

**Seventh International Conference on
Intelligent Sensors, Sensor Networks and Information Processing ISSNIP 2011**
December 6- 9, 2011
Hilton Hotel Adelaide, Australia
Advance Program

Tuesday 6 December 2011	
8:30-5:00	Registration Meeting Room A Level 2
9:00-10:30	Tutorial: Track-Before-Detect Techniques by Dr Samuel Davey (DSTO) Meeting Room B Level 2
10:30-11:00	Morning Tea Meeting Room A Level 2
11:00-12:35	Tutorial: Track-Before-Detect Techniques by Dr Samuel Davey (DSTO) Continued Meeting Room B Level 2
12:35-1:30	Lunch Meeting Room A Level 2
1:30-3:00	Tutorial: Participatory Sensing: Crowd Sourcing Data from Mobile Phones in Urban Spaces by Dr Salil Kanhere (University of New South Wales) Meeting Room B Level 2
3:00-3:30	Afternoon Tea Meeting Room A Level 2
3:30-5:00	Continued Tutorial: Participatory Sensing: Crowd Sourcing Data from Mobile Phones in Urban Spaces by Dr Salil Kanhere (University of New South Wales) Continued Meeting Room B
6.30 – 8.00	General Chair's Welcome Cocktail reception (Balcony 1 and Balcony 2, Level 1)

Wednesday 7 December 2011

8.00	Registrations (Airport lounge, adjacent to reception, ground floor)			
8.45	Conference Opening (Victoria Room Ground Floor) Housekeeping: Kellie Bartlam / General Chair: Prof Nanda Nandagopal Aboriginal Performance “ Tai Kur Tinna” Opening Address: Mr Nigel Relph , Pro Vice Chancellor & Vice President: International & Development, UniSA			
9.30	Plenary Speaker: Prof. Tanya Monro (University of Adelaide) “New tools for sensing”			
10.30	Morning Tea Victoria Foyer Ground Level			
11.00	Symposium on Sensor Networks Chair: Dr Salil Kanhere, UNSW, Australia Keynote: Prof Karl Aberer EPFL, Switzerland Victoria room Ground Floor	Symposium on Wireless Networks and Autonomous Systems Chair: Dr Said Al-Sarawi Keynote: Prof Stuart Milner & Prof Anthony Finn. Meeting room A Level 2	Symposium on Tracking and Data Fusion Chair: Dr Mark Krieg Keynote: Prof Ba-Ngu Vo Meeting room B level 2	Symposium on Biomimetic Sensors and Neuronal Information Processing Chair: Dr Mark McDonnell Keynote: Prof Janet Wiles Suite 3, level 1
	Session 1 : Middleware, Internet Integration and Management Chair: Prof Karl Aberer EPFL, Switzerland	Session 1: Chair: Dr Said Al-Sarawi	Session 1: Data Fusion Chair: Dr Adrian Bishop	Session 1: Sensor Modelling Chair : Dr Mark McDonnell
11.45	The Evolution of the SEMAT Sensor Network Management System (Lee, Yong Jin)	Utilizing the Inherent Properties of Preamble Sequences for Load Balancing in Cellular Networks (Chopra, Ankit)	Multidimensional Assignment by Dual Decomposition (Lau, Roslyn Anne)	A Silicon Model of the Inner Hair Cell (Hamilton, Tara Julia)
12.05	WebSense: A Lightweight and Configurable Application for Publishing Sensor Network Data (Cardell-Oliver, Rachel)	A Molecular-Inspired Approach for Predicting Topology Change in Directional Mobile Wireless Networks (David Coleman, Kira Armacost, Christopher C. Davis, Stuart D. Milner)	Fusion of Colour and Facial Features for Person Matching in a Camera Network (Dogancay, Kutluyil)	Amplitude Modulation in the Stellate Microcircuit of the Cochlear Nucleus (Michael A. Eager, David B. Grayden, Hamish Meffin, Anthony N. Burkitt)
12.25			Acoustic Component Detection for Automatic Species Recognition in Environmental Monitoring (Duan, Shufei)	Computational models for spatial and temporal filtering strategies in insect motion vision at low light levels (O'Carroll, David Charles)
12.45	Lunch Pool Deck Level 2			
	Session 2 : Hardware Chair: Dr Jarrod Trevathan, James Cook University	Session 2 : Chair: Prof Stuart Milner	Session 2: Tracking I Chair: Prof Ba Ngu Vo	Session 2: Neuromorphics Chair: Dr Mark McDonnell Keynote:
1.30	Low Cost Sensor System for Wave Monitoring (Marimon, Maricris)	PMHT Path Planning in a non-Homogeneous Environment (Cheung, Brian)	Square Root Gaussian Mixture PHD filter for Multi-Target Bearings Only Tracking (Shanhung Jeffrey Wong, Ba-Tuong Vo)	Novel VLSI Implementation for Triplet-based Spike-Timing Dependent Plasticity (Rahimi Azghadi, Seyed Mostafa)
1.50	FPGA Architecture for Object Extraction in Wireless Multimedia Sensor Network (Pham, Duc minh)	Acoustic Sense and Avoid for UAVs (Franklin, Stephen)	Experiments with graphical model implementations of multiple target multiple Bernoulli filters (Jason L. Williams)	Silicon Implementation of the Generalized Integrate-and-Fire Neuron Model (Hamilton, Tara Julia)

