**Project Supervisor Biographies**

This document is intended to support you in selecting an appropriate Supervisor for your RSPI Project Proposal and Honours’ Project.

Below you will find biographies from potential supervisors which will give you some insight into their research interests. You should read these carefully and use the information to begin to develop your own project ideas.

Once you have an idea and have formulated a Research Question or Problem Statement, you can discuss this with potential supervisors at the ‘Find a Project Supervisor’ workshop.

Supervisors are limited in their capacity to supervise projects and so it is recommended that, once you develop your idea, you identify more than one potential supervisor from the list below. Remember that the bios below are an overview and supervisors are highly likely to supervise projects related to their fields even if the exact topic your project focuses on isn’t listed in their bio.

1. **Pete Barrie –** [**peter.barrie@gcu.ac.uk**](mailto:peter.barrie@gcu.ac.uk)

Pete Barrie has interests in Internet of Things, Real-Time Systems, Embedded Systems/Electronics, Cloud Computing, Data-related applications, Pervasive Computing and Application Development generally. Pete has industrial as well as academic experience in these areas. Speak to Pete about projects in areas like:

* Applications utilizing sensors and sensor hardware (such as Raspberry Pi, Arduino…)
* Application development using Cloud Services
* Internet of Things applications
* Natural language systems (Chatbots, Voice Interaction, Text Analysis)
* Your own innovative ideas that need software/hardware solutions

1. **Dawn Carmichael –** [**dawn.carmichael@gcu.ac.uk**](mailto:dawn.carmichael@gcu.ac.uk)

Dr Dawn Carmichael has a PhD in Software Engineering and Data Analytics.  Dawn has led two major research projects; the first concerned with developing web apps for educational technology and the second with developing social media, web apps and social games for young carers.  Speak to Dawn about Data Analytics, Web & Mobile Apps, Learning Analytics and Educational Technology in project areas such as:

* Data Analytics in Social Media – extracting value from data and creating visualisations
* Data Visualisation – analysing data and developing effective graphical visualisations
* Learning analytics – adding value for the student and developing an app
* UX/UI Interactivity – finding a context then developing and evaluating UI patterns and widgets
* Anti-cyberbullying - analysing the problem and developing a solution
* Educational Games and Gamification – finding a context and developing a solution
* Your own Educational Technology project

1. **Fiona Fairlie – [f.fairlie@gcu.ac.uk](mailto:f.fairlie@gcu.ac.uk)**

Fiona Fairlie is a Senior Fellow of The Higher Education Academy with a particular interest in using Computer technologies to enable innovative approaches to teaching and learning. She has taught in secondary school, further education, adult education and higher education. Currently working on the development of transnational education programmes in Mauritius and Oman, previous projects have concentrated on the area of enhancing feedback to student through the use of technology. Other research interests include working in the area of Human Computer Interaction/ mobile interaction design. Fiona is interested in supervising projects in areas such as:

* interaction design with particular reference to web and mobile systems
* client-side web development
* mobile interface development
* teaching and learning with digital technologies

1. **Martin Gallacher –** [**martin.gallacher@gcu.ac.uk**](mailto:martin.gallacher@gcu.ac.uk)

Martin Gallacher has been lecturing since 1985 and has taught a wide range of subjects focusing on Software Development. He is interested in supervising Software Development projects, particularly, in the areas noted below, but will consider virtually any topic a student is passionate about.

* Web Applications
* Mobile Applications
* Database Applications
* Functional Programming

1. **Brian Hainey –** [**brian.hainey@gcu.ac.uk**](mailto:brian.hainey@gcu.ac.uk)

Brian Hainey has an MSc in Digital Techniques, over a decade of experience working in industry and over quarter of a century of experience working in academia.

Speak to Brian about Software Engineering Projects in areas like:

* Cloud Computing
* Software Development for Enterprise Systems
* Business Process and Software Systems Modelling
* Microservice and API Development
* Platforms, Frameworks and Patterns
* DevOps, Agile and DAD
* Jakarta EE, Tom EE, WildFly, Websphere Liberty, Power Apps

1. **Katrin Hartmann –** [**katrin.hartmann@gcu.ac.uk**](mailto:katrin.hartmann@gcu.ac.uk)

Katrin Hartmann has an MSc in Computing with Business. Her interests lie in software development with an emphasis on the web platform. Previously Katrin has worked on the MANTCHI (Metropolitan Area Networked Teaching in Computer-Human Interaction) project, developed a web-based interview training application for Business students and has worked collaboratively with local industry on projects including the development of a domain-specific search engine and on middleware integration.

