

THE ANU COLLEGE OF ENGINEERING & COMPUTER SCIENCE AND NATIONAL ICT AUSTRALIA (NICTA) HAVE DEVELOPED EDUCATIONAL WORKSHOPS COVERING ROBOTICS, COMPUTER VISION, PROBABILITIES AND THERMAL IMAGING FOR HIGH SCHOOL STUDENTS IN YEARS 9 AND 10.

Each module lasts approximately 50 minutes and can be tailored to meet school requirements. The modules are designed to be interactive, small on theory, and big on participation.

Developed by award-winning engineer, Dr Douglas Aberdeen, and staff and students of the ANU and NICTA, the aim is to enthuse students about where studies in maths, science and computing can take them and open up the world of possibilities in engineering and computer science.

Module 1: Revealing Robotics (50 minutes)

Maximum of 30 students

Have you ever wondered what the first Robot was? What is a Robot anyway? What are the mathematical and engineering difficulties that need to be solved? This show takes students through a short history of robotics, from the 18th century to the near future; including live demonstrations of why robotics is challenging but of great usefulness to humankind. In this module students learn of many recent advances in robotics, but also that we have a long way to go before producing truly intelligent machines like those we see in the Hollywood movies.



Module 2: Robots that can see like a bee (50 minutes)

Maximum of 30 students

How can we build robots that see? How do we get robots to make sense of what they see? Robot engineers often use human vision as inspiration for building seeing robots, but humans have very powerful brains to help with this, and a lot goes on behind the scenes that we still don't really understand. What can we learn from insects?



Insects have tiny brains in comparison to the human brain, but still manage to find their way around. Can we build robots that can see like honeybees? This interactive module

examines how robot engineers use biological inspiration to build better robots that will eventually be able to see and act completely on their own.

Module 3: Fun Maths! (50 minutes, consists of two parts)

Maximum of 30 students

Do you wonder how mathematics is useful in the real world?

This module aims to present some basic maths concepts in a fun and easy way by giving Year 9 and 10 students two mathematical games to play. One of the games, called "The Horse Race Game" is a dice-rolling probability game, and emphasizes the advantage of using maths to solve real-life problems (or in this case, increase the chance of winning a game). The second game, called "The Three Jugs Problem", emphasizes the use of mathematical modeling to better understand real world phenomena.



If you could see what I see!

Most of us are familiar with visible light. It is the light that our eyes can see, namely red, orange, yellow, green, blue, indigo and violet. Infrared is a type of light that we cannot see with our eyes. However, we experience infrared light every time we feel the heat of the sun on our skin. Infrared light tells us information about an object's temperature and how much heat it has. In this module, with the use of an infrared camera, we will carry out various simple activities to explore how things look using infrared light.

(Photos courtesy Telopea Park School, ACT)

Why have we designed the Taskforces?

The NICTA Taskforces are a fun way to encourage greater interest in maths and science. They may help teachers and students to look at technology differently.

CONTACT US FOR A SCHOOL VISIT AND FURTHER INFORMATION

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