

CURRICULUM VITAE



PROFESSOR TSHILIDZI MARWALA

Vice-Chancellor and Principal

(Last Updated: 2 December 2018)

PERSONAL INFORMATION

Surname: Marwala
First Name: Tshilidzi
Postal Address: University of Johannesburg
PO Box 524
Auckland Park 2006
Johannesburg
South Africa
E-mail: tmarwala@uj.ac.za
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 Vuyiswa Manana
BSc (Pretoria), BSc (Hons) (Pretoria), MSc (Pretoria), MBBCCh
(Wits)
Children: Nhlonipho Khathutshelo Marwala (Son),
Lwazi Thendo Marwala (Son),
Mbali Denga Marwala (Daughter).

BIOGRAPHY

Tshilidzi Marwala is the Vice-Chancellor and Principal of the University of Johannesburg beginning on the 1st January 2018. From 2013 to 2017 he was the Deputy Vice-Chancellor for Research and Internationalization and from 2009 to 2013 he was the Executive Dean of the Faculty of Engineering and the Built Environment both at the University of Johannesburg. From 2003 to 2008, he progressively held the positions of Associate Professor, Full Professor, the Carl and Emily Fuchs Chair of Systems and Control Engineering as well as the SARChI Chair of Systems Engineering at the Department of Electrical and Information Engineering at the University of the Witwatersrand. From 2001 to 2003, he was the Executive Assistant to the technical director at South African Breweries. From 2000 to 2001 he was a post-doctoral research associate at the Imperial College (then University of London). He holds a Bachelor of Science in Mechanical Engineering (*magna cum laude*) from Case Western Reserve University (USA) in 1995, a Master of Mechanical Engineering from the University of Pretoria in 1997 and a PhD specializing in Artificial Intelligence and Engineering from the University of Cambridge in 2000. Marwala completed the Advanced Management Program (AMP) at Columbia University Business School in 2017 and completed a Program for Leadership Development (PLD) at Harvard Business School in 2007. Tshilidzi 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 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 theory and application of artificial intelligence to engineering, computer science, finance, social science and medicine. He has extensive track record in human capacity development having supervised 47 Master's and 28 Doctoral 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, Chiba and Waseda. He has published 15 books in artificial intelligence, one of these has been translated into Chinese, over 300 papers in journals, proceedings, book chapters and magazines and holds five patents. He is an associate editor of the International Journal of Systems Science (Taylor and Francis Publishers). He has been a visiting scholar at Harvard University, University of California at Berkeley, Wolfson College of the University of Cambridge and Nanjing Tech University as well as member of the programming council of the Faculty of Electrical Engineering at the Silesian University of Technology in Poland. He has received more than 45 awards including the Order of Mapungubwe and was a delegate to the 1989 London International Youth Science Fortnight (LIYSF) when he was in high school. His writings and opinions have appeared in the magazines New Scientist, The Economist, Time Magazine and CNN.

EDUCATION BACKGROUND

- **Doctor of Philosophy in Engineering (1997-2000):**
University of Cambridge (St. John's College), Cambridge, U.K.
- **Master of Engineering in 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, U.S.A.
- **Advanced Level Studies (1990):**
St. John's College (Nash House), Johannesburg, South Africa
- **Matriculation (1989):**
Mbilwi Secondary School, South Africa

LEADERSHIP EDUCATION BACKGROUND

- **Advanced Management Program (2017):**
Columbia Business School, Columbia University, New York, USA.
- **Accounting & Finance for Non-Financial Managers (2015):**
Executive Education, National, University of Singapore, Singapore.
- **University of Johannesburg: Vice Chancellor's Executive Leadership Programme (2014):**
GIBS University of Pretoria, South Africa.
- **Programme for Leadership Development (2006 – 2007):**
Harvard Business School, Harvard University, Cambridge, Massachusetts, U.S.A.
- **South African Institute of Management (SAIM) Programme in Business Management (2003):** University of South Africa, South Africa.

PROFESSIONAL EXPERIENCE

01/01/2018 – Present	<p>Vice-Chancellor and Principal University of Johannesburg, South Africa</p>
01/07/2017 – 31/12/2017	<p>Vice-Chancellor Designate University of Johannesburg, South Africa</p>
01/04/2013 – 30/05/2017	<p>Deputy Vice Chancellor: Research and Internationalization University of Johannesburg, South Africa</p> <ul style="list-style-type: none"> • Increased research external funding from R83.7 million in 2012 to R229.5 million in 2015. • Increased UJ research output from 897 in 2012 to 1280 in 2015. • Increased UJ NRF rated researchers from 115 in 2012 to 171 in 2016. • Managed the application that resulted in the University of Johannesburg receiving the highest number of tier level 1 SARChI Chairs of any university in 2015. • Increased number of staff members with doctoral qualifications from 294 in 2012 to 539 in 2016.

- During my tenure, UJ obtained the Centre of Excellence for Integrated Mineral and Energy Resource Analysis (CIMERA) - funded by the Department of Science and Technology (DST).
 - Lead the establishment of the following institutions at the University of Johannesburg: Confucius Institute with Nanjing Tech University, the Joint Institute of Advanced Study with the Nanyang Technological University, the Pan African Institute for Political Thought and Conversation as well as the Intelligent System Institute.
 - Managed the insourcing of garden and security staff
 - Increased number of A-rated researchers from 5 to 7
- 01/08/2014 – present
- Adjunct Professor**
Department of Electrical and Electronic Engineering Science
Faculty of Engineering and the Built Environment
University of Johannesburg, South Africa
- Supervised postgraduate students.
 - Authored books and papers.
- 01/01/2009 – 31/03/2013
- Executive Dean**
Faculty of Engineering and Built Environment
University of Johannesburg, South Africa
- Developed the Faculty of Engineering and the Built Environment's long-term vision, strategy as well as implementation and monitoring plans.
 - 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).
 - 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.
 - Merged the Departments of Engineering Metallurgy and Extractive Metallurgy to form the Department of Metallurgy.
 - Introduced the Faculty of Engineering and the Built Environment Industrial Advisory Board.
 - Increased research output units of the UJ Faculty of Engineering and the Built Environment from 27.95 in 2008, 34 in 2009, 59.33 in 2010, 102.75 in 2011, 126.95 in 2012, 157.39 in 2013, 210.76 in 2014 and 220.56 in 2015.
 - Successfully managed a R70 million laboratory upgrade project.
 - Increased the number of post-doctoral fellows from 0 in 2008 to 12 in 2012.
 - Increased number of Master's and Doctoral Students from 250 in 2008 to 524 in 2012.
 - Incorporated the Department of Quality and Operations Management from the Faculty of Management into the Faculty of Engineering and the Built Environment.

- 01/04/2003 – 31/12/2008

 - Created the Process Engineering and Environmental Technology Station which is fully funded by the Technology Innovation Agency (TIA).
 1. **SARCHI Chair of Systems Engineering (01/01/2007-31/12/2008)**
 2. **Carl and Emily Carl Fuchs Chair of Control and Systems Engineering (01/03/2006-31/12/2007)**
 3. **Personal Professor (01/12/2005-31/12/2008)**
 4. **Associate Professor (01/04/2003-30/11/2005)**
 5. **Head of Control and Systems Group (01/04/2003-31/12/2008)**

School of Electrical and Information Engineering
University of Witwatersrand, South Africa

 - Authored refereed books, journal papers, proceedings and book chapters as well as registered patents
 - Supervised doctoral and master theses. Some of these graduates have proceeded to universities such as Harvard, Oxford, Cambridge, Rutgers, British Columbia, Purdue, Keio, Chiba, Makerere and Concordia to further their research careers.
 - Hosted visiting professors from Japan, U.S.A., India, Poland and U.K.
 - Consulted for the following companies: Grintek on Information Security, CSIR on multi-agent systems, Kentron for medical imaging and ESKOM for fault detection in the electrical cable transmission lines
 - Raised over R10 million worth of research grants.
- 01/09/2001 – 30/03/2003

Executive Assistant to the Technical Director
South African Breweries, South Africa

 - Assisted the Executive Director of South African Breweries on technological matters including strategy and implementation.
 - Developed an artificial beer taster.
- 01/05/2000 – 30/08/2001

Post-Doctoral Research Associate
Imperial College of Science, Technology and Medicine
University of London, U.K.

 - Performed studies on the ontology, stability and scalability of the multi-agent systems.
 - Managed collaboration amongst researchers at Eindhoven Technological University, Imperial College (London) and New University of Lisbon.
- 01/06/1995 – 31/12/1995

Project Engineer
Mining Technology Division
Council for Scientific and Industrial Research (CSIR), South Africa

 - Worked on a project for reducing the noise levels in underground hydraulic drillers.

