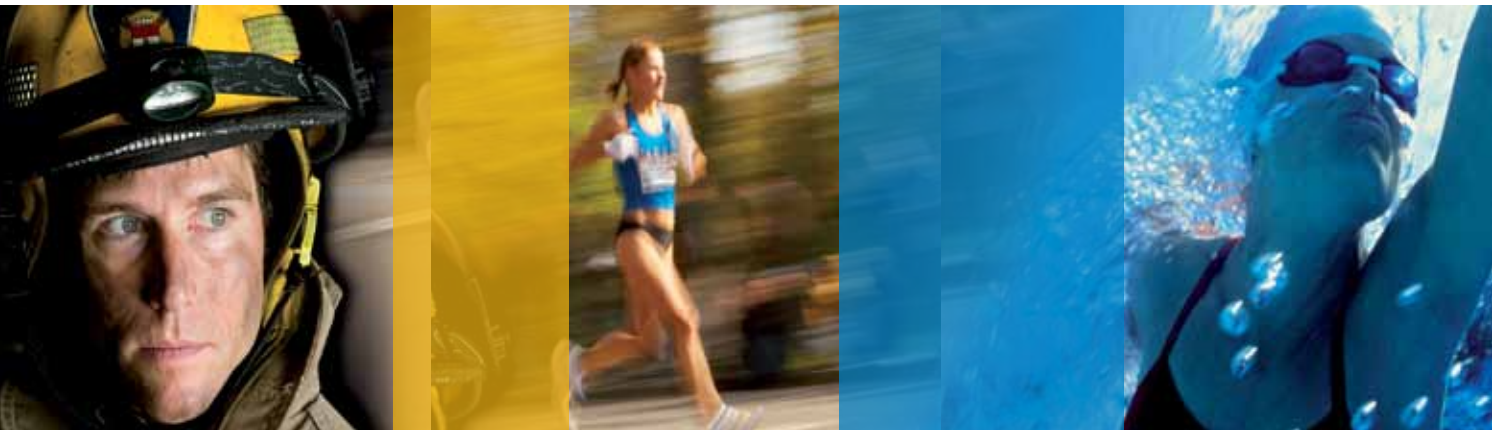


strategies athletes development
environment
an body technology measurement
improve next-generation
human advanced wireless



Human Performance Improvement

When elite athletes become fatigued, their competitive edge may be lost. In emergency services and Defence scenarios, fatigue may be fatal, so monitoring human performance is critical to ensure both safety and peak competitive output. At NICTA we are developing next generation networks that transmit data around the human body and interpret this data.



The Features

- Wearable and implantable devices allowing new opportunities to monitor and analyse the biometric status of humans in a range of activities and environments
- Key algorithms processed into an efficient form which can analyse days of training in seconds of processing
- Patented technology for monitoring swimming, which can quantify and log the activity of elite athletes (swimmers)
- Providing swimming coaches with accurate data about swimmers' performances enabling the development of appropriate training strategies
- Development of technologies that assist the Electrical and Electronics and Engineers (IEEE) international standard for body area networks that will appear in hearing aids and short range wireless entertainment devices, that could become the next Bluetooth for health devices.

Who is helped?

This technology will benefit elite athletes, defence personnel and medical device consumers who need real-time feedback of performance. NICTA is also expanding existing technologies into the consumer sporting domain, where we plan to extend behaviour analysis to triathlon activity and gymnasium activity recognition. NICTA is currently collaborating with the Australian Institute of Sport (AIS).

The NICTA Approach

To communicate using wireless technology around the human body, we need to know how the human body impacts on the wireless signal. NICTA has performed a measurement campaign which characterises the effect of movement on the wireless signal. Movement is the key detail which is unique to the wireless research. Having a machine-learning team working in cooperation with the wireless team to develop new applications for the network sets us apart from any other research worldwide. Many international groups have either a strong machine-learning focus, or a strong wireless focus, but not both.

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