

# **3rd International Conference on Intelligent Sensors, Sensor Networks and Information Processing**

**ISSNIP 2007**

**3-6 December 2007, Langham Hotel, Melbourne, Australia**

## **CONFERENCE REPORT**

**General Chair: A/Prof. M. Palaniswami**

Co-located conferences:

Third International Conference on Information and Automation for Sustainability: ICIAFS2007  
4-6 December 2007, Langham Hotel, Melbourne, Australia

Second Intelligent Vehicles and Road Infrastructure Conference: IVRI'07  
6 December 2007, Langham Hotel, Melbourne, Australia

Program Summary

- 3<sup>rd</sup> December 2007
  - Tutorials
  - Workshop on Sensors for the Great Barrier Reef
  - Workshop on Optimization in Sensor Networks
  - Welcome Reception
- 4<sup>th</sup> to 6<sup>th</sup> December 2007
  - Key Note talks – 15
  - Oral sessions
  - Poster (Full Paper) Sessions - 5<sup>th</sup> Dec
  - Poster (Abstracts) Session – 5<sup>th</sup> Dec
  - Conference Banquet – 5<sup>th</sup> Dec, Sumac, Docklands

Statistics:

- Authors from 28 different countries (Aus – 41%, US – 11%)
- Proceedings published by IEEE Press and to appear on IEEE Xplore
- 16 Plenary/Keynote talks from top researchers
- Full paper submissions, fully reviewed, 63% accepted (128 Accepted, 75 Rejected, 46 withdrawn)
- 99 oral presentations and 29 poster presentations
- One overall best paper and one student best paper awarded
- About 17000 web hits

ISSNIP 2007, the Third conference in the ISSNIP series and flagship event of the Research Network was once again a great success attracting a large number of high profile international speakers and quality papers from around the world. It was organised as a collection of Symposiums encompassing the priority research themes of ISSNIP together with tutorials and a selection of workshops, with the main technical program split into oral and poster presentations. Each Symposium Chair was given the responsibility of putting together a technical program committee and assigning reviewers, as well as the opportunity to nominate keynote speakers. Papers were solicited by the ISSNIP Organising Committee as well as by individual Symposium organisers, utilising all available dissemination networks. The overall quality of paper submissions continues to reach new standards with each conference. Receiving 203 valid submissions, the technical program committee accepted 128 papers for publication, following the peer review process. Of the accepted papers 63 had a student as first author. The total attendance was 275 (237 ISSNIP, 38 RFID) in addition to those attending the ICIAfS and IVRI co-conferences, with high attendance across all days of the conference. The conference also

awarded a best paper and best student paper, based on nominations from the Symposium Chairs and further review by the selection committee (including a number of international keynote speakers).

Included in the social program was welcome cocktail function at the Langham's Alto room overlooking the city and the Yarra precinct below in addition to a well received banquet dinner at Docklands.

Sponsorship for the conference (in addition to that from ARC RN on ISSNIP) was successfully sourced from AOARD, CSIRO, DSTO, Victorian Government and University of Melbourne, as well as technical co-sponsorship from IEEE Victoria Section and IEEE-EMBS, together with media partner Journal of Sensors.

In addition to delivering high quality International keynote speakers and quality technical program, the conference provided a foundation for a number of high level meetings around the time of the conference, taking advantage of the presence of a large number of international visitors at the conference. Some of these included: the ISSNIP ISAC meeting; a DEST-ISL project (Distributed Sensor Networks) meeting; ISSNIP - E-Sense (EU 6<sup>th</sup> FP) meeting; and the ISSNIP Chief Investigator's Meeting. Positive feedback was thus received and a significant number of new collaborative links have been established. Other direct outcomes include the planning for new events (workshops/meetings) in 2008, as well as new research proposals and corresponding funding applications. Significant industry links were also a direct outcome of the successful RFID Symposium. The efforts of the Organising Committee, Symposium Chairs and Technical Program Committees have set high standard for the conference, which is aiming to be surpassed at the ISSNIP 2008 conference hosted in Sydney. We would like to thank all those involved in putting the conference together, the keynote speakers for their contributions and all those in attendance for making ISSNIP 2007 a highly successful event.

