Northumbria University NEWCASTLE

Karthik Mysore (third from left) with a group of Big Bang North East award entrants

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Budding engineer impresses judges with his digital skills

A young student's research placement with Northumbria University, Newcastle has earned him a regional engineering award.

Karthik Mysore, aged 17 and a pupil at Queen Alexandra Sixth Form College in North Shields, received the Big Bang North East Young Engineer award for his research project that aims to improve the accuracy and safety of building design.

He undertook the project whilst working with Northumbria University's department of Computer and Information Sciences, as part of the Nuffield Research Placement (NRP) Scheme.

The scheme offers pupils the chance to work alongside scientific researchers on a range of science, technology, engineering, maths (STEM) and social science research projects. The programme is open to students across the UK who are studying for A-Levels (or equivalent) in science and maths subjects.

During his six-week placement, Karthik worked with Dr Kay Rogage, Vice Chancellor's Research Fellow in Digital Living, to understand Building Information Modelling (BIM) – a process which creates digital and 3D representations of the physical and functional characteristics of a place or a building, including its contents.

He then used his knowledge of BIM to apply a powerful digital algorithm that could learn to predict object types within a building model, using just 3D object data. The purpose of the project was to explore the options for automatically attaching additional information about objects to a building plan.

He explains: "Currently, when engineers and architects design a building plan, they usually need information about products such as tables, chairs, light bulbs, etc. This information is often added or changed manually, which can be time consuming and inefficient. BIM can make that process more efficient and minimise human error."

The BIM Academy, based in Newcastle, is a joint venture between Northumbria University and Ryder Architecture to create a centre of excellence for digital engineering and transformation.

Dr Rogage, a Research Fellow with the BIM Academy and Karthik's mentor, said: "Karthik is an intelligent, enthusiastic and committed student and it was a pleasure to support him on this project. I was very proud to learn he'd been given the Big Bang North East Young Engineer Award. The Nuffield Research Placement Scheme is a great opportunity for students, and it's also a great opportunity for academics to develop coaching, mentoring and management skills."

Karthik, who has a passion for ICT, particularly machine learning and robotics, says his ambition is to graduate as an engineer and work in frontier technologies like robotic automation and artificial intelligence.

He added: “The Nuffield Research Placement programme is a great platform for young students to gain value-added work experience and grow their academic networks. I feel excited, proud and grateful that my efforts were recognised at the Big Bang event, and it has motivated me to do further research work. It was fantastic working under Dr Kay and her support and guidance really helped me throughout the project tenure, particularly her timely review and feedback on the project report.”

He was also supported by Claire Willis, Director of Fusion STEM, Newcastle, the NRP Regional Coordinator for the North East UK region.

Karthik received a £100 Amazon voucher for his work and has been invited to participate in the national Big Bang finals, which will be held in Birmingham during early 2019.

The Nuffield Research Placement is a widening participation scheme and is geared towards students from low income households, or those who are the first in family to attend University. The programme aims to provide students with relevant skills and experience for their future, with a focus on general skills and those which will benefit further study in STEM and social sciences subjects. The majority of students who are offered a placement are eligible for a full bursary (£100/week), and all student travel expenses are covered, so no student is excluded on a financial basis.

Projects all have broadly scientific or technically-oriented content. The research placement could comprise of a lab-based project, fieldwork or an office-based project, and can focus on engineering, data science, social science or computer science, alongside traditional STEM subjects, or have a cross-disciplinary content.

If you have a media enquiry please contact our Media and Communications team at media.communications@northumbria.ac.uk or call 0191 227 4604.

For more about the Nuffield Research Placement, Scheme, visit www.nuffieldfoundation.org/nuffield-research-placements

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