



The South African Institute of Computer Science
and
Information Technology

The 1997 National
Research and
Development
Conference

Riverside Sun
Vanderbijlpark
13 & 14 November

Hosted by



Potchefstroomse Universiteit
vir Christelike Hoër Onderwys

The Department of Computer Science and Information Systems
Potchefstroom University for Christian Higher Education
Vaal Triangle Campus

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PROCEEDINGS

Edited by L.M. Venter & R.R. Lombard



The South African Institute of Computer Science
and
Information Technology

Proceedings
of the
The 1997 National
Research and
Development
Conference
Towards 2000

Riverside Sun
Vanderbijlpark
13 & 14 November

Edited by
L.M. Venter
R.R. Lombard

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Foreword

This book contains a collection of papers presented at a Research and Development conference of the South African Institute of Computer Scientists and Information Technologists (SAICSIT). The conference was held on 13 & 14 November 1997 at the Riverside Sun, Vanderbijlpark. Most of the organization for the conference was done by the Department of Computer Science and Information Technology of the Vaal Triangle Campus, Potchefstroom University for Christian Higher Education.

The programming committee accepted a wide selection of papers for the conference. The papers range from detailed technical research work to reports of work in progress. The papers originate mainly from Academia, but also describe work done in and for Industry. It is hoped that the papers give a true reflection of the current research scene in Computer Science and Information Technology in South Africa. Since one of the aims of the conference is Research development, the papers were not subjected to a refereeing process.

A number of people spent numerous hours helping with the organization of this conference. In this regard, we wish to thank the members of the Organizing committee, and the Programming committee who had very little time to screen the abstracts and compile the program. A special thanks goes to the secretary of the department, Mrs Helei Jooste, whose very able work was interrupted by the birth of her first child.

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Prof. L.M. Venter (PU for CHE)

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List of Contributors

S.A. Ajila
Department of Mathematics and Computer
Science
National University of Lesotho
Roma, 180
Lesotho

L. Baart
Department of Mathematics
Vaal Triangle Campus of the PU for CHE
PO Box 1174
Vanderbijlpark, 1900

L. Barnard
Faculty of Computer Studies
Port Elizabeth Technikon
Private Bag X6011
Port Elizabeth, 6000

S. Berman
University of Cape Town
Rondebosch, 7701

L. Bester
Faculty of Computer Studies
Port Elizabeth Technikon
Private Bag X6011
Port Elizabeth 6000

J.M. Bishop
Computer Science Department
University of Pretoria
Pretoria, 0002

L. Botha
Computer Science Department
University of Pretoria
Pretoria, 0002

R.A. Botha
Faculty of Computer Studies
Port Elizabeth Technikon
Private Bag X6011
Port Elizabeth, 6000

B. Braude
Software Engineering Applications Laboratory,
Electrical Engineering
University of the Witwatersrand
Private Bag 3
Wits, 2050

T. Breetzke
Faculty of Computer Studies
Port Elizabeth Technikon
Private Bag X6011
Port Elizabeth, 6000

C. Brink
University of Cape Town
Rondebosch, 7700

M. Bruynooghe
Departement Computerwetenschappen
Katholieke Universiteit Leuven
Celestijnenlaan 200A
B-3001 Heverlee
Belgium

S. Buffler
University of Capetown
Rondebosch, 7701

M.A. Coetzee
Department of Mathematics
PU for CHE
Private Bag X6001
Potchefstroom, 2520

R. Cools
Katholieke Universiteit Leuven
Celestijnenlaan 200A
B-3001 Heverlee
Belgium

E. de Preez
Faculty of Computer Studies
Port Elizabeth Technikon
Private Bag X6011
Port Elizabeth, 6000

D.A. De Waal
Department of Computer Science and
Information Systems
PU for CHE
Private Bag X6001
Potchefstroom, 2531

B. Dekenah
The Board of Executors

M. Denecker
Departement Computerwetenschappen
Katholieke Universiteit Leuven
Celestijnenlaan 200A
B-3001 Heverlee
Belgium

M. Dunley-Owen
Department of Information Systems
University of Cape Town
Rondebosch, 7700

R. Figueira
University of Cape Town
Rondebosch, 7701

A. Foster
Department of Computer Science
University of Cape Town
Rondebosch, 7701

C. Gee
Software Engineering Applications Laboratory,
Electrical Engineering
University of the Witwatersrand
Private Bag 3
Wits 2050

M. Hajek
Department of Computer Science
University of Durban Westville
Private Bag X54001
Durban, 4000

M.L. Hart
Department of Information Systems
University of Cape Town
Rondebosch, 7700

J.M. Hattingh
Department of Computer Science and
Information Systems
PU for CHE
Private Bag X6001
Potchefstroom, 2520

S. Hazelhurst
Department of Computer Science
University of the Witwatersrand
Private Bag 3
Wits 2050

H.A. Kruger
Department of Computer Science and
Information Systems
PU for CHE
Private Bag X6001
Potchefstroom, 2520

