Annual Conference of the South African Institute of Computer Scientists and Information Technologists

SAICSIT 2011
Knowledge, Innovation and Leadership in a Diverse, Multidisciplinary Environment

Programme

The Pavilion Conference Centre
Cape Town, South Africa
3-5 October 2011
### MONDAY 3 OCTOBER 2011

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<td>Masters and Doctoral Symposium</td>
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<tr>
<td>15:00</td>
<td>Early Registration</td>
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<td>17:30</td>
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### TUESDAY 4 OCTOBER 2011

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<td>Welcome, Irwin Brown, Pavilion</td>
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<td>09:15</td>
<td>Keynote Address: Danny Naidoo (Global Head of Innovation, Old Mutual Group), Pavilion</td>
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<td>Track 1, Pavilion, Chair: Gruner</td>
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<td>Track 2, 5+7, Chair: Bankole</td>
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<td>Track 3, Millenium, Chair: Keet</td>
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<td>Towards a framework for the adoption of Business Intelligence in public sector organisations: the case of South Africa; Kaashief Hartley and Lisa Seymour</td>
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<td>Business Process Management Adoption: A Case Study of a South African Supermarket Retailer; Lisa F Seymour and Wesley Grisdale</td>
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<td>The Influence of Gender and Age on Choosing Computing Courses at South African Universities; Patricia Alexander, Martjie Schoeman, Estelle De Kock, Bennett Alexander and Roxi Piderit</td>
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<td>Investigating the Extent to which Students Share Tacit Knowledge Using Mobile Phones in Group Projects; Chiedza Khumbula and Michael Kyobe</td>
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<td>Barrel Menu: A New Mobile Phone Menu for Feature Rich Devices; Greg Foster and Terence Foxcroft</td>
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<td>The conversion from PowerPoint (PPT) to compressed Scalable Vector Graphics (SVGZ); Jean-Pierre Joubert, Jean Greyling and Charmain Cilliers</td>
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<td>The Impact of Sensor Fusion on Tilt Interaction in a Mobile Map-Based Application; Bradley van Tonder and Janet Wesson</td>
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<td>Static Typing with Value Space-based Subtyping; Alexander Paar and Stefan Gruner</td>
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<td>Providing Media Download Services in African Taxis; Graeme Smith and Gary Marsden</td>
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<td>Indexing and Weighting of Multilingual and Mixed Documents; Mohammed Mustafa, Izzedin Osman and Hussein Suleman</td>
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<td>Panel Discussion: What industry wants from academic research</td>
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<td>Panelists: Paulo Ferreira, Samsung</td>
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<td>Jenny McKinnell, CITI</td>
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<td>Judith Bishop, Microsoft Research</td>
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<td>Gert-Jan van Rooyen, University of Stellenbosch</td>
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<td>13:00</td>
<td>Lunch</td>
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<td>Contextual Factors Influencing Strategic Information Systems Plan Implementation; Nancy Brown and Irwin Brown</td>
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<td>Successful ICT Service Delivery: Enablers, Inhibitors and Hygiene Factors - A Service Provider Perspective; Eureka Sewchurran and Irwin Brown</td>
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<td>Issues of Adoption: Have E-Learning Management Systems Fulfilled their Potential in Developing Countries?; Grace Ssekakubo, Hussein Suleman and Gary Marsden</td>
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<td>The Effect of Construction Heuristics on the Performance of a Genetic Algorithm for the School Timetabling Problem; Rushil Raghavjee and Nelisha Pillay</td>
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<tr>
<td>15:00</td>
<td>Keynote Address: Nikolai Tillmann (Principal Research Software Development Engineer, Microsoft Research) Future of Software Engineering on Mobile Devices, Pavilion</td>
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<td>16:15</td>
<td>SAICSIT AGM, Pavilion</td>
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<td>Conference Banquet</td>
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<td>10:00</td>
<td>Does Chomsky Complexity Affect Genetic Programming Computational Requirements?; Clayton Burger and Mathys Cornelius du Plessis The Influence of Gender and Internet Experience on the Acceptability of Smell as Interaction Modality; Ray Shih and Pieter Blignaut</td>
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<tr>
<td>11:00</td>
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<td>11:15</td>
<td>Panel Discussion: Is the raising of cyber security awareness amongst citizens an integral part of Cyberwarfare or only a national imperative to protect the citizen from economic or other losses? Panelists: Jackie Phahlamohlaka (CSIR, South Africa) Matthie Grobler (CSIR, South Africa) Zama Dlamini (CSIR, South Africa) Rossouw von Solms (Nelson Mandela Metropolitan University, South Africa) Brig Gen L. Yam (University of Stellenbosch) Jannie Zaaiman (University of Venda)</td>
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<td>12:45</td>
<td>Lunch</td>
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<td>13:45</td>
<td>Day Labour Mobile Electronic Data Capture and Browsing System; Christopher Chepken, Edwin Blake and Gary Marsden Efficiency Measurements in IVR Systems for Oral Users: Consequences of Differences in Educational Levels; Tembalethu Jama Ndwe, Etienne Barnard, Renee Koen and Bryan McAlister Browser-based Software for Technology Transfer; Judith Bishop</td>
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<td>15:15</td>
<td>Conference Closing and Plenary Session, Pavilion</td>
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Programme Committee

