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**Professor Tshilidzi Marwala****PERSONAL INFORMATION****Address:**

Deputy Vice Chancellor: Research and Innovation  
University of Johannesburg  
PO Box 524  
Auckland Park 2006  
Johannesburg  
South Africa

**E-mail:** [tshilidzi.marwala@cantab.net](mailto:tshilidzi.marwala@cantab.net)

**Website:** <http://www.tshilidzimarwala.com>

**Place of birth:** Duthuni, Venda, Republic of South Africa

**Date of birth:** 28 July 1971

**Citizenship:** South African

**Spouse:** Dr Jabulile Marwala BSc(Pretoria) BSc(Hons)(Pretoria) MSc(Pretoria) MBBCh(Wits )

**Children:** Nhlonipho Khathutshelo Marwala (Son), Lwazi Thendo Marwala (Son), Denga Mbali Marwala (Daughter)

**BIOGRAPHY**

Tshilidzi Marwala is currently the Deputy Vice Chancellor: Research, Innovation, Postgraduate Studies and the Library at the University of Johannesburg. He was the Executive Dean of the Faculty of Engineering and the Built Environment at the University of Johannesburg. He was previously a full Professor of Electrical Engineering, the Carl and Emily Fuchs Chair of Systems and Control Engineering as well as the South Africa Chair (SARChI) of Systems Engineering at the University of the Witwatersrand. Prior to this, he was an executive assistant to the technical director at the South African Breweries. He has served as the Chair of the Local Loop Unbundling Committee that was tasked by the Department of Communications with the responsibility to unbundle Telkom's local loop, as a Chairman of Pikitup Board, on the Board of Directors of the State Information Technology Agency (SITA), EOH Pty Ltd, Denel Soc Ltd, City Power Johannesburg Soc Ltd, as a Deputy Chairman of the Limpopo Business Support Agency, as a member of the National Advisory Council on Innovation, and as a member of Statistics South Africa Council. He is a member of the ICT Advisory Council of the South African government and he is a Chairman of the ICT Infrastructure of the Department of Communications. He holds a Bachelor of Science in Mechanical Engineering (*magna cum laude*) from Case Western Reserve University (USA), a Master of Mechanical Engineering from the University of Pretoria, a PhD in Engineering from Cambridge University, was a post-doctoral research associate at the Imperial College (London) and completed a Program for Leadership Development at Harvard Business School. He is a registered professional engineer, a Fellow of TWAS, The World Academy of Sciences, the Academy of Science of South Africa, The African Academy of Sciences, CSIR and the South African Academy of Engineering. He is a Senior Member of the IEEE (Institute of Electrical and Electronics Engineering) and a distinguished member of the ACM (Association for Computing Machinery). His research interests are multi-disciplinary and they include the applications of computational intelligence to engineering, computer science, finance, social science and medicine. He has extensive track record in human capacity development having supervised 46 Masters and 19 PhD students to completion. Some of these students have proceeded with their doctoral and post-doctoral studies at leading universities such as Harvard, Oxford, Cambridge,

British Columbia, Rutgers, Purdue and Concordia. He has published 8 books, over 260 papers in journals, proceedings and book chapters and hold three international patents. He is an associate editor of the International Journal of Systems Science (Taylor and Francis Publishers) and was an associate editor of the South African Journal of Science. He has received more than 40 awards including the Order of Mapungubwe and the President's Award of the National Research Foundation. His writings and opinions have appeared in the New Scientist and Time Magazines.

## **CAREER HIGHLIGHTS**

- Longest serving member non-executive Director of the Board of Directors of EOH (Pty) Ltd. With market capitalization of over US\$1 billion
- Leader of a team of 8 experts appointed by the Minister of Communications that developed a strategy on how to unbundle the local loop of the fixed line telecommunication company Telkom (Listed in the New York Stock Exchange at the time)
- Leader of a delegation that met various stakeholders including the Telecommunication Regulator (ICASA) and the executive team of Telkom.
- Participated in the Presidential International Advisory Council on Information Technology (PIAC). Delegates included global CEOs of HP and Alcatel.
- Leader of a delegation that negotiated the exit of the Chief Executive Officer of City Power Johannesburg in 2006
- Leader of a delegation to the South African Parliament Portfolio Committee on Science and technology to present the annual business plans for NACI.
- Chairman of the Oversight Committee of City Power Johannesburg
- Member of the Procurement Committee of City Power Johannesburg
- Member of the Pricing and Regulation Committee of City Power Johannesburg
- Chair of the Finance Committee of the Limpopo Business Support Agency
- Member of the strategic committee of Statistics South Africa
- Chaired sessions in more than 10 international conferences held in countries such as the USA, Botswana, Japan and China.
- Elected Visiting Fellow at Harvard University and Wolfson College at the University of Cambridge as well as Visiting Scholar at University of California (Berkeley)
- Secretary of the Cambridge United Nations Society
- Treasurer of the Cambridge Southern African Society
- Identified and assessed deserving candidate and the approved funding for PhD studies at St. John's College, University of Cambridge for the Bradlow Foundation.
- Identified and approved funding for many community based organizations for the Carl and Emily Fuchs Foundations Developed the Faculty's long-term vision, strategy as well as implementation and monitoring plans
- Developed the Faculty Research and Innovation, Teaching and Learning as well as Community Engagement Strategies at the University of Johannesburg.
- Restructured the Faculty into 4 Schools (School of Electrical Engineering, School of Civil Engineering and the Built Environment, School of Mechanical and Industrial Engineering, as well as the School of Mining, Metallurgy and Chemical Engineering) at the University of Johannesburg.
- Merged the Departments of Power and Control Engineering with the Department of Electronic and Computer Engineering Technology to form the Department of Electrical Engineering Technology at the University of Johannesburg.

- Merged the Departments of Engineering Metallurgy and Extractive Metallurgy to form the Department of Metallurgy at the University of Johannesburg.
- Introduced the Faculty of Engineering and the Built Environment Industrial Advisory Board
- Increased research output of the Faculty of Engineering and the Built Environment from 26 research units in 2008 to 60 research units in 2010 and 103 research units in 2011 and expecting 133 units in 2012 and 167 units in 2013 at the Faculty of Engineering and the Built Environment at the at the University of Johannesburg.
- Successfully managed a R70 million laboratory upgrade project at the Faculty of Engineering and the Built Environment at the University of Johannesburg.
- Increased the number of post-doctoral fellows from 0 in 2008 to 12 in 2012 at the Faculty of Engineering and the Built Environment at the University of Johannesburg.
- Increased the number of NRF rated researchers from 2 in 2008 to 8 in 2012 including an A rated researcher at the Faculty of Engineering and the Built Environment at the at the University of Johannesburg.
- Increased the number of academic staff with doctorates from 24 in 2008 to 48 in 2012 at the Faculty of Engineering and the Built Environment at the University of Johannesburg.
- Increased number of Master's and Doctoral Students from 250 in 2008 to 524 in 2012 at the Faculty of Engineering and the Built Environment of University of Johannesburg.
- Incorporated the Department of Quality and Operations Management from the Faculty of Management into the Faculty of Engineering and the Built Environment at the University of Johannesburg.
- Created the Process Engineering and Environmental Technology Station which is fully funded by the Technology Innovation Agency at the Faculty of Engineering and the Built Environment at the at the University of Johannesburg.
- Authored books, papers in refereed international journals, proceedings and book chapters and registered patents at the University of the Witwatersrand.
- Supervised PhD's and master's theses. Some of these graduates have proceeded to universities such as Harvard, Oxford, Cambridge, Rutgers, British Columbia and Purdue to further their research careers at the University of the Witwatersrand.
- Hosted visiting professors from Japan, USA, India, Poland and United Kingdom at the University of the Witwatersrand.
- Consulted for the following companies: Grintek on Information Security, Council for Scientific and Industrial Research on multi-agent systems, Kentron for medical imaging and ESKOM for fault detection in the electrical cable transmission lines at the University of the Witwatersrand.
- Raised over R10 million worth of research grants at the University of the Witwatersrand.
- Rated Researcher by the NRF (P-Rating 2004-2008)
- Developed an artificial beer taster at South African Breweries.
- Assisted the Executive Director of South African Breweries on Technological matters including strategy and implementation
- Performed studies on the ontology, stability and scalability of the multi-agent systems at Imperial College (London)
- Worked on a project of reducing the noise levels in underground hydraulic drillers

