Web Development

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Project 8.

Project Name:

Developing a Dynamically Controlled Advertisement Display Solution to Aid the Targeting Of Marketing Content

Project Description:

This project aims to develop a Dynamically Controlled Advertisement Display Solution which provides clients with a software application that can deliver rich marketing content to remotely controllable display screens in different geographic locations. This new solution should allow its clients to target their marketing content to passing audiences by setting when, where and for how long advertisements can be displayed.

Are there any prerequisite skills / courses?

Webpage development, Database, Mobile App

Which degree program is this aimed at?

3rd or Mcomp

Number of students you wish to undertake this project

1

Project 9.

Project Name:

Developing an online 2D/3D map shows locations of especial species (5 species) of birds using a mobile app

Project Description:

This project aims to develop a 2D or 3D map for the locations of birds in Lincolnshire using a mobile app; so user can capture an image of a bird and send it to a website with the GPS information and a tag using a mobile app; the website will process the received information and update the online map by adding the image to the map.

Are there any prerequisite skills / courses?
Webpage development, Database, Mobile App
Which degree program is this aimed at?
3rd or Mcomp
Number of students you wish to undertake this project
1

Project 10.

Project Name:
Evaluation Framework For Retinal Imaging
Project Description:
The goal of this project is to create a web-server application for evaluation of various retinal imaging algorithms. Users will be able to upload their results and perform evaluation using a dedicated website. All results will be collected, analysed and summarized on a website. **A candidate does not have to know anything about retinal imaging or image processing. You are limited only by your own imagination!**
Are there any prerequisite skills / courses?
Web technology
Which degree program is this aimed at?
3rd or Mcomp
Number of students you wish to undertake this project
1

Dr. Kevin Jacques - List of Projects for MSc Students

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Context

I typically do not put up projects for students to do that are related to my research interests, mainly because my research is in pedagogy (the study of learning and teaching) and as such much of what I do in that area is not really suitable for Computer Science students to work on). I do however get approached regularly by external (outside the University) and internal (staff members from outside of our School but who do work in the University) who have interesting prospective projects that they would like to have done. What I present here therefore are a couple of potential projects that have been given to me that you might want to consider.

If any of these projects are of interest to you, please e-mail me directly telling me which project you would like to be involved with and I will put you in touch with the relevant contact so that you can arrange a meeting with them to discuss the scope of the project.

Project Name: **DMQ Assessment Tool**

Project Description: Deer Management Qualifications (DMQ), are a nonprofit outfit that looks after deer management and hunting qualifications in the UK.

They want to build an education resource through which they can run their assessment tests. They want something they can run online and offline - some of their work is in remote places with poor or no internet access.

DMQ is recognised by a range of official bodies and NGOs such as Defra, the Food Standards, Agency, Natural England, Scottish National Heritage, etc and the assessments that candidates do with them need to be monitored and robustly evaluated throughout the project so a final efficiency can be reported as part of the project's outcomes. The overall scope of this project could be large, but it could be something that serves as a pilot in the first instance with the possibility of a final product being delivered by engagement with a subsequent project.

Project Name: **Cricket Fixtures Calculation System**

Project Description: For a number of years I have acted as the Fixtures Secretary for a local cricket league and on an annual basis I do a hugely laborious process of organizing fixtures for 5 divisions. The process has to account for a number of factors including ground availability, home and away fixture requirements and non-fixture dates. The process is in effect a very large logistical puzzle that takes me roughly 9 or 10 days a year to work through to find a suitable solution.

I have for years thought that there must be a computerized way of doing this job, and from my limited AI knowledge I would think that there should be some sort of pattern matching or back-tracking algorithmic process that might make this achievable, but I have never had the time to sit down and write one.

Last year (for the first time) I put this up as a possible student project for undergraduate students, and despite the fact that four or five students had a go at it, nobody came up with a working solution. I therefore offer this as a challenge to MSc students. Can you write something that will make my fixtures calculation process better and more efficient than it currently is? I would be happy to have somebody make the job easier in some small way, but a fully working solution that takes account of the many complicated requirements in a single system <could> have significant marketability.

If you think you might like to take up this challenge and want to know more about what the problem entails, please drop me an e-mail.

Project Name

Dota Plus Plus

Project Description:

In Dota 2, new players are given suggested builds that simplify the process of deciding what items to prioritise buying and what skills to level. Additionally, some of the best builds offer meaningful advice and explanation as to why this item is useful. Last year, Valve introduced Dota Plus which, among other features, gives players dynamic build suggestion that change as the game progresses suggesting items based on your own hero as well as who your opponents are and their builds. While this information is much more powerful, it now lacks the meaningful advice: why should Crystal Maiden focus on buying a Eul's Scepter when the playing against Queen of Pain or Skywrath Mage and when should she use