J.W. Kruger
University of the Witwatersrand
Private Bag 3
Wits, 2050

M.F. Kruger
PU for CHE
Private Bag X6001
Potchefstroom, 2520

M.T. Lang
Eskom Information Technology Department

D. Laurie
Department of Mathematics
Vaal Triangle Campus of the PU for CHE
PO Box 1174
Vanderbijlpark, 1900

D. Lubinsky
Department of Computer Science
University of the Witwatersrand
Private Bag 3
Wits, 2050

R. McLeod
Saltire Software Inc.
Tigard
Oregon
U.S.A

H.J. Messerschidt
Department of Computer Science and
Informatics
University of the Orange Free State
PO Box 339
Bloemfontein, 9300

M. Mphahlele
Department of Computer Science
University of the North
Private Bag X1106
Sovenga, 0727

G.D. Oosthuizen
Department of Computer Science
University of Pretoria
Pretoria, 0002

J. Owen
University of Cape Town
Rondebosch, 7701

D. Petkov
Department of Computer Science
University of Natal
Private Bag X01
Scotsville, 3209

O. Petkova
Technikon Natal
PO Box 101112
Scotsville, 3209

N. Pillay
Department of Financial Studies
Technikon Natal, Pietermaritzburg
PO Box 101112
Scotsville, 3209

L. Pluym
Katholieke Universiteit Leuven
Celestijnenlaan 200A
B-3001 Heverlee
Belgium

K. Prag
Department of electrical Engineering
University of Durban-Westville
Private Bag X54001
Durban, 4000

P. Premjeeth
Department of electrical Engineering
University of Durban-Westville
Private Bag X54001
Durban, 4000

V. Ram
Department of Computer Science
University of Natal
Private Bag X01
Scotsville, 3209

J. Robertson
Department of Computer Science and
Informatics
University of the Orange Free State
PO Box 339
Bloemfontein, 9300

S. Rock
Department of Artificial Intelligence
Edinburgh University
United Kingdom

J. Roos
Department of Computer Science
University of Pretoria
Pretoria, 0002

I. Sanders
Department of Computer Science
University of the Witwatersrand
Private Bag 3
Wits, 2050

K. Sandrasegaran
Department of electrical Engineering
University of Durban-Westville
Private Bag X54001
Durban, 4000

C. Schoder
Faculty of Computer Studies
Port Elizabeth Technikon
Private Bag X6011
Port Elizabeth, 6000

M. Sears
Department of Mathematics
University of the Witwatersrand
Private Bag 3
Wits, 2050

E. Senior
International Center for Waste Technology
University of Natal, Pietermaritzburg
Private Bag X01
Scotsville, 3209

N.B. Serbedzija
GMD FIRST
Rudower Chausee 5
D-12489 Berlin
Germany

S.L. Serutia
Department of Computer Science
The University of Pretoria
Pretoria, 0002

T. Steyn
PU for CHE
Private Bag X6001
Potchefstroom, 2520

M. Thielscher
Fachgebiet Intellektik, Fachgebiet Informatik
Technische Hochschule Darmstadt
Alexanderstrasse 10
D-64283 Darmstadt
Germany

T. Thomas
Faculty of Computer Studies
Port Elizabeth Technikon
Private Bag X6011
Port Elizabeth, 6000

M. Thomson
Faculty of Computer Studies
Port Elizabeth Technikon
Private Bag X6011
Port Elizabeth, 6000

S. Tjasink
University of Cape Town
Rondebosch, 7700

E. Viljoen
Department of Computer Science and
Information Systems
University of South Africa
PO Box 392
Pretoria, 0001

E. Voges
University of Cape Town
Rondebosch, 7701

R. Von Solms
Faculty of Computer Studies
Port Elizabeth Technikon
Private Bag X6011
Port Elizabeth, 6000

A.J. Walker
Software Engineering Applications Laboratory,
Electrical Engineering
University of the Witwatersrand
Private Bag 3
Wits, 2050

P. Warren
Department of Computer Science
University of Natal
Private Bag X01
Scotsville, 3209

M. Watzenboeck
University of Botswana
Private Bag 0022
Gaborone
Botswana

K.L. Wortmann
Department of Computer Science
University of Natal, Pietermaritzburg
Private Bag X01
Scotsville, 3209

The Development of a Tutoring System to Assist Students Develop Answering Techniques

N.Pillay

Department of Financial Studies

Technikon Natal

Pietermaritzburg Campus

E-mail:nelishiap@pmb.ntech.ac.za

Abstract:

End-user computing is a compulsory course that all first year technikon students who are not registered for a computer-related diploma. However, most students (especially those from disadvantaged educational backgrounds) experience much difficulty in grasping theoretical computing concepts. For this reason we are currently developing CAI tools to assist students overcome learning difficulties. One of the problems experienced by students is interpreting and answering questions in tests and examinations. Consequently, we are currently developing an CAI application, namely INTELLIQUEST, to provide students with practice with respect to answering questions.

End-user computing tests are usually comprised of three types of questions:

- multiple choice
- explanation of terms
- short questions

This paper looks at the technical aspects of developing such a system. In order to implement a multiple choice tutor traditional procedural programming techniques are sufficient. However, in order to mark responses to the second two types of questions these techniques are inadequate. An examination of different artificial intelligence constructs and methods for this purpose is presented in the paper. In order to reduce the variety of responses to a particular question lecturers are required to set questions and solutions to questions using templates in a structured editor. Students are also required to use the editor to respond to questions. Finally, the paper discusses a pilot evaluation of the system to determine how accurate the system is in marking responses and advising students.