#### **Best Paper Awards:**

**Best Paper:** *Localization in Multi-Modal Sensor Networks* - Ryan Farrell (University of Maryland, USA); Roberto Garcia (Johns Hopkins University, USA); Dennis Lucarelli (Johns Hopkins University, USA); Andreas Terzis (Johns Hopkins University, USA); I-Jeng Wang (Johns Hopkins University, USA)

**Best Student Paper:** *Distributive Target Tracking in Wireless Sensor Networks under Measurement Origin Uncertainty* - Hui Ma (The University of Adelaide, Australia); Brian W.-H. Ng (The University of Adelaide, Australia)

#### **Keynote speakers:**

**Prof. Rob Evans** (NICTA/University of Melbourne)

**Prof. Nitish Thakor** (Johns Hopkins University)

**Prof. S. Jagannathan** (University of Missouri-Rolla)

**Prof. Vijay Varadan** (Pennsylvania State University)

**Dr. Ronald Mahler** (Lockheed Martin Tactical Systems)

**Prof. Mohan Trivedi** (UCSD)

**Prof. Hugh F. Durrant-Whyte** (Sydney University)

**Prof. Alex Zelinsky** (CSIRO)

**Prof. Sally Holbrook** (UCSB)

**Prof. Ian Marshall** (Lancaster University, UK)

**Prof. Anibal Ollero** (University of Seville, Spain)

**Prof. Stuart Milner** (University of Maryland, USA)

**Prof. Mohan Kumar** (The University of Texas, Arlington, USA)

**Dr. Andy Coon** (BBN Technologies)

**Prof. Clarence de Silva** (University of British Columbia, Canada) (ICIAfS plenary)

#### **Tutorials:**

**Dr. Christopher R. Wren** - Mitsubishi Electric Research Laboratories, USA

**Dr. Ganesh Kumar Venayagamoorthy, and Raghavendra Kulkarni, University of Missouri-Rolla, USA**

## **Conference Organisation**

**General Chair: M. Palaniswami (University of Melbourne, Australia)**

### **Symposium and Workshop Chairs**

#### **Symposium on Sensor Networks**

Paul Havinga (University of Twente, The Netherlands) and Tim Wark (CSIRO, Australia)

#### **Symposium on Sensor Fusion, Intelligent Sensors and Applications**

Danil Prokhorov (Toyota, USA) and Thomas Hanselmann (University of Melbourne, Australia)

#### **Symposium on Information Processing in Sensor Networks**

Salim Bouzerdoum (University of Wollongong, Australia)

#### **Symposium on Sensor Network Security**

Neeli Prasad (Aalborg University, Denmark) and Yee Wei Law (University of Melbourne, Australia)

#### **Symposium on Machine Learning and Applications**

Siddhi Kulkarni (University of Ballarat, Australia) & Brijesh Verma (Central Queensland University, Australia)

#### **Symposium on Autonomous Configurability and Control in Dynamic Wireless Networks**

Stuart Milner (University of Maryland, USA) and Sylvie Perreau (University of South Australia, Australia)

#### **Symposium on Middleware for Sensor Systems (MiSS'07)**

Mohan Kumar (University of Texas at Arlington, USA)

#### **Symposium on Computational Intelligence for Sensor Networks**

G.K. Venayagamoorthy (University of Missouri-Rolla, USA)

#### **Symposium on Bio-signal Processing and Networked Sensors in Healthcare**

Rezaul Begg (Victoria University, Australia) and Dinesh Kant Kumar (RMIT University, Australia)

#### **Symposium on Environmental Sensor Networks**

Stuart Kininmonth (Australian Institute of Marine Science, Australia)

#### **The First International Symposium on RFID Technology**

Kate Smith-Miles (Deakin University, Australia) and Robin Doss (Deakin University, Australia)

#### **Workshop on Optimization in Sensor Networks**

Adil Bagirov (Ballarat University, Australia) and Daniel T.H. Lai (University of Melbourne, Australia)

#### **Technical Program Committee (general):**

Nallasamy Mani	(Monash University, Australia)
David O'Carroll	(University of Adelaide, Australia)
David Grayden	(University of Melbourne, Australia)
Achim Hoffman	(University of New South Wales, Australia)
Ravi Kothari	(IBM Academy of Technology, India)
Svetha Venkatesh	(Curtin University, Australia)
Rob Evans	(University of Melbourne, Australia)
Subhash Challa	(NICTA, Australia)
Kenneth Chiu	(Binghamton University, USA)
Simon Coles	(University of Southampton, UK)
Adrian Pearce	(University of Melbourne, Australia)
Guang (Dennis) Deng	(La Trobe University, Australia)
Ju Jia (Jeffrey) Zou	(University of Western Sydney, Australia)
Donald F. McMullen	(Indiana University, USA)
Arkot Sowmya	(University of New South Wales, Australia)