VISITING APPOINTMENTS

- 2016 – present **Visiting Professor**
Nanjing Tech University, China

2013	Visiting Fellow Stellenbosch Institute of Advanced Study, South Africa
2009	Visiting Scholar University of California, Berkeley, USA
2007 – 2008	Visiting Fellow Wolfson College, University of Cambridge, UK
2006 – 2007	Harvard South Africa Fellow Harvard University, USA

MEMBER OF BOARD OF DIRECTOR / TRUSTEES / COMMITTEES

- Chairman: Group Risk Governance Committee of the City of Johannesburg (1/06/2017-31/12/2018)
- Member of Programming Council: Faculty of Electrical Engineering, Silesian University of Technology, Gliwice, Poland (2014-present)
- Chairman: African Academy of Science Membership Advisory Committee in Engineering Technology and Applied Sciences (2014 – present).
- Chairman and Deputy Chairman: Gauteng City Region Observatory (GCRO) (2014 – 31/12/2018).
- Non-Executive Director, EOH (Pty) Ltd. (2007 – present).
- Trustee: Carl and Emily Fuchs Foundation (2006 – present).
- Trustee: The Bradlow Foundation (2006 – 31/12/2018).
- Committee Member: Developing an international accord of ICSU on: Open Data in a Big Data World (2015).
- Core Team Member: High – Speed Train Project African Union Commission (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 of Education Committee, Council and EXCO Member: Engineering Council of South Africa (2012 – 2016).
- Chairman and Member of the South Africa’s Department of Higher Education and Training Research Output Committee (2010 – present).
- 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).
- Board Member: South African National Council of Scientific Professions (2006).
- 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).

MEMBERSHIP / FELLOWSHIPS / PROFESSIONAL REGISTRATION

- Fellow of the South African Institute of Electrical Engineering (2016).
- Fellow of AAS, African Academy of Science (2013).

- Fellow of TWAS, The World Academy of Sciences¹ (2010).
- Distinguished Scientist of the Association for Computing Machinery (ACM)² (2010).
- Member of the Academy of Science of South Africa (2007).
- Fellow of the South African Academy of Engineering (2007).
- Senior Member of the Institute of Electrical and Electronic Engineering (IEEE) (2008)³.
- Registered Professional Engineer (2005).
- Senior Member of the Association for Computing Machinery⁴ (2009 – 2010).
- Member of the Institute of Directors (IOD) (2006)
- CSIR Fellow (2005).
- Fellow of the Cambridge Commonwealth Trust (1997).

SELECTED AWARDS / HONOURS / ACHIEVEMENTS

- Case Western Reserve University Alumni Professional Achievement Award (2016).
- NRF Award: Champion of Research Capacity Development (2015).
- Judge of the YouTube/Google Spacelab Completion (2011)⁵.
- NSTF-BHP Billiton Awards: Eskom Research Capacity Award (over last 5 to 10 years) (2011).
- Paper Co-Authored was featured in the MIT Technology Review (2009)⁶.
- TWAS-AAS-Microsoft Award for Young Scientists (2009).
- 2008 SAIEE Premium Best Paper Award.
- NSTF Award: Individual through research and its outputs (over last five years or less) (2007).
- THRIIP Technology Awards: Outstanding Project Leader (2007).
- Bronze Order of Mapungubwe – President of South Africa (2004).
- NRF President’s Award (P-Rating) (2003).
- Mail and Guardian: 100 Future Leaders in (2005).
- The Star Newspaper: Top 100 of 2004.
- Tuksalumni Laureate Award (2004).
- NRF/NSTF Dr. T.W. Kambule Research Award (2004).
- CSIR Fellowship (2004).
- Friedel Sellschop Award (2004).
- SABC2 – Tribute Achievers Award (Winner: Science and Technology) (2003).
- Extraordinary Professor – University of Pretoria (2003).
- Extraordinary Lecturer – University of Pretoria (2002).
- Charles Hesterman Merz Fund Award (2000).
- 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).

¹ Formerly called The Academy of Sciences for the Developing World.

² “ACM Distinguished Membership recognizes up to 10% of ACM’s top members who have had significant accomplishments or impact on the computing field”.

³ “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”.

⁴ “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”.

⁵ Other judges include Professors Stephen Hawkins and Neill Turok.

⁶ <http://www.technologyreview.com/biomedicine/24051/>

- Bradlow Foundation Scholarship (1997 – 2000).
- UK 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).
- 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).

RATING AS A SCIENTIST: NRF, SCOPUS & GOOGLE SCHOLAR

- **B3 (Internationally Acclaimed Researcher):** 2014 – 2019
- **C2 (Established Researcher):** 2009 – 2013
- **P (NRF President’s Award):** 2004 – 2008
- **Citations (Google Scholar):** 5436
- **h-index(Google Scholar):** 34
- **h-index(Scopus):** 23
- **i10-index(Google Scholar):** 143

RESEARCH INTERESTS

- Artificial Intelligence
- Finite Element Model Updating
- Missing Data Estimation
- Economics and Finance

EDITORIAL RESPONSIBILITIES⁷

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

MAJOR CONFERENCE LEADERSHIP / ATTENDANCE / PRESENTATION

- Lecture: “AI in 21st Century” London Business School, 29 January 2019.
- Debate Panel on Artificial Intelligence: Oxford Union, Oxford University 28 January 2019.
- Scholar Talk: “Artificial Intelligence” Rhodes Trust, Oxford University 28 January 2019.
- Keynote at the Science Forum South Africa: “The Fourth Industrial Revolution and Society” Pretoria, 12 December 2018.
- Keynote at the SADC DFI Chief Executive Officers Forum: “The Fourth Industrial Revolution and Impact on DFI’s” 6 December 2018.
- Inaugural Lecture: Silesian Technological University, Poland, “The Fourth Industrial Revolution” 22 October 2018.
- Annual Orenstein Lecture: University of the Witwatersrand, “Artificial Intelligence and Health Sciences” 5 September 2018.

⁷ 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.

- Distinguished Lecture Series: Nanyang Technological University, Singapore “The Fourth Industrial Revolution and Society” 30 August 2018.
- Excellent Lecture Presentation: Nanjing Tech University, China “The Fourth Industrial Revolution and Society” 28 August 2018.
- Roundtable in South African Parliament: The 4th Industrial Revolution: Opportunities and Threats” 31 May 2018
- Speaker: Symposium on Memory. Collège de France (2018).
- Keynote Speaker: The 6th Asia-Pacific Workshop on Structural Health Monitoring, 7 – 9 December, Hobart, Tasmania, Australia (2016).
- Keynote Speaker: The 7th International Conference on Swarm Intelligence, 25–30 June, Bali, Indonesia (2016).
- Delivered the 65th Bernard Price Memorial Lecture, 20 September, South Africa (2016).
- Invited Speaker: Capacitating industry-academia collaboration: Lessons from South Africa, the 8th QS World Class, 25 – 27 March, Phuket, Thailand (2015).
- Speaker BRICS University Summit, 26 – 28 October, Moscow, Russia (2015).
- Joint Chair: The 1st BRICS Countries Congress on Computational Intelligence and the 11th Brazilian Congress on Computational Intelligence, 8- 11 September, Recife, Brazil (2013).
- Invited Speaker: Science and Technology in Society Forum Representative for the African Continent, Kyoto, Japan (2010)⁸.
- Invited Plenary Speaker: The 7th South African Conference on Computational and Applied Mechanics, Pretoria, South Africa (2010).
- International Advisory Committee: International Conference on Challenges and Applications of Mathematics in Science and Technology (CAMIST), Orissa, India (2010).
- International Committee: The 8th International Symposium on Soft Computing for Industry (ISSCI), Kobe, Japan (2010).
- Program Committee: International Symposium on Intelligent Informatics (ISII), Qinhuangdao, China (2009).
- Program Committee: Invention, Poland (2009).
- Program Committee: The 13th World Multi-Conference on Systemics, Cybernetics and Informatics (WMSCI), Orlando, U.S.A. (2009).
- Invited Speaker: India Calling (Indian Merchants of Commerce and Business Unity South Africa), Sandton, South Africa (2007).
- Invited Speaker: “Modelling of complex systems using computational intelligence techniques”, Wolfson College, University of Cambridge, U.K. (2007).
- Invited Speaker: IBSA (India, Brazil, and South Africa) Summit, South Africa (2007).
- Technical Committee: World Congress in Computational Intelligence, Hong Kong, (2008).
- International Technical Committee: BIONETICS, Hungary (2007).
- Scientific Committee: GAMEON, University of Bologna, Italy (2007).
- Invited Talk: Asia-Pacific Workshop on Structural Health Monitoring, Yokohama, Japan (2006).
- Delegate: 6th Presidential International Advisory Council on Information Society and Development, South Africa (2006).

⁸ 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.

- Special Guest: US-Japan Workshop on Bio-Inspired Sensor Networks: Learning from Life, Yokohama, Japan (2006).
- Delegate: Science and Technology Policy Forum, Tokyo, Japan (2005)⁹.
- Delegate: IBM Executive Conference on Building the Information Society, Paris, (2004).