## **PROFESSIONAL EXPERIENCE**

- *Deputy Vice Chancellor: Research, Innovation, Postgraduate Studies and the Library, University of Johannesburg (01/04/2013-present)*

- *Executive Dean of The Faculty of Engineering and the Built Environment*, University of Johannesburg (01/01/2009-31/03/2013)
- *Adjunct Professor of Electrical Engineering* University of Johannesburg (August 2014-present)
- *South Africa Research Chair of Systems Engineering*, School of Electrical and Information Engineering, University of the Witwatersrand (01/01/2007-31/12/2008)
- *Carl and Emily Carl Fuchs Chair of Control and Systems Engineering*, University of the Witwatersrand (01/03/2006-01/01/2008)
- *Personal Professor of Electrical and Information Engineering*, School of Electrical and Information Engineering, University of the Witwatersrand (01/12/2005-31/12/2008)
- *Associate Professor of Electrical and Information Engineering*, School of Electrical and Information Engineering, University of the Witwatersrand (04/01/2003-11/30/2005)
- *Head of Control and Systems Group*: School of Electrical and Information Engineering, University of the Witwatersrand (04/01/2003-31/12/2008)
- *Executive Assistant to the Technical Director*: South African Breweries (01/09/2001-30/03/2003)
- *Post-Doctoral Research Associate*: Imperial College of Science, Technology and Medicine (University of London) (01/05/2000-30/08/2001)
- *Project Engineer*: Council for Scientific and Industrial Research – Mining Technology Division (01/06/1995-31/12/1995)

## **EDUCATION**

- Doctor of Philosophy in Engineering (1997-2000), University of Cambridge (St. John's College), Cambridge, United Kingdom
- Master of Engineering: Mechanical Engineering (1996-1997), University of Pretoria, Pretoria, South Africa
- Bachelor of Science in Mechanical Engineering, *Magna Cum Laude*, (1991-1995), Case Western Reserve University, Cleveland, Ohio, USA

## **LEADERSHIP EDUCATION**

- Accounting & Finance for Non-Financial Managers, (2015), National University of Singapore Executive Education.
- University of Johannesburg: Vice Chancellor's Executive Leadership Programme 2014, GIBS University of Pretoria
- Programme for Leadership Development (2006-2007), Harvard Business School, Harvard University, Cambridge, Massachusetts, USA
- South African Institute of Management (SAIM) Programme in Business Management, University of South Africa, 2003

## **MEMBER OF BOARD OF DIRECTORS/TRUSTEES/COMMITTEES**

- Chairman: Gauteng City Region Observatory (GCRO) (2014-present)
- Core Team Member: High-Speed Train Project African Union Commission (2014)
- Deputy Chairman: Gauteng City Region Observatory (GCRO) (2013-2014)
- Deputy Chairman: Limpopo Business Support Agency (2006-2009)
- Chairman: Local Loop Unbundling Committee (2006-2007)
- Chairman, PIKITUP Johannesburg (Pty) Ltd. (2012-2013)

- Chairman: Dean’s Committee of Engineering Faculties of South Africa (2010)
- Chairman: Education Committee of the Engineering Council of South Africa (2014-present)
- Council Member and EXCO Member: Engineering Council of South Africa (2012-present)
- Chairman of South Africa’s Department of Higher Education and Training Research Output Committee (2014-present)
- Member of South Africa’s Department of Higher Education and Training Research Output Committee (2010-present)
- Member of South Africa’s Department of Higher Education and Training Research Output Committee (2010)
- Non-Executive Director, Denel (Pty) Ltd. (2010-2014)
- Executive Committee Member: South African Academy of Engineering (2008-2009)
- Board Member: Johannesburg Centre for Software Engineering (2008)
- Non-Executive Director, EOH (Pty) Ltd. (2007-present)
- Board Member: South African National Council of Scientific Professions (2006)
- Trustee: Carl and Emily Fuchs Foundation (2006-present)
- Trustee: The Bradlow Foundation (2006-present)
- Non-Executive Director, City Power Johannesburg (Pty) Ltd. (2005-2012)
- Non-Executive Director, State Information Technology Agency (2005-2007)
- Board Member: South African Statistics Council (2005-2007)
- Board Member: National Advisory Council on Innovation (2005-2007)

## SELECTED AWARDS, HONOURS AND ACHIEVEMENTS

- Speaker: Capacitating industry-academia collaboration: Lessons from South Africa. 8<sup>th</sup> QS World Class, Phuket, Thailand (2015)
- Advocate of Social Cohesion, Department of Arts and Culture, Government of South Africa (2012)
- Judge of the YouTube/Google Spacelab Completion (2011)<sup>1</sup>
- NSTF-BHP Billiton Awards: Eskom Research Capacity Award (over the last 5 to 10 years) (2011)
- Speaker: Science and Technology in Society Forum Representative for the African Continent, Kyoto, Japan (2010)<sup>2</sup>
- Paper Co-Authored was Featured in the MIT Technology Review (2009)<sup>3</sup>
- TWAS-AAS-Microsoft Award for Young Scientists (2009)
- Visiting Scholar The Center for Studies in Higher Education University of California at Berkeley (November 2009)<sup>4</sup>
- Best Paper Award: Proceedings of the 12th World Multi-Conference on Systemics, Cybernetics and Informatics, 2008, June 29th –July 2nd, Orlando, Florida, USA.
- 2008 SAIEE Premium Best Paper Award.
- Visiting Fellow Wolfson College, University of Cambridge (2007-2008)

<sup>1</sup> Other judges include Professors Stephen Hawkins and Neill Turok

<sup>2</sup> Invited speaker as a Future Leader at the forum entitled “*The Lights and Shadows of Science and Technology*,” by the Science and Technology in Society (SPS) forum and The New York Academy of Sciences and sponsored by the Japan Society for the Promotion of Science nominated by Dr. Peter McGrath, Program Officer of the Third World Academy of Sciences

