Editors note:

Welcome to the new-look KMi bi-monthly review, in its new format each issue will take a ‘feature lead’ before introducing our ‘other news’. This issue features KMi work on Augmented Reality: for industrial application, for learning and also for fun! Future issues will bring you a focus on the Digital City, Wearable Computing, Visualisation and more…

Augmenting Real Learning

Augmented Reality (AR) technologies add data to the world we can perceive.

In one simple use case you look through a device such as an iPad, iPhone or even a head mounted view, such as AR glasses, and the ‘camera’ view you see can add virtual things into the real world.

OpenMinds 2015

KMi’s Professor Peter Scott recently explored what this might mean for Open University learners in his OpenMinds talk on Tuesday 20 January.

The new OpenMinds series from The Open University aims to showcase the University’s thought leadership in learning and teaching and the application of research to policy and practice across the UK. The sessions bring cutting-edge research and developments to both physical events in the OU’s Berrill Lecture Theatre and through live video.

Other articles in this issue

Responsive Open Learning Environments book launch

COMPOSE nominated for IoT Awards

Social Attitudes of Young People - new report from UK Government Cabinet Office

http://kmi.open.ac.uk/
streaming, providing a platform for those who watch or attend to engage with leading academics and respected figures within specific research fields.

In the first of this series, Peter was joined by OU Professors Eileen Scanlon and Mike Sharples and Professor Siân Bayne, Professor of Digital Education at the University of Edinburgh to discuss the “future of learning”.

Peter presented the EU TELLME project and showcased how that researching into topics such as Augmented Reality technology offers to transform manufacturing. This project includes a wide range of manufacturing contexts from helicopter maintenance to furniture and fabric production processes. Finally, in his talk he showed how OU students can explore learning in novel and unexpected ways.

OU Alive AR Prospectus App

Launched with the new OU undergrad prospectus in January 2015, the app OUAlive developed in KMi provides an Augmented Reality view on the physical prospectus to “bring to life” the paper pages.

The user of the app points an iOS device at the appropriate page in the prospectus for a 3D object experience. For instance, in the image shown here, to help bring science to life, what better illustration than the OU’s scientific participation in the recent Rosetta space mission. For the student considering this work and a science qualification, we offer a fully 3D rendered model of the spacecraft - which flies into your view over the prospectus page. The viewer can interact with the model - zooming in to the detail rendered model and rotating to explore its construction. One tap, and the solar panel ‘wings’ unfold, another and the Philae lander emerges and floats down on to the page - much as the real lander did recently carrying our instruments down onto comet 67P. And for potential students interested in the Earth Sciences, the
picture on the front page depicts a volcano that leaps from the page. Tap this, and it erupts… where Rosetta is serious science, this one is just for fun. Learning can be fun too!

‘Hands on’ Instruction

The PhD research of Guiseppe Scavo has showcased how a remote expert can use complex hand gestures to directly instruct a learner attempting a complex manual task. Using a technology called GhostHands, a remote telementor can virtually “reach over the shoulder” of the student / worker to insert fully modelled virtual hands into their Augmented Reality view. The student and mentor all share the same view, but with the ghost hands replicating the real gestures and fine manual movements of the real mentor's hands. A video, filmed with an iPad shows some of the technology and user-experience research into this ‘ghostly hands on instruction’.

See: https://www.youtube.com/watch?v=PMtkyTj7Bnc

Setting a new standard for AR

KMi research in the Theme ‘Learning by Experience’ recently saw the establishment of a new working group within the IEEE standards association.

The expert working group within will elaborate a proposal for augmented reality learning experience models (IEEE AR-LEM), with an early draft scheduled for the late summer and a first ballot possible as early as 2016. The proposed Augmented Reality (AR) learning experience model will specify how to represent learning activities and their according workplace reference models in a standardised interchange format in order to lower entry barriers for authoring of learning experience spanning real world interaction using sensors and computer vision, and web applications. Purpose of the standards working group is to develop an overarching integrated conceptual model and the according data model specifications for representing activities, learning context and environment (aka ‘workplace’),

http://kmi.open.ac.uk/
and potentially other data model components needed for AR-enhanced learning activities. Separation of slow-changing data for, e.g., environment descriptions from fast-changing data as, e.g., required for step by step guidance is intended and isolation in linked, but physically separate interchange formats is intended to facilitate efficient handling and storage.

The new standards committee (NesCom) of the IEEE has appointed KMi’s Fridolin Wild to chair this working group. “This new standard will help bring down production costs of augmented reality experiences significantly, turning normal web-designers into augmented reality engineers”, so Wild. He denotes further: “I’m very glad that we’re entering this working group with a strong Open University proposal, that we’ve elaborated with partners across the EU in our TELLME research project”. Interested parties are invited to contact the chair of the working group, Fridolin Wild, for more information on how to participate in the community process. A dedicated website with more information will follow soon.

And in other news...