Wednesday 7 December 2011 Continued

2.10	Benefits of building Wireless Sensor Networks on Commodity Hardware and Software Stacks (Bajerna, Nigel Blair)	A Low-Cost System for Indoor Motion Tracking of Unmanned Aerial Vehicles (Chaix, Cyril)	Learning on the Job: Smoothing for Simultaneous Localization and Tracking in Sensor Networks (Trivedi, Neeta)	Phosphene Brightness Modelling for Voltage Driven Waveforms (Craig O. Savage, Mark E. Halpern)
2.30	Towards Plug-and-Play Functionality in Low-Cost Sensor Network (Rajib Rana, Neil W. Bergmann, Jarrod Trevathan)	Evolving Path Planner for A Multi-Robot Exploration System Using Grammatical Evolution (Alexander, Bradley James)	Recursive Bayesian State Estimation from Doppler-Shift Measurements (Ristic, Branko)	Discrete Implementation of Biologically Inspired Image Processing for Target Detection (Halupka, Kerry Jayne)
3.00	Afternoon tea Pool Deck Level 2			
	Session 3: Energy Efficiency Chair: Prof Neil Bergmann, University of Queensland, Australia	Session 3: Chair: Prof Anthony Finn	Session 3: Passive Tracking and Localisation I Chair: Dr Branko Ristic	Session 3: Synaptic Processing Chair: Dr Mark McDonnell
3.30	Multi-Tier Probabilistic Polling in Wireless Sensor Networks Powered by Energy Harvesting (Fujii, Chisato)	Performance Evaluation of Routing Metrics for Community Wireless Mesh Networks (Liu, Nan)	Broadband Passive Sonar Detection Using Rational Orthogonal Wavelet Filter Banks (Limin Yu, Langford B. White)	Synaptic Dynamics Influence the Phase of a Neural Response (Bruce P. Graham)
3.50	Deterministic Energy-efficient Clustering Protocol for Wireless Sensor Networks (Aderohunmu, Femi)	Design and Performance of a Directional Media Access Control Protocol for Optical Wireless Sensor Networks (Navik Agrawal, Christopher C. Davis, Stuart D. Milner)	Passive Multi-Sensor Single-Target Tracking with Highly Constrained Unidirectional Communication (Michael Beard)	Modelling the Temporal Response Properties of an Insect Small Target Motion Detector (Dunbier, James Robert)
4.10	Power Management for Unattended Wireless Sensor Networks (Liu, Xiaobo)	A Novel Mutual Authentication Scheme with Minimum Disclosure for RFID Systems (Doss, Robin)	3D Passive Localization in Shallow Water Using Bearing and Multipath Time-Delay Measurements (Badriasl, Laleh)	Memristor-based Synaptic Networks and Logical Operations Using In-Situ Computing (Iannella, Nicolangelo)
4.30	Combining Temporal and Spatial Data Suppression for Accuracy and Efficiency (Yang, Chi)		Surface Craft Motion Parameter Estimation Using Multipath Delay Measurements from Hydrophones (Lo, Kam)	