<sup>3</sup> <http://www.technologyreview.com/biomedicine/24051/>

<sup>4</sup> The position not taken due to busy schedule

- National Science and Technology Forum (NSTF) Award: Individual through research and its outputs (over the last five years or less) (2007)
- Harvard/South Africa Fellowship Programme (2006-2007)
- Invited Talk: Asia-Pacific Workshop on Structural Health Monitoring, Yokohama, Japan (2006)
- Technology and Human Resources for Industry Programme (THRIP) Technology Awards: Outstanding Project Leader (2007)
- Best Presentation Award: World Congress of Computational Intelligence (2006)
- Council of City of Johannesburg: Motion of Congratulations for Contribution to Science Adopted (2004)
- WhosWho in Southern Africa (2005)
- Bronze Order of Mapungubwe – President of South Africa (2004)
- National Research Foundation President’s Award (P-Rating) (2003)
- Mail and Guardian: 100 Future Leaders in (2005)
- The Star Newspaper: Top 100 of 2004
- Mail and Guardian: 20 Future Leaders (2005)
- NRF Rated<sup>5</sup>
- Tuksalumni Laureate Award (2004)
- Marquis Who’sWho in the World (2004, 2005, 2006)
- WhosWho in Computational Science and Engineering (2005)
- NRF/NSTF Dr. T.W. Kambule Research Award (2004)
- CSIR Fellowship (2004)
- Friedel Sellschop Award (2004)
- South African Broadcasting Corporation (SABC2)-Tribute Achievers Award (Winner: Science and Technology) (2003)
- Extraordinary Professor-University of Pretoria (2003-Present))
- Represented Business South Africa-United Nations World Summit on Sustainable Development (2002)
- Extraordinary Lecturer-University of Pretoria (2002)
- Best Paper Award-International Symposia on Soft Computing and Intelligent Systems for Industry (2002)
- Charles Hesterman Merz Fund Award (2000)
- Paper Awarded a Bronze Medal-South African Institution of Mechanical Engineers (1999)
- Ford of Britain Trust Award (1999)
- Fellow of the Cambridge Philosophical Society (1998)
- Fellow of the Cambridge Commonwealth Trust (1997)
- Honorary Cambridge Malaysian Scholar (1997)
- Honorary Cambridge Mandela Scholar (1997)
- Bradlow Foundation Scholarship (1997-2000)
- Overseas Research Award (1997-2000)
- Foundation for Research and Development Prestige/Equity Scholarship (1996-1997)
- AECI Post-graduate Fellowship (1996-2000)
- Institute of International Education Scholarship (1991-1995)
- Shell Merit Scholarship (1990)

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<sup>5</sup> Rated P from 2004 to 2008; C2 from 2009-2013 and B3 from 2014-2019

- Winner of the 1989 South African National Youth Science Olympiad (1989)
- 1989 London International Youth Science Fortnight South African Delegate (1989)
- Merit Certificate: Foundation for Education, Science and Technology (FEST) (1987)

## RESEARCH INTERESTS

Computational Intelligence  
 System Identification  
 Finite Element Models  
 Multi-Agent Systems  
 Missing Data Estimation

## MEMBERSHIP/FELLOWSHIPS/PROFESSIONAL REGISTRATION

- Fellow of AAS, African Academy of Science (2013)
- Fellow of TWAS, The World Academy of Sciences<sup>6</sup> (2010)
- ACM<sup>7</sup> Distinguished Scientist (ACM)<sup>8</sup> (2010)
- Member of the Academy of Science of South Africa (2007)
- Fellow of the South African Academy of Engineering (2007)
- Senior Member of the IEEE (2008)<sup>9</sup>
- Registered Professional Engineer (2005)
- Senior Member of the ACM<sup>10</sup> (2009-2010)
- Member of the Institute of Directors (IOD)
- CSIR Fellow (2005)
- Fellow of the Cambridge Commonwealth Trust (1997)

## EDITORIAL RESPONSIBILITIES<sup>11</sup>

- Associate Editor: International Journal of Systems Science (2007-Present)
- Associate Editor: South African Journal of Science (2009-2010)

## LEADERSHIP EXPERIENCE

- Technical Review Committee of IEEE 8th ICOSST-2014, Lahore, Pakistan (2014)
- IEEE Africon 2015 Advisory Board & International Liaison members (2014)
- Member: Task Team on Audit and Evaluation of deliveries of Textbooks in Limpopo (2012)
- Programme Committee: 6th ISSDM: 2012 International Conference on New Trends in Information Science, Service Science and Data Mining (NISS, ICMIA and NASNIT)

<sup>6</sup> Formerly called The Academy of Sciences for the Developing World

<sup>7</sup> Association for Computing Machinery

<sup>8</sup> "ACM Distinguished Membership recognizes up to 10% of ACM's top members who have had significant accomplishments or impact on the computing field"

<sup>9</sup> "The Senior Member Grade recognizes those IEEE members with at least 10 years of professional experience who have demonstrated significant performance over a period of 5 years"

<sup>10</sup> "The Senior Member Grade recognizes those ACM members with at least 10 years of professional experience and 5 years of continuous Professional Membership who have demonstrated performance that sets them apart from their peers"

<sup>11</sup> This reflects only the Editorial Board Membership which I accepted to be part of. There are many more where my name was included without my consent



- Programme Committee: The First International Symposium on Information Management (ISIKM2010) Venue/Country: Dalian, China (2010)
- Programme Committee: The 14<sup>th</sup> World Multi-Conference on Systemics, Cybernetics and Informatics: WMSCI 2010.
- International Advisory Committee: International Conference on 'Challenges and Applications of Mathematics in Science and Technology (CAMIST)' (11-Jan-2010 to 13-Jan-2010), Orissa, India.
- International Program Committee: The Third IASTED African Conference on Modelling and Simulation, Botswana, (2010).
- Conference Committee: GAMEON'2009, November 26-28, 2009, Media design Hochschule, Dusseldorf, Germany.
- Program Committee: Invention 2009, Poland.
- International Committee: 8<sup>th</sup> International Symposium on Soft Computing for Industry (ISSCI), Kobe, Japan (2010).
- Program Committee: Symposium on Intelligent Informatics (ISII2009), Qinhuangdao, China, (2009).
- Program Committee: The 13<sup>th</sup> World Multi-Conference on Systemics, Cybernetics and Informatics: WMSCI 2009, Orlando, USA (2009)
- International Program Technical Committee: Africon 2009, Kenya, (2009).
- Organizing Committee: International Workshop on Stochastic and Applied Global Optimization, Johannesburg, South Africa, (2008).
- International Program Committee: IASTED International Conference on Modelling and Simulation (Africa-MS ), Botswana, (2007)
- Invited Talk: Asia-Pacific Workshop on Structural Health Monitoring, Japan, (2006)
- Member of the Technical Committee: World Congress in Computational Intelligence (WCCI2008) Hong Kong, China
- Member of the Steering Committee: 19<sup>th</sup> World Congress of the International Federation of Automatic Control, Cape Town, South Africa 2014.
- International Technical Committee: BIONETICS 2007, Hungary.
- Scientific Committee: GAMEON-NA 2007, University of Florida, USA.
- Scientific Committee: GAMEON 2007, University of Bologna, Italy.
- Moderator: Science and Technology Policy Forum, Tokyo, Japan (2005)
- Chair of 5 Sessions: IEEE International Conference on Systems, Man and Cybernetics, Taiwan, (2006)
- Chair of 2 Sessions: World Congress on Computational Intelligence, Vancouver, Canada (2006)
- Chair of Session: International Symposium on Neural Networks and Soft Computing, Krakow, Poland, (2005)
- Chair of Session: International Conference on Computational Cybernetics, Mauritius (2005)
- Chairman of Delegation of City Power Johannesburg: Negotiations with the Municipal Workers Union of South Africa (2005)
- Chairman of the National Advisory Council on Innovation Delegation: Parliament of the Republic of South Africa Portfolio Committee on Science and Technology – Annual Report (2005) and Business Plan (2006)
- Chair of Session: International Symposia on Soft Computing & Intelligent Systems for Industry, Scotland (2001).

