



Prof. Janse Tolmie

Department of Computer Science and Informatics

Overview

The efforts of the Department of Computer Science and Informatics are geared towards contributions on three fronts: research, IT-related training and community service. The department is represented on the Main and Vista Campuses in Bloemfontein and on the Qwaqwa Campus.

A highlight of the year was the participation in a virtual conference on the Digital Divide as part of Accenta – a week-long Expo held in Belgium. Video conferencing facilities were used and presentations were made both in Bloemfontein and in Ghent. The conference was concluded with the signing of a memorandum of understanding between the UFS and the University of Ghent.

The department has trained thousands of students in computer literacy and students in more advanced IT topics such as Internet Programming, Databases, Software Engineering, etc. More than 40 honours students were registered at the department in 2007, while 16 international students were hosted: six enrolled for M.Sc., eight for B.Sc. Honours and two for B. Com. Honours.

Human-computer Interaction (HCI) is one of the department's main research focuses and some interesting research in this area was conducted in 2007. The department is the proud owner of eye-tracking equipment that enables it to determine the gaze patterns of a person looking at a computer screen. A combined project is run with the Department of Occupational Therapy at the UFS to analyse the problems of sensory integration amongst young children. A framework has been developed which can identify limitations with regard to mid-line crossing and other perceptual problems at a very early stage. Another project involves the testing of chess players by giving them on-screen problems to solve.

The department is in the process of setting up a framework, which will enable chess trainers to identify perceptual and diagnostic shortcomings of their students. Other promising research involves the quantification of usability evaluations. Numerous international publications in HCI were delivered.

Research conducted in the field of Data Warehousing focused on the application of this technology in the context of a developing country. Publications were presented at international conferences in Portugal, the United Kingdom (UK) and Canada.

After completing her Ph.D. in 2005 (related to meaningful blended learning in an IT teaching environment), Dr Liezel Nel continued the direct application and continual integration of her research results in the classroom. By applying her own process planning model (devised in her Ph.D. study) in an action research setting, she has continued her search for the optimal use of blended learning to encourage student contact/interaction and enhance the student learning experience as a whole. Some of her research findings were presented at conferences in South Africa and Italy.

The department offered a number of short computer literacy courses to the community on the Vista Campus. There seems to be a high demand for these courses and the department is looking at expanding its arsenal of short courses for use at both the Main and Qwaqwa Campuses. Staff from the department also took part in a project aimed at training previously disadvantaged learners.



Three staff members of the department presented papers at the international HCI Human-computer Interaction (HCI) conference in Beijing, China. Here are, from the left: Mr Andries Burger, Prof. Pieter Blignaut, Mr Aaron Marcus, a renowned HCI researcher, and Ms Engela Dednam.



Staff from the department took part in a virtual video conference on the Digital Divide as part of Accenta – a week-long expo held in Belgium, in which Bloemfontein and the Free State were guests of honour. At the video conference broadcast from the Main Campus in Bloemfontein are, from the left: Profs. Janse Tolmie, Departmental Chairperson, Hendri Kroukamp, Programme Director of Public Management at the UFS, Herman van Schalkwyk, Dean: Faculty of Natural and Agricultural Sciences at the UFS, and Pieter Blignaut, Professor at the department and co-ordinator of the video conference.



The department's eye tracker registers the eye fixations of computer users. The UFS is the first tertiary institution in Africa to acquire this apparatus.

Staff

Main Campus:

Professors: Profs Janse Tolmie, Pieter Blignaut, Theo McDonald, Hans Messerschmidt

Senior Lecturers: Dr Lizette de Wet

Lecturers: Drs Liezel Nel, Anelize Van Biljon, Ms Engela Dednam, Messrs Andries Burger, Deon du Plessis, Dana Kotze, Eduan Kotze, Wynand Nel.

