

# Conference Programme

## Day 1: Monday 10<sup>th</sup> December

- 12 – 1pm**      **Registration: St David Seminar Room 6**
- 1:00 pm**      **Conference Opening**
- 1:15 pm**      **Oral Session 1 (Seminar Rm 6) : Electronics and Engineering Education, Chair: Prof. Dale Carnegie**
- 1:15            Threshold Concept Knowledge in Analogue Electronics: Support and Assessment  
*A. Harlow, M. Peter and J. Scott*
- 1:40            NCEA as a Predictor of Success in Tertiary Engineering Study  
*D.A. Carnegie, C. Watterson, P. Andreae and W.N. Browne*
- 2:05            Prototype of a New Engineering Masters Project Model  
*J. Scott, B. Chang, C. Jameson, L. Payne, D. McLaran, A. Barr-Smith, C. Came and C. Hechei*
- 2:30            Encouraging Success – measure, mentor and engage  
*G.B. Rowe, M. Shepard and C.R. Smill*
- 2:55–3:25**      **Afternoon Tea (Rm G13 Science III Building)**
- 3:25            Teaching Introductory Embedded Systems with the UCFK4  
*M.P. Hayes*
- 3:50 – 4:10      Increasing Student Engagement in First Year Engineering  
*C.A. Watterson, W.N. Browne and D.A. Carnegie*
- 5:30**            **Speights Tour, followed by Conference Dinner (7pm)**

## Day 2: Tuesday 11<sup>th</sup> December

- 9:00 am**      **Oral Session 2 (Seminar Rm 6) : Sensors & Wireless, Chair: Dr Michael Hayes**
- 9:00            Pose Tracking using Ultrasonic Sensors in a Small Scale Environment  
*R.SH. Liu, C.K. Wong and P.P.K. Lim*
- 9:25            AWSAM – Minitaturised Wireless Nodes for Structural Health and Environmental Monitoring  
*A. Ivoghlian, K I-K. Wang and Z. Salcic*
- 9:50            How to protect against RSA side-channel attacks using redundant number hardware  
*I.L. Manuel and A. Bainbridge-Smith*
- 10:15–10:45**      **Morning Tea (Rm G13 Science III Building)**
- 10:45            Comparison of Time and Frequency Domain Methods for Analysis of Bearing Damage  
*H.J. Lawrence and T.C.A. Molteno*
- 11:10            Estimation of Indoor Local Average Power of Wireless Sensor Network  
*K. Yu, S.M. Berber and M-J. Ho*
- 11:35 – 12:30**      **Trade Presentations**  
**(approx)**
- 12:30 – 2:00**      **Lunch (Rm G13 Science III Building)**
- 2:00 pm**      **Oral Session 3 (Seminar Rm 6) : Imaging & Inference, Chair: Assc Prof. Colin Fox**
- 2:00            Compressive Sensed Hyperspectral Image Recovery using Total Variation Minimisation by Approximation  
*D. Eason, W.Y.L. Lee and M. Andrews*
- 2:25            Removing Floor Reflections to Improve Robot Navigation with a 3D-TOF Camera  
*S.G.J. Kelly and A.A. Dorrington*

**2:50–3:20 Afternoon Tea (Rm G13 Science III Building)**

3:20 A GPS Signal Synthesiser for Systems Integrating Testing of the Transient Array Radio Telescope  
*C. Shaw and T.C.A. Molteno*

3:45–4:10 Tree Twist: a spiral grain scanner for increment cores  
*M.P.Hayes and N. Pink*

**6 – 9pm Poster Session (Rm G13 Science III Building) – with beer & pizza**

Compressive Hyperspectral Image Sensing Restoration via Joint TV-L1 Regularisation  
*W.Y.L. Lee, D. Eason and M. Andrews*

Cascomp BJT Amplifier vs. Traditional Configurations  
*H. Jull, T. Balsom and J.Scott*

Mobile SPOT: A Wireless Sensor and Actuator Node for Applications based on Internet of Things  
*U.D. Atmojo, Z. Salcic and K. I-K. Wang*

Vision-based Positioning of Robots  
*A.A.Evina and C. Tsui*

Efficient Feature Based Visual Servoing for Onboard Computer Vision  
*S. Duncan, M. Hayes and A. Bainbridge-Smith*

Bayesian Inference of Position from Short Samples of GPS Signals  
*T. Holmes and T.C.A. Molteno*

Low-power Telemetry System for Wildlife Tracking  
*B. Panckhurst, P. Brown and T.C.A. Molteno*

Bachelor of Engineering Re-design with a Project Spine at Massey University  
*A. Punchihewa*

Experiments with local moves for MCMC applied to electrical impedance tomography  
*E. Ma and C. Fox*

**Day 3: Wednesday 12<sup>th</sup> December**

**9:00 am Oral Session 4 (Seminar Rm 6) : General Electronics, Chair: Dr Tim Molteno**

9:00 MechBass: A Systems Overview of a New Four-Stringed Robotic Bass Guitar  
*J. McVay, D.A. Carnegie, J.W. Murphy and A. Kapur*

9:25 Adaptive Noise Cancellation for the Electroencephalogram  
*A. Kandasamy, R.D. Jones and S.J. Weddell*

9:50 Use of Kinect Sensor in a Robotics Development Project  
*P.F. Nieuwoudt, R. Mackill and R. Kumar*

10:15 Real Time Monitoring of Cat Feeding Behaviour  
*S. Al Souti, D. Bailey and D. Thomas*

**10:40–11:10 Morning Tea (Rm G13 Science III Building)**

**11:15 Prize Giving**

**11:30 Conference Closing**

**12:00 AGM**

Conference proceedings is available at:  
**[www.physics.otago.ac.nz/reports/electronics/ENZCon2012.pdf](http://www.physics.otago.ac.nz/reports/electronics/ENZCon2012.pdf)**