Katrin is interested in Honours topic proposals focussing on web application development issues, including:

* the application of new APIs, e.g. Progressive Web Applications,
* the implementation of specific web applications, such as quizzes,
* web analytics,
* benchmarking, esp. application performance comparison and
* software to support learning and the analysis of such data.

Preferred languages:

Java, JavaScript (Node.js), client-side languages (HTML, CSS, JavaScript).

Previously supervised Honours projects have focussed on:

the performance of Java Lambda expressions, performance implications of Exception handling in Java, cold start performance, implementation of web-based quizzes, Progressive Web Applications (PWA) for various domains, including learner support, travel, online voting and offline applications.

1. **Richard Holden –** [**richard.holden@gcu.ac.uk**](mailto:richard.holden@gcu.ac.uk)

Dr Richard Holden has a BSc in the Social Sciences and postgraduate degrees (MSc, PhD) in Computational Intelligence. He has worked within industry (e.g., BTexact, Systems Biologica, Cognia EU) as a research engineer and software developer, developing nature-inspired (e.g., neural nets, evolutionary optimization, agent-based modelling) software solutions for real-world problems. Speak to Richard if you are interested in:

* Pedestrian movement modelling to help simulate Covid-19 spread in Glasgow
* Software to aid strategic planning in light of long-term climate scenarios
* The development of software for the generation of automated music
* Use of AI for parameter selection in ‘creative’ design (music, art etc.)
* Use of Artificial Life in ‘creative’ programming (music, art etc.)
* Implementations of any nature-inspired algorithms in any language for any purpose

1. **Mark Jenkins –** [**mark.jenkins@gcu.ac.uk**](mailto:mark.jenkins@gcu.ac.uk)

Dr Mark Jenkins has a BSc Hons in Mechatronics and a PhD in Computer Vision and Machine Learning Techniques for Visual Object Tracking. Mark spent several years in industry where he focused on Computer Vision and Machine Learning based solutions to Structural Condition Monitoring problems. Speak to Mark about Computer Vision and Artificial Intelligence projects in areas like:

* AI for Climate Change Impact in Developing Countries
* AI Systems to play Video Games
* AI and Computer Vision to analyse images
* Automated Vehicle Navigation
* Target Tracking in Videos
* Your own Computer Vision and Machine Learning Projects

1. **Iain Lambie** [**ila@gcu.ac.uk**](mailto:ila@gcu.ac.uk)

Iain Lambie has a BSc Hons in Mathematical Sciences and an MSc in Software Engineering. Industrial experience was primarily in the area of writing software for simulators for the operation of Nuclear and Fossil Fuel Power Stations. Speak to Iain about projects on the topics of the Internet of Things and Mobile Application Development.

Areas of interest include:

* Use of Sensor based systems using Raspberry Pis
* Use of Mobile applications

1. **Bobby Law –** [**robert.law@gcu.ac.uk**](mailto:robert.law@gcu.ac.uk)

Bobby Law has a BA Hons in Computing. Bobby spent several years in industry where he focused on software development for a variety of business and industrial applications. Speak to Bobby about Programming projects in areas like:

* Mobile Development – NFC, GPS, Bluetooth
* Web Development
* Raspberry Pi - IoT, Home automation etc.
* Augmented Reality
* Your own programming project ideas

1. **Mike Mannion –** [**m.a.g.mannion@gcu.ac.uk**](mailto:m.a.g.mannion@gcu.ac.uk)

Professor Mike Mannion gained his first degree in Computer Science from Brunel University, and went on to graduate with an MBA from the Open University and a PhD in Artificial Intelligence from the University of Bristol. After several years working as a software developer, Mike took up the roles of Lecturer & Senior Lecturer at Edinburgh Napier University from 1992 to 2000. He joined GCU in 2000 as Head of the Department of Computing and subsequently became Dean of the School 2002--2008. From 2008-2016 he was a University Vice-Principal covering three different portfolios. He has successfully supervised more than 10 PhD students across a range of topics in software engineering, network management and artificial intelligence.

