25th annual CITRENZ conference

editors
MIKE LOPEZ & MICHAEL VERHAART

forging new pathways

PROCEEDINGS
Proceedings of the 3rd Annual Conference of Computing and Information Technology Education and Research in New Zealand

Incorporating the 25th Annual Conference of the National Advisory Committee on Computing Qualifications

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Mike Lopez
Dr Michael Verhaart

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Computing and Information Technology Research and Education New Zealand (CITRENZ) was formed as an organisation in 2010 following a review of the role of the National Advisory Committee on Computing Qualifications (NACCQ).

The National Advisory Committee on Computing Qualifications was formed in 1988.

CITRENZ provides help and support to member institutions in the development, teaching and quality assurance of courses and programmes, from certificate through degree to postgraduate levels, in the field of Computing and Information Technology.

CITRENZ also supports academic staff in several different ways, such as national workshops, research seminars, APL, moderation, the publishing of a journal, and also by organising this annual conference.

This conference is an output of the Research and Professional Development Focus Group.

CITRENZ activities and a digital version of these proceedings are available from http://www.citrenz.ac.nz

The philosophy of the conference is the encouragement and support of new, emerging and established researchers in a safe environment while encouraging excellence and academic discourse.

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Editors
Mike Lopez: Christchurch Polytechnic Institute of Technology
Dr Michael Verhaart: Eastern Institute of Technology

Theme
The conference contains papers in the following areas under the theme “Forging New Pathways”:
- Computing education
- Computing practice
- Computing research

Full papers (Quality Assured)
Full papers are double blind refereed on submission by at least three independent reviewers and accepted modified or rejected. An editorial panel reviews final versions. They may be rejected or returned for modification at that point.

In keeping with its supportive mission, the conference uses a system of paper proposals which are reviewed and guidance given to content, tone and structure of papers before they are formally submitted to be double blind refereed.

Poster papers
An A1 poster is displayed at the conference along with two pages in the proceedings.

Online
These conference proceedings, along with those since 2000, are available online at http://www.citrenz.ac.nz/index.php/proceedings-pacit
### Reviewers

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### 2012 Awards

- **Student Poster**
  - Honourable mention: Calteau, Coombs, Smith, Mann
  - Honourable mention: Maclachlan, Bradley, Smith, Mann
  - Runner up: Sime, McEwan, Cross, Smith, Mann
  - **Best: Cattermole**

- **Staff Poster**
  - Honourable mention: Tongariro, Fakasi‘i‘eiki
  - Honourable mention: Burrell, Melchert
  - Honourable mention: Mann, Angelo, Gallagher
  - Runner up: Robertson
  - **Best: Lance, Oliver, Sarkar**

- **Collaborative Research**
  - Honourable mention: de Vries, McCarthy, Nesbit, Mack, Reilly
  - Runner up: Wingreen, Tennant, Nesbit, Moorman
  - **Best: Lopez, Lopez, Simpson**

- **Educational Innovation**
  - Honourable mention: Smith, Haden, Mann
  - Honourable mention: Verhaart, Hagen-Hall
  - Runner up: Lopez, Lopez, Simpson
  - **Best: Nesbit, Martin**

- **Best Paper**
  - Honourable mention: Mann, Smith, Regan
  - Honourable mention: Sarkar, Oliver, Lopez, Lance
  - Runner up: Nesbit, Martin
  - **Best: Lopez, Lopez, Simpson**