

IN BRIEF >>>

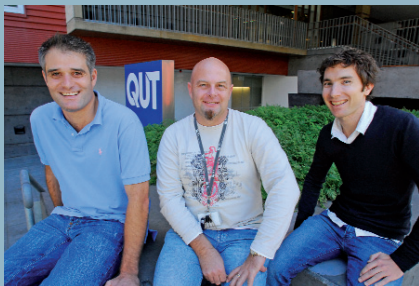
**HEALTH RESEARCHERS OPERATE AT BIO2008**

THREE QUEENSLAND UNIVERSITY of Technology (QUT) researchers from the Institute of Health and Biomedical Innovation (IHBI) head to San Diego this month to represent the university at BIO2008, the largest biotechnology event in the world.

They were the successful recipients of the bluebox/IHBI Early Career Researcher 2008 Fellowships based on the innovative research they were undertaking. Cameron Brown, from the faculty of Built Environment and Engineering, Tony Parker, from the faculties of Science and Health, and Simon Rizzi from the faculty of Science will all attend.

Mr Brown is undertaking research in orthopaedic surgery decision making tools focussing mainly on a way of detecting arthritis in its early stages. He is in the process of developing a surgical tool for detecting and characterising the condition in order to help surgeons choose the appropriate medical treatment.

Dr Parker is looking at injury prevention diagnostics, focussing on musculo-skeletal fatigue and injury in heavy industrial workers.



(From left) Simone Rizzi, Tony Parker and Cameron Brown.

Dr Rizzi, who is working on delivery systems for therapeutic proteins for wound healing, said he was looking forward to getting an overview of what is going on in the biotech business around the world and in particular related to the wound healing market. "We are so focussed on our work, and often we can lose a sense of what is going on in the biotech industry worldwide, so I am looking forward to seeing what else is going on out there," he said.

[www.qut.edu.au](http://www.qut.edu.au)  
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**UQ technology boosts internet**

Faster internet speeds with extended distance capabilities will soon be available worldwide, following the signing of a licensing deal with a US-based company for cutting-edge technology developed by researchers from the University of Queensland (UQ) and the University of Sydney.



Vaughan Clarkson widens broadband.

When Oregon-based telecommunications technology developer Rim Semiconductor acquired Multi-Carrier Communications, Inc, a wholly-owned subsidiary of Florida-based UTEK Corporation, the stock-based acquisition included an exclusive worldwide licence and research program for a unique signal processing technology jointly developed at the two Australian universities.

The technology transfer, which is believed to be the first of its kind involving Australian electrical engineering technologies and a US-based telecommunications developer, was negotiated by UQ-based UniQuest and open innovation company UTEK.

Identified as a 'low complexity method' which enhances the capacity of copper wire-based broadband services, the technology has particular applications where high-quality broadband transmission of multimedia files is required. The technology

involves a method of signal processing that reduces the Bit Error Rates (BER) by limiting the Peak-to-Average-Ratio (PAR) to about 10 percent of what typically occurs in current technologies.

According to the inventors, a high BER is undesirable.

"Digital subscriber line (DSL) technology is today the primary vehicle for broadband internet delivery to the home. As the consumer demands ever higher bandwidths and the service provider seeks to offer the 'triple play' of phone, internet and television in one broadband service, the demands and cost of equipment will rise dramatically," said Associate Professor Vaughan Clarkson from UQ's Faculty of Engineering, Physical Sciences and Architecture.

"As always, there is a bottle neck in the copper wire 'data pipe' connecting the home and service provider's equipment. As bandwidths expand, the 'standard' DSL signals on the wires experience larger and larger voltage swings. These large voltage swings are very problematic because they require expensive electronics to generate, or high complexity computation to avoid. Otherwise, the signals will experience clipping at the peaks, thus rendering the service unreliable.

"The signalling technique Dr Iain Collings and I developed actually requires less computational processing and at the same time dramatically reduces the signal's peak-to-average ratio. By limiting the typical PAR to about 10 percent of typical values in current use, the BER is reduced and bandwidth is more efficiently exploited. Data rates have been shown to be up to 30 percent higher," Assoc. Prof. Clarkson said. [www.uq.edu.au](http://www.uq.edu.au) ■