Project topics AY 2016/2017

In the following, you find ideas for project topics that academic staff of the School of Computing and Engineering are offering. The topics come from the experience and research of the lecturers and are meant to stimulate discussion between you and the prospective supervisor. You obviously need to work out more details to make it into a project proposal, but the ideas give you a starting point. Please, also make sure to look at the staff profiles at <http://www.uwl.ac.uk/academic-schools/computing/staff> and learn more about your lecturers' research interests.

When you find a topic of interest, contact the respective staff member and make an appointment. Don't forget that you have to have decided on a topic and submitted your project proposal by 16 October.

Prof Thomas Roth-Berghofer and Dr Elahe Kani-Zabihi

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| **Supervisor** | **Topics** |
| **Dr. Nasser Matoorian <Nasser.Matoorian@uwl.ac.uk>** | 1 - Comparisons of development frameworks for mobile apps  This project will compare various development frameworks and to develop an application based on the findings.  2 - No SQL Database  Using a simple Java HashMap class create your own No SQL database. Illustrate how you could implement SQL queries.  3 - Mobile App with Cordova  Design and develop your mobile application using HTML5 with off-line storage capability using Cordova. Investigate the limitations and as a use case how it may be useful for managing students.  4 -Machine Learning application with Apache Mahout  Develop a machine learning system as a recommender using the Apache Mahout framework.  5 - Could connectivity with web services  6 - Transportable GUI design  Investigate the challenges for designing applications as Web, Tablet, and mobile with zero code difference.  7 - Multimedia applications with Audio and Video  Create a Student Virtual Learning application with multimedia audio and video based on HTML5. You will be using the Google Web Toolkit and create the system using the Java programming language. As part of your project, you will evaluate your system in terms of functionality and how it aids students. HTML5 has other new features to investigate, such as drawing canvas and integration with local resources.  8 - Machine Learning Mobile Apps  Design and develop a machine learning mobile application using the Mahout framework  9 - Complex Event Processing (CEP)  Study the concepts behind CEP and investigate use cases for Education. |
| **Colin Beeke <Colin.Beeke@uwl.ac.uk>** | 1. Insider threats  a. Malicious  c. Non-Malicious perspective  2. E-business in the cloud for small businesses.  3. Socio-technical approach to security  4. Data Collection on instances of insider attacks from a global perspective.  5. Ethnic of Biometric technologies within the mobile age  6. Develop a current definition of Insider threats within the changing technology environment. |
| **Dr Antonio Dariush Kheirkhahzadeh <antonio.kheirkhahzadeh@uwl.ac.uk>** | 1. Domain-specific language (DSL) 2. Low-power open source hardware 3. Linux distributions for embedded devices 4. Markup languages 5. Data compression techniques 6. Internet of Things |
| **Dr Elahe Kani-Zabihi <Elahe.Kani@uwl.ac.uk>** | 1. Digital libraries 2. Online Privacy 3. Assistive Technology 4. Human Computer Interaction 5. Service Design and Creating innovative systems |
| **Dr Wei Jie <Wei.Jie@uwl.ac.uk>** | 1. Big data processing platform, analytics and applications 2. Grid and cloud computing, cluster computing, high performance computing technologies and applications 3. Security technologies for distributed computing |
| **Ann Austin <Ann.Austin@uwl.ac.uk>** | 1. An evaluation of two input methods, touch screen or mouse and keyboard by implementing two high fidelity prototypes for the same system and then running experiments with users completing tasks on each.  This would involve elicitation of requirements and associated documentation for applications such as a stationery requisition system, reprographics requisition system, personal tutorial tracking system.      1. Comparing how members of the different generation use tablets and smart phones. 2. Looking at how children use software and producing an evaluation a simple game using the Fun Toolkit. |
| **Liz Sokolowski <Liz.Sokolowski@uwl.ac.uk>** | 1. Development/Investigation of Mongo/NoSql database 2. Business systems 3. Web site and course booking system for makeup artist (live client) |
| **Junaid Arshad <Junaid.Arshad@uwl.ac.uk>** | 1. Something clever with TFL Data (Routes, Parking spaces, Vine-style videos etc) 2. Implementing micro-service architecture using Docker 3. VM-level Fault Tolerance for Occopus |
| **Yu-Chun Pan  <Yu-Chun.Pan@uwl.ac.uk>** | 1. Business architecture supporting business-IT alignment for SME 2. Impact of cloud computing on SME in highly regulated sectors 3. How can information systems support value creation in knowledge intensive organisations 4. Capturing and embedding social norms into requirements analysis 5. Impact of organisational structure on information system implementation |
| **Danni Novakovic <Danni.Novakovic@uwl.ac.uk>** |  |
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| **Thomas Roth-Berghofer <Thomas.Roth-Berghofer@uwl.ac.uk>** | **With Ealing Businesses**   1. **Website to market community facilities ensuring swift transactions to maximise use** Currently most community spaces are managed either by dedicated local residents Housing associations or local authorities. Hiring the spaces are long drawn out complicated processes. 'Airbnb for community spaces' might solve this. Task: Design a website/app that delivers a clean uncomplicated process that markets available spaces showcasing the space and creating a simple hiring process . How could this be funded as a business model? 2. **Biotech solutions to create a interactive plant and tech experience** At present there are a number of sensory gardens based on natural engagement with the environment – however there are no parks that have a tech/natural integration experience.  Task: Design an experience that allows plants and tech to interact to deliver a truly innovative experience, e.g. touching plants plays music or lights. Interacting with the environment creates a new sensory experience.   **Project topics related to my research**   1. **Content-based recommender system that can explain its recommendations** Content-based recommender systems filter product or service descriptions regarding user requirements (this is unlike, for example Amazon's collaborative-filtering approach which uses recommendations of other people). myCBR Workbench allows building knowledge models of a domain and integrating those into an application using the accompanying SDK. Task: Build a recommender system for a domain you are familiar with and extend the functionality with explanation features. 2. **Multi-agent system for experience sharing** SEASALTexp (Sharing Experience using an Agent-based explanation-aware System Architecture LayouT) is the concept of a multi-agent system with explanation capabilities. Task: Develop an agent framework using open-source software and implement a simple example with that new framework. |