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[Barbara Webb](#) studied Psychology at the University of Sydney and did her PhD in AI at the University of Edinburgh. She held lectureships in Nottingham and Stirling before joining the School of Informatics in May 2003. Her main research interest is in perceptual systems for the control of behaviour, in particular building computational and robotic models of insect behaviour. She also has an interest in theoretical issues of methodology; in particular the problems of measurement, modelling and simulation. She leads the

Insect Robotics Group at the Institute of Perception, Action and Behaviour, school of Informatics. The group research and model the sensorimotor capabilities of insects. This ranges from simple reflexive behaviours such as the phonotaxis of crickets, to more complex capabilities such as multimodal integration, navigation and learning. They carry out behavioural experiments on insects, but principally work on computational models of the underlying neural mechanisms, which are often embedded on robot hardware.

Abstract:

Ant navigation: lessons for, and from, robots

Ants are highly capable navigators. They have been the focus of behavioural and ethological study for many years, and a range of algorithmic models of their behaviour have been proposed, often tested in robot implementations. Our recent work has focussed on bridging the gap to understanding the neural circuits that underlie capacities such as visual orientation, path integration, and the combination of multiple cues. In each case there is an important interplay between exploiting critical sensory cues in the natural environment, and the efficient and robust computation that supports behavioural control. Maintaining a tight loop between behavioural, modelling and robot studies has been key to progress in this field.