PUBLICATIONS¹⁰

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”.
- P-4.** **Tshildzi Marwala**, Dipanjan Paul and Satyakama Paul. (South African Provisional Patent 2018/03463) System and method for real time prediction of water level and hazard level of a dam.
- P-5.** **Tshildzi Marwala**, Rendani Mbuva. (South African Provisional Patent 2018/06344) A system and method for imputing missing data in a dataset, a method and system for determining a health condition of a person, and a method and system of calculating an insurance premium.

Books, Monographs and Edited Proceedings

- B-1.** Leke, C.A. and **Marwala, T.** (2019). *Deep Learning and Missing Data in Engineering Systems*. London: Springer. ISBN: 978-3030011796.
- B-2.** **Marwala, T.** (2018). *Handbook of Machine Learning: Foundation of artificial intelligence Vol. 1*. World Scientific Publication. ISBN 978-981-3271-22-7.
- B-3.** Xing, B. and **Marwala, T.** (2018). *Smart Computing in Crowdfunding*. London: CRC Press (Taylor and Francis). ISBN 978-1-138-57771-8.
- B-4.** Xing, B. and **Marwala, T.** (2018). *Smart Maintenance for Human–Robot Interaction: An Intelligent Search Algorithmic Perspective*. London: Springer. ISBN 978-3-319-67480-3.
- B-5.** **Marwala, T.** and Hurwitz, E. (2017) *Artificial Intelligence and Economic Theory: Skynet in the Market*. [Springer](#). ISBN: 978-3-319-66103-2.
- B-6.** **Marwala, T.**, Boulkaibet, I, and Adhikari S. (2017) *Probabilistic Finite Element Model Updating Using Bayesian Statistics: Applications to Aeronautical and Mechanical Engineering*. [John Wiley and Sons](#). ISBN: 978-1-119-15303-0.
- B-7.** Zhang, D., **Marwala, T.**, Balas, M. and Kim, J. (Editors) (2016) International Conference on Artificial Intelligence and Robotics (ICAIR 2016) and 2016 International Conference on Automation, Control and Robotics Engineering (CACRE 2016) Kitakyushu; Japan; 1; Code 123223. *ACM International Conference Proceeding Series*, Volume 13-15-July-2016.

⁹ Invited by the South African Embassy in Japan.

¹⁰ 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-8.** Marwala, T. (2015). *Causality, Correlation, and Artificial Intelligence for Rational Decision Making*. Singapore: [World Scientific](#). ISBN 978-9-814-63086-3.
- B-9.** Marwala, T. (2014). *Artificial Intelligence Techniques for Rational Decision Making*. Heidelberg: [Springer](#). ISBN 978-3-319-11423-1.
- B-10.** Marwala, T. (2013). *Economic Modeling Using Artificial Intelligence Methods*. Heidelberg: [Springer](#). ISBN 978-1-84996-323-7.
- B-11.** Marwala, T. (2012). *Condition Monitoring Using Computational Intelligence Methods*. Heidelberg: [Springer](#). ISBN 978-1-4471-2380-4.
- B-12.** **Marwala, T.** and Lagazio, M. (2011). *Militarized Conflict Modeling Using Computational Intelligence*. Heidelberg: [Springer](#). ISBN 978-0-85729-789-1. *Translated into Chinese by the National Defence Industry Press.*
- B-13.** Marwala, T. (2010). *Finite Element Model Updating Using Computational Intelligence Techniques: Applications to Structural Dynamics*. Heidelberg: [Springer](#). ISBN 978-1-84996-322-0.
- B-14.** Marwala, T. (2009). *Computational Intelligence for Missing Data Imputation, Estimation, and Management: Knowledge Optimization Techniques*. Pennsylvania: [IGI Global](#). ISBN 978-1-60566-336-4.
- B-15.** Marwala, T. (2007). *Computational Intelligence for Modelling Complex Systems*. Delhi: [Research India Publications](#). ISBN 978-81-904362-1-2.

Peer-Reviewed Book Chapters¹¹

- BC-1.** J.M. Spiller and **T. Marwala**, (2006), Medical Image Segmentation and Localization Using Deformable Templates. *In Imaging the Future Medicine*, Proceedings of the IFMBE, Volume 14, pp. 3581-3585, Springer-Verlag, Berlin Heidelberg. Eds. Sun I. Kim and Tae Suk Sah, ISBN: 978-3-540-36839-7.
- BC-2.** T. Tettey **T. Marwala**, (2006), Neuro-Fuzzy Modeling and Fuzzy Rule Extraction Applied to Conflict Management. *Lecture Notes in Computer Science*, Volume 4234, pp. 1087-1094, Springer-Verlag, Berlin Heidelberg.
- BC-3.** F. Soares, J. Burken, **T. Marwala**, (2006), Neural Network Applications in Advanced Aircraft Flight Control System, a Hybrid System, a Flight Test Demonstration. *Lecture Notes in Computer Science*, Volume 4234, pp. 684-691, Springer-Verlag, Berlin Heidelberg.
- BC-4.** P. Patel and **T. Marwala**, (2006), Neural Networks, Fuzzy Inference Systems and Adaptive-Neuro Fuzzy Inference Systems for Financial Decision Making. *Lecture Notes in Computer Science*, Volume 4234, pp. 430-439, Springer-Verlag, Berlin Heidelberg.
- BC-5.** D. Lunga, **T. Marwala**, (2006), Online Forecasting of Stock Market Movement Direction Using the Improved Incremental Algorithm. *Lecture Notes in Computer Science*, Volume 4234, pp. 440-449, Springer-Verlag, Berlin Heidelberg.
- BC-6.** D. Lunga and **T. Marwala**, (2006), Time Series Analysis Using Fractal Theory and Online Ensemble Classifiers. *Lectures Notes in Artificial Intelligence*, Volume 4304, pp. 312-321, Springer-Verlag, Berlin Heidelberg.
- BC-7.** D.L. Falk, D.M. Rubin and **T. Marwala**, (2006), Enhancement of Noisy Planar Nuclear Medicine Images Using Mean Field Annealing. *In Imaging the Future*

¹¹ Some of these are conference papers published as a book by Springer.