**STUDENTS SUPERVISION:****Master's Supervision**

1. Mr. Lungile Mndileki Zanoxolo Mdlazi, 2003, M.Eng. (Mechanical Engineering), Completed with distinction in Thesis, University of Pretoria. Topic: A synchronous filter for gear vibration monitoring using computational intelligence. *Where last tracked?* Where last tracked? Senior Engineer at Anglo American Corporation. **Nationality: South Africa.**
2. Mr. Nadim Mohamed, 2003, M.Sc. (Electrical Engineering) – Completed with a distinction University of the Witwatersrand Topic: Detection of Epileptic Activity in the EEG Using Artificial Neural Networks. *Where last tracked?* Engineer at the CSIR. **Nationality: South Africa.**
4. Brain Betechuoh Leke, 2005, M.Sc. (Electrical Engineering) – Completed with a distinction University of the Witwatersrand. Topic: Optimal Selection of Stocks Using Computational Intelligence Methods. *Where last tracked?* Went on to obtain a PhD under my supervision and is currently an engineer at the CSIR. **Nationality: Cameroon.**
5. Mr. Zaheer Ahmed Dindar, 2005, M.Sc. (Electrical Engineering) – Completed. University of the Witwatersrand. Topic: Artificial Neural Networks Applied to Option Pricing. *Where last tracked?* Consultant at FeverTree Consulting. **Nationality: South Africa.**
6. Mr. Michael M. Pires, 2005, M.Sc. (Electrical Engineering) – Completed with a distinction, University of the Witwatersrand. Topic: Option Pricing Using Support Vector Machines and Neural Networks. *Where last tracked?* IT Engineer at Standard Bank, **Nationality: South Africa.**
7. Mr. Bradley van Aardt, 2005, M.Sc. (Electrical Engineering) – Completed. University of the Witwatersrand. Topic: Multi-Agent Communication and Collaboration. *Where last tracked?* IT Engineer at Intellect Solutions. **Nationality: South Africa.**
8. Mr. Lukasz A. Machowski, 2005, M.Sc. (Electrical Engineering) – Completed with a distinction, University of the Witwatersrand. Topic: Image shape classification using computational intelligence and object orientation. *Where last tracked?* IT Engineer Synthesis Software Technologies. **Nationality: South Africa.**
9. Mr. Mussa Abdella, 2006, M.Sc. (Electrical Engineering)–Completed with distinction in Topic, University of the Witwatersrand. Topic: The use of genetic algorithms and neural networks to approximate missing data in database. *Where last tracked?* IT Engineer in Norway. **Nationality: Eritrea.**
10. Mr. E Habtemariam, 2006, M.Sc. (Electrical Engineering)–Completed with distinction in thesis, University of the Witwatersrand. Topic: Artificial intelligence for conflict management. *Where last tracked?* IT Engineer in Johannesburg **Nationality: Eritrea.**
11. Mr. Elbert Marais, 2006, M.Sc. (Electrical Engineering) – Completed. University of the Witwatersrand. Topic: Predicting global internet instability caused by worms using neural networks. *Where last tracked?* Vice President Credit Suisse London. **Nationality: South Africa.**
12. Mr. Trevor Ransome, 2006, M.Sc. (Electrical Engineering) – Completed. University of the Witwatersrand. Topic: Automatic minimization of patient setup errors in proton beam therapy. *Where last tracked?* IT Engineer at Glacier in Cape Town **Nationality: South Africa.**
13. Mr. Gareth Setati, 2007, M.Sc. (Electrical Engineering) – Completed. University of the Witwatersrand. Topic: Machine learning for decision-support in distributed networks. *Where last tracked?* IT Engineer at SAP in Germany **Nationality: South Africa.**

14. Ms. Morongwe Malebye, 2007, M.B.A. – Completed. University of the Witwatersrand. Topic: Forecasting the JSE All Index share using neural network techniques. *Where last tracked?* Consultant in the mining industry **Nationality: South Africa**
15. Mr. T. Djonon Hypolyte, 2007, M.Sc. (Electrical Engineering) – Completed. University of the Witwatersrand. Topic: Machine condition monitoring using neural networks: feature selection using genetic algorithm. *Where last tracked?* IT Engineer Johannesburg. **Nationality: Cameroon.**
16. Ms. Taryn Tim, 2007, M.Sc. (Electrical Engineering) – Completed with Distinction, University of the Witwatersrand. Topic: Predicting HIV status using neural networks and demographic factors. *Where last tracked?* Business Analyst at ThoughtWorks. **Nationality: South Africa.**
17. Mr. Pretesh Patel, 2007, M.Sc. (Electrical Engineering) – Completed. University of the Witwatersrand. Topic: A forecasting of indices and corresponding investment decision making application. *Where last tracked?* Went on to earn a PhD under my supervision, worked as an engineer for CSIR and Bytes Technology, then worked as a Senior Lecturer at the University of Johannesburg and now is a data specialist at Investec Bank. **Nationality: South Africa.**
18. Mr. Simon Scurrall, 2007, M.Sc. (Electrical Engineering) – Completed. University of the Witwatersrand. Topic: Automatic detection of pulmonary embolism using computational intelligence. *Where last tracked?* Design engineer at Magstim Company in London. **Nationality: South Africa.**
19. Mr. Evan Hurwitz, 2007, .Sc. (Electrical Engineering) – Completed. University of the Witwatersrand. Topic: Multi-Agent Modelling using Intelligent Agents in Competitive Games. *Where last tracked?* Completed a PhD at the University of Johannesburg under my supervision and now a Senior Lecturer at the University of Johannesburg. **Nationality: South Africa.**
20. Mr. Lunga Dalton, 2007, M.Sc. (Electrical Engineering) – Completed with Distinction, University of the Witwatersrand. Topic: Time series analysis using fractal theory and ensemble classifiers with application to stock portfolio optimization. *Where last tracked?* Completed a PhD at Purdue University, USA and now an engineer at the CSIR. **Nationality: South Africa.**
21. Mr. Dhiresb Surajpal, 2007, M.Sc. (Electrical Engineering) – Completed with Distinction, University of the Witwatersrand. Topic: An independent evaluation of subspace facial recognition algorithms. *Where last tracked?* *Where last tracked?* Strategy manager at Accenture. **Nationality: South Africa.**
22. Mr. Thando Tettey, 2007, M.Sc. (Electrical Engineering) – Completed with Distinction, University of the Witwatersrand. Topic: A computational intelligence approach to modelling interstate conflict: Conflict and causal interpretations. *Where last tracked?* Engineer at a Defense Industry *Where last tracked?* System engineer at the Investec Bank. **Nationality: South Africa.**
23. Mr. Shakir Mohamed, 2007, M.Sc. (Electrical Engineering) – Completed with Distinction, University of the Witwatersrand. Topic: Dynamic protein classification: adaptive models based on incremental learning strategies. *Where last tracked?* Completed a PhD at the University of Cambridge and now an engineer at google Deepmind. **Nationality: South Africa.**
24. Mr. Michael Herzog, 2007, M.Eng. (Mechanical Engineering)–Completed with Distinction, University of Pretoria. Topic: Machine and component residual life estimation through the application of neural networks. *Where last tracked?* Senior Engineer at ThyssenKrupp. **Nationality: South Africa.**

