

Sports engineering – Dr Daniel James

Most of my research these days is in the wireless research centre and predominantly in engineering activity, where I'm working on what we call sports engineering.

Sports engineering is quite a new discipline. We use engineering skills to help service the sports industry helping athletes and coaches through new advances in technology.

When we are trying to help an athlete we measure their performance under a range of training activities and competitive activities and look at ways to improve their performance through measurements.

Using technology we can measure things about an athlete we haven't been able to measure before. Traditionally we measure athletes in a laboratory, where they might come to a sports institute for an intensive training camp. They'll be put into a laboratory and will do some tests.

When we have wireless technology we can take all those tests they've done in the lab and apply that in a real training environment or real competitive environment because people behave very differently in the lab than when they're in their natural environment.

On race day the adrenaline is pumping and the athlete performs very differently. That's when we're most interested in them performing well.

We started out looking at sports in which it's easy to attach an electronic device to the athlete. We started with olympic rowing as there was a boat for us to put our bulky equipment in. We then started to refine that instrumentation to make it a lot smaller.

Today it's wearable and we can put that on just about any athlete in any activity. Some of the examples we've had good early success with include swimming. The athlete wears the device in the centre of their back while swimming.

The measurements we can get from swimmers you'd normally only see in high-performance pools with underwater cameras and sports scientists to look at what they're doing.

By wearing these devices we can offer this similar kind of measurement in the pool that the swimmer normally uses.

This has tremendous advantages in states like Queensland where there are huge distances between specialised facilities. We hope we can provide a facility-like service but in an athlete's home town.