- Medicine*, Proceedings of the IFMBE, Volume 14, pp. 3581-3585, Springer-Verlag, Berlin Heidelberg. Eds. Sun I. Kim and Tae Suk Sah, ISBN: 978-3-540-36839-7.
- BC-8.** T.N. Tim and **T. Marwala**, (2006), Computational Intelligence Methods for Risk Assessment of HIV. *In Imaging the Future Medicine*, Proceedings of the IFMBE, Volume 14, pp. 3581-3585, Springer-Verlag, Berlin Heidelberg. Eds. Sun I. Kim and Tae Suk Sah, ISBN: 978-3-540-36839-7.
- BC-9.** D.M. Starfield, D.M. Rubin and **T. Marwala**, (2006), 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, Volume 14, pp. 3581-3585, Springer-Verlag, Berlin Heidelberg. Eds. Sun I. Kim and Tae Suk Sah, ISBN: 978-3-540-36839-7.
- BC-10.** D.M. Starfield, D.M. Rubin and **T. Marwala**, (2007), Sampling Considerations and Resolution Enhancement in Ideal Planar Coded Aperture Nuclear Medicine Imaging, pp. 806-809. 11th Mediterranean Conference on Medical and Biological Engineering, Ljubljana, Slovenia (IFMBE Proceedings volume 16) (Paperback) and Computing: MEDICON 2007, 26 – 30 June, Editors: Tomaz Jarm, Peter Kramar, and Anze Zupanic, Springer, ISBN-10: 3540730435.
- BC-11.** F.V. Nelwamondo and **T. Marwala**, (2007), Handling Missing Data from Heteroskedastic and Nonstationary Data. *Lecture Notes in Computer Science*, volume 4491, no. 1, pp. 1297-1306, Springer-Verlag, Berlin Heidelberg.
- BC-12.** B. Vilakazi and **T. Marwala**, (2007), Incremental Learning and Its Application to Bushing Condition Monitoring. *Lecture Notes in Computer Science*, volume 4491, no. 1, pp. 1241-1250, Springer-Verlag, Berlin Heidelberg.
- BC-13.** B. Crossingham, **T. Marwala**, (2008), Using Genetic Algorithms to Optimise Rough Set Partition Sizes for HIV Data Analysis. *Advances in Intelligent and Distributed Computing, Studies in Computational Intelligence*, Volume 78, pp. 245-250, DOI: 10.1007/978-3-540-74930-1_25.
- BC-14.** **T. Marwala** and B.C. Vilakazi, (2007), Chapter 6: Condition Monitoring Using Computational Intelligence, *Handbook on Computational Intelligence in Manufacturing and Production Management*, IGI Publishers, pp. 106-143, ISBN 1599045826.
- BC-15.** D.M. Starfield, D.M. Rubin and **T. Marwala**, (2008), Design of an Ultra-near-field System for Planar Coded Aperture Nuclear Medicine Imaging. *Proceedings of the International Federation for Medical and Biological Engineering*, volume 20, pp. 590-593, Springer, ISBN: 978-3-540-69366-6, Editors: Yuri Dekhtyar, Alexei Katashev and Janis Spigulis.
- BC-16.** M.J. Russell, D.M. Rubin, B. Wigdorowitz and **T. Marwala**, (2008), The Artificial Larynx: A Review of Current Technology and a Proposal for Future Development. *Proceedings of the International Federation for Medical and Biological Engineering*, volume 20, pp. 160-163, Springer, ISBN: 978-3-540-69366-6, Editors: Yuri Dekhtyar, Alexei Katashev and Janis Spigulis.
- BC-17.** B.C. Vilakazi and **T. Marwala**, (2008), 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.), ISBN: 978-1-4020-8677-9.
- BC-18.** T. Marwala and E. Hurwitz, (2009), Chapter 11: A Multi-Agent Approach to Bluffing. *Multiagent Systems*, Book edited by: Salman Ahmed and Mohd Noh Karsiti, ISBN 978-3-902613-51-6, pp. 233-246, I-Tech, Vienna, Austria.
- BC-19.** P. Patel and T. Marwala, (2009), 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, Book, DOI 10.1007/978-3-642-03156-4, ISBN 978-3-642-03155-7, pp. 199-208.
- BC-20.** A. Pantanowitz and T. Marwala, (2009), 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, Book, DOI 10.1007/978-3-642-03156-4, ISBN 978-3-642-03155-7, pp. 53-62.
- BC-21.** A. Pantanowitz and T. Marwala, (2009), 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, Book: Advanced Data Mining and Applications.
- BC-22.** L.M. Masisi, F.V. Nelwamondo and T. Marwala, (2009), Investigating Ensemble Weight and the Certainty Distributions for Indicating Structural Diversity, *Book Series Lecture Notes in Computer Science*, Volume 5507, Publisher Springer Berlin / Heidelberg, Book Advances in Neuro Information Processing, pp. 517-524.
- BC-23.** P. Patel and T. Marwala, (2009), Caller Interaction Classification: A Comparison of Real and Binary Coded GA-MLP Techniques, *Book Series Lecture Notes in Computer Science*, Volume 5507, Publisher Springer Berlin / Heidelberg, Book Advances in Neuro Information Processing, pp. 728-735.
- BC-24.** J. Mistry, F.V. Nelwamondo and T. Marwala, (2009), Investigating Demographic Influences for HIV Classification Using Bayesian Autoassociative Neural Networks, *Book Series Lecture Notes in Computer Science*, Volume 5507, Publisher Springer Berlin, Book Advances in Neuro Information Processing, pp. 752-759.
- BC-25.** N. Hlalele, F.V. Nelwamondo and T. Marwala, (2009), Imputation of Missing Data Using PCA, Neuro-Fuzzy and Genetic Algorithms, *Book Series Lecture Notes in Computer Science*, Volume 5507, Publisher Springer Berlin / Heidelberg, Book Advances in Neuro Information Processing, pp. 485-492.
- BC-26.** M.J. Russell, D.M Rubin, T. Marwala, B. Wigdorowitz, (2009), Pattern Recognition and Feature Selection for the Development of a New Artificial Larynx. *11th World Congress on Medical Physics and Biomedical Engineering*, September 7-12, 2009 in Munich, Germany, Dössel and W.C. Schlegel. (Eds.): IFMBE Proceedings 25/IV, pp. 736–739.
- BC-27.** B. Xing, W.J. Gao, F.V. Nelwamondo, K. Battle and T. Marwala, (2010), Part-Machine Clustering: The Comparison between Adaptive Resonance Theory Neural Network and Ant Colony System, *Book Series Lecture: Notes in Electrical*

- Engineering*, ISSN 1876-1100 Volume 67, Book Advances in Neural Network Research and Applications, Publisher Springer Berlin Heidelberg. DOI 10.1007/978-3-642-12990-2 ISBN 978-3-642-12990-2 (Online), pp. 747-755.
- BC-28.** B. Xing, W.J. Gao, F.V. Nelwamondo, K. Battle and **T. Marwala**, (2010), Two-Stage Inter-Cell Layout Design for Cellular Manufacturing by Using Ant Colony Optimization Algorithms, *Lecture Notes in Computer Science, Advances in Swarm Intelligence*. Springer, DOI: 10.1007/978-3-642-13495-1_35, ISBN 978-3-642-13494-4, pp. 281-289.
- BC-29.** Perez, M. Rubin, D.M. **Marwala**, T. Scott, L.E. Featherston, J. Stevens, W., (2010), The Fuzzy Gene Filter: An Adaptive Fuzzy Inference System for Expression Array Feature, *Lecture Notes in Computer Science*, NUMB 6098, pp. 62-71, Publisher Springer-Verlag, ISSN 0302-9743.
- BC-30.** L. Mthembu, **T. Marwala**, M.I. Friswell and S. Adhikari, (2011), Finite Element Model Selection Using Particle Swarm Optimization. Conference Proceedings of the Society for Experimental Mechanics Series, 1, Volume 13, *Dynamics of Civil Structures*, Volume 4, Springer London, pp. 41-52, Tom Proulx (Editor) ISBN 978-1-4419-9830-9.
- BC-31.** R. Shukla, M. Shukla, A. K. Misra, **T. Marwala** and W. A. Clarke, (2012), Dynamic Software Maintenance Effort Estimation Modeling Using Neural Network, Rule Engine and Multi-regression Approach. Computational Science and Its Applications, *Lecture Notes in Computer Science*, Springer International Publishing Switzerland, Volume 7336, pp. 157-169, DOI: 10.1007/978-3-642-31128-4_12.
- BC-32.** B. Xing, W.J. Gao, F.V. Nelwamondo, K. Battle and **T. Marwala**, (2012), The Effects of Customer Perceived Disposal Hardship on Post-Consumer Product Remanufacturing: A Multi-agent Perspective. *Advances in Swarm Intelligence Lecture Notes in Computer Science*, Springer International Publishing Switzerland, Volume 7332, pp. 209-216, DOI: 10.1007/978-3-642-31020-1_25.
- BC-33.** B. Xing, W.J. Gao, F.V. Nelwamondo, K. Battle and **T. Marwala**, (2012), Swarm Intelligence Supported e-Remanufacturing. *Advances in Swarm Intelligence. Lecture Notes in Computer Science*, Springer International Publishing Switzerland, Volume 7331, pp. 45-52, DOI: 10.1007/978-3-642-30976-2_6.
- BC-34.** B. Xing, W.J. Gao, F.V. Nelwamondo, K. Battle and **T. Marwala**, (2012), TAC-RMTO: Trading Agent Competition in Remanufacture-to-Order. *Advances in Swarm Intelligence Lecture Notes in Computer Science*, Springer International Publishing Switzerland, Volume 7332, pp. 519-526.
- BC-35.** I. Boulkaibet, **T. Marwala**, L. Mthembu, M. I. Friswell and S. Adhikari, (2012), Sampling Techniques in Bayesian Finite Element Model Updating. Conference Proceedings of the Society for Experimental Mechanics Series, 1, Volume 29, *Topics in Model Validation and Uncertainty Quantification*, Springer International Publishing Switzerland Volume 4, pp. 75-83.
- BC-36.** M.J. Russell, A. Nel, **T. Marwala**, (2013), ARMA Analysis of Chest X-rays for Computer Assisted Detection of Tuberculosis, World Congress on Medical Physics and Biomedical Engineering 26-31 May, Beijing, China, IFMBE Proceedings Springer International Publishing Switzerland , Volume 39, pp. 896-899.