it? This information helps the new players understand the game better and develop their own strategies and tactics for future games, rather than simply know what to build in this game. **What you will do: Design and implement a proof of concept crowd-sourcing tool that allows the members of a Dota 2 community to construct a meaningful advice knowledgebase to help new players not only know what items to buy, but also why. This includes designing the structure of this knowledgebase, the interface, and the tools to support crowd creation and curation of meaningful advice.**
Are there any prerequisite skills / courses?
Some web development skills. Knowledge of Dota 2 would be extremely valuable. This project may also be applied to other similar games (e.g. League of Legends).
Which degree program is this aimed at? (It can be more than 1)
Primarily, Games Computing but open to Computer Science Students.
Number of students you wish to undertake this project
No limit.
Project Name
Project Allocation System
Project Description:
Every year, the University of Lincoln and other institutions, has the difficult task of assigning project supervisors to students. In our case, this means allocating one supervisor each among a few dozen members of staff to over 200 students. There are many solutions that range from random allocation to first-come first-serve setups. They each have their benefits

and drawbacks. This project looks at developing a better system that tries to maximize these benefits and minimize the drawbacks. **What you will do: Research a number of pre-existing solutions, conduct a requirements-gathering study where you find out what stakeholders (students and members of staff) value, and finally design, implement and evaluate a system that addresses the issue.**
Are there any prerequisite skills / courses?
Basic programming skills, and (as this is would likely be a web app) some web development knowledge would be beneficial, but this could also be learned as part of the project. An understanding of User-Centred design principles would also be helpful as this at its core an HCI project.
Which degree program is this aimed at? (It can be more than 1)
Computer Science
Number of students you wish to undertake this project
No limit.

Your Name: Sills & Betteridge LLP, Solicitors (Andrew Kerrigan or colleague) + SoCS mLearn & CS

Link to your staff profile page:

Any other relevant links to your research:

https://www.legalfutures.co.uk/latest-news/regional-firms-motoring-law-chatbot-first-of-many

http://www.thebusinessdesk.com/eastmidlands/news/2017203-law-firm-launches-legal-tech-drive

Complete this form for each project that you propose:

Project Name
Health and safety sentencing guide or daily assistant
Project Description:
The penalties for breach of health and safety law vary substantially depending on the circumstances of the breach. It is often difficult for businesses and professionals to properly assess and predict the outcome of health and safety investigations and prosecutions. The project is to develop a web based tool to assist businesses, solicitors, insurers and others estimate the penalty risk arising from a breach of health and safety legislation. The tool may utilize an element of machine learning/AI technology. Users of the tool should be guided through the decision tree of health and safety guidelines and the information provided will be cross-referenced against the HSE database of prosecution results collated since 1 February 2016. The tool will provide the user with a list of relevant decided cases more accurately than a search engine (e.g. Google or equiv.) and more efficiently than manually trawling through the HSE database. Alternatively, or in addition, the project might consider whether it is possible to utilize a machine learning tool to create a health and safety daily assistant which asks a question such as “What is the next task you are about to perform?” in response to which the assistant will search for and provide the most relevant health and safety guide to assist with that task and also find relevant cases which illustrate the type of accidents people have suffered whilst undertaking that task.

If, subject to review and testing, the web based tool is successful, the project may be published on the Sills & Betteridge website and/or promoted by Sills & Betteridge for the benefit of its clients.
Are there any prerequisite skills / courses?
Computing, database, ML/AI, web app; teaming up with Law student a +
Which degree program is this aimed at? (It can be more than 1)
BSc; MComp/MSc (depending on the extent of the ML/AI component and level of implementation)
Number of students you wish to undertake this project
No preference.

Your Name: Sills & Betteridge LLP, Solicitors (Andrew Kerrigan or colleague) + SoCS CS

Link to your staff profile page:

Any other relevant links to your research:

https://www.legalfutures.co.uk/latest-news/regional-firms-motoring-law-chatbot-first-of-many

http://www.thebusinessdesk.com/eastmidlands/news/2017203-law-firm-launches-legal-tech-drive

Complete this form for each project that you propose:

Project Name
Pot Hole claims platform
Project Description:

The poor state of repair of some roads in Lincolnshire and other counties frequently causes motorists to suffer damage to their vehicles. In some circumstances local authorities are liable to compensate motorists for this damage. Unfortunately, obtaining legal advice to help pursue these claims can be prohibitively expensive and many motorists find it difficult to get clear advice regarding their particular circumstances and where to send their claim.

The project is to design a web page/platform/app which enables members of the public who have suffered damage to their vehicle from pot holes to capture the location of the incident, identify the responsible local or roads authority, upload relevant evidence, populate a standard "letter of claim", all through a text chat style interface. The web page/platform/app will email the user a copy of a completed letter of claim, populated with the relevant information and enclosing or attaching the relevant evidence, together with the email address the letter needs to be sent to.

If, subject to review and testing, the web page/platform/app is successful, the project may be published on the Sills & Betteridge website.

An extension to this project may be to create a general incident notification/capture platform by which law firms can produce similar procedures to generate letters of claim in other areas of the law.

Are there any prerequisite skills / courses?
Computing, web/mobile app; teaming up with Law student a +
Which degree program is this aimed at? (It can be more than 1)
BSc; MComp/MSc (depending on the extent of the ML/AI component and level of implementation)
Number of students you wish to undertake this project
No preference.