Category: Keynote

Title: Towards Mixed Reality Cocreative Learning Environments

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Abstract: In this talk I will describe work we are doing at Essex University towards the establishment of a mixed reality co-creative learning environment which aims to allow teams of geographically distributed students to collaborate on building internet-of-things laboratory assignments. The project makes use of a novel immersive reality desk, a bespoke set of networked 'Internet-of-Things' modules, supporting software and a constructionist pedagogy that collectively form a mixed reality teaching environment that allows students to combine physical and virtual entities to build educational projects. As part of the presentation I will describe the technologies in more details, especially the immersive reality desk and the 'internet-of-things' educational modules. The concept itself arose from an Intel funded initiative, Creative-Science, that aims to support innovation in technology based product design, business and education, all of which will be described in this talk.

Bio: Victor Callaghan is Professor of Computer Science and leader of the Intelligent Environments Group (IEG) at Essex University. He established and directed mobile robotics research at Essex before founding the intelligent environments group (IEG). Both areas now host world-class teams and facilities. In particular, the IEG hosts the iSpace (a full size digital home), the iClassroom (a high tech teaching facility), the iCampus (a Living lab focused on education and based on an instrumented campus) and the iWorld, (an online mixed–reality implementation of these spaces). Professor Callaghan holds a B.Eng and PhD in Electronics and Computing, respectively, from Sheffield University. In general terms, his main expertise concerns the application of artificial intelligence to the creation of intelligent environments that range from smart classrooms to immersive educational technology environments for the creation of intelligent environments. He is one of the founding board members of the Creative Science Foundation, a collaboration with Intel for introducing creative methodology to regular science teaching. Professor Callaghan has authored over 200 papers in international journals, conferences and books plus 4 patents. He has been principal investigator on numerous international and national projects in the area of pervasive computing attracting over 2 million pounds in research funding. He is a founder and principal organiser of the international annual IEEE sponsored conference, Intelligent Environments, a key member of the organizational team for the Pervasive Computing & Applications, Ubiquitous Intelligence & Computing conferences, founder member of the Creative Science Foundation (and associated workshops) and a member of the editorial teams of the Intelligent Buildings International, Pervasive Computing & Communications, Ambient Intelligence & Smart Environments journals and the Transactions on Future Intelligent Educational Environments.