



## Bio-Inspired Radar Design

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### Abstract

Echolocation is used in the natural world with great success. Bats, Wales and Dolphins are well known for their ability to exploit echolocation for navigation, collision avoidance as well as selection and acquisition of prey. Indeed, they rely on echolocation for their continued existence. Perhaps less well known are the extraordinary abilities of some blind humans who use echolocation for activities as ambitious as cycling. This also requires detection, recognition and avoidance of obstacles. Detection, collision free navigation, scene perception and object recognition are all highly desirable characteristics that could enhance existing radar applications as well as opening up whole new forms of capability. In this talk we review how the bat senses its world, using a range of transmit waveforms and orientation strategies. We then explore how some of the more promising of these “bio-inspired” approaches can offer performance enhancement in real radar systems.

### Biography

Chris Baker is the Ohio State Research Scholar in Integrated Sensor Systems at The Ohio State University. Until June 2011 he was the Dean and Director of the College of Engineering and Computer Science at the Australian National University (ANU). Prior to this he held the Thales-Royal Academy of Engineering Chair of intelligent radar systems based at University College London. He has been actively engaged in radar systems research since 1984 and is the author of over two hundred publications. His research interests include, Coherent radar techniques, radar signal processing, radar signal interpretation, Electronically scanned radar systems, Radar imaging, natural and cognitive echo locating systems. He is the recipient of the IEE Mountbatten premium (twice), the IEE Institute premium and is a Fellow of the IET. He is a visiting Professor at the University of Cape Town, Cranfield University, University College London, Adelaide University, Wright State University and Nanyang Technical University.