Personal Details

Name: Matthew Andrew Joordens
Date of Birth: 18/8/64

Education
Tertiary   Bachelor of Electronic Engineering ,
                Ballarat College of Advanced Education,
                Graduated April 1989.
                Final year Project and Thesis :-
                        Remote Monitoring Security System.
                The project was one of 4 in Victoria to be chosen to be presented to the Institute of Radio
and Electrical Engineers in 1988.

Masters of Engineering by Research – 1999 Deakin-. Research in Virtual Reality.
        "Frame Rate Improvement for the VFX1 Headset in Virtual Reality Applications"

PhD – 2010 Deakin – "Autonomous Underwater Vehicles in a Hazardous non-Deterministic
Environment"

Professional Memberships

Fellow of the Institution of Engineers, Australia (409260)

Member of the Geelong Group of the Institution of Engineers. 1990-2005
Chair 1998 - 2003
Vice-chair, '96, '97

Member, Board of Engineering, Institution of Engineering, Australia, Victorian division.
1998-2003

Member, Division Committee, Institution of Engineering, Australia, Victorian division.
2001-2008 , 2010

AAEE member 1998 – current

Member of AAEE executive 2012 2013

IEEE member 2007 – current

MENSA 2002 – current

Deputy-Chair National Committee of Nano Engineering 2011 - 2013

Co-Editor of the journal Autosoft 2013 – current

Co-Program chair for the 2013, 2015, 2016 and 2017 IEEE SoSE conference

Summary of Achievements in each Category

1. Teaching
The units I teach are well received by the students. I very rarely get negative comments, and those I do get I can normally address satisfactorily. I have a good rapport with my students and I do get good feedback that is mostly verbal.

I believe that I am an excellent teacher and have developed innovative units that keep pace with today's technology.

- Current unit chair SEM433 Mechatronic Design, SEE326 Artificial Intelligence for Autonomous Systems, SEE010 Safety, SEJ010 Intro to PODBL, SER201 Embedded System Design and SER300 Mechatronic Design
- Previous industrial experience allows workplace values to be injected into the units.
- Developed Software package in game style to teach AI in SEE326
- Developed Programmable Logic Controller (PLC) simulator for SEE321.
- Developed, the project based learning units SEM332 Mechatronics and SEM433 Mechatronic Design
- Developed project based learning units SEE326 Artificial Intelligence for Autonomous Systems and SEE320 Microcontroller System Design.
- Author or joint author of 10+ study guides.
- Supervision of 4th year Engineering (Honours) student projects and theses.

2. Service
- Previous Associate Head of School, Engineering (Teaching and Learning)
- Previous Interim Head of School, Engineering
- Previous Electronics, Mechatronics and Robotics Stream Leader.
- Designed the Mechatronics degree in 1994 and co-ordinated it for its first four years. (Still running and is the longest running degree)
- Designing Electrical and Electronics course.
- Four years as VTAC selection officer for the School.
- Initiated and designed the Robotics course as an off shoot from the Mechatronics course.
- Assisted in the design of the new generic degree, in the Electonic, Computronic and robotic streams.
- Developed an Excel package used by most of the staff of the School of Engineering and Technology to record marks and create file for Electronic upload of marks.
- Assistance of new staff members with the School's procedures.
  - Developed numerous displays for open days and trade shows including; Racing robot, Maze robot, Voice analyser, Interactive aerodynamic display, Interactive automated house model, PLC logic puzzle and various Virtual Reality and force feedback displays
- Many promotional visits to primary and secondary schools
- Strong support of Open days
- Developed and managed ENGQUEST, the statewide Engineering competition for primary and secondary schools, under the auspices of the Institution of Engineers, Australia. (Now nationwide)
- Member of numerous University and external committees.

3. Research
- Underwater Robotics research with DSTO
- PhD in underwater swarm robotics
- Masters by research, Engineering in Virtual Reality.
- Papers on Control Systems and Swarm Robotics
- Papers on Programmable Logic Controller (PLC) simulator and project based learning.
- Grant for Instinctive robot project.
- Grant from DEET for school robot kit. This robot is now in the first prototype stage.
- Current(2016) Principle Supervisor of 3 PhD and one Masters by Research

Selected Publications

Joordens, M. A., & Champion, B. (2015). Underwater Swarm Robotics: Challenges and Opportunities. In Handbook of Research on Design, Control, and Modeling of Swarm Robotics (pp. 718-740). Information Science Reference.

Joordens, M., Brodie, T. A., Oberli, T. P., & Swinsburg, P. (2015). Conceptual design for fully autonomous aerial and ground system for precision agriculture. In SoSE 2015 : 10th IEEE International Conference on System of Systems Engineering (pp. 99-104). United States: IEEE. doi:10.1109/SYSOSE.2015.7151983

Matthew Joordens, The Tablet PC: a complete teaching studio, for the Book, Using Technology Tools to Innovate Assessment, Reporting, and Teaching Practices in Engineering Education. IGI Global 2014 ISBN 978-1-4666-5011-4

Mohan Kumar Muppidi, Satish Vaishnav, Mo Jamshidi, **Matthew Joordens**. AUV location detection in an enclosed environment, IEEE World Automation Conference 2014, Hawaii August 2014

Michael Jones, **Matthew Joordens**. Design of an Angular Radial Robotic Stingray, IEEE World Automation Conference 2014, Hawaii August 2014

Matthew Joordens, Problem Based Learning via an Interactive Game, IACEE World Conference on Continuing Engineering Education (WCCEE 2012 VALENCIA).