Thursday 8 December 2011

8.30	Registrations (Airport Lounge, adjacent to reception, ground floor)				
8.45	Housekeeping: Kellie Bartlam Welcome by General Chair Prof. Palaiswami Ballroom B				
9.00	Plenary speaker: Dr Michael Bruenig CSIRO "Nano Scale Sensor Networks"				
10.00	Morning Tea – Ballroom Gallery level 1				
10.30	Symposium on Biomimetic Sensors and Neuronal Info. Processing Chair: Dr Mark McDonnell Keynote: Dr Bruce Graham Suite 3	Symposium on Sensor Networks Chair: Prof Rachel Cardell-Oliver, UWA, Australia Keynote: Prof Tracy Camp, Colorado School of Mines, USA Ballroom B	Symposium on Tracking and Fusion Keynote: Dr Duncan Craig Chair: Dr Neil Gordon Ballroom C	Environmental Monitoring Keynote: Prof Richard Stuetz, UNSW Chair: Prof Chris Saint UniSA Suite 2	Symposium on Biomedical Sensing and Sensors Chair: Dr Said Al-Sarawi Keynote: Prof Bastios Suite 4
	Session 4: Vision Keynote: Dr Bruce Graham	Session 4: Localisation Chair: Prof Tracy Camp, Colorado School of Mines, USA	Session 4: Tracking II Chair: Dr Mark Coates	Session 1: Chair: Prof. Chris Saint	Session 1: Biomedical Signal Processing Chair: Dr Mathias Baumert
11.15	Multicompartment Simulations of NMDA Receptor-Based Facilitation in Insect Visual Neurons (Shoemaker, Patrick)	Node Deployment strategy for WSN-based Node-sequence localization (Hsiao, Chun-Chieh)	A Random Finite Set Conjugate Prior and Application to Multi-Target Tracking (Ba Toung Vo, Vo, Ba Ngu)	Energy Consumption and Air Quality Monitoring System (Raatikainen, Mikka Pekka)	Electromyogram (EMG) based fingers movement recognition using neighbourhood preserving analysis with QR- Decomposition (Rami N Khushaba, Sarath Kodagoda, Dikar Liu, Gamini Dissanayake)
11.35	The Focus of Attention under Phosphinated Vision through Retinal Implants (Filiz Isabell Kiral-Kornek, Craig O. Savage, David B. Grayden)	Optimal sensor placement in Linear arrays: Part 1 AoA based localization (Herath, Sanvidha Charaka Kumara)	Mixture Reduction Techniques for Multiple Hypothesis Tracking of Targets in Clutter (Kennedy, Hugh)	The Limitation of Measurement in Cyanobacteria using In-vivo Fluoroscopy (De-Wei Chang, Peter Hobson, Mike Burch, Tsair-Fuh Lin)	Brain Computer Interface: Classification of EEG for Left and Right Wrist Movements using AR Modeling and Bhattacharya Distance (Muhammed Shanir P.P., Waseem Raza, David M.W. Powers)
11.55	Modeling Inhibitory Interactions Shaping Neural Responses of Target Neurons to Multiple Features (Wiederman, Steven)	Node localization using particle swarm optimization (Hosseinzadeh Namin, Parham)	H-PMHT with an Unknown Arbitrary Target (Davey, Samuel)	Development of an On-line Nitrogen Monitoring System using Microdistillation Flow Analysis (David, Davey)	Metamaterial-Based Strain Sensors (Jining Li, Withawat Withayachumnankul, Shengjiang Chang, Derek Abbott)
12.15			Distributed Random Finite Set Theoretic Soft-Hard Data Fusion: Target Tracking Application (Khaleghi, Bahador)	A Dynamic Back-off Approach in Wireless Sensor Networks for Environmental Monitoring (Mouzehkesh, Nesa)	Scattering Robust Features for Classification of Materials Using Terahaertz (Mayank Kaushik, Brian W.-H. Ng, Bernd M. Fischer, Derek Abbott)
12.40	Lunch Ballroom Gallery Level 1				
1.30	Session 5: Noise and Nonlinearity Chair: Dr Mark McDonnell, UniSA	Session 5: Applications and Experimentation Chair: Dr Habib Ammari, University of Michigan Dearborn, USA	Session 5: Tracking, Fusion and Sensor Networks Chair: Dr Neil Gordon DSTO	Session 2: Chair: Prof Chris Saint UniSA	Session 2: Biomedical Sensors imaging, Sensing and Sensors Chair: Dr Brian Ng

Thursday 8 December 2011 Cont.

