

JOSHUA COLES

Full-stack Developer

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WHO AM I?

Software Development is a profession and a hobby. I have been working on personal projects, and in a business context for over 10 years across a range of problems and technologies. I see the specific technologies as secondary to understanding the organisational context of the problem, not standing in the way of the correct solution. My recent work surrounding AI has shown me its use in solving otherwise intractable problems and providing insight into unstructured data and I am excited to explore its further applications in life and business.



EXPERIENCE

Academic Year 2023/24	Final Year Project, AI Applications in Lagrangian Physics My project has been on the applications of AI techniques to physical problems, specifically Lagrangian Mechanics. My work has focused on the building and testing of loss functions for the model based on the underlying physics. JAX / Numpy / Flax / Tensorflow / Python	University of Bath
Summer 2023	AI Developer Worked to establish feasibility and applicability of AI to the main product of the business. The work mainly revolved around adapting the product to use a vector databases, building RAG pipelines, among other features. Langchain / Weaviate / Python	Amphora
2022 – 2023 part time	Software Developer After the end of my placement I was kept on to assist with the next phase of product development and solution design. This involved evaluating different cloud solutions and adapting our existing work to be cloud native.	Office for National Statistics
2021 – 2022 placement year	Software Developer For my placement I joined a team working on software for processing the results of the 2021 Census. We first took over the ownership and maintenance responsibility of contracted code, following which I developed key tools for debugging and observability in sensitive production environments, in addition to overhauling the test architecture of the application. Later, when we re-engaged the contracting firm, I took a leading role as release manager for the product and was heavily involved in requirements gathering for the new features This placement year gave me an appreciation for how the interpersonal aspects of successful team are crucial for the overall success of a project. This was especially important when interfacing with the business side of the organisation on the direction of the project. React / Express / Jest / Cypress / Redis / SQL / Postgres / HBase / Cloudera / Jenkins / Docker / Typescript / Javascript / Linux / Microservices / Agile / Scrum	Office for National Statistics
2017 – 2021 Holidays & Part time	Software Developer This involved exploration and investigation of new technologies on an individual basis to assess product worthiness. Reporting back to supervisor on state of the area, possible uses, and providing minimal viable product for further development. This included execution and delivery of medium sized software projects, deployed both as MVPs and production software, working individually and as a member team, across a range of technologies. Several projects were deployed to production and are still in use. SAML / Ruby on Rails / Groovy / Java / Ruby	Amphora

Ongoing Personal Projects

My personal projects of late mostly surround data analysis, data pipelines and warehouses to provide insight into my own life. A history of these is available on my GitHub or personal gitea.
Rust / CI/CD / Postgres / Caddy / Docker / System administration of internet connected servers

EDUCATION

2019 – 2024	MSc Mathematics and Physics Expected classification: 2:1	University of Bath
Graudating 2019	Prior Qualifications, Graduating 2019 4 A Levels: A* Maths, A Further Maths, A Physics, A Chemistry GCSEs: 1 A* with distinction, 8 A's, 2 A's, 1 B. Including A* with distinction in Further Maths, A's in Maths, Sciences, English and Computing.	Reading Blue Coat Scheool

ADDITIONAL QUALIFICATIONS AND TRAINING

Better Conversations Clean Language Course — 2020
ISO9001 and ISO27001 training — 2018

INTERESTS

Long distance running, politics and governance and the applications of technology therein.

REFERENCES

Employment Reference	Mathew Cooke Director of Operations, Amphora Research Systems Email: mathewc@amphora-research.com Contact Number: +44 1344 28863 Address: Molly Millars Lane, Unit 6, Wokingham, RG4
Charater Reference	Steve Gibbard Line manager while at Office for National Statistics Email: steve.gibbard@ons.gov.uk
Academic Reference	David Tsang Project Supervisor Email: dcwt21@bath.ac.uk