

## NSTF-BHP Billiton Awards



Dr Keith Fergusson

## FACULTY OF SCIENCE UNIVERSITY OF JOHANNESBURG

The Faculty of Science at the University of Johannesburg congratulates **Prof James Darkwa**, Professor of Inorganic Chemistry, on his inclusion as a finalist for the 15th NSTF BHP Billiton 2012-2013 Awards given to Leading Scientists for Innovatively Creating new Knowledge.

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# Faster mobile broadcasts

Bandwidth solutions for developing countries stretch the reach of new media to areas that did not have sufficient internet access before

Iwan Pienaar

**A**frica has one of the highest mobile user populations in the world. However, the biggest challenge for users, content creators and advertisers has been the delivery of content caused by either under-developed telecommunication infrastructure or the high price for broadband access.

Low-rate fast adaptive real-time streaming technology (Artist) is one answer to this problem because it not only allows viewers to have an uninterrupted broadcast stream on their mobile devices, but it also opens up new opportunities for content creators and advertisers.

With a vision to develop an adaptive broadcasting solution for developing countries, Dr Keith Fergusson joined the Council for Scientific and Industrial Research (CSIR) in 2007 and put together a consortium comprising the CSIR, University of Cape Town (UCT) and East Coast Access (ECA) to develop the Artist concept into a commercial broadcast platform suitable for low network infrastructure networks.

In 2008, Ferguson secured a first round investment of R14.5-million over three years from the Innovation Fund (now the Technology Innovation Agency). In August 2011 the consortium completed the research and development phase of the product, which consisted of research, software development and commercialisation tasks, with the system software development and research tasks implemented in parallel.

### An alternative to faster internet connection

The innovation behind the project addresses the need for internet real-time media broadcasting that is specifically designed to operate in congested and bandwidth constrained networks.

This project provides a set of solutions to each part of the delivery system such that these products and services can be universally available in both developed and developing environments.

The trouble with streaming and viewing content on any device is buffering caused by a disruption to the data stream.

Until recently, the best solution to this has been investing in faster

internet connections, which is expensive for broadcasters and users in emerging economies.

However, the Artist video content delivery technique has extended the concept of adaptive streaming to operate fast and at very low rates to not only urban areas but also to the rural African context.

The embedded advertising platform developed in this project creates a new approach for new media advertising agencies to access previously untapped market segments that have been constrained by internet access.

The core capabilities of the consortium have been combined into a full commercial-grade software server architecture that provides a very scalable delivery platform where the messaging or advertising is integrated into the video stream with full measurement capabilities.

The CSIR was responsible for the core media server software development, some video research and lead project management.

ECA was focused on the web server with integrated advertising development and piloting of the system. Finally, UCT was responsible for the supervision of the research of a PhD and four MSc students. The MSc research was directed at acquiring specialist skills for the implementation of the media platform, and two of these students were then employed at the CSIR upon completion of their studies.

In August last year, the consortium licensed the technology to Tuluntulu who is currently in the process of securing customers and raising investment for the business. Once a set of conditions has been met, the intellectual property will be assigned to the start-up in exchange for a 20-year royalty agreement which will be shared amongst the consortium partners and the Technology Innovation Agency.

Artist is the winner of the NSTF Award to an individual or a team for an outstanding contribution to SETI through research leading to innovation: in a corporate organisation or institution

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