- BC-37.** G. Anderson, **T. Marwala** and F.V. Nelwamondo, (2013), Comparison of Bootstrapping and Finite State Machine Simulations of a Scheduling Benchmark. *Emerging Trends in Computing, Informatics, Systems Sciences, and Engineering Lecture Notes in Electrical Engineering*, Publisher Springer Berlin, Volume 151, pp. 841-850, DOI: 10.1007/978-1-4614-3558-7_72.
- BC-38.** Abe, B.T., Olugbara, O.O., **Marwala, T.**, (2014), Classification of Hyperspectral Images Using Machine Learning Methods. *Lecture Notes in Electrical Engineering*, Springer International Publishing Switzerland, 247 LNEE, pp. 555-569.
- BC-39.** Rajalakshmi Selvaraj, Venu Madhav Kuthadi, **T. Marwala**, (2015), Hybrid Technique for Frequent Pattern Extraction from Sequential Database. Proceedings of the 3rd International Conference on Frontiers of Intelligent Computing: Theory and Applications (FICTA), *Advances in Intelligent Systems and Computing*, Springer International Publishing Switzerland, Volume 327, pp 265-275
- BC-40.** I Boulkaibet, L Mthembu, **T Marwala**, MI Friswell, S Adhikari, (2015), Finite Element Model Updating Using an Evolutionary Markov Chain Monte Carlo, Algorithm. *Dynamics of Civil Structures*, Springer International Publishing Switzerland, Volume 2, pp. 245-253.
- BC-41.** C. Leke and **T. Marwala**, (2016), Missing Data Estimation in High-Dimensional Datasets: A Swarm Intelligence-Deep Neural Network Approach. *In Advances in Swarm Intelligence*, Eds. Tan et al. Springer International Publishing Switzerland
- BC-42.** Bo Xing, Wen-Iing Gao and **Tshilidzi Marwala**. Multi-Agent Framework for Distributed Leasing- Based Injection Mould Remanufacturing. *Distributed Networks: Intelligence, Security, and Applications*. Edited by Qurban A. Memon. 2017. CRC Press, pp. 267-290
- BC-43.** Bo Xing, Wen-Iing Gao and **Tshilidzi Marwala**. Used Products Return Service Based on Ambient Recommender Systems to Promote Sustainable Choices. *Distributed Networks: Intelligence, Security, and Applications*. Edited by Qurban A. Memon. 2017. CRC Press, pp. 359-378
- BC-44.** Collins Leke, AR Ndjiongue, Bhekisipho Twala, **Tshilidzi Marwala**. Deep learning-bat high-dimensional missing data estimator. 2017 IEEE International Conference on Systems, Man, and Cybernetics (SMC), pp. 483-488
- BC-45.** Leke C., Ndjiongue A.R., Twala B., **Marwala T.** (2017) A Deep Learning-Cuckoo Search Method for Missing Data Estimation in High-Dimensional Datasets. In: Tan Y., Takagi H., Shi Y. (eds) *Advances in Swarm Intelligence*. ICSI 2017. Lecture Notes in Computer Science, vol 10385. Springer, Cham
- BC-46.** Mabuza-Hocquet G., Nelwamondo F., **Marwala T.** (2017) Ethnicity Distinctiveness Through Iris Texture Features Using Gabor Filters. In: Nguyen N., Tojo S., Nguyen L., Trawiński B. (eds) *Intelligent Information and Database Systems*. ACIIDS 2017. Lecture Notes in Computer Science, vol 10192. Springer, Cham
- BC-47.** Boulkaibet I., **Marwala T.**, Friswell M.I., Khodaparast H.H., Adhikari S. (2017) Fuzzy Finite Element Model Updating Using Metaheuristic Optimization Algorithms. In: Dervilis N. (eds) *Special Topics in Structural Dynamics*, Volume 6. Conference Proceedings of the Society for Experimental Mechanics Series. Springer, Cham

- BC-48.** Ali A., Twala B., **Marwala T.** (2018) Performance of MPPT in Photovoltaic Systems Using GA-ANN Optimization Scheme. In: Dash S., Naidu P., Bayindir R., Das S. (eds) Artificial Intelligence and Evolutionary Computations in Engineering Systems. Advances in Intelligent Systems and Computing, vol 668. Springer, Singapore
- BC-49.** Kuthadi V.M., Selvaraj R., **Marwala T.** (2018) Energy Efficient Secure Data Transmission in Wireless Sensor Network. In: Satapathy S., Bhateja V., Das S. (eds) Smart Computing and Informatics. Smart Innovation, Systems and Technologies, vol 77. Springer, Singapore
- BC-50.** Padmaja Appalla, Rajalakshmi Selvaraj, Kuthadi V.M., **Marwala T.** (2018) Hybrid Fuzzy Recommendation System for Enhanced E-learning. In: Konkani A., Bera R., Paul S. (eds) Advances in Systems, Control and Automation. Lecture Notes in Electrical Engineering, vol 442. Springer, Singapore
- BC-51.** Ranjan A., Rajalakshmi Selvaraj, Kuthadi V.M., **Marwala T.** (2018) Stealthy Attacks in MANET to Detect and Counter Measure by Ant Colony Optimization. In: Kalam A., Das S., Sharma K. (eds) Advances in Electronics, Communication and Computing. Lecture Notes in Electrical Engineering, vol 443. Springer, Singapore
- BC-52.** Xing B., Marwala L., **Marwala T.** (2018) Adopt Fast, Adapt Quick: Adaptive Approaches in the South African Context. In: Gleason N. (eds) Higher Education in the Era of the Fourth Industrial Revolution. Palgrave Macmillan, Singapore
- BC-53.** Mbuva R., Boulkaibet I., **Marwala T.**, de Lima Neto F.B. (2018) A Hybrid GA-PSO Adaptive Neuro-Fuzzy Inference System for Short-Term Wind Power Prediction. In: Tan Y., Shi Y., Tang Q. (eds) Advances in Swarm Intelligence. ICSI 2018. Lecture Notes in Computer Science, vol 10941. Springer, Cham
- BC-54.** Sherri M., Boulkaibet I., **Marwala T.**, Friswell M.I. (2019) A Differential Evolution Markov Chain Monte Carlo Algorithm for Bayesian Model Updating. In: Dervilis N. (eds) Special Topics in Structural Dynamics, Volume 5. Conference Proceedings of the Society for Experimental Mechanics Series. Springer, Cham
- BC-55.** Paul S., Hasija M., Mangipudi R.V., **Marwala T.** (2019) Early Estimation of Protest Time Spans: A Novel Approach Using Topic Modeling and Decision Trees. In: Nayak J., Abraham A., Krishna B., Chandra Sekhar G., Das A. (eds) Soft Computing in Data Analytics. Advances in Intelligent Systems and Computing, vol 758. Springer, Singapore

Peer-Reviewed Journal Publications

- J-1.** **T. Marwala** and P.S. Heyns. A multiple criterion method for detecting damage on structures. *American Institute of Aeronautics and Astronautics Journal*, 195, 1998, pp. 1494-1501.
- J-2.** **T. Marwala** and H.E.M. Hunt. Fault identification using finite element models and neural networks. *Mechanical Systems and Signal Processing*, 13, 1999, pp. 475-490.
- J-3.** **T. Marwala**. On damage identification using a committee of neural networks. *American Society of Civil Engineers, Journal of Engineering Mechanics*, 126, 2000, pp. 43-50.

- J-4.** **T. Marwala** and H.E.M. Hunt. Is damage identification using vibration data in a population of cylinders feasible? *Journal of Sound and Vibration*, 237, 2000, pp. 727-732.
- J-5.** **T. Marwala**. Probabilistic fault identification using a committee of neural networks and vibration data. *American Institute of Aeronautics and Astronautics, Journal of Aircraft*, 38, 2001, pp. 138-146.
- J-6.** **T. Marwala**. Scaled conjugate gradient and Bayesian training of neural networks for fault identification in cylinders. *Computers and Structures*, 79(32), 2001, pp. 2793-2803.
- J-7.** **T. Marwala**. On fault identification using pseudo-modal-energies and modal properties. *American Institute of Aeronautics and Astronautics Journal*, 39, 2001, pp. 1608-1617.
- J-8.** **T. Marwala**. Probabilistic fault identification using vibration data and neural networks. *Mechanical Systems and Signal Processing*, 15, 2001, pp. 1109-1128. ISSN: 0888-3270.
- J-9.** **T. Marwala**. Finite element updating using wavelet data and genetic algorithm. *American Institute of Aeronautics and Astronautics, Journal of Aircraft*, 39, 2002, pp. 709-711.
- J-10.** **T. Marwala**. Fault classification using pseudo modal energies and neural networks. *American Institute of Aeronautics and Astronautics Journal*, 41(1), 2003, pp. 82-89.
- J-11.** **T. Marwala**. Fault classification using pseudo modal energies and probabilistic neural networks. *American Society of Civil Engineers, Journal of Engineering Mechanics*, 13(11), 2004, pp. 1346-1355.
- J-12.** **T. Marwala** and S. Sibisi. Finite element updating using Bayesian framework and modal properties *American Institute of Aeronautics and Astronautics, Journal of Aircraft*, 42(1), 2005, pp. 275-278.
- J-13.** M. Lagazio and **T. Marwala**. Assessing different Bayesian neural network models for militarized interstate dispute. *Social Science Computer Review*, 24(1), 2005, pp. 1-12.
- J-14.** L.A. Machowski and **T. Marwala**. Using object oriented calculation process framework and neural networks for classification of image shapes. *International Journal of Innovative Computing, Information and Control*, 1(4), 2005, pp. 609-623.
- J-15.** M. Abdella and **T. Marwala**. The use of genetic algorithms and neural networks to approximate missing data in database. *Computing and Informatics*, 24, 2006, pp. 1001-1013.
- J-16.** **T. Marwala** and S. Chakraverty. Fault classification in structures with incomplete measured data using autoassociative neural networks and genetic algorithm. *Current Science*, 90(4), 2006, pp. 542-548.
- J-17.** F.V. Nelwamondo, **T. Marwala** and Unathi Mahola. Early Classifications of bearing faults using hidden Markov models, Gaussian mixture models, Mel-frequency Cepstral coefficients and fractals. *International Journal of Innovative Computing, Information and Control*, 2(6), 2006, pp. 1281-1299.
- J-18.** B. Betechuoh Leke, **T. Marwala** and T. Tettey. Autoencoder networks for HIV classification. *Current Science*, 9(11), 2006, pp. 1467-1473.