25. Ms. Busisiwe Vilakazi, 2007, M.Sc. (Electrical Engineering) – Completed with Distinction, University of the Witwatersrand. Topic: Machine condition monitoring using artificial intelligence: The incremental learning and multi-agent system approach. Where last tracked? *Where last tracked?* Went to complete a Doctorate degree at Oxford University in the UK and now an engineer at the CSIR. **Nationality: South Africa.**
26. Mr. Daniyel Falk, 2007, M.Sc. (Electrical Engineering) – Completed. University of the Witwatersrand. Topic: Enhancement of Noisy Planar Nuclear Medicine Images using Mean Field Annealing. *Where last tracked?* CTO at Smartlab Cellular Services. **Nationality: South Africa.**
27. Mr. Jonathan Spiller, 2007, M.Sc. (Electrical Engineering) – Completed. University of the Witwatersrand. Topic: Object localization using deformable templates. *Where last tracked?* Where last tracked? Engineer in Israel **Nationality: South Africa.**
28. Mr. Bodie Crossingham, 2008, M.Sc. (Electrical Engineering) – Completed. University of the Witwatersrand. Topic: Rough Set Partitioning Using Computational Intelligence Approach. *Where last tracked?* Consultant Accenture in Texas and Johannesburg. **Nationality: South Africa.**
29. Mr. Greg Hulley, 2008, M.Sc. (Electrical Engineering) – Completed. University of the Witwatersrand. Topic: Incremental Learning Algorithms Applied to Flow Cytometry Data for Multi-Class Diagnosis of Leukemia. *Where last tracked?* Where last tracked? F.L. Schmidt Minerals. **Nationality: South Africa.**
30. Mr. Buntj Kiremile, 2008, M.Sc. (Electrical Engineering) – Completed. University of the Witwatersrand. Topic: Non-stationarity Detection. *Where last tracked?* Engineer at the Eskom and now in Uganda. **Nationality: Uganda.**
31. Nthabiseng Unathi Hlalele, 2009, MSc (Electrical Engineering) – Completed with Distinction. University of the Witwatersrand. Topic: The impact of missing data imputation on HIV classification. Where last tracked? *Where last tracked?* Engineer at the CSIR and now at Eskom. **Nationality: South Africa.**
32. Vukosi Marivate, 2009, MSc (Electrical Engineering) – Completed. University of the Witwatersrand. Topic: Investigation into the effect of social learning in reinforcement learning board game playing agents. *Where last tracked?* PhD graduate of Rutgers University in the USA and now an engineer at the CSIR. **Nationality: South Africa.**
33. Jaisheel Mistry, 2009, MSc (Electrical Engineering) – Completed. University of the Witwatersrand. Topic: Estimating Missing Data with Confidence Intervals Where last tracked? *Where last tracked?* Engineer at the CSIR. **Nationality: South Africa.**
34. Lesedi Masisi, 2009, MSc (Electrical Engineering) – Completed. University of the Witwatersrand. Topic: Investigating the structural diversity within a committee of classifiers and their generalization performance. *Where last tracked?* Engineer at the CSIR and a PhD graduate from Concordia University in Canada. **Nationality: South Africa.**
35. Tendani Malumedzha, 2009, MSc (Electrical Engineering) – Completed. University of the Witwatersrand. Topic: Modeling Multiple Object Scenarios for Feature Recognition and Classification Using Cellular Neural Networks. *Where last tracked?* Engineer at the CSIR. **Nationality: South Africa.**
36. Wabo Majavu, 2009, MSc (Electrical Engineering) – Completed. University of the Witwatersrand. Topic: Classification of web resident sensor resources using latent semantic indexing and ontologies. *Where last tracked?* Worked for CSIR, then Accenture, then MTN and currently at Sentech. **Nationality: South Africa.**
37. Miguel Fernandes, 2011, MSc (Electrical Engineering) (completed subject to corrections) University of the Witwatersrand – SVM to automatically detect epileptic patterns in EEG. *Where last tracked?* Consultant at Deloitte. **Nationality: South Africa.**

38. A.K. Mohamed, (Electrical Engineering), 2011 University of the Witwatersrand – The use of the improved EEG interpretation in a sensorimotor BCI for the control of prosthetic hand. **Nationality: South Africa.**
39. Lindokuhle J. Mpanza, M.Eng. (Electrical Engineering), 2012-Completed with distinction University of Johannesburg. A Rough Set Approach to Bushings Fault Detection. *Where last tracked?* Engineer at Denel. **Nationality: South Africa.**
40. Zanele Ngenisile Grace Mkhize MPhil (Electrical and Electronic Engineering), 2012, Completed. University of Johannesburg. Motion planning approaches for autonomous robot in static and dynamic environment. *Where last tracked?* Engineer at the CSIR. **Nationality: South Africa.**
41. Msizi Khoza, M.Eng. (Electrical and Electronic Engineering), 2013, University of Johannesburg. Economic modeling using computational intelligence techniques. *Where last tracked?* Consultant at AT Kearney. **Nationality: South Africa.**
42. T. Thejane, M.Eng. (Electrical and Electronic Engineering), 2013, University of Johannesburg. A comprehensive electrical model of the human auditory periphery for autoacoustic emissions study. *Where last tracked?* Engineer at the CSIR. **Nationality: South Africa.**
43. Collin Achepsa Leke, M.Eng. (distinction) 2014 University of Johannesburg. Empirical evaluation of optimization techniques for prediction and classification tasks. *Where last tracked?* Engineer at the CSIR and now a Consultant at Thoughtworks. **Nationality: Cameroon.**
44. J.F. Maumela. M.Eng. (Electrical and Electronic Engineering), 2014 University of Johannesburg. Condition monitoring of transformer bushings using computational intelligence: Focus on attribute reduction. *Where last tracked?* Engineer at Transnet. **Nationality: South Africa.**
45. N.N. Nelufule. M.Phil (Electrical and Electronic Engineering), 2014 University of Johannesburg. Combining Multiple Iris Matchers using Advanced Fusion Techniques to Enhance Iris Matching Performance. *Where last tracked?* Engineer at the CSIR. **Nationality: South Africa.**
46. S. Xulu. M.Phil. (Electrical Engineering), 2015 Modelling renewable energy sources for South Africa (to graduate with distinction). *Where last tracked?* Managing Director of City Power Johannesburg. **Nationality: South Africa.**

#### Doctoral Supervision:

1. Dr. Sizwe M. Dhlamini, 2007, Ph.D. (Electrical Engineering) – Completed. University of the Witwatersrand. Topic: Bushing diagnosis using artificial intelligence and dissolved gas analysis. *Where last tracked?* Senior Engineering Manager at Sondolo IT. **Nationality: South Africa.**
2. Dr. Fulufhelo Vincent Nelwamondo, 2008, Ph.D. (Electrical Engineering) – Completed. University of the Witwatersrand. Topic: Computational intelligence techniques for missing data imputation. *Where last tracked?* Post-Doctoral Fellowship at Harvard University and now works for the CSIR. **Nationality: South Africa.**
3. Dr. Brain Betechuoh Leke, 2008, Ph.D. (Electrical Engineering) – Completed. University of the Witwatersrand. Topic: Computational intelligence for modelling HIV. *Where last tracked?* *Where last tracked?* IT Engineer in Johannesburg and also worked for the CSIR. **Nationality: Cameroon.**
4. Dr. David Starfield, Ph.D. (Electrical Engineering), 2009, Completed. University of the Witwatersrand. Topic: Towards clinically useful coded apertures for planar nuclear

