INSTITUTE:
Institute of Technology, Blanchardstown

RESEARCH AREA:
Intelligent Transport Systems

Dr. Catherine Deegan & Dr. Simon McLoughlin: Developing intelligent transport systems

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Dr. Catherine Deegan and Dr. Simon McLoughlin together provide the foundation for a multi-disciplinary research team drawn from the informatics and engineering departments at Institute of Technology Blanchardstown (ITB).

Their research is focused on applications development for the purpose of intelligent (i.e. automated) detection, localization and evaluation of road features. This incorporates vision, GIS, sensor integration and photometric measurement. A keen demand for this type of technology exists in the road asset management and safety assessment industries.

This research commenced in 2002 with funding under the HEA Technological Sector Research (TSR) Fund. Funding was also secured from the HEA Research Facilities Enhancement Scheme which supported the further building of specialist research capability via establishment of a laboratory. In 2008 the team was funded by the National Roads Authority (NRA) Fellowship Fund to take on a masters and PhD student to progress key projects.

In total the research team has received funding of over €1m and produced four masters students, two of which now work in the computer vision based industry. A third student also secured an IRCSET award to pursue a PhD which is now ongoing.
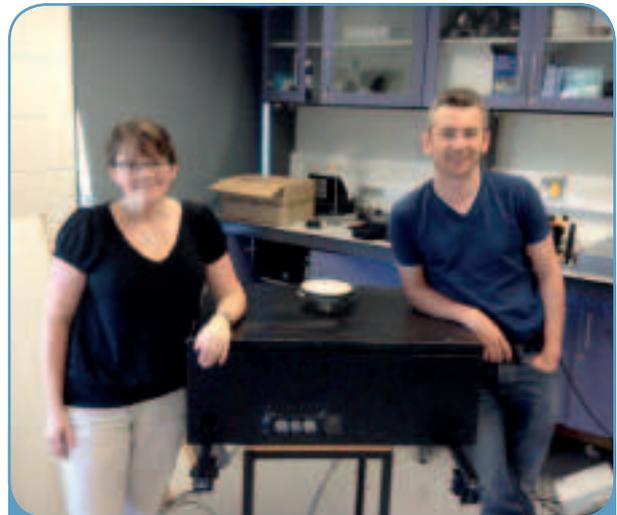
Dr. Catherine Deegan and Dr. Simon McLoughlin, Intelligent Transport Systems Group, ITB

The outcomes from the research supported by this funding have been significant. In conjunction with the NRA, a vehicular mobile mapping system has been developed to address specific problems in this area. The system is composed of a number of navigation sensors for geo-referencing (positioning) and a multi-camera (stereo) system for automated feature extraction from imagery. ··›

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Previous projects have focused on road sign detection for inventory and analysis, the detection of defective road studs (or cat eyes) and sensor integration. Current projects are exploring the use of the system as an autonomous mobile retroreflectometer, i.e. a platform to evaluate the retroreflectivity of delineation and signage in a manner that is fully automated and carried out at normal driving speeds.

As the research agenda of the team developed it became clear that there was a commercial opportunity in this area. This was pursued in 2010 with support from an Enterprise Ireland Commercialisation Fund award. The commercialisation of the research is expected to develop through licensing the patents and relevant intellectual property to a start-up company. Innovation Partnership projects will also be scoped out with this start-up venture. The research group is now investigating other industry sectors in which the technology can be applied. ◾

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Dr. Catherine Deegan

Institute of Technology, Blanchardstown

"The benefits of performing applied research on real world problems in ITB are many. I have been fortunate to have the opportunity to collaborate with my colleague from the Informatics department at ITB and together we have made for a very strong interdisciplinary team, with a good mix of skills and strengths. The research work has informed and enhanced our teaching work, as well as providing for collaborations that extend beyond the Institute. We have been based in and ably supported by the LINC centre at ITB, without which the commercialisation of the research would not have been possible".

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