1.30	A Stochastic Dynamics Viewpoint of Some Neuron Models (Greenwood, Priscilla E)	SAQnet: Experiences from the Design of an Air Pollution Monitoring System Based on Off-the-Shelf Equipment (Bader, Sebastian)	A Convex Hull-based Approximation of Forest Fire Shape with Distributed Wireless Sensor Networks (Serna Moreno, Maria Angeles)	Optimising Non-specific Sensor Arrays for Poultry Emission Monitoring using GC-MS/O (Stuetz, Richard)	Development of Adaptive Noise Reduction Technology for In-vehicle Heartbeat Sensor (Hideki Tomimori, Satoshi Sano and Yasuhiko Nakano)
1.50	Computational models reveal non-linearity in integration of local motion signals by insect motion detectors viewing natural scenes (David C. O'Carroll, Eric J. Warrant)	Energy-Aware Distributed Fence Surveillance for Wireless Sensor Networks (Ziegert, Marco)	Consensus-based Distributed Detection with Mitigating Outliers for Wireless Sensor Networks (Jinho Choi, Hyukjin Lee, Cheng-Chew Lim)	Urban stormwater quality monitoring: From sampling to water quality analysis (Chong, Meng Nan)	Polymer and Carbon Nanotube Based Sensors for Pressure and Strain Measurements (Ming F. Teng and Alex Hariz)
2.10	An analogue VLSI implementation of a polychronous spiking neural network (Runchun Wang, Jonathan Tapson, Tara Julia Hamilton, Andre van Schaik)	An IMU-based Sensor Network to Continuously Monitor Rowing Technique on the Water (Bernd Tessendorf, Franz Gravenhorst, Bert Arnrich, Gerhard Troster)	Stateless and Efficient Boundary Simplification of Phenomena in Sensor Networks (Tse, Sai Hin)	Distribution and variation of typical contaminant species in short-term storm runoff from different urban land surfaces (Wei Qunshen)	Design and Validation of an Ambulatory Inertial System for 3-D Measurements of Low Back Movements (Charry, Edgar)
2.30	Special Session on Smart Cities Chair : Prof Michael Taylor Invited Speaker : Prof Ramamohanarao (Rao) Kotagiri,	Practical problems of experimenting with an underwater wireless sensor node platform (Zhang, Kui)	Scalable Decentralised Data Fusion using Hypercube Gossiping (Berndt, Phillip)	Development and validation of online surrogate parameters for water quality monitoring at a conventional water treatment plant using a UV absorbance spectrolyser (Byne, Amanda)	Regression Models for Estimating gait parameters Using Inertial Sensors (Daniel, Lai)
2.50		Towards Persistent Structural Health Monitoring Through Sustainable Wireless Sensor Networks, David Boyle	Multi-target device-free tracking using radio frequency tomography (Coates, Mark)	System and Interfaces for Water Quality Monitoring and Control in Aquaculture (Liu, Qlang)	Influence of Age on Cardio-Respiratory Interaction Assessed by Joint Symbolic Dynamics (Kabir, Muammar Muhammad)
3.10		Voice Quality Analysis in Wireless Multimedia Sensor Networks: An Experimental Study, Okan Turkes			
3.30	Afternoon tea Ballroom Gallery Level 1				
	Special Session on Smart Cities Chair Prof Michael Taylor	Session 6: Security and Resilience Chair: Dr David Boyle, Tyndall National Institute, Ireland	Session 6: Passive Tracking and Localisation II Chair : Dr Samuel Davey	Session 3: Chair: Prof. Chris Saint	
4.00	How Personal Fitness Data Can be Re-used by Smart Cities (Clarke, Andrew Parame)	Efficient Batch Authentication in Hierarchical Wireless Sensor Networks (Trevathan, Jarrod)	A Novel Approach for Accurately and Quickly Localizing a Tag from a mass of Passive RFID Tags (Yingliang Lu, Weifeng Zhang, Yao Meng, Hao Yu)	Essential Elements of Biosensor Development for Water Quality Monitoring (Pai Jing-Hong)	
4.20	WSN Based Power Monitoring in Smart Grids (Pachamuthu, Rajalakshmi)	Simple Secure PKI-based Scheme for Wireless Sensor Networks (Alfandi, Omar)	Simultaneous Classification and Ranging of Direct Fire Weapons Using an Asynchronous Acoustic Sensor Network (Lo, Kam)		
4.40	RFID for Optimization of Public Transportation System (M.H. Assaf, K.M. Williams)	Multi-modal routing to tolerate failures (Lim, Tiong Hoo)			
5.00 – 5.20		Event Reliability in Wireless Sensor Networks, Muhammad Mehmood			
6.15	Courtesy bus leaves from Hilton Hotel to National Wine Centre (Seats are limited so book your seat when you register)				
6.30 – 7.30	Conference Dinner at the National Wine Centre (Cnr Botanic and Hackney Roads Adelaide South Australia 5000) Pre dinner drinks and Canape with a twist, This Regional Wine Tasting Experience showcases 3 South Australian Wine Regions offering tastings of 9 celebrated wines. Dinner				