- medicine imaging. *Where last tracked?* Engineer in Texas, USA. **Nationality: South Africa.**
5. Dr. Pretesh Bhoola Patel, Ph.D. (Electrical Engineering), 2010, Completed. University of the Witwatersrand. Topic: An IVR Call performance classification system using computational intelligence techniques. *Where last tracked?* Worked as an engineer for CSIR and Bytes Technology, then worked as a Senior Lecturer at the University of Johannesburg and now is a data specialist at Investec Bank. **Nationality: South Africa.**
  6. Dr. Megan Jill Russell, Ph.D. (Electrical Engineering), 2010, University of the Witwatersrand. Topic: Towards an innovative electronic, artificial larynx. *Where last tracked?* A senior lecturer at the University of Johannesburg. **Nationality: South Africa.**
  7. Dr. Meir Perez, Ph.D. (Electrical Engineering), 2012, Completed. University of the Witwatersrand. Topic: Machine Learning and soft computing approaches to micro-array differential expression analysis and feature selection. *Where last tracked?* A lecturer at the University of Johannesburg and now lives and works in Israel. **Nationality: South Africa.**
  8. Dr. Linda Simo Mthembu, Ph.D. (Mechanical Engineering), 2012, Completed. University of the Witwatersrand. Topic: Finite element model updating. *Where last tracked?* A senior lecturer at the University of Johannesburg. **Nationality: South Africa.**
  9. Dr. Bo Xing, D.Eng. (Mechanical Engineering), 2012, Completed. University of Johannesburg. Topic: Soft computing in remanufacturing. *Where last tracked?* A post-doctoral fellow at the University of Johannesburg and now an associate professor at the University of Limpopo. **Nationality: Chinese and permanent resident of South Africa.**
  10. Dr. Craig Boesack, Ph.D. (Electrical Engineering), 2013, University of the Witwatersrand, On the Analysis and Design of Genetic Fuzzy Controllers: An Application to Automatic Generation Control of Large Interconnected Power Systems Using Genetic Fuzzy Rule Based Systems. *Where last tracked?* Engineer for Eskom **Nationality: South Africa.**
  11. Dr. George Anderson, DPhil (Electrical Engineering), 2013, University of Johannesburg, Operating system scheduling optimization. *Where last tracked?* Works as a Senior Lecturer at the University of Botswana. **Nationality: Botswana.**
  12. Dr. Mlungisi Duma, DPhil (Electrical Engineering), 2013, University of Johannesburg, Predicting insurance risk using incomplete data. Works for ABSA Bank. **Nationality: South Africa.**
  13. Dr. Ian Shaw, DPhil (Electrical Engineering), 2013, University of Johannesburg, A study of analogies between processes in technical and biological systems. Retired **Nationality: South Africa.**
  14. Dr. Bolanle Tolulope Abe, PhD (Electrical Engineering), 2014, University of the Witwatersrand, Ensembles classifiers for land cover mapping. *Where last tracked?* Senior Lecturer at the Tshwane University of Technology. **Nationality: Nigerian and permanent resident of South Africa.**
  15. Dr. Ali Hassan, DPhil (Electrical Engineering), 2014, University of Johannesburg, Potential use of artificial intelligence in the mining industry: South African case studies. *Where last tracked?* Senior Lecturer at the University of Johannesburg. **Nationality: Jordan.**
  16. Dr. VP Kommulla, DIng (Mechanical Engineering), 2014, University of Johannesburg, Characterization of Native African Napier Fibre and Napier Grass Fibre Strands/epoxy composites. *Where last tracked?* Senior Lecturer at the University of Botswana. **Nationality: India.**
  17. Dr. Evan Hurwitz DIng (Electrical Engineering), 2014, University of Johannesburg Efficient portfolio optimization by hybridized machine learning. *Where last tracked?* Senior Lecturer at the University of Johannesburg. **Nationality: South Africa.**

18. Dr. Satyakama Paul, DPhil, 2014, University of Johannesburg. Modelling of merger and acquisition target prediction for novice acquirer: A computational intelligence perspective. **Nationality: India.**
19. Ilyes Boulkaibet, DIng, (2015) University of Johannesburg. Finite element model updating using Markov Chain Monte Carlo Techniques. (completed). **Nationality: Algeria.**

### **Students Currently Under Supervision**

1. Miguel Fernandes, D.Phil. University of Johannesburg **Nationality: South Africa.**
2. Marcos Alvares, D.Phil. University of Johannesburg **Nationality: Brazil.**
3. Collins Leke, D.Phil University of Johannesburg **Nationality: Cameroon.**
4. Pramod Kumar Parida, D.Phil University of Johannesburg **Nationality: India.**
5. Niel Joubert, MEng (Electrical Engineering) **Nationality: South Africa.**

### **Other Research Students Supervised**

1. W.S. Miya
2. Unathi Mahola
3. Ishmael Msiza
4. Adam Pantanowitz
5. Daniel Golding
6. Baruch Lubinsky
7. Sarah Wright
8. Linda Wilson
9. Darren Blend
10. D. Moon

### **Post-Doctoral Fellowship Supervision**

1. Dr. Anthony Gidudu, Remote Sensing, University of the Witwatersrand
2. Dr. Able Mashamba, Optimization Techniques, University of Johannesburg
3. Dr. Megan Russell, Biomedical Systems, University of Johannesburg
4. Dr. Omar F. Hamad, Intelligent Telecommunication, University of Johannesburg
5. Dr. Ruci Shukla, Software Engineering, University of Johannesburg
6. Dr. Satyakama Paul, Intelligent Management, University of Johannesburg
7. Ilyes Boulkaibet, Finite Element Updating, University of Johannesburg

### **SELECTED JOURNAL/GRANT REVIEWER**

#### **Grant Review**

1. Grant Reviewer: NRF
2. Grant Reviewer: Czech Science Foundation

#### **International Journals**

1. International Journal of Production Economics
2. Annals of Nuclear Energy
3. International Journal of Information Technology and Decision Making
4. Applied Mathematical Modelling
5. Neurocomputing
6. Engineering Applications of Artificial Intelligence
7. Information Sciences

8. IEEE Transactions on Systems, Man and Cybernetics – Part A
9. IEEE Transactions on Neural Networks
10. Mechanical Systems and Signal Processing
11. European Journal of Operations Research
12. Engineering Structures
13. Journal of Sound and Vibration
14. Journal of Vibration and Acoustics
15. Statistics and Probability Letters
16. Smart Materials and Structures
17. Pattern Recognition Letters
18. International Journal of Pattern Recognition
19. Pattern Recognition
20. Neural Computing and Applications
21. Applied Artificial Intelligence
22. Annals of Biomedical Engineering
23. ASCE Journal of Bridge Engineering
24. Computer Methods and Programs in Biomedicine
25. Journal of Manufacturing Systems
26. Journal of Information Processing and Systems
27. Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science
28. Computers in Biology and Medicine

## **MAJOR CONFERENCE ATTENDANCE AND PRESENTATION**

- Keynote speaker: International Conference on Construction Materials and Structures 24-26 November 2014, Johannesburg, South Africa
- Keynote speaker: Infrastructure Gauteng Integrated Infrastructure Masterplan 2013.
- Visioning and Consultative Workshop Tutorial Chair: "Impact of Missing Data Estimation" The Third IASTED African Conference on Modelling and Simulation 2010, Science and Technology Applications for Health and Sustainable Development, September 6 – 8, 2010, Gaborone, Botswana
- Invited Keynote Speaker: “Finite Element Updating” The South African Conference on Applied Mechanics (SACAM), 2010.
- Invited Keynote Speaker: IASTED Conference on Modelling and Simulation 2008, Gaborone, Botswana
- Invited Speaker: 2007 India Calling (Indian Merchants of Commerce and Business Unity South Africa), Sandton, South Africa.
- Invited Speaker: 2007 Wolfson College, University of Cambridge. Title: “Modelling of complex systems using computational intelligence techniques”
- Invited Speaker: 2007 IBSA (India, Brazil South Africa) Summit
- Invited Plenary Speaker: GovTech 2007, Cape Town, South Africa
- Invited Keynote Speaker: CESPAM Executive Training Programme “Combating Cybercrime in the SADC Region” 23<sup>rd</sup>-26<sup>th</sup> April, 2007, Cape Town, South Africa
- Member of the Bid Committee of the 19<sup>th</sup> World Congress of International Federation of Automatic Control, Toulouse, France.
- Invited to attend the World Bank Conference on Knowledge for Africa’s Development, Johannesburg, 2006.



- Invited by the Presidency of South Africa to attend the 6<sup>th</sup> Presidential International Advisory Council on Information Society and Development 2006
- Invited as a Special Guest at the US-Japan Workshop on Bio-Inspired Sensor Networks: Learning from Life, Yokohama, Japan, 2006.
- Invited Speaker: Asia-Pacific Workshop on Structural Health Monitoring, Yokohama, Japan (2006)
- Invited Researcher: International Workshop on Scientific and Technological Manufacturing Research January 31-February 4, 2005 University of Johannesburg, South Africa
- Invited by the South African Embassy in Japan to attend the Science and Technology Policy Forum, Tokyo, Japan, 2005<sup>12</sup>.
- Invited Delegate at the South African Public Management Conversation, Fancourt, George, 2005.
- Invited Delegate by IBM to attend the Executive Conference on Building the Information Society in Europe – 2004, Paris, France, May 2004.
- Invited Delegate Johannesburg + 2 Sustainable Development Conference, Sandton, 2004.
- Invited Researcher in the Microsoft Research Academic Conference, Cape Town, 2003.
- Invited Delegate at the United Nations World Summit on Sustainable Development, Johannesburg, 2002.