COMPOSE nominated for IoT Awards

Every year the #IoTAwards honour the year’s best products and ideas shaping the Internet of Things, may they be novel business ideas or disruptive devices. For 2014, KMi’s EU project COMPOSE has been nominated for the best integrated solution for supporting the development of Internet of Things applications.

COMPOSE competes in this category with well-established, commercial solutions such as Dweet.io, Temboo.com, and DGLogik, which highlights the high regards that the IoT community hold of COMPOSE’s results.

KMi plays a central role in the project with our very own Carlos Pedrinaci serving as Scientific Director, and Luca Panzieria leading core infrastructure for the discovery and use of sensors and services to support novel IoT Big Data applications.

COMPOSE has just entered its last year and shall soon be releasing the final version of its entirely open source platform which shall include even greater functionality.

Stay tuned!
Social Attitudes of Young People

A new report from the UK Government Cabinet Office sets out to explore the social attitudes of young people, with a KMi contribution on changes in technology and in particular social media and social networking.

The report comes fresh from the Horizon Scanning Programme which has also recently analysed critical emerging technologies such as Big Data and the demographic changes in emerging economies. The Cabinet Office team explore how sustained changes in the attitudes of people in different generations may lead to long-term, changes in societal attitudes. They draw upon survey data to see whether there are differences in the attitudes of today’s young people and the attitudes of older generations when they were young.

The work offers a very interesting analysis of challenging topics such as privacy, and what young people’s understanding of, and feelings about ‘private data’ may mean. Particularly to be commended, the report puts fearful and over-hyped press reporting of topics around possible negative impacts of technology change and ‘risk taking’ etc into the context of the evidence and presents a thoughtful reflection on what the
real changes may mean to our future. It also presents a very good review of the evidence around changes to: values and personal autonomy; attitudes to society and government; aspirations; and of course the touch-stone of ‘wellbeing’.

The report also explores the how young people’s circumstances may change over the next 10 years and evolve over time. The conclusion is actually pretty positive. Despite concerns “...for instance around declining mainstream political engagement, low levels of social trust and the potential negative impacts of digital technologies”, there are some very positive stories to tell about the next generation: “For example, a range of risk behaviours and negative outcomes are declining amongst young people, such as drug taking, teenage pregnancies, drinking, smoking and crime. Also, the high levels of aspirations amongst young people, emphasis on personal responsibility and community engagement provide good reasons for optimism about social change over the next 10 years”.

CLASSIFIED ADS

WANTED - Post Graduate Students

We are currently offering fully-funded studentships commencing in October 2015, there are a number of PhD projects being offered including; ‘The Web of Things’ and ‘The Semantically Quantified Self’. KMi host internationally recognised researchers in semantic technologies, educational multimedia, collaboration technologies, artificial intelligence, cognitive science and human-computer interaction. KMi offers students an intellectually challenging environment which two of our most recent students will vouch for:

Angelo Antonia Salatino

Angelo is currently working on a KMi project ‘Rexplore’ - a system which leverages semantic technologies and visual analytics to provide an innovative environment for exploring and making sense of scholarly data.

Tracey Farrell-Frey

Working on self regulated learning in online environments, Tracey is looking into student discussion in synchronous and asynchronous spaces, the role of emotions, and the impact of self regulation on student success and interaction.

WANTED - Researchers

Research Assistant / Associate on Linked Open Data | Ref: 11093
Research Assistant / Associate on Urban Data Mining | Ref: 11069
Research Assistant / Associate on Data Science | Ref: 11038

CLOSING DATES in MARCH 2015. Check out our website kmi.open.ac.uk for all posts!
**Seminar in KMi Podium and elsewhere around Campus**

*Dr Teresa Sancho-Vinuesa* gave the seminar 'Continuous activity with immediate feedback: a good strategy to guarantee the student engagement in online maths' (04 Feb 2015).

**KMii's World Stage and Closer to Home**

*Allan Third* attended the CARRE Project rehearsal and review meeting in Brussels at the end of February.

*Luca Panziera and Carlos Pedrinaci* travelled to Barcelona to a COMPOSE Project Meeting 16-18 February.

*Aitor Gomez-Goiri*, attended the FORGE technical meeting in Athens at the end of January.

*Alexandra Okada* travelled to Geneva to attend the ENGAGE Project meeting 4-6 January.

*Enrico Motta* and his project team hosted the MK:Smart Project year one External Review Meeting in KMi.

**KMi Future**

**Events Coming Soon...**

• Several of our OU Analyse team, led by Professor Zdenek Zdrahal will be presenting their world leading work on student analytics at LAK15 Conference in Poughkeepsie, NY, USA.

• MK:Smart will be showcased at the Milton Keynes Future City Conference, day one is hosted at the Open University.

• Fridolin Wild and Beppe Scavo are attending the AR Community Meeting Boston, USA

• Prof John Domingue in Luxembourg to Kick Off the exciting new EDSA EU data science academy, being coordinated here in the OU (4-6 March 2015)

**In the NEXT Issue -**

Visualise the election debate, and more...