- J-19.** **T. Marwala.** Bayesian training of neural network using genetic programming. *Pattern Recognition Letters*, 28, 2007, pp. 452–1458.
- J-20.** F.V. Nelwamondo, S. Mohamed and **T. Marwala.** Missing Data: A comparison of neural network and expectation maximisation techniques. *Current Science*, 93 (11), 2007, pp. 1514-1521.
- J-21.** F. Nelwamondo and **T. Marwala.** Techniques for handling missing data: Applications to online condition monitoring. *International Journal of Innovative Computing, Information and Control*, 4(6), 2008, pp. 1507-1526.
- J-22.** M. A. Herzog, **T. Marwala**, T. and P.S. Heyns. Machine and component residual life estimation through the application of neural networks. *Reliability Engineering & System Safety*, 94(2), February 2009, pp. 479-489.
- J-23.** **T. Marwala** and B. Crossingham. HIV status estimation using optimization, rough sets and demographic data. *Current Science*, 95(9), 10 November 2008, pp. 1123-1124.
- J-24.** P.B. Patel and **T. Marwala.** Caller behaviour classification using computational intelligencer methods. *International Journal of Neural Systems*, 2010, doi: 10.1142/S0129065710002255 pp. 87-93
- J-25.** L. Mthembu, **T. Marwala**, M.I. Friswell and S. Adhikari. Model selection in finite element model updating using the Bayesian evidence statistic. *Mechanical Systems and Signal Processing*, 2011, doi: 10.1016/j.ymsp.2011.04.001.
- J-26.** I.S. Msiza, Mmamolatelo E. Mathekga, F.V. Nelwamondo and **T. Marwala.** Fingerprint segmentation: An investigation of various techniques and a parameter study of a variance-based method. *International Journal of Innovative Computing, Information and Control*, 7(9), September 2011, pp. 5313-5326.
- J-27.** M. Duma, B Twala, F.V. Nelwamondo and **T. Marwala.** Partial imputation to improve predictive modelling in insurance risk classification using a hybrid positive selection algorithm and correlation-based feature selection. *Current Science* 103(6), 2012, pp. 697-704.
- J-28.** M. Duma, B Twala, F. Nelwamondo, and **T. Marwala.** Predictive modeling with missing data using an automatic relevance determination ensemble: A comparative study. *Applied Artificial Intelligence*, 26, 2012, pp. 967–984.
- J-29.** G. Anderson, **T. Marwala** and F.V. Nelwamondo. Multicore scheduling based on learning from optimization models. *International Journal of Innovative Computing, Information and Control ICIC International*, 9(4), 2013, pp. 1511-1522.
- J-30.** F.V Nelwamondo, D. Golding, **T. Marwala.** A dynamic programming approach to missing data estimation using neural networks. *Information Sciences* 277, 2013, pp. 49-58.
- J-31.** K. Venkata Parasuram, K. Obi Reddy, M. Shukla, **T. Marwala.** Varada Rajulud. Physico-chemical, tensile and thermal characterization of Napier grass (Native African) fiber strands. *International Journal of Polymer Analysis and Characterization*. 18(4), 2013, pp. 303-314, DOI:10.1080/1023666X.2013.784935.
- J-32.** A. Hassan, B. Twala, K. Ouahada and **T. Marwala**, Energy usage optimization in South African Mines. *Arch. Min. Sci.*, 40(1), 2014, pp. 53-69.

- J-33.** B.T. Abe, O.O. Olugbara and **T. Marwala**. An experimental comparison of support vector machines with random forests for hyperspectral image land cover classification. *Journal of Earth System Science*, 123 (4), 2014, pp. 779-790.
- J-34.** I. Boulkaibet, L. Mthembu, **T. Marwala**, M. I. Friswell, S. Adhikari. Finite element model updating using the shadow hybrid Monte Carlo technique. *Mechanical Systems and Signal Processing*, 52/53, February 2015, pp. 115–132.
- J-35.** V. P. Kommula, K. Obi Reddy, M. Shukla, **T. Marwala** and A. Varada Rajuluf. Mechanical properties, water absorption and chemical resistance of Napier grass fiber strands reinforced epoxy resin composites. *International Journal of Polymer Analysis and Characterization*, 2014, DOI:10.1080/1023666X.2014.954186.
- J-36.** I. Boulkaibet, L. Mthembu, F.B. De Lima Neto and **T. Marwala**. Finite element model updating using fish school search and volitive particle swarm optimization. *Integrated Computer-Aided Engineering*, 22(4), 2015, pp. 361-376.
- J-37.** V.P. Kommula, K. Obi Reddy, M. Shukla, **T. Marwala**, E.V. Subba Reddy, and Varada Rajulug. Extraction, modification, and characterization of natural Ligno-Cellulosic fiber. *International Journal of Polymer Analysis and Characterization*, 2015, DOI:10.1080/1023666X.2015.1089650.
- J-38.** P. Parida, **T. Marwala** and S. Chakraverty. An overview of recent advancements in causal studies, *Archives of Computational Methods in Engineering*, 2017, DOI: 10.1007/s11831-016-9168-1.
- J-39.** P. Appalla, V. Madhav Kuthadi, **T. Marwala**. An efficient educational data mining approach to support e-learning. *Wireless Networks*, 2017, pp 1-14, DOI: 10.1007/s11276-015-1173-z.
- J-40.** R. Selvaraj, V. Madhav Kuthadi, **T. Marwala**. Ant based DDoS Detection Technique Using Roaming Virtual Honey Pots, *IET Communications*, 3(3), 2016.
- J-41.** I. Boulkaibet, L. Mthembu, M. I. Friswell, **T. Marwala**, S. Adhikari. Finite Element Model Updating using Hamiltonian Monte Carlo Techniques. *Inverse Problems in Science and Engineering*, 2016, DOI: 10.1080/17415977.2016.1215446.
- J-42.** P. Parida, **T. Marwala** and S. Chakraverty. Altered-LiNGAM (ALiNGAM) for solving nonlinear causal models when data is nonlinear and noisy, *Communications in Nonlinear Science and Numerical Simulation*, 2017, Volume 52, November 2017, Pages 190–202, DOI: 10.1016/j.cnsns.2017.04.018.
- J-43.** A Ranjan, V Kuthadi, T Marwala, R Selvaraj Swarm Based Architecture for Defense Against Stealthy Attacks in Mobile Ad Hoc Network. *Adhoc & Sensor Wireless Networks*. 2017, Vol. 36 Issue 1-4, p107-126. 20p.
- J-44.** I. Boulkaibet , K. Belarbi, S. Bououden, **T. Marwala**, M. Chadli, (2017) A new T-S fuzzy model predictive control for nonlinear processes. *Expert Systems with Applications*, Volume 88, 1 December 2017, Pages 132–151 Volume 88, 1 December 2017, Pages 132–151. <https://doi.org/10.1016/j.eswa.2017.06.039>.
- J-45.** A. Ali, S. Padmanaban, B. Twala and **T. Marwala**. Electric Power Grids Distribution Generation System for Optimal Location and Sizing—A Case Study: Investigation by Various Optimization Algorithms. *Energies* 2017, 10, 960; doi:10.3390/en10070960
- J-46.** P.K. Parida, S. Chakraverty and **T. Marwala**. A multivariate additive noise model for complete causal inference. *Neural Networks*, Vol. 103, July 2018, Pages 44-54.

- J-47.** Tariq Shahzad; Saqib Saleem; Saeeda Usman; Jawad Mirza; Qamar-ul- Islam; Khmaies Ouahada; **Tshilidzi Marwala**. System dynamics of active and passive postural changes: insights from principal dynamic modes analysis of baroreflex loop. *Computers in Biology and Medicine*, Volume 100, 1 September 2018, Pages 27–35.
- J-48.** Tanmoy Roy, **Tshilidzi Marwala**, Snehashish Chakraverty. Precise Detection of Speech Endpoints Dynamically: A Wavelet Convolution based approach. *Communications in Nonlinear Science and Numerical Simulation*, 2018, <https://doi.org/10.1016/j.cnsns.2018.07.008>.
- J-49.** Sukanta Nayak, **Tshilidzi Marwala** and Snehashish Chakraverty. Stochastic Differential Equations with Imprecisely Defined Parameters in Market Analysis. *Soft Computing*, 2018, <https://doi.org/10.1007/s00500-018-3396-2>.
- J-50.** I. Boulkaibet, K. Belarbi, S. Bououden, M. Chadli and **T. Marwala** (2018) An Adaptive Fuzzy Predictive Control of Nonlinear Processes Based on Multi-Kernel Least Squares Support Vector Regression. *Applied Soft Computing* 73, 572-590.
- J-51.** Adeola Ogunleye, Qing-Guo Wang and **Tshilidzi Marwala** (2019). Integrated Learning via Randomized Forests and Localized Regression with application to Medical Diagnosis. *IEEE Access* (accepted).

