1 PhD position in peer-to-peer networks   1 PhD position in ad-hoc transport

At the University of Melbourne there are two new openings for PhD students:
- one in the area of peer-to-peer networks
  (for students with a background in computer science or electrical engineering)
- one in the area of computational transportation science
  (for students with a background in computer science, geomatics, geoinformatics or transportation).

Tasks:

A new interdisciplinary project (Effective Decentralized Transport Management) will develop novel peer-to-peer communication mechanisms in hybrid sensor networks with stationary and mobile nodes, and test their applicability and efficiency in a cooperative ad-hoc transportation scenario. We are looking for two PhD students that collaboratively investigate the two aspects of this project. The research in *peer-to-peer networks* will investigate novel multidimensional routing protocols to support delay sensitive applications in heterogeneous networks. The research in *cooperative ad-hoc transportation* will use these novel structures for efficient management of ride sharing, an application that requires both, directed and in-depth information of transport supply for local users planning a trip.

Desired skills:

- Position 1: solid background in network protocols and structured peer-to-peer networks
- Position 2: solid background in spatial / spatiotemporal information (Geomatics, Geoinformatics, Transportation Science, or related masters degree)
- good programming skills in object-oriented or declarative languages
- interest in world-leading research as well as in development
- research training (e.g., a project and thesis at the end of the masters programme)

Terms:

The fix-term positions are funded by full scholarships from National ICT Australia (NICTA) for three years, which can be extended for another six months, and a fee relief from the Melbourne School of Engineering for candidates of a scholarship score of 80 or above. With this level of funding, and excellent free social services on campus, students can easily live in Melbourne, one of the most liveable cities in the world. Expected start is 1 February 2011. Candidates must fulfil the entry criteria for research higher degree students at the University of Melbourne.

About NICTA:

NICTA is Australia's ICT Centre of Excellence. It is the largest organisation in Australia dedicated to ICT research. NICTA focuses on use-inspired basic research to address the technology challenges facing industry, community and the national interest.

NICTA offers prospective students an enhanced PHD program with access to specialist coursework; world-class supervision in a challenging and supporting environment; practical

research with industry and domain experience; professional skills development by offering courses in project management, commercialisation and communication; placement in a particular NICTA research program with the opportunity to work on state-of-the-art research; opportunities to work on development and commercialisation projects; research internships; and world-class infrastructure.

NICTA also has a strong emphasis on use-inspired research that has the potential to be commercialised. Hence, students have an opportunity to work on research projects that may lead to commercialisation opportunities.

For more information, visit: www.nicta.com.au

About the University of Melbourne:

The University of Melbourne is in all international rankings among the top 100 universities in the world, and its School of Engineering is ranked even higher. For more information, visit: www.unimelb.edu.au

References to previous work:

- Santosh Kulkarni, Scott Douglas, David Churchill (2010), Badumna: A decentralised network engine for virtual environments. *Computer Networks, 54 (12): 1953-1967*.
- Winter, S. (2008): Intelligent Self-Organizing Transport. Künstliche Intelligenz, 08 (3): 25-28.

Applications should be sent via email to:

- Santosh Kulkarni, santosh.kulkarni@nicta.com.au (for position 1)
- Stephan Winter, winter@unimelb.edu.au (for position 2)

All applications sent in by 15 November 2010 will be considered. Applications by women are highly encouraged.