Ian Baldwin

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	Oxford, OX1 3PJ		

RESEARCH INTERESTS

Long-term, large-scale localization
Machine-learning for robust vehicle autonomy
Robot perception

EDUCATION

Oxford University,   Oxford, UK
DPhil, Engineering Science
Dissertation : Large-Scale Urban Localisation With A Pushbroom LIDAR
August, 2013
Advisor : Prof. Paul Newman

University of Cape Town,   Cape Town, RSA
MSc, Engineering (Mechanical)
Dissertation : eRobot: A 2nd Generation NDE Inspection Robot
December, 2006
Advisor : Steve Marais

University of Cape Town,   Cape Town, RSA
BSc, Engineering (Electro-mechanical)
First-class Honours
Dean's Merit List
December 2004

PUBLICATIONS

THESES   **Baldwin, I**, LargeScale Urban Localisation with a Pushbroom LIDAR. (DPhil. Thesis). New College, Oxford

Baldwin, I, eRobot: A 2nd Generation NDE Inspection Robot. (MSc. Thesis). University of Cape Town.

CONFERENCE PAPERS   **Baldwin, I**, Newman, P. (2012) Laser-only road-vehicle localization with dual 2D push-broom LIDARS and 3D priors. In Proc. IEEE International Conference on Intelligent Robots and Systems (IROS), Vilamoura, Portugal

Baldwin, I, Newman, P. (2012) Road vehicle localization with 2D push-broom LIDAR and 3D priors. In Proc. IEEE International Conference on Robotics and Automation (ICRA), St. Paul, MN

Baldwin, I, Newman, P. (2010) Non-Parametric Learning for Natural Plan Generation. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Taipei, Taiwan

Baldwin, I, Newman, P. (2010) Teaching a Randomized Planner to Plan with Semantic Fields. Towards Autonomous Robotic Systems (TAROS), Plymouth U.K

JOURNAL ARTICLES

Smith, M., **Baldwin, I**, Churchill, W., Paul, R., Newman, P. (2009) The New College Vision and Laser Data Set. The International Journal of Robotics Research (IJRR) 28 595-599

WORKSHOPS

Baldwin, I.A, Newman, P. (2009) Learning to Plan. Neural Information Processing System (NIPS Workshop on Probabilistic Approaches for Robotics and Control), Vancouver B.C

TEACHING

Fundamentals of Design   FEB '06 - JUN '06
A course dealing with the teaching the basics of design to second-year engineering students.

Fundamentals of Mechanical Engineering   JUN '05 - NOV '05
An introduction to Engineering course aimed at first-year students, dealing specifically with design and manufacture.

INDUSTRY EXPERIENCE

Application Engineer   MAR '07 - SEP '07

productONE/Automated Reasoning are the official resellers for PTC engineering software in South Africa, and the Cape Town branch deals with the entire Western Cape. As an Application Engineer, I was responsible for technical and software issues involved with the installation, use and maintenance of PTC systems. This ranged from strictly Computer Aided Design (CAD) implementations right through to Product Life-cycle Management (PLM) systems.

OTHER INTERESTS

Outside of my core research focus, I am also interested in a number of engineering meta-disciplines:

SYSTEMS INTEGRATION   During my post-graduate work
I have been involved in a number of projects requiring intense systems integration. This has ranged from integrating a Visual Odometry (VO) system with the existing robotic platforms at Oxford, to writing device drivers and interface code for various multi-partner robotic projects.

RAPID MANUFACTURING   Throughout the course of my
post-graduate research, I have developed competency in several manufacturing processes, namely CNC-based manufacture and Fused Deposition Modeling (FDM) rapid prototyping. For an overview of my design portfolio, please see:
http://www.iabaldwin.com/design.html.

ROBOTIC MIDDLEWARE   The MOOS (Mission-Oriented
Operating Suite) developed by Dr. Paul Newman is a set of software components that

constitutes a broad, robust robotic middleware platform. I have worked extensively with MOOS, developing an open-source python codebase for accessing the MOOS core components for more rapid code development. I have also developed mobile-based interfaces, for both iOS and Android systems.

CITIZENSHIP   British, South African

RESIDENCE   United States Permanent Resident