RICHARD SOMERS

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PERSONAL SUMMARY

I am a post graduate researcher with professional experience in an agile environment as well as working with a variety of technologies. I bring enthusiasm and determination to my projects allowing me to perform efficiently and develop new skills. My multidisciplinary background of both programming and research has allowed for a more independent approach as well as providing more experience in collaborative environments.

EDUCATION

PhD Computer Science, University of Sheffield *2021 - Present*

- Development of a testing technique for typically 'un-testable' systems using a combination of meta-heuristic search, inference-based surrogate modelling and bias-reducing causal inference statistical techniques.
- Particular interest in Artificial Pancreas Systems and Automated Driving Systems due to their intricate modelling and human interaction making traditional testing near impossible.
- Exploration into current cyber-physical system and digital twin testing technologies.
- Collaboration with AMRC engineers and NHS consultants for a multidisciplinary approach.
- Research publications on the testing of cyber-physical systems and the devised novel testing approach.

BSc Computer Science with a Year in Industry, University of Sheffield *2017 - 2021*
Degree Classification: 1st Class Honours

- Gained experience in Software development, Agile workflows and customer interaction.
- Developed skills in problem solving and critical thinking through algorithms and logic modules.
- Explored more abstract computing concepts such as utilising the GPU and server clusters.

DEVELOPMENT EXPERIENCE

Legacy Code Extractor *Dissertation Project (2020-21)*

- Explored legacy code to determine how code may lie dormant in large software projects.
- Developed a VS Code Extension to scan and report local code which is unused within a project.
- Expanded the original project to be able to integrate with SCM, allowing for remote analysis of code bases.
- Provided skills in TypeScript, VS Code extension API, asynchronous execution and interpreting complex data structures such as Abstract Syntax Trees.

CICS Regression Tester *IBM Internship (2019-20)*

- Responsible for maintaining IBM CICS regression java tests using an in-house testing tool.
- Development of an interface into CICS statistics utilities to simplify testing, hide complexity and protect testers from common pitfalls using the technology.
- Education from Master the Mainframe Part 2 and Part 3 providing knowledge of Z/OS and ISPF.

Galasa *IBM Internship (2019-20)*

- Open Source Hybrid Integration Testing Automation Framework.
- Developed skills in Java, Maven, Docker, K8s, TypeScript, MongoDB, VS Code extension API.
- Experience gained in Pair Programming and Agile methodologies.
- Developed testing interfaces into a wide variety of technologies such as Z/OS, Selenium and JMeter.
- Designed and implemented a modular Gherkin test interpretation framework and executor.
- Organised, curated and presented demos to external customers.

TECHNICAL SKILLS

Programming Languages	Java, Python, JavaScript, TypeScript, SQL, C#, Ruby
Tools & Software	Unix CLI, Git CLI, Maven, NodeJS, Docker, Kubernetes, Z/OS, CICS, Jenkins, MongoDB, Elasticsearch, VS Code Extension Development, LaTeX

PUBLICATIONS

Reliable counterparts: efficiently testing causal relationships in digital twins. *October 2022*
https://doi.org/10.1145/3550356.3561589

Digital-twin-based testing for cyber-physical systems: A systematic literature review. *April 2023*
https://doi.org/10.1016/j.infsof.2022.107145

Explainable modelling of type 1 diabetes to understand artificial pancreas system behaviour. *December 2023*
Under peer review

EMPLOYMENT

Post Graduate Researcher, CITCoM Project, University of Sheffield *2021 - Present*
Investigation into developing a testing technique for un-testable cyber-physical systems

University Teaching Assistant *2020 - Present*
Introduction to Java, Mathematical Foundations of Computer Science, Software Reengineering

IBM Placement Student *2019 - 2020*
CICS Testing Team and The Galasa Project

TRANSFERABLE SKILLS

University of Sheffield Ice Skating Society

- Enthusiastic ice skater from the age of 7 with involvement in ice Hockey and Speed skating.
- Active member of ice skating society since starting university.
- Social Secretary: planned rink hires, social events and active communication with the students' union.
- President: delegated tasks among an enthusiastic team and running a sporting society during COVID-19. This included organising online meetups to promote and grow our community, as well as communication with the ice rink to ensure members have the option to skate during the reopening.

IBM Speakers Workshop

- Organised a fortnightly speakers workshop aimed at younger employees.
- Provided a space for young professionals at IBM to practice presentations to their peers.
- Focused on giving feedback to improve presentation skills and build confidence of the attendees.

Smarter Schools Programme

- Designed and presented design-thinking workshops for year 8 school children.
- Covered sustainability and creative problem solving through the environmental theme.
- Provided skills in forward planning, presenting and teamwork.

REFERENCES

Available on request