Matthew Joordens. Creating Project Based Learning in Software, Proceedings of AAEE Annual Conference 2012. December 2012. AAEE.

Matthew Joordens, Alex Stojcevski, Guy Littlefair and Sivachandran Chandrasekaran. The Process of Design Based Learning: a Student's Perspective, Proceedings of AAEE Annual Conference 2012. December 2012. AAEE.

Kipli, Kuryati, Kouzani, Abbas Z. and **Joordens, Matthew** (2012) Computer-aided detection of depression from magnetic resonance images, *CME 2012 : Proceedings of the 2012 IEEE/ICME International Conference on Complex Medical Engineering*, pp. 500-505, IEEE Computer Society, Los Alamitos, Calif.

Kuryati Kipli, Abbas Z. Kouzani, Yong Xiang, and **Matthew Joordens**. "*Evaluation of Segmentation Algorithms for Extraction of RNFL in OCT Images*" 2011 IEEE International Conference on Intelligent Computing and Intelligent Systems. 2011 Guangzhou, China.

Joordens M. "Problem Based Learning via an Interactive Game". IACEE 2012, IACEE World Conference on Continuing Education (WCCEE 2012 Valencia)

Joordens. M. and Jamshidi, M., Design of a Prototype Underwater Research Platform for Swarm Robotics. 9 for *AutoSoft – Intelligent Automation and Soft Computing journal*. Vol 17, number 2, 2011. Pp. 111-132.

Joordens. M. and Jamshidi, M., Consensus Control for a System of Underwater Swarm Robots, *IEEE Systems Journal*, March 2010 Volume 4, number 1, pp. 65-73.

Srujana Eega, **Matthew A. Joordens** And Mo Jamshidi "Design of Low Cost Thruster for an Autonomous Underwater Vehicle", 2009 IEEE Conference on SoSE, June 1 -3, 2009 Albuquerque, USA

Joordens, M., Shaneyfelt, T.*, Nagothu, K.*, Eega, S.*, Jaimes, A.* and Jamshidi, M.* (2008) Applications and Prototype for Systems of Systems Swarm Robotics, in IEEE (ed.), *Proceedings of 2008 IEEE International Conference on Systems, Man, and Cybernetics (SMC 2008)*, pp. 2049-2055, IEEE, USA **[E1]**

Joordens, M. (2008) Design of a Low Cost Underwater Robotic Research Platform, in IEEE (ed.), *IEEE International Conference on System of Systems Engineering (SOSE 2008)*, pp. 1-6, IEEE, USA **[E1]**

Joordens, M., Serna, J.*, Songer, S.*, Friday, C.*, Hoy, J.*, Seiger, R.*, Madalinski, W.* and Jamshidi, M.* (2008) Low Cost Underwater Robot Sensor Suite, in IEEE (ed.), *IEEE International Conference on System of Systems Engineering (SOSE 2008)*, pp. 1-6, IEEE, USA **[E1]**

Nagothu, K.*, **Joordens, M.** and Jamshidi, M.* (2008) Distributed Protocol for Communications Among Underwater Vechiles, in IEEE (ed.), *IEEE International Conference on System of Systems Engineering (SOSE 2008)*, pp. 1-6, IEEE, USA **[E1]**

Nagothu, K.*, **Joordens, M.** and Jamshidi, M.* (2008) Communications for Underwater Robotics Research Platforms, in IEEE (ed.), *Proceedings of the 2nd Annual IEEE International Systems Conference (SYSCON 2008)*, pp. 374-379, IEEE, USA **[E1]**

Nowak, B.*, Ayhan, Y.*, Derric, A.*, Daniel, M.* and **Joordens, M.** (2008) Design and Analysis of Hull Configurations for a Low-cost, Autonomous Underwater Robot as an Enabling Technology for System of System Applications, in IEEE (ed.), *IEEE International Conference on System of Systems Engineering (SOSE 2008)*, pp. 1-6, IEEE, USA **[E1]**

Prevost, J.*, **Joordens, M.** and Jamshidi, M.* (2008) Simulation of Underwater Robots Using MS Robot Studio©, in IEEE (ed.), *IEEE International Conference on System of Systems Engineering (SOSE 2008)*, pp. 1-5, IEEE, USA **[E1]**

Shaneyfelt, T.*, **Joordens, M.**, Nagothu, K.* and Jamshidi, M.* (2008) RF Communication Between Surface and Underwater Robotic Swarms, in M. Jamshidi, Y. Hata, M. Reuter, G. Parker, M. Saadat and D. Cox (eds), *Proceedings of the World Automation Congress '08 (WAC '08)*, pp. 1-6, IEEE, USA **[E1]**

Shaneyfelt, T.*, **Joordens, M.**, Nagothu, K.*, Prevost, J.*, Kumar, A.*, Ghazi, M.* and Jamshidi, M.* (2008) Control and Simulation of Robotic Swarms in Heterogeneous Environments, in IEEE (ed.), *Proceedings of 2008 IEEE International Conference on Systems, Man, and Cybernetics (SMC 2008)*, pp. 1314-1319, IEEE, USA **[E1]**

Jones, T. **Joordens, M**. "Distance Learning for Laboratory Practical Works in Microcontrollers" The International Journal of Engineering Education. Special Issue Vol 10 Number 3 (2003) pp 455-459