Publications

We publish in top journals and conferences in robotics, as well as in related fields such as computer vision, computational neuroscience, environmental monitoring and oceanography.

A comprehensive list of individual member publication lists can be found via the following links:

ALL | David Ball | Peter Corke | Feras Dayoub | Matthew Dunbabin | Juxi Leitner | Michael Milford | Ben Upcroft | Gordon Wyeth

Selected Publications

A selection of notable publications by members of the lab:


Books

Click on the book cover images to go to the book's website.

Peter Corke

The practice of robotics and computer vision each involve the application of computational algorithms to data. The research community has developed a very large body of algorithms but for a newcomer to the field this can be quite daunting. For more than 10 years the author has maintained two open-source MATLAB® Toolboxes, one for robotics and one for vision. They provide implementations of many important algorithms and allow users to work with real problems, not just trivial examples.

This new book makes the fundamental algorithms of robotics, vision and control accessible to all. It weaves together theory, algorithms and examples in a narrative that covers robotics and computer vision separately and together. Using the latest versions of the Toolboxes the author shows how complex problems can be decomposed and solved using just a few simple lines of code. The topics covered are guided by real problems observed by the author over many years as a practitioner of both robotics and computer vision. It is written in a light but informative style, it is easy to read and absorb, and includes over 1000 MATLAB® and Simulink® examples and figures. The book is a real walk through the fundamentals of mobile robots, navigation, localization, arm-robot kinematics, dynamics and joint level control, then camera models, image processing, feature extraction and multi-view geometry, and finally bringing it all together with an extensive discussion of visual servo systems.

"An authoritative book, reaching across fields, thoughtfully conceived, and brilliantly accomplished!"
OUSSAMA KHATIB, Stanford
This book describes the development of a robot mapping and navigation system inspired by models of the neural mechanisms underlying spatial navigation in the rodent hippocampus. Computational models of animal navigation systems have traditionally had limited performance when implemented on robots. The aim of the work was to determine the extent to which hippocampal models can be used to provide a robot with functional mapping and navigation capabilities in real world environments. The focus of the research was on achieving practical robot performance, rather than maintaining biological plausibility.

“This book is written for researchers, graduate students, and professionals in robotics, especially robot navigation and computational neuroscience. The hippocampus has been studied extensively in rodents as part of the brain system responsible for navigation and spatial memory … .” (IEEE Control Systems Magazine, Vol. 30, April, 2010)