present

London, UK

- Full stack development of Siemens' *AMA Cloud* internal Engineering Asset Management platform from scratch utilising AWS serverless architecture (Lambda, DynamoDB, S3, CloudFormation) and React with TypeScript. Migrated 1500+ users from the legacy Citrix application to new serverless platform and reduced monthly application costs by 12x by going serverless.
- Working in an Agile team of engineers in the continued development of alternative traction (battery) simulation software used for new fleet bids (OOP with Python). Implemented CI pipelines with GitLab CI and improved speed of simulations by 10x by introducing threading and optimising algorithms.
- Producing software requirements for the brake controller in novel £1M braking performance modification across UK fleets. Leading communications with the client and suppliers during the design process.
- Cybersecurity assurance for OT applications by performing the role of PSSE (Product Security Engineer) and worked on-board network security tool (*SCENT*) developed in C++.

Graduate Engineer, Siemens Mobility UK October 2021 – September 2023

London, UK

Two-year graduate programme consisting of placements within Siemens Mobility UK, including Digital Services and Central Engineering.

- Won *Star of the Future 2023* and *Leading with Integrity* awards on completion of the graduate scheme.
- Developing cloud-based web application using Amazon Web Services & React (Redux, ChartJS, Bootstrap).
- Greenfield development of novel train simulation tool in Python (TK, Pandas, Matplotlib, NumPy) used for viability studies in £5bn new fleet bids. I saved the Engineering department £37k/year in 3rd party simulation costs by developing this internally during a 3-month placement. Received the *Mark Duell Innovation Award* in recognition.
- Business intelligence tool development (including a timesheet system) and reporting using MS Power Platform (Power Apps, Power Automate, Power BI). Weekly resource presentations to higher management.
- Automation of business processes including creating a Python file system crawler for extracting safety related data from internal drives and comparing it to new incidents using NLP (Spacy).

Education

MSc Electrical Engineering, University of Nottingham September 2020 – September 2021

- *MSc Course Prize* awarded for student achieving the highest overall academic performance (82%).
- Thesis based on the development of a model-based performance software in MATLAB for the electric powertrain of a Formula Student race car.

BEng Mechanical Engineering, University of Nottingham September 2017 – September 2020

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Training & Certifications

- AWS Certified Developer – Associate
- Certified OT Cybersecurity Technical Expert TÜV
- APM Project Management Fundamentals Qualification
- Chartered Management Institute (CMI) Level 5 Award in Management & Leadership

Recent Personal Projects

Exchange Traded Fund (ETF) Tracker (WIP) Java, Spring Boot, ReactJS

- Web application for tracking ETF stock price data and ETF profiling using Alpha Vantage free tier API.
- Backend Rest APIs developed with Spring Boot using layered MVC architecture – JDBC and RestTemplate.
- JUnit, Mockito and Spring Boot Test used for unit and integration testing.
- Frontend developed in React (TypeScript) with Redux for state management.

UK Electric Vehicle (EV) Charging Infrastructure Analysis Conference Paper Python, Pandas, Plotly, Jupyter

- Worked with a PhD from Siemens Mind Sphere Analytics Centre to analyse and forecast the uptake of EV's in the UK based on geographical location. The study utilised infrastructure, government grant and current EV registration data from the Department for Transport (DfT).
- Facebooks' Prophet time-series linear regression library for forecasting uptake by County in the next 5-years.
- Charging point Geo-JSON data used to visualise current and future distribution of charging infrastructure in the UK using choropleth mapping in Plotly.