Propose a vacation student project for Summer 2019

Deadline for making your proposal(s): 17:00 Friday 22 March 2019. This is a hard deadline.

This form is for one project proposal, so to propose multiple projects please submit a separate form for each project. Any queries, do ask - Toby.

Project supervisor email *

g.nenadic@manchester.ac.uk

Title of the project *

Developing a Game for Offshore Wind Farm Condition Monitoring

Source of funding *

- (●) School funding requested
- ( ) You have your own funding (e.g. research grant)

Objective of the project *

Source of funding: Both. A big part of the demo is funded by an existing EPSRC project and the School will also help with some funding.

Objective of the project:
To develop a game application that will be used as a Computer Science demo in the area of data analytics, including open days and visits to Schools. The game will engage users in condition monitoring of wind farms, where the users will be asked to resolve faults appearing in farms with/without help from automated decision support. The aim of the game will be to resolve as many faults (of specific cost) as possible in a given time frame and at at a given level (e.g. ranging from 2-3 wind turbines to hundreds). We also intend to use this demo at a Science Festival in Manchester in October 2019 to demonstrate how machine learning can help in industry. This game will also contribute to a wider demo on how to use state-of-the-art engineering technologies (robotics, drones) to support wind-farm maintenance (part of the HomeOffshore EPSRC project). This will be a great opportunity to get engaged with a number of stakeholders, including news and media, to demonstrate what a future in this area would look like.

Number of students requested (justify if > 1) *

1

Start date, end date, total duration (weeks) *

Start date: Monday 17th June 2019. End date: 23rd August 2019 (10 weeks)

The benefit to the School *

- This would produce a demo that could be used for School's open days or public engagement (to promote STEM etc.)
- Computer Science involvement into a public science event in Manchester.
- Energy is one of the university research beacons and this project would help further position Computer Science in this area. It may also lead to an impact example.

The benefit to the student *

- It would train the student in game programming and provide them with experience working in a team in CS (but also interacting with colleagues from EEE and MACE)
- Experience of working on a public engagement project and see the final product used in a public setting.

Skills needed by the student. *

Proficiency in Object oriented programming using a language such as C#
IT Management
Ability to work as part of a team.

Details of the work that the student would do *

The main task is the development of a 'whack a mole' style interactive game suitable for all ages that uses a control device such as a Wii stick. As part of a team of researchers in the School, the student will contribute towards selection of suitable gaming technologies and towards the overall design of the game. The main contribution will be implementation and testing of the developed game strategy.

Infrastructure requirements and any required staff support other than the project supervisor *

We have a team consisting of a post-doc, research software engineer and an MSc student who will all contribute to the meetings. Hardware is already being set up as part of the HomeOffshore project. It consists of Wii interaction devices, a projector and screen, laptop and an area for testing. A Research Software Engineer is already assigned to this task for 1-2 days a week. The MSc student will focus on developing the strategies and levels in the game.

Supervision arrangements throughout the duration of the project (named staff and dates covering the entire duration) *

Goran Nenadic: Full 10 weeks
Ann Gledson (Research software engineer): 2 days a week for full 10 weeks.

Location of the project work (building/room) NB projects must be on-campus *

Kilburn Building. Room 2.50.