#### **VISITING PROFESSORS/RESEARCHERS HOSTED**

- Prof. Akira Mita, Keio University, Japan (2005)
- Prof. Rosalyn Hobson, Virginia Commonwealth University, USA (2005, 2006)
- Dr. Fola Soares, Contek Research, U.S.A. (2005)
- Dr. Snehashish Chakraverty, Central Building Research Institute, India (2005, 2006)
- Prof. Sondipon Adhikari, University of Swansea, UK (2010)
- Prof. Pawel Sowa, Silesian University of Technology, Poland (2010)

#### **INTERNATIONAL AND NATIONAL COLLABORATIONS**

- University of Pernambuco, Brazil (2010-Present) Internet security (collaborator: Prof. Fernando Buarque de Neto).
- Virginia Commonwealth University, Virginia, USA, (2004-2008). Speech recognition (collaborator Prof. Rosalyn Hobson)
- University of Windsor, Ontario, Canada,(2006-2007). Bioinformatics (collaborator Dr. Alioune Ngom)
- Contek Research, El Segundo, California, U.S.A. (2005-2008). Control methods for flight test (collaborator Dr. Fola Soares)
- NASA Dryden Flight Research Center, Edwards, CA, U.S.A, (2005-2007). Control methods for flight test (collaborator Dr. John Burken)
- Universities of Bristol/University of Swansea, U.K., (2000-2007). Finite element model updating (collaborator Dr. Sondipon Adhikari)
- Central Building Research Institute, Roorkee, India (2003-2006). Structural Health Monitoring (collaborator Dr. Snehashish Chakraverty)
- University of Kent, UK (2004-2006). Interstate Conflict (collaborator Dr. Monica Lagazio)
- Keio University, Japan (2005). Condition Monitoring (collaborator Prof. Akira Mita)

<sup>12</sup> Invited by the South African Embassy in Japan

- Council for Scientific and Industrial Research (CSIR) (2003-2005). Finite element model updating (collaborator: Dr. Sibusiso Sibisi President of CSIR)
- University of Pretoria (2003-2008). Fault identification (collaborator: Prof. P.S. Heyns)
- University of Swansea (2008-present). Finite Element Updating (Collaborators: Profs. M.I. Friswell and S. Adhikari)

## RESEARCH GRANTS RECEIVED

- |  |               |             |
|--|---------------|-------------|
| • National Research Foundation<br>Modelling of financial markets         | ZAR 243 000   | (2004-2006) |
| • Armscor/Kentron<br>Automatic target recognition                        | ZAR 212 000   | (2004-2005) |
| • Armscor/CSIR DefenceTek<br>Information warfare                         | ZAR1 137 000  | (2004-2006) |
| • Friedel Sellschop Award<br>Financial modelling                         | ZAR 75 000    | (2004)      |
| • Dr. T.W. Kambule Research Awards                                       | ZAR 50 000    | (2004)      |
| • CSIR Fellowship  | ZAR 70 000    | (2004)      |
| • Indo-South Africa Research Collaboration<br>Condition monitoring       | ZAR 120 000   | (2004-2006) |
| • Swedish/South Africa Research Collaboration<br>Condition monitoring    | ZAR 120 000   | (2004-2006) |
| • National Research Foundation<br>Condition monitoring                   | ZAR 479 000   | (2005-2007) |
| • THRIP  | ZAR 315 000   | (2005)      |
| • THRIP  | ZAR 390 000   | (2006)      |
| • DST/NRF Chair  | ZAR10 million | (2007-2012) |
| • Eskom  | ZAR 500 000   | (2004-2008) |
| • South Africa/Poland Research<br>Cooperation Programme                  | ZAR 200 000   | (2010-2012) |
| • NRF Grant: Competitive Programme<br>For Rated Researchers              | ZAR 1291 000  | (2010-2012) |
| • NRF/HESA IBSA Cooperation in Higher Education<br>For Rated Researchers | ZAR 80 000    | (2010)      |

## EXTERNAL EXAMINATION

- Sathyabama University, Chennai, India
  - PhD (Mechanical Engineering)
- National Institute Technology, Rourkela
  - PhD (Applied Mathematics)
- Uttar Pradesh Technical University, Lucknow, India
  - PhD (Computer Science)
- University of Pisa, Italy
  - PhD (Computer Science)
- Rand Afrikaans University
  - 2 Masters of Engineering (Electrical Engineering)
- University of Pretoria

- Master of Engineering (Mechanical Engineering)
- PhD in Engineering Management
- North-West University
  - PhD in Engineering
  - Master of Engineering
- University of Cape Town
  - M.Sc. (Electrical Engineering)
  - M.Sc. (Civil Engineering)
  - M.Sc. (Physics)
- Tshwane University of Technology
  - 2 Master of Technology (Electrical Engineering)
- University of the Witwatersrand
  - Master of Science (Electrical Engineering)
  - Master of Science (Mechanical Engineering)

## PUBLICATIONS<sup>13</sup>:

### Patents

- P-1. D.M. Starfield, D.M. Rubin and **T. Marwala**. United States Patent: 20080296504 “Method and Apparatus for Radiation Imaging”
- P-2. D.M. Starfield, D.M. Rubin and **T. Marwala**. PCT/IB2008/001278 (22.05.2008) “Coded Aperture Masks for Radiation-Based Medical Imaging”.
- P-3. M.J. Russell, D.M. Rubin, B. Wigdorowitz and **T. Marwala**. (PCT/IB2009/006125) “An artificial larynx”

### Books

- B-1. **Marwala, T.**, Boukalbait, I, and Adhikari S. Probabilistic Finite Element Model Updating Using Bayesian Statistics: Applications to aeronautical and mechanical engineering. [John Wiley and Sons](#) (accepted for publication).
- B-2. **Marwala, Tshilidzi** (2015). *Causality, Correlation, and Artificial Intelligence for Rational Decision Making*. Singapore: [World Scientific](#). ISBN 978-9-814-63086-3.
- B-3. **Marwala, Tshilidzi** (2014). *Artificial Intelligence Techniques for Rational Decision Making*. Heidelberg: [Springer](#). ISBN 978-3-319-11423-1.
- B-4. **Marwala, Tshilidzi** (2013). *Economic Modeling Using Artificial Intelligence Methods*. Heidelberg: [Springer](#). ISBN 978-1-84996-323-7.
- B-5. **Marwala, Tshilidzi** (2012). *Condition Monitoring Using Computational Intelligence Methods*. Heidelberg: [Springer](#). ISBN 978-1-4471-2380-4.
- B-6. **Marwala, Tshilidzi; Lagazio, Monica** (2011). *Militarized Conflict Modeling Using Computational Intelligence*. Heidelberg: [Springer](#). ISBN 978-0-85729-789-1.
- B-7. **Marwala, Tshilidzi** (2010). *Finite Element Model Updating Using Computational Intelligence Techniques: Applications to Structural Dynamics*. Heidelberg: [Springer](#). ISBN 978-1-84996-322-0.
- B-8. **Marwala, Tshilidzi** (2009). *Computational Intelligence for Missing Data Imputation, Estimation, and Management: Knowledge Optimization Techniques*. Pennsylvania: [IGI Global](#). ISBN 978-1-60566-336-4.

<sup>13</sup> These reflect only the papers where I was part of the execution of research and agreed with contents of the papers. There are more than 30 others that are not included here where my name was included without my consent.

- B-9. **Marwala, Tshilidzi** (2007). *Computational Intelligence for Modelling Complex Systems*. Delhi: Research India Publications. [ISBN 978-81-904362-1-2](https://doi.org/10.1007/978-81-904362-1-2).

