

# RICHARD SOMERS

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## PERSONAL SUMMARY

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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

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### **BSc Computer Science with a Year in Industry, University of Sheffield**

*2017 - 2021*

*Degree Classification: 1<sup>st</sup> 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

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### **Testing Cyber-Physical Systems**

*Research Project (2021-22)*

- Development of a testing technique for typically 'un-testable' systems
- Exploration into current cyber-physical system and digital twin testing technologies
- Collaboration with mechanical and control systems engineers to gain a multidisciplinary approach
- Research publications on the testing of cyber-physical systems and a devised novel testing approach

### **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
- Provided 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

### **Itch.io Game Jams**

*Personal Projects (Ongoing)*

- Learning the Godot game engine from scratch as well as its native scripting language
- Developed skills in creativity and challenging myself with unique game themes and tough time constraints

## TECHNICAL SKILLS

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

## PUBLICATIONS

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**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>

## EMPLOYMENT

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**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

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### **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