Junior Lecturers: Messrs Rouxan Fouche, Jaco Marais

Administrative Officers: Mss Marina Botha, Erna Dippenaar, Coreen Human

Technical Officers: Messrs Jacob Buys, Stefan Coetzee

Qwaqwa Campus:

Junior Lecturers: Mss Nidhi Mary-John, Ruth Wario, Messrs Jacques Eysele, Molapo Jonathan, Isaac Mokhotla, Frederick Mudavanhu, Fani Radebe, Benedict Sebastian

Technical Officer: Mr Teboho Lesesa

Vista Campus:

Lecturers: Ms Nancy de Sousa

Junior Lecturers: Messrs Timothy Mahloko, Ray Shih

Contact details

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Research outputs

Research articles

Blignaut, P.J., Dednam, E.H. & Beelders, T.R. 2007. Die opleiding van persone uit benadeelde groepe in rekenaar gebruik: Is die afstand nie té groot om te oorbrug nie? *Suid-Afrikaanse Tydskrif vir Natuurwetenskap en Tegnologie* 26(3): 216-235.

Messerschmidt, J.J.E. & Messerschmidt, H.J. 2007. Beeldskemas van tydskuur: Die polisemiese aard van terwyl, onderwyl en wyl. *Southern African Linguistics and Applied Language Studies* 25(1): 57-73.

Chapters in books

Du Plessis, D. & Mc Donald, T. 2007. The double wave data warehouse lifecycle model. In *Data Mining VIII: Data, Text and Web Mining and their Business Applications*, edited by A. Zanasi, C.A. Brebbia & N.F.F. Ebecken. New Forest, UK: WIT Press. pp.105-114.

Conference contributions

Beelders, T.R., Blignaut, P.J., McDonald, T. & Dednam, E. 2007. *The impact of different icon sets on the usability of a word processor.* Proceedings of the 12th International Conference on Human-Computer Interaction (HCI), Beijing, China. 22-27 July. pp. 250-257.

Burger, A.J. & Blignaut, P.J. 2007. *Predicting the outcome of a computer literacy course based on a candidate's personal characteristics.* Proceedings of the 12th International Conference on Human-Computer Interaction (HCI), Beijing, China. 22-27 July. pp. 173-182.

Dednam, E.H., Blignaut, P.J. & Dippenaar, G.J.J. 2007. *Is it necessary to create new icons for African users of Office packages?* Proceedings of the 12th International Conference on Human-Computer Interaction (HCI), Beijing, China. 22-27 July. pp. 279-283.

Du Plessis, D. & Mc Donald, T. 2007. *Challenges in building and maturing of a telecommunications business intelligence solution in a developing country.* Proceedings of the 18th Annual Information Resources Management Association (IRMA) International Conference, Vancouver, Canada. 19-23 May.

Du Plessis, D. & Mc Donald, T. 2007. *Strategic framework to implement a telecommunications business intelligence solution in a developing country.* Proceedings of the 9th International Conference on Enterprise Information Systems (ICEIS 2007), Funchal, Portugal. 12-16 June.

Du Plessis, D. & Mc Donald, T. 2007. *The double wave data warehouse lifecycle model.* Paper presented at the 8th International

Conference on Data, Text and Web Mining and their Business Applications including Information Engineering Management, The New Forest, UK. 18-20 June.

Kotze, E. & Mc Donald, T. 2007. *Challenges in developing a data warehouse to manage the rollout of antiretroviral therapy in a developing country.* Proceedings of the 18th Annual Information Resources Management Association (IRMA) International Conference, Vancouver, Canada. 19-23 May.

Mc Donald, T. & Blignaut, P.J. 2007. *Search string analysis from a socio-economic perspective.* Proceedings of the 12th International Conference on Human-Computer Interaction (HCI), Beijing, China. 22-27 July. pp. 234-242.

Nel, E. 2007. *Communication and interaction in the blended learning environment: Perspectives gained in an action inquiry.* Paper presented at the Higher Education Learning and Teaching Association of South Africa (HELTASA) Conference, Central University of Technology, Bloemfontein, South Africa. 19-21 November.

Nel, L. & Wilkinson, A. 2007. *Blended learning, collaboration and cultural diversity: South African perspectives.* Paper presented at the Annual Conference of the European Distance and E-Learning Network Secretariat (EDEN 2007), Naples, Italy. 13-16 June.