Trish Alexander, University of Pretoria
Shaun Bangay, Rhodes University
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Sonia Berman, University of Cape Town
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Jeán Greyling, Nelson Mandela Metropolitan University
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Barry Irwin, Rhodes University
Chris Johnson, Glasgow University
Fourie Joubert, University of Pretoria
Anne Kayem, University of Cape Town
George Konidaris, Massachusetts Institute of Technology (MIT)
Jan Kroeze, University of South Africa
Neels Kruger, University of Pretoria
Michelle Kuttel, University of Cape Town
Michael Kyobe, University of Cape Town
Awie Leonard, University of Pretoria
Stephen Levitt, University of the Witwatersrand
Hugo Lotriet, University of Pretoria
Jude Lubega, Makerere University, Uganda
Philip Machanick, Rhodes University
Gary Marsden, University of Cape Town
Audrey Mbohgo, University of Cape Town
Alemayehu Molla, Royal Melbourne Institute of Technology
Mohamed Mosbah, Institut Polytechnique de Bordeaux
Ernest Ngassam, SAP Research CEC
Martin Olivier, University of Pretoria
Phillipe Palanque, Université Toulouse III
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Laurette Pretorius, University of South Africa
Karen Renaud, University of Glasgow
Ingrid Rewitzky, Stellenbosch University
Anthony Rodrigues, Bond University College, Kenya
Ian Sanders, University of the Witwatersrand
Kosheek Sewchurran, University of Cape Town
Farid Shirazi, Ryerson University, Canada
Paula Alexandra Silva, Lancaster University, United Kingdom
Daniel Sinnig, Concordia University, Canada
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Mamello Thinyane, University of Fort Hare
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Judy van Biljon, University of South Africa
Alta van der Merwe, Council for Scientific and Industrial Research, Meraka Institute
McDonald van der Merwe, University of South Africa
Etienne van der Poel, University of South Africa
Andre van der Poll, University of South Africa
Darelle van Greunen, Nelson Mandela Metropolitan University
Rossouw van Solms, Nelson Mandela Metropolitan University
Terence van Zyl, Council for Scientific and Industrial Research, Meraka Institute
Hein Venter, University of Pretoria
Lucas Venter, North-West University
Isabella Venter, University of the Western Cape
Herna Viktor, University of Ottawa
Janet Wesson, Nelson Mandela Metropolitan University
Quentin Williams, Council for Scientific and Industrial Research, Meraka Institute
Panel Discussion Abstracts