Jeroen Doumen (University of Twente, The Netherlands)  
Raj Madhavan (National Institute of Standards and Technology, USA)  
Wanzhi Qiu (NICTA, Australia)  
Leon Reznik (Rochester Institute of Technology, USA)  
Giorgio Valentini (Università di Milano, Italy)

**Technical Program Committee (Symposium on Middleware for Sensor Systems (MiSS'07)):**

Christian Becker (University of Mannheim, Germany)  
Jiannong Cao (Hong Kong Polytechnic University, China)  
Jorg Hahner (University of Hannover, Germany)  
Jadwiga Indulska (University of Queensland, Australia)  
Swaroop Kalasapur (Samsung Research, USA)  
Mijeom Kim (Korea Telecom, Korea)  
Cheng-Zhong Xu (Wayne State University, USA)  
Cecilia Mascolo (University College London, UK)  
Max Ott (NICTA, Australia)  
Ricky Robinson (NICTA, Australia)  
Zhijun Wang (Hong Kong Polytechnic University, China)  
Wendong Xiao (Institute for Infocomm Research, Singapore)  
Daqing Zhang (Institute for Infocomm Research, Singapore)

**Technical Program Committee (Symposium on Autonomous Configurability and Control in Dynamic Wireless Networks):**

M. Palaniswami (University of Melbourne, Australia)  
Anurag Dwivedi (Johns Hopkins University, USA)  
Christopher C. Davis (University of Maryland, USA)  
Michael Casey (George Mason University, USA)  
Raouf Boutaba (University of Waterloo, Canada)  
Jean Carles (Université des Sciences et Technologies de Lille, France)  
Fabrice Valois (INSA Lyons, France)  
Mehdi Kalantari Khandani (University of Maryland, USA)  
Zygmunt Haas (Cornell University, USA)

**Technical Program Committee (Symposium on Machine Learning and Applications):**

Ajith Abraham (Chung-Ang University, Korea)  
Andre C.P.L.F. de Carvalho (University of Sao Paulo, Brazil)  
Antonio de Padua Braga (Federal University of Minas Gerais, Brazil)  
Baikunth Nath (University of Melbourne, Australia)  
Erkki Oja (Helsinki University of Technology, Finland)  
Haibin Zhu (Nipissing University, Canada)  
Henry Selvaraj (University of Nevada at Las Vegas, USA)  
Kaori Yoshida (Kyushu Institute of Technology, Japan)  
Peter Vamplew (University of Ballarat, Australia)  
Tuan Pham (James Cook University, Australia)  
Vasile Palade (Oxford University, UK)

**Technical Program Committee (Symposium on Environmental Sensor Networks):**

Bernard Pailthorpe (University of Queensland/QCIF, Australia)  
Sally Holbrook (University of California at Santa Barbara, USA)  
Tim Wark (CSIRO, Australia)  
Tony Tung-Yung Fan (National Museum of Marine Biology and Aquarium, Taiwan)  
Ian Atkinson (James Cook University, Australia)  
Paul Havinga (University of Twente, The Netherlands)  
Malcolm Hall (Prolificx, Australia)  
Ron Johnstone (University of Queensland, Australia)

**Technical Program Committee (Symposium on Sensor Fusion, Intelligent Sensors and Applications):**

Martin Adams (Nanyang Technological University, Singapore)  
Dmitri Dolgov (Toyota, USA)

Arnaud Doucet	(University of British Columbia, Canada)
Hugh Durrant-Whyte	(University of Sydney, Australia)
Neil Gordon	(DSTO, Australia)
Thomas Hanselmann	(University of Melbourne, Australia)
Michael James	(Toyota, USA)
Anthony Kuh	(University of Hawaii, USA)
Barbara F. La Scala	(University of Melbourne, Australia)
Norbert Lehmann	(University of Fribourg, Switzerland)
Wing-Kin Ma	(National Tsing Hua University, Taiwan)
Ronald Mahler	(Lockheed Martin, USA)
Mark Morelande	(University of Melbourne, Australia)
Darko Mušicki	(Independent Consultant, Australia)
Lyle Noakes	(University of Western Australia, Australia)
Anthony Overmars	(Softronics, Australia)
Danil Prokhorov	(Toyota, USA)
Mohammad-Jafar Rezaeian	(University of Melbourne, Australia)
Branko Ristic	(DSTO, Australia)
Michael Samples	(Toyota, USA)
Craig Savage	(NICTA, Australia)
Ying Tan	(University of Melbourne, Australia)
Mohan Trivedi	(University of California at San Diego, USA)
Ivan Tyukin	(University of Leicester, UK)
Nikita Visnevski	(GE Research, USA)
Ba-Ngu Vo	(University of Melbourne, Australia)
Xuezhi Wang	(University of Melbourne, Australia)
Sardha Wijesoma	(Nanyang Technological University, Singapore)
Alex Zelinsky	(CSIRO/ANU, Australia)