Peer-Reviewed Conference Proceedings

- Conf.-1.** **T. Marwala**, S. Adhikari and P.S. Heyns. Dynamic model updating using pseudo modal energies. In *Proceedings of the 19th International Modal Analysis Conference*, Kissimmee, 2001, pp. 207-213.
- Conf.-2.** P. Mariano, R. L. Correia, Ribeiro, V. Abramov, N. Szirbik, J. Goossenaerts, **T. Marwala**, P. de Wilde. Simulation of a trading multi-agent system, In *Proceedings of the IEEE International Conference on Systems, Man, and Cybernetics*, Tucson, Arizona, USA, 2001, pp. 3378-3384.
- Conf.-3.** V.A. Abramov, N.B. Szirbik, J.B.M. Goossenaerts, **T. Marwala**, P. De Wilde, L. Correia, P. Mariano, R. Ribeiro. Ontological basis for open distributed multi-agent system, In *Proceedings of the Symposium on Adaptive Agents and Multi-Agent Systems*, York, U.K., 2001, pp. 33-43.
- Conf.-4.** **T. Marwala**, P. de Wilde, L. Correia, P. Mariano, R. Ribeiro, V. Abramov, N. Szirbik, J. Goossenaerts. Scalability and optimisation of a committee of agents using genetic algorithm In *Proceedings of the International Symposia on Soft Computing and Intelligent Systems for Industry*, Scotland, 2001. **Best Paper Award**.
- Conf.-5.** L. Mdlazi, **T. Marwala**, C. Stander, C. Scheffer and P.S. Heyns. Principal component analysis and automatic relevance determination for damage identification in structures. In *Proceedings of the 21st International Modal Analysis Conference*, San Antonio, 2003, pp. 37-42.
- Conf.-6.** **T. Marwala**. Finite element model updating using response surface method. In *Proceedings of the 45th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics & Materials Conference*, Palm Springs, California, USA, April 2004, AIAA Paper 2004-2005, pp. 5165-5173.
- Conf.-7.** **T. Marwala** and M. Lagazio. Modelling and controlling interstate conflict. In *Proceedings of the IEEE International Joint Conference on Neural Networks*, 25-29 July, 2004, Budapest, Hungary, pp. 1233-1238.

- Conf.-8.** L.A. Machowski and **T. Marwala**. Representing and matching 2D shapes of natural objects using neural networks, *In Proceedings of the IEEE International Conference on Systems, Man and Cybernetics*, The Hague, Nederland, 2004, pp. 6366-6372.
- Conf.-9.** M.M. Pires and **T. Marwala**. Option pricing using neural networks and support vector machines, *In Proceedings of the IEEE International Conference on Systems, Man and Cybernetics*, The Hague, Nederland, 2004, pp. 1279-1285.
- Conf.-10.** Z.A. Dindar and **T. Marwala**. Option pricing using a committee of neural networks. *In Proceedings of the IEEE International Conference on Systems, Man and Cybernetics*, The Hague, Nederland, 2004, pp. 434-438.
- Conf.-11.** S.M. Dhlamini and **T. Marwala**. Bushing monitoring using MLP and RBF. *In Proceedings of the IEEE Africon 2004*, Gaborone, Botswana, 2004, pp. 613-617.
- Conf.-12.** B. van Aardt and **T. Marwala**. Reducing inter-agent communication due to negotiation in multi-agent systems through learning. *Proceedings of the Annual Symposium of the Pattern Recognition Association of South Africa*, Cape Town, 2004, pp. 149-154. ISBN: 0-7992-2278-X.
- Conf.-13.** E. Marais and **T. Marwala**. Predicting global Internet instability caused by worms using neural networks. *Proceedings of the Annual Symposium of the Pattern Recognition Association of South Africa*. 2004, Cape Town, pp. 81-85. ISBN: 0-7992-2278-X.
- Conf.-14.** S.M. Dhlamini and **T. Marwala**. An application of SVM, RBM and MLP with ARD on bushings. *In Proceedings of the IEEE Conference on Cybernetics and Intelligent Systems (CIS)*, Singapore, 2004, pp. 1254–1259.
- Conf.-15.** L. Mdlazi, C.J. Stander, P.S. Heyns, **T. Marwala**. Using artificial intelligence for data reduction in mechanical engineering. *Proceedings of the Annual Symposium of the Pattern Recognition Association of South Africa 2004*, Cape Town, pp. 69-74. ISBN: 0-7992-2278-X.
- Conf.-16.** **T. Marwala**. Evolutionary optimization methods in finite element model updating. *In Proceedings of the International Modal Analysis Conference*, Orlando, Florida, USA, 2005.
- Conf.-17.** E. Teweldemedhin, **T. Marwala** and C. Mueller. Agent-based modelling: A case study in HIV Epidemic. *In Proceedings of the IEEE 4th International Conference in Hybrid Intelligent Systems*, 2004, Japan, pp. 154-159.
- Conf.-18.** B. van Aardt and **T. Marwala**. A study in a hybrid centralised-swarm agent community. *In Proceedings of the IEEE 3rd International Conference on Computational Cybernetics*, 2005, Mauritius, pp. 169-174.
- Conf.-19.** M. Abdella and **T. Marwala**. The use of genetic algorithms and neural networks to approximate missing data in database. *In Proceedings of the IEEE 3rd International Conference on Computational Cybernetics*, 2005, Mauritius, pp. 207-212.
- Conf.-20.** M.M. Pires and **T. Marwala**. American option pricing using Bayesian multi-layer perceptrons and Bayesian support vector machines. *In Proceedings of the IEEE 3rd International Conference on Computational Cybernetics*, 2005, Mauritius, 219-224.
- Conf.-21.** L.A. Machowski and **T. Marwala**. An object oriented calculation process framework. *In Proceedings of the IEEE 3rd International Conference on Computational Cybernetics*, 2005, Mauritius, pp. 201-206.

- Conf.-22.** U. Mahola, F.V. Nelwamondo, **T. Marwala**. HMM sub-band based speaker identification. In Proceedings of the 16th Annual Symposium of the Pattern Recognition Society of South Africa. 2005, Langebaan, South Africa, pp. 123-128. ISBN: 0-7992-2264-X.
- Conf.-23.** S. Mohamed, **T. Marwala**. Neural network based techniques for estimating missing data in databases. In Proceedings of the 16th Annual Symposium of the Pattern Recognition Society of South Africa, 2005, Langebaan, South Africa, pp. 27-32. ISBN: 0-7992-2264-X.
- Conf.-24.** N. Mohamed, D.M. Rubin and **T. Marwala**. Detection of epileptiform activity in human EEG signals using Bayesian neural networks. In *Proceedings of the IEEE 3rd International Conference on Computational Cybernetics*, 2005, Mauritius, 231-237.
- Conf.-25.** T.M. Ransome, D.M. Rubin and **T. Marwala** and E.A. de Kok. Optimising the verification of patient positioning in proton beam therapy. In *Proceedings of the IEEE 3rd International Conference on Computational Cybernetics*, 2005, Mauritius, pp. 279-284.
- Conf.-26.** E. Habtemariam, **T. Marwala** and M. Lagazio. Artificial intelligence for conflict management. In *Proceedings of the IEEE International Joint Conference on Neural Networks*, Montreal, Canada, 2005, pp. 2583-2588.
- Conf.-27.** M. Abdella and **T. Marwala**. Treatment of missing data using neural networks. In *Proceedings of the IEEE International Joint Conference on Neural Networks*, Montreal, Canada, 2005, pp. 598-603.¹²
- Conf.-28.** B. Leke and **T. Marwala**. Optimization of the stock market input time-window using Bayesian neural networks. In *Proceedings of the IEEE International Conference on Service Operations, Logistics and Informatics*, Beijing, China, 2005, pp. 883-894.
- Conf.-29.** S.M. Dhlamini, **T. Marwala**. Bushing diagnostics using an ensemble of parallel neural networks. In *Proceedings of the IEEEJ-IEEE Symposium on Electrical Insulating Materials (ISEIM05)*, Fukuoka (Japan), 5-9 June 2005, pp. 289-292. ISBN: 4-88686-063-X C.
- Conf.-30.** **T. Marwala**, S. Chakraverty, U. Mahola. Neural networks and support vector machines for fault identification in cylinders. In *Proceedings of International Symposium on Neural Networks and Soft Computing in Structural Engineering*, Krakow, Poland, 2005.
- Conf.-31.** S.M. Dhlamini, **T. Marwala**. Cost benefit of using a committee of parallel neural networks for bushing diagnostics. In *Proceedings of the IEEE Power Engineering Society Conference (PES05)*, Durban, July 11-15, 2005, pp. 485-488.
- Conf.-32.** S. Dhlamini, **T. Marwala** and J van Coller. Modelling inaccuracies from simulators for HV polymer bushings. In *Proceedings of the XIVth International Symposium on High Voltage Engineering*, Tsinghua University, Beijing, China, 2005, Paper A18.
- Conf.-33.** E. Hurwitz and **T. Marwala**. Optimising reinforcement learning for neural networks. In *Proceedings of the 6th Annual European on Intelligent Games and Simulation*, Leicester, UK, 2005, pp. 13-18.

