Supercomputers used to model disaster scenarios

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Chris Headland (left) with the students that will be participating.

Undergraduate students from the School of Computer Science at Bangor University will be using supercomputers to run programmes that can predict how lethal disease might spread, or how people are likely to react in a disaster.

The unique project arose as part of the Professional Perspectives module the students were undertaking. In this module students have to present a business idea that could utilise High Performance Computing (HPC) Wales' supercomputer. When the team presented their unique idea to the external panel of judges, HPC Wales offered to help them to take their idea further and have offered to support the students to work on it as an extra-curricular activity.

HPC Wales will provide each of the students with a training summer camp, and a £300 bursary. HPC Wales have been incredibly supportive of the project.

The project will see the students develop an agent-based modelling toolkit, specifically designed for use on a High Performance Computer. By using a HPC system to program, the students will be able to run thousands of simulations simultaneously, allowing them to improve the accuracy of the predictive models through aggregated results. These agent-based modelling toolkits (computer models) can run on normal computers but with very limited results. The high performance computers speed things up so thousands of simulations take hours, rather than weeks to run. This means that averages can be taken from a larger number of scenarios, enabling more accurate prediction.

The project supervisor is Chris Headland, a PhD student at the School of Computer Science, who himself is researching this area of computing. He said: "I am delighted that HPC Wales will be supporting the development of this idea. It will be great research and work experience for our students, I'm looking forward to helping them."

Provided by Bangor University