### Peer-Reviewed Book Chapters and Monographs

1. J.M. Spiller and **T. Marwala**. Medical Image Segmentation and Localization using Deformable Templates. *In Imaging the Future Medicine*, Proceedings of the IFMBE, 2006, Vol. 14, pp. 3581-3585, Springer-Verlag, Berlin Heidelberg. Eds. Sun I. Kim and Tae Suk Sah, ISBN: 978-3-540-36839-7.
2. D.L. Falk, D.M. Rubin and **T. Marwala**. Enhancement of Noisy Planar Nuclear Medicine Images using Mean Field Annealing. *In Imaging the Future Medicine*, Proceedings of the IFMBE, 2006, Vol. 14, pp. 3581-3585, Springer-Verlag, Berlin Heidelberg. Eds. Sun I. Kim and Tae Suk Sah, ISBN: 978-3-540-36839-7.
3. T.N. Tim and **T. Marwala**. Computational Intelligence Methods for Risk Assessment of HIV. *In Imaging the Future Medicine*, Proceedings of the IFMBE, 2006, Vol. 14, pp. 3581-3585, Springer-Verlag, Berlin Heidelberg. Eds. Sun I. Kim and Tae Suk Sah, ISBN: 978-3-540-36839-7.
4. D.M. Starfield, D.M. Rubin and **T. Marwala**. Near-Field Artifact Reduction using Realistic Limited-Field-of-View Coded Apertures in Planar Nuclear Medicine Imaging. *In Imaging the Future Medicine*, Proceedings of the IFMBE, 2006, Vol. 14, pp. 3581-3585, Springer-Verlag, Berlin Heidelberg. Eds. Sun I. Kim and Tae Suk Sah, ISBN: 978-3-540-36839-7.
5. D.M. Starfield, D.M. Rubin and **T. Marwala**. Sampling Considerations and Resolution Enhancement in Ideal Planar Coded Aperture Nuclear Medicine Imaging, pp. 806-809. 11th Mediterranean Conference on Medical and Biological Engineering June 2007, Ljubljana, Slovenia (IFMBE Proceedings vol. 16) (Paperback) and Computing 2007: MEDICON 2007, 26-30 by Tomaz Jarm (Editor), Peter Kramar (Editor), Anze Zupanic (Editor) Springer, ISBN-10: 3540730435.
6. F.V. Nelwamondo and **T. Marwala**. Handling Missing Data from Heteroskedastic and Nonstationary Data. *Lecture Notes in Computer Science*, 2007, vol. 4491, no. 1, pp. 1297-1306, Springer-Verlag, Berlin Heidelberg.
7. B. Vilakazi and **T. Marwala**. Incremental Learning and Its Application to Bushing Condition Monitoring. *Lecture Notes in Computer Science*, 2007, vol. 4491, no. 1, pp. 1241-1250, Springer-Verlag, Berlin Heidelberg.
8. Bodie Crossingham, **T. Marwala**. Using Genetic Algorithms to Optimise Rough Set Partition Sizes for HIV Data Analysis. *Advances in Intelligent and Distributed Computing, Studies in Computational Intelligence*, 2008, Volume 78/2008, 245-250, DOI: 10.1007/978-3-540-74930-1\_25
9. **T. Marwala** and B.C. Vilakazi. Condition Monitoring using Computational Intelligence, *Handbook on Computational Intelligence in Manufacturing and Production Management*, IGI Publishers Chapter 6, 2007, pp. 106-143, ISBN 1599045826.
10. D.M. Starfield, D.M. Rubin and **T. Marwala**. Design of an ultra-near-field system for planar coded aperture nuclear medicine imaging. 2008, *Proceedings of the International Federation for Medical and Biological Engineering*, 2008, vol. 20, pp. 590-593, Springer, ISBN: 978-3-540-69366-6, Editors: Yuri Dekhtyar, Alexei Katashev and Janis Spigulis.
11. Megan J. Russell, David M. Rubin, Brian Wigdorowitz and **T. Marwala**. The artificial larynx: A review of current technology and a proposal for future development. *Proceedings of the International Federation for Medical and Biological Engineering*,

- 2008, vol. 20, pp. 160-163, Springer, ISBN: 978-3-540-69366-6, Editors: Yuri Dekhtyar, Alexei Katashev and Janis Spigulis.
12. B.C. Vilakazi and **T. Marwala**. Computational Intelligence Approach to Bushing Condition Monitoring: Incremental learning and its Application. In *Intelligent Engineering Systems and Computational Cybernetics*, Springer-Verlag, Machado, J.A. Tenreiro; Pátkai, Béla; Rudas, Imre J. (Eds.) 2008, ISBN: 978-1-4020-8677-9.
  13. **T. Marwala** and Evan Hurwitz. A Multi-Agent Approach to Bluffing. Chapter 11: *Multiagent Systems*, Book edited by: Salman Ahmed and Mohd Noh Karsiti, ISBN 978-3-902613-51-6, pp. 233-246, February 2009, I-Tech, Vienna, Austria.
  14. Pretesh Patel and **T. Marwala**. Caller behaviour classification a Comparison of SVM and FIS Techniques. Lecture Notes in Computer Science Springer, Advances in Intelligent and Soft Computing, Editor-in-chief: Kacprzyk, J., Book Series Advances in Soft Computing, Publisher Springer Berlin / Heidelberg, ISSN 1615-3871 (Print) 1860-0794 (Online), Volume 116/2009, Book, DOI 10.1007/978-3-642-03156-4, ISBN 978-3-642-03155-7, Pages 199-208
  15. Adam Pantanowitz and **T. Marwala**. Missing Data Imputation Through the Use of the Random Forest Algorithm. Lecture Notes in Computer Science Springer, Advances in Intelligent and Soft Computing, Editor-in-chief: Kacprzyk, J., Book Series Advances in Soft Computing, Publisher Springer Berlin / Heidelberg, ISSN 1615-3871 (Print) 1860-0794 (Online), Volume 116/2009, Book, DOI 10.1007/978-3-642-03156-4, ISBN 978-3-642-03155-7, Pages 53-62.
  16. Adam Pantanowitz and **T. Marwala**. Evaluating the Impact of Missing Data Imputation. Lecture Notes in Computer Science Springer, Book Series Lecture Notes in Computer Science, Publisher Springer Berlin / Heidelberg , ISSN 0302-9743 (Print) 1611-3349, Volume 5678/2009, Book: Advanced Data Mining and Applications.
  17. L.M. Masisi, F.V. Nelwamondo and **T. Marwala**. Investigating Ensemble Weight and the Certainty Distributions for Indicating Structural Diversity, Book Series Lecture Notes in Computer Science, Volume 5507/2009, Publisher Springer Berlin / Heidelberg, Book Advances in Neuro Information Processing, Pages 517-524.
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### CHARITABLE INITIATIVES

- Personal Donation to Tshivhambe Lower Primary School – R30,000.00 – Computers (2007)
- Raised funds from the Carl and Emily Fuchs Foundation for Mbilwi Secondary School, an SET School – R130,000.00 – Science Labs (2006-2010)
- Raised funds from the Carl and Emily Fuchs Foundation for Tshilidzini Special School for the disabled people. – R25,000.00 (2008)
- Raised funds from the Carl and Emily Fuchs Foundation Ligege Secondary School – R15,000.00 (2009)
- Raised funds from the Carl and Emily Fuchs Foundation Dimani Agricultural High School – R10,000.00 (2010)

## GOOGLE SCHOLAR PROFILE

4/29/2015

Tshilidzi Marwala - Google Scholar Citations



## Tshilidzi Marwala

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### Google Scholar

Citation indices	All	Since 2010
Citations	2612	1943
h-index	23	19
i10-index	75	56

Title	1–20	Cited by	Year
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