



Mr Milford with robot (above) and receiving his award from Cartridge World's David Smith.

SCI-HIGH

MICHAEL MILFORD HOPES TO INSPIRE OTHERS TO PURSUE SCIENCE AND TECHNOLOGY CAREERS.

UQ robotics and artificial intelligence PhD student Michael Milford has won the science and technology section of the 2006 Queensland Young Achiever Awards.

Mr Milford, 24, won the Cartridge World Science and Technology Award for his important contributions to the research field of biologically-inspired robotics and artificial intelligence.

His most recent research will be presented at the International Conference on Intelligent Robots and Systems later this year.

Mr Milford was awarded a \$2000 savings account from the Heritage Building Society.

"I am really grateful for the award and hope I can encourage many more young people to pursue a career in science and technology," Mr Milford said.

As well as studying for his PhD, Mr Milford is also publishing educational textbooks for school children.

He recently finished the Complete School package, which is on sale at Dymocks bookshops.

The high school educational resource, which includes textbooks and DVDs, covers the entire school Mathematics and English curriculum.

"I like to challenge myself. I wanted

to do something that nobody had come close to trying before so I came up with the idea of an ultimate educational resource for high school students," he said.

"I wanted to create, in one package, something that would cover not only all of high school English and Mathematics but also skills a modern student needs such as researching using the Internet."

Mr Milford's PhD research looks at how rats function in their environment and applying this to robotics with the aim of creating a robot that can move around its environment intelligently.

"Specifically, we are looking at getting a robot to explore an unknown environment autonomously, create a map of that environment so it can navigate from A to B, and getting it to adapt to changes in its environment," he said.

Mr Milford, who graduated with a Bachelor of Engineering with first class honours in 2002, has already had success with his first two textbooks *Not a C Minus* and *Painless Physics*, which have sold more than 5000 copies.

The Queensland Young Achiever Award winners were announced at a presentation evening on September 16, at the Carlton Crest Hotel in Brisbane.

New age robots right on track

UQ scientists will use a \$3.3 million grant to build a new generation of robots that can learn about their physical spaces based on animal navigation skills.

The UQ-led team received one of three Federal Government Thinking Systems grants.

The team will study the navigation skills of bees, rodents and humans as a way of understanding the function of the hippocampus, the part of the brain that controls navigation.

"One thing that makes us special as humans is that we might be using this part of the brain not just to map physical space, which we do very effectively, but also to map the space of ideas," Team leader and UQ cognitive scientist Professor Janet Wiles said.

Professor Wiles said the results would then be transferred into computer models to map ideas.

"Suppose you want Hansard records — you've got gigabytes of information and what you want is a summary of who spoke on which issue in a particular debate.

"You can either spend three months reading the document or you can create a map of who spoke and the relationships between it."

She said her team would use the models to make a thinking robot that

could find its way to a given point and navigate back again.

The research will also generate new insights into how the brain works, assisting in the diagnosis and treatment of mental dysfunctions.

Professor David Siddle, UQ's Deputy Vice-Chancellor (Research), said he was delighted such an imaginative program of research had been funded.

"The work represented in this proposal is truly inter-disciplinary and this is where significant scientific advances are now being made," Professor Siddle said.

Professor Wiles is from the Division of Complex and Intelligent Systems with the School of Information Technology and Electrical Engineering.

Queensland Brain Institute senior scientists Professor Perry Bartlett, Professor Jason Mattingley, Professor Pankaj Sah and Associate Professor Geoffrey Goodhill are also working on the project.

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