¹² Top Accessed Articles July 2010 Neural Networks, 2005. IJCNN '05. Proceedings. 2005 IEEE International Joint Conference on

- Conf.-34.** D. Starfield, D. Rubin and **T. Marwala**. A geometric method for near-field artefact reduction in planar coded aperture nuclear medicine imaging. *In Proceedings of the 3rd European Medical and Biological Engineering Conference*, Prague Czech Republic 2005. ISSN: 1727-1984.
- Conf.-35.** C.B. Vilakazi, **T. Marwala**. Bushing fault detection and diagnosis using extension neural network. *In Proceedings of the 10th IEEE International Conference on Intelligent Engineering Systems*, 2006, pp. 170-174.
- Conf.-36.** T. Tettey, **T. Marwala**. Controlling interstate conflict using neuro-fuzzy modeling and genetic algorithms. *In Proceedings of the 10th IEEE International Conference on Intelligent Engineering Systems*, 2006, pp. 30-44.
- Conf.-37.** **T. Marwala**. Genetic approach to Bayesian training of neural networks. *In Proceedings of the IEEE International Joint Conference on Neural Networks*, BC, Canada, 2006, pp. 7013-7017.
- Conf.-38.** **T. Marwala**, U. Mahola and F. Nelwamondo. Hidden Markov models and Gaussian mixture models for bearing fault detection using fractals. *In the Proceedings of the IEEE International Joint Conference on Neural Networks*, BC, Canada, 2006, pp. 5876-5881, ISBN: 0-7803-9489-5. **Best Presentation Award**.
- Conf.-39.** F. Nelwamondo, U. Mahola and **T. Marwala**. Improving speaker identification rate using fractals *In the Proceedings of the IEEE International Joint Conference on Neural Networks*, BC, Canada, 2006, pp. 5870-5875.
- Conf.-40.** S. Mohamed, T. Tettey and **T. Marwala**. An extension neural network and genetic algorithm for bearing fault classification *In the Proceedings of the IEEE International Joint Conference on Neural Networks*, BC, Canada, 2006, pp. 7673-7679, ISBN: 0-7803-9489-5. **Best Presentation Award**.
- Conf.-41.** Lukasz A. Machowski, and **T. Marwala**. Using images to create a hierarchical grid spatial index. *In Proceedings of the IEEE International Conference on Systems, Man and Cybernetics*, Taiwan, 2006, pp. 1974-1979.
- Conf.-42.** S.M. Dhlamini, **T. Marwala**, and T. Majози. Fuzzy and multilayer perceptron for evaluation of HV bushings. *In Proceedings of the IEEE International Conference on Systems, Man and Cybernetics*, Taiwan, 2006, pp. 1331-1336.
- Conf.-43.** B. Betechouh Leke and **T. Marwala**. Ant Colony Optimization for Missing Data Estimation. *In Proceeding of the Pattern Recognition of South Africa*, 2006, pp. 183-188, ISBN 10: 0-620-37384-9.
- Conf.-44.** F.V. Nelwamondo and **T. Marwala**. Fault detection using Gaussian mixture models, Mel-frequency cepstral coefficient and kurtosis. *In Proceedings of the IEEE International Conference on Systems, Man and Cybernetics*, Taiwan, 2006, 290-295.
- Conf.-45.** B.C. Vilakazi and **T. Marwala**. Application of feature selection and fuzzy ARTMAP to intrusion detection. *In Proceedings of the IEEE International Conference on Systems, Man and Cybernetics*, Taiwan, 2006, pp. 4880-4885.
- Conf.-46.** B.B. Leke, **T. Marwala**, T. Tim, M. Lagazio. Prediction of HIV Status from Demographic Data Using Neural Networks. *Proceedings of the IEEE International Conference on Systems, Man and Cybernetics*, Taiwan, 2006, pp. 2339-2344.

- Conf.-47.** S. Mohamed, D. Rubin and **T. Marwala**. Multi-class Protein Sequence Classification Using Fuzzy ARTMAP. *Proceedings of the IEEE International Conference on Systems, Man and Cybernetics*, Taiwan, 2006, pp. 1676-1681.
- Conf.-48.** P.B. Patel and **T. Marwala**. Forecasting closing price indices using neural networks. *In Proceedings of the IEEE International Conference on Systems, Man and Cybernetics*, Taiwan, 2006, pp. 2351-2356.
- Conf.-49.** **T. Marwala**, T. Tettey and S. Chakraverty. Fault classification in structures using pseudomodal energies and neuro-fuzzy modelling. *In Proceedings of the Asia-Pacific Workshop on Structural Health Monitoring*, Yokohama, Japan, 2006.
Invited Paper.
- Conf.-50.** T. Tettey, F. V. Nelwamondo and **T. Marwala**. HIV data analysis via rule extraction using rough sets, *In Proceedings of the 11th IEEE International Conference on Intelligent Engineering Systems*, 29 June-1July 2007, Budapest, Hungary, 105-110.
- Conf.-51.** T. Tettey and **T. Marwala**. Conflict modelling and knowledge extraction using computational intelligence methods. *In Proceedings of the 11th IEEE International Conference on Intelligent Engineering Systems*, 29 June-1July 2007, Budapest, Hungary, pp. 161-166.
- Conf.-52.** F.V. Nelwamondo and **T. Marwala**. Rough set theory for the treatment of incomplete data. *In Proceedings of the IEEE Conference on Fuzzy Systems*, 2007 pp. 338-343.
- Conf.-53.** I.S. Msiza, F.V. Nelwamondo and **T. Marwala**. Water demand forecasting using multi-layer perceptron and radial basis functions. *In the IEEE Proceedings of the International Joint Conference on Neural Networks*, 2007, 13-18.
- Conf.-54.** S. Mohamed, D. Rubin and **T. Marwala**. Incremental learning for classification of protein sequences. *In Proceedings of the IEEE International Joint Conference on Neural Networks*, 2007, pp. 19-24.
- Conf.-55.** C.B. Vilakazi and **T. Marwala**. Online incremental learning for high voltage bushing condition monitoring. *In Proceedings of the IEEE International Joint Conference on Neural Networks*, 2007, pp. 2521-2526.
- Conf.-56.** D. Starfield, D.M. Rubin, **T. Marwala**. High transparency coded apertures in planar nuclear medicine imaging. *29th International Conference of the IEEE Engineering in Medicine and Biology Society*, Lyon, France 2007, pp. 4468-4471.
- Conf.-57.** D.M., Starfield, D.M. Rubin, **T. Marwala**, and R.J. Eddy. High-transparency coded apertures in planar nuclear medicine imaging: Experimental results. *Proceedings of the IEEE Nuclear Science Symposium Conference Volume 4*, pp. 3151-3154.
- Conf.-58.** Sizwe M. Dhlamini, Michael O. Kachienga, **T. Marwala**. Artificial intelligence as an aide in management of security technology. *IEEE 2007 Africon Conference*, 1-5.
- Conf.-59.** J.M. Spiller, **T. Marwala**. Evolutionary algorithms for warp control point placement. *The 2nd International Symposium on Intelligence Computation and Applications (ISICA 2007)* Wuhan, China, pp. 327-331.
- Conf.-60.** G. Hulley and **T. Marwala**. Genetic algorithm based incremental learning for optimal weight and classifier selection. *In Computational Models for Life Sciences. American Institute of Physics Series*, 952, 2007, pp. 258-267 doi: 10.1063/1.2816630, ISSN: 0094243X.

- Conf.-61.** B. Crossingham and **T. Marwala**. Using optimisation techniques to granulise rough set partitions. In *Computational Models for Life Sciences, American Institute of Physics* 952, 2007, pp. 248-257, doi: 10.1063/1.2816629, ISSN: 0094243X.
- Conf.-62.** J.M. Spiller, **T. Marwala**. Object localization in aerial images using deformable templates. *First International Symposium