Panel Discussion:
What industry wants from academic research

Panelists:
- Derrick Kourie, University of Pretoria [Panel Chair]
- Paulo Ferreira, Samsung
- Jenny McKinnell, CITI
- Judith Bishop, Microsoft Research
- Gert-Jan van Rooyen, University of Stellenbosch

Abstract:
In many countries, and South Africa is no exception, there are examples of industry and academia working together more closely than in the past. Examples in SA are the SAP Research Centre and the recent Samsung Mobile Innovation Lab at UCT. Unlike previous discussions, which have focused on the output quality of graduates and the nature of the curriculum, this panel will explore what it is that industry hopes to get from research connections and how it hopes to achieve its goals and leverage the results.

Panel Discussion:
Is the raising of cyber security awareness amongst citizens an integral part of Cyberwarfare or only a national imperative to protect the citizen from economic or other losses?

Panelists:
- Joey Jansen Van Vuuren (CSIR, South Africa) [Panel Chair]
- Jackie Phahlamohlaka (CSIR, South Africa)
- Marthie Grobler (CSIR, South Africa)
- Zama Dlamini (CSIR, South Africa)
- Rossouw von Solms (Nelson Mandela Metropolitan University, South Africa)
- Brig Gen L. Yam (University of Stellenbosch)
- Jannie Zaaiman (University of Venda)

Abstract:
Cyberwarfare refers to politically motivated hacking to conduct sabotage and espionage. Cyberwarfare has been defined by government security expert Richard A. Clarke, in his book Cyber War (May 2010), as “actions by a nation-state to penetrate another nation’s computers or networks for the purposes of causing damage or disruption.”[4]. But what about actions by informed citizens with malicious intent, or actions by third parties using cyber resources of unsuspecting users? How will the actions of a nation-state in cyberspace be distinguished from the actions of Individual citizens?

With the importance that information plays in the everyday environment, cyber security plays a key role in the maintenance of national security; which is defined as that part of government policy which has as its objectives the protection of a nation’s vital national interests against existing or potential adversaries. In this regard, cyber security refers to the protection of information and information systems from unauthorised access, use, disclosure, disruption, modification or destruction.

Daved, CISSP of Naval Warfare Command, indicates that recent activities in cyberspace have moved the battlefield to the average citizen’s home as it was observed that attackers can take over and compromise a brand new computer in 30 seconds after connecting to the internet [1]. Compromised PC’s of unsuspecting citizens could be used for launching cyber warfare type attacks on the rest of the world. This in turn could pose a national security threat to any nation. The exponential increase in Internet broadband access in RSA and the rest of Africa could result in an increase in security threats that will also take the battlefield to the home of the average citizen in rural South Africa, and indeed to the home of any average African citizen. It is important therefore that citizens are made aware of the multiplicity of threats associated with their cyberspace citizenship.

Against this background the question arises whether the raising of cyber security awareness amongst citizens is an integral part of Cyber warfare or only a national imperative to protect the citizen from economic or other losses.

Modern society created both a direct and indirect dependence on information technology, with a strong reliance on immediacy, access and connections [3]. This, combined with the fact that there is a large portion of the South African population that has not had regular and sustained exposure to technology and broadband internet access, expose local communities to cyber threats.

Presently the low broadband penetration in Africa limits the chances of Africa being used to launch cyber attacks to other countries. However, the current increase in broadband access throughout Africa may potentially increase the cyber related vulnerabilities drastically. As a result, a compromise of the integrity, confidentiality, authenticity or availability of the technological systems could have dramatic consequences regardless of whether it is a temporary interruption of connectivity, or a longer-term disruption caused by a cyber attack[2].

The CSIR is currently conducting an awareness raising research and development project with a view to preparing sectors of society to become better cyber citizens. Other institutions, such as the Nelson Mandela Metropolitan University have similar initiatives. Could it be argued that these initiatives form an integral part of cyber warfare, seeing that the battlefield could actually become the home of an average citizen?