Computationally intelligent data handling algorithms are crucial in a wide range of sectors that require fast and automated decision-making. This specialist option of the MSc Computational and Software Techniques in Engineering has been developed to deliver qualified engineers to the highest standard with a solid base of computer science skills and focused expertise.

You will be able to develop fast algorithms capable of dealing with a range of complex problems where intelligent decision-making or future predictions are based on understanding of data collections. Focus on enabling technologies aspects, high performance and cloud computing, and algorithm development related to machine learning and data analytics.

Course structure
The course consists of core modules, including a group design project, plus an individual research project.

Individual project
The individual research allows you to develop specialist skills by taking the theory from the taught modules and combining it with practical application. The research project gives you the opportunity to produce a detailed piece of work either in close collaboration with industry, or on a particular topic which you are passionate about.

Group project
This aims to provide you with invaluable experience of delivering a project within an industry structured team. The project allows you to develop a range of skills including learning how to establish team member roles and responsibilities, project management, delivering technical presentations, and working with members who have a variety of backgrounds and experience.

Future career
There is a strong industry demand for talented individuals with expertise in engineering software development and technical programming skills in industry standard languages and tools. In this environment, where demand for the high calibre skills provided by this programme is outstripping supply, our graduates are in demand, internationally and across multiple industries and sectors. We receive many enquiries from industries such as aerospace, automotive, defence, financial and manufacturing during the programme, seeking to recruit our students on completion.

Example modules
Modules are delivered via a combination of lectures, tutorial sessions and computer-based workshops.

Compulsory:
- C++ Programming, 
- Management for Technology, 
- Small-scale Parallel Programming, 
- Cloud Computing, 
- High Performance Technical Computing, 
- Advanced Java and Advanced Python, 
- Machine Learning and Big Data, 
- Artificial Intelligence, 
- Internet of Things.

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*option is subject to University approval