Project Interests:

* Automated translation of software requirements into software design artefacts
* Software product similarity matching
* Self-explaining systems
* Higher-Order AI Applications that combine knowledge representation techniques e.g. semantic networks, neural networks, rules
* Immersive technology for online shopping
* Automated translation of music into colour
* Spiritual robots

1. **Gordon Morison –** [**gordon.morison@gcu.ac.uk**](mailto:gordon.morison@gcu.ac.uk)

Professor Gordon Morison has a BEng(Hons) in Electrical and Electronic Engineering and a PhD in Signal and Image Processing. He has industrial experience as an Embedded Systems Software Engineer. His research interests are in Machine Learning, Computer Vision, Image Processing, Affective Computing, Embedded Systems, Internet of Things and Data Science. Speak to Gordon about projects in areas such as:

* Web platform for Data Commons for the Common Good
* Classifying faults in Structures using Machine Learning
* Combining AR and VR for Structural Monitoring
* Affective Computing
* Tackling Industry 4.0 Problems with Raspberry Pis
* Data Science for Finance
* Blockchain Technologies for Supply Chain Problems
* Object tracking and strategy monitoring for improved football metric based coaching
* Point cloud processing pipeline development
* Heart rate from video methods
* AI based methods to tackle climate challenges
* Blockchain for Healthcare Applications
* Your own Machine Learning based Projects

1. **Jim Paterson –** [**james.paterson@gcu.ac.uk**](mailto:james.paterson@gcu.ac.uk)

Dr Jim Paterson has expertise in Software Engineering, Web Development and Data Engineering, and publishes in the area of Computer Science Education Research. He has a BSc Hons and PhD in Physics and has worked previously as a research physicist and a software engineer. Speak to Jim about projects in areas such as:

* Streaming Data Analytics
* NoSQL Database Applications
* Real-Time Web Applications
* Service-Based Architectures and APIs
* Software Tools for CS Education

1. **Brian Shields –** [**brian.shields@gcu.ac.uk**](mailto:brian.shields@gcu.ac.uk)

Brian Shields has a BSc Hons in Computer Science. Brian spent several years in industry as a Software Engineer. At GCU, Brian has taught a wide range of modules. Speak to Brian about projects that will involve Mobile/Web/ Database development:

* Advanced use of web based technologies
* Advanced use of mobile based technologies
* Advanced use of database technologies

1. **Hua Tianfield –** [**h.tianfield@gcu.ac.uk**](mailto:h.tianfield@gcu.ac.uk)

Hua’s research areas include Data Science, and Digital Health. He would be keen to support students exploring Hons projects around the following topics:

* Federated learning / deep learning for healthcare, e.g., medical diagnosis, wellbeing
* Federated learning / deep learning in edge computing
* Privacy preserving: data anonymisation / attribute-based encryption in healthcare
* Privacy preserving: data anonymisation / attribute-based encryption in edge computing
* Blockchain: distributed ledger / smart contract in healthcare
* Blockchain: distributed ledger / smart contract in edge computing

1. **Yan Zhang –** [**yan.zhang@gcu.ac.uk**](mailto:yan.zhang@gcu.ac.uk)

Dr Yan Zhang has a PhD in Computing Science. She worked as a Research Associate in the University of Manchester and the University of Hull before joined the Department of Computing at Glasgow Caledonian University as a Lecture. Her research interests include Machine Learning, Big Data Analytics, Data Integration, Streaming Data, Cloud Computing and Bioinformatics. Speak to Yan about projects in areas such as:

* Natural Language Processing based projects (e.g. Chatbot, Sentiment Analysis)
* Data Science for Healthcare
* Smart system for mental health assessment
* Data integration
* NoSQL database
* Image data analysis
* Your own Data Analysis or Machine Learning based projects

1. **Jacob Koenig –** [**jacob.konig2@gcu.ac.uk**](mailto:jacob.konig2@gcu.ac.uk)

Jacob Koenig has a BSc in Business Informatics and an MSc in Big Data Technologies. He has previously worked in the industry as a full stack web developer before starting a PhD in machine learning for structural condition monitoring. His research interests are machine learning, computer vision and big data. Speak to Jacob about projects in areas such as:

* AI for structural fault detection
* Neural networks
* AI for computer vision applications (automated driving, image analysis)
* Your own Computer Vision and Machine Learning Projects