**Technical Program Committee (Symposium on Bio-signal Processing and Networked Sensors in Healthcare):**

Ahsan Khandoker	(University of Melbourne, Australia)
Allan Barros	(UFMA, Brazil)
Angelo M. Sabatini	(Scuola Superiore Sant'Anna, Italy)
Chris Nugent	(University of Ulster, UK)
Daniel T.H. Lai	(University of Melbourne, Australia)
Gert Cauwenberghs	(University of California at San Diego, USA)
Hans Weghorn	(University of Stuttgart, Germany)
Irena Cosic	(RMIT University, Australia)
Paik Jayadeva Bhat	(IIT, India)
Jose M. Parente	(ITA, Brazil)
Keith Hill	(NARI, Australia)
Markad Kamath	(McMaster University, Canada)
Meg Morris	(University of Melbourne, Australia)
Neil McLachlan	(University of Melbourne, Australia)
Nigel Lovell	(University of New South Wales, Australia)
Ramaswamy Palaniappan	(University of Essex, UK)
Slaven Marusic	(University of Melbourne, Australia)
Tommaso D'Alessio	(Università di Roma Tre, Italy)
Toshio Tsuji	(Hiroshima University, Japan)
Tzzy-Ping Jung	(University of California at San Diego, USA)
Volnei A. Pedroni	(UTFPR, Brazil)
Yoshitaka Kimura	(Tohoku University, Japan)

**Technical Program Committee (Symposium on Sensor Network Security):**

Roberto Di Pietro	(Università di Roma Tre, Italy)
Chris Leckie	(University of Melbourne, Australia)
Tieyan Li	(Institute for Infocomm Research, Singapore)
Miao Ma	(Hong Kong University of Science & Technology, China)
Vallipuram Muthukkumarasamy	(Griffith University, Australia)
Udaya Parampalli	(University of Melbourne, Australia)

Nicolas Sklavos (Technological Education Institute of Messolonghi, Greece)

**Technical Program Committee (Symposium on Computational Intelligence for Sensor Networks):**

Mohamed El-Sharkawi (University of Washington, USA)  
Saman Halgamuge (University of Melbourne, Australia)  
Raghavendra Kulkarni (University of Missouri-Rolla, USA)  
Erkki Oja (Helsinki University of Technology, Finland)  
M. Palaniswami (University of Melbourne, Australia)  
Pubudu N. Pathirana (Deakin University, Australia)  
Steve Watkins (University of Missouri-Rolla, USA)  
Donald Wunsch II (University of Missouri-Rolla USA)  
Ying Zhang (Palo Alto Research Center, USA)  
Mithun Prasad (University of California at Los Angeles, USA)

**Registration Chair:** Rezaul Begg, Victoria University, Australia

**Sponsorship Chair:** Robert Slaviero, Analog Devices, Australia

**Grants Chair:** Guang Deng, La Trobe University, Australia

**Organising Committee Chair:** Slaven Marusic, University of Melbourne, Australia

**Conference Administration:** Georgi Cahill, University of Melbourne, Australia

**Local Organising Committee**

Robert Slaviero (Analog Devices, Australia)  
Nallasamy Mani (Monash University, Australia)  
Daniel T.H. Lai (University of Melbourne, Australia)  
Alistair Shilton (University of Melbourne, Australia)  
Ahsan Khandoker (University of Melbourne, Australia)  
Wei Hua Wang (University of Melbourne, Australia)  
Jin Shong Sun (University of Melbourne, Australia)  
Jayavardhana Gubbi (University of Melbourne, Australia)  
Sutharshan Rajasegarar (University of Melbourne, Australia)  
Jason Jiong Jin (University of Melbourne, Australia)  
Chandan Kumar Karmakar (University of Melbourne, Australia)  
Sophie Kaplantzis (Monash University, Australia)  
Bharat Sundaram (University of Melbourne, Australia)  
Pubudu N. Pathirana (Deakin University, Australia)