Friday 9 December 2011

8.30 – Noon	Registrations (Airport Lounge, adjacent to reception, ground floor)		
8.45	Housekeeping: Kellie Bartlam Welcome: General Chair :Prof Nandagopal		
9.00	Plenary Speaker: Dr Duncan Craig (DSTO) Ballroom B		
10.00	Morning Tea		
10.30	Symposium on Sensor Networks Invited Talk: Prof Marcus Brazil Chair: Dr Salil Kanhere, UNSW, Australia Ballroom B Level 1	Symposium on Environmental Monitoring Keynote: Dr John Bridgeman Chair : Prof Chris Chow Ballroom C Level 1	Symposium on Biomedical Sensing and Sensors Keynote: Prof JC Chiao Chair: Dr Said Al-Sarawi Suite 4 Level 1
11.15	Session 7: Event Detection and Coverage Chair: Dr Tanveer Zia, Charles Strut University, Australia	Water Quality Monitoring Workshop Chair: Prof Chris Chow, SA Water	Session 4: Breast Cancer Detection Chair: A/Prof Robert McLaughlin
11.15	Online Unsupervised Event Detection in Wireless Sensor Networks (Bahrepur, Majid)		SAR Distribution in Microwave Breast Screening: Results with TWTLTLA Wideband Antenna (Adam Santorelli and Milica Popović)
11.20	A method for decentralized self-deployment of a mobile sensor network with given regular geometric patterns (Andrey V. Savkin, Faizan Javed)		Study on Optimal Bandwidth for Microwave Breast Imaging (David Ireland, Amin M. Abbosh and Marek E. Bialkowski)
11.35	On the Problem of k-Coverage in 3D Wireless Sensor Networks: A Reuleaux Tetrahedron-Based Approach (Ammari, Habib M.)		Investigation of multiorientation and multiresolution features for microcalcifications classification in mammograms (Aqilah Baseri Huddin, Brian Ng and Derek Abbott)
12.15	Latent Variables Based Data Estimation for Sensing Applications (Nakul Verma, Piero Zappi, Tajana Rosing)		
12.45	Lunch		
	Session 8:Data Collection and Processing Methods Chair: Dr Piero Zappi, University of California San Diego, USA	Water Quality Monitoring Workshop, Continued.	Session 4: Biomedical Imaging and Sensing Chair: A/Prof Christophe Fumeaux
1.30	Query based nWSN Data Processing for Spatial Thermal Mapping (Yamani, Naresh)		Wideband Antenna for Microwave Imaging of Brain (Bead'a Mohammed, Amin M. Abbosh, David Ireland and Marek E. Bialkowski)
1.50	Non-uniform Compressive Sensing in Wireless Sensor Networks: Feasibility and Applications (Yiran Shen, Wen Hu, Rajib Rana, Chun Tung Chou)		A $\lambda/30$ Resolution Laser Speckle Pattern Biosensor for Dynamic Studies on Live Samples (Maria Fernanda Avila, Shigeki Yamaguchi, Hideho Uchiyama, Ruggero Micheletto)
2.10	A Sensor Data Collection Method under A System Constraint using Hierarchical Delaunay Overlay Network (Shinomiya, Jun)		In situ 3D imaging of alveoli with a 30 gauge side-facing optical needle probe (Xiaojie Yang, Robert McLaughlin, Dirk Lorensen, Rodney Kirk, Peter Noble and David Sampson)
2.30			
3.00	Afternoon tea		
3.30	Conference Closing Session General Chair Ballroom B Special Awards		