



Benoit BOSSAVIT

Institution: Learnovate, Trinity College Dublin

Academic Mentor: Dr Inmaculada Arnedillo-Sánchez

Commercial Partner: Microsoft Ireland

Commercial Mentor: Dr Kevin Marshall

Benoit gained his Msc in Computer Science in France where he specialised in Virtual Reality technology. He then worked at the research institute, INRIA, for three years where he was involved in the development of three different research projects.

Afterwards, Benoit did his PhD at the Public University of Navarre (Spain) where he explored the potential of Natural User Interfaces (body motion-based interaction techniques) in different educational contexts such as severe cognitive and motor disabilities, high functioning autism and typically developing children.

He adopted different design methodologies to involve stakeholders (teachers and children) in the design and development of educational games. Like most of the research in the field, Benoit explored educational tools to help and support children with Special Educational Needs by focusing on cognitive skills. However, the body also plays an integral part in the development of children. Benoit's project will focus on the under-explored use of technology for early detection of potential developmental disabilities. *See case study overleaf*

Dr Inmaculada Arnedillo-Sánchez

Dr Inmaculada Arnedillo-Sánchez has been at Trinity College Dublin since 2002 bringing high-level expertise in the area of technology-enhanced learning; in particular, collaborative and mobile learning research and assistive technology. She has published more than 70 papers and book chapters. Dr Arnedillo-Sánchez is a UNICEF adviser; recently collaborating with the organisation's Speak Africa initiative. She currently leads TCD's involvement in the EDUWORKS multi-partner Initial Training Network.

Dr Kevin Marshall

Dr Kevin Marshall has been Head of Education for Microsoft Ireland for over a decade and is a widely respected thought leader on technology and education. In this role, he has led practical efforts to improve and share best practices and methodologies in 21st-century education across a wide variety of projects.

Learnovate, Trinity College Dublin

Learnovate is a research and innovation centre focused on EdTech and learning technologies. With over 20 full-time researchers and practitioners, it has one of the richest concentrations of EdTech expertise in Europe. Its multidisciplinary specialists have expertise in learning science, technology, user-centric product design and customer-centric innovation.

Microsoft Ireland

While Microsoft's software is world-renowned, it also has deep experience in education. The company's 'Partners in Learning' group harnesses high-level expertise in the development of educational content and has given schools, teachers and therapists access to an array of educational platforms.

Benoit's Project

Motor development is the process by which children acquire movement patterns. Gross-motor skills involve large muscles performing everyday functions, such as standing, walking or running and also, eye-hand coordination skills like throwing, catching or kicking.

There is a correlation between motor and cognitive development, with evidence suggesting that improvement of motor-skills impacts cognitive development.

Formal assessment tools are used by professionals to determine whether children's motor skills are developing at a normal rate. Assessment is done on a one-to-one basis and normally involves professionals observing children performing loco-motor tasks. This is costly and relies on sufficient availability of professionals which compromises early-detection thereby delaying timely intervention.

This research aims to design, develop and evaluate MotorSense, Motion Detection Games to support early functional screening of gross-motor skills' development in children.

MotorSense will provide a suite of games that require children to perform tasks aligned to motor development scales. While children play the games, MotorSense will detect their motions and monitor whether tasks objectives are being met in accordance to the child's developmental stage.

MotorSense aims to support the monitoring of motor development by professionals but more importantly by other stakeholders such as parents, teachers and carers. It is hoped that the data collected by MotorSense on the players will provide professionals with additional and frequent data sets on the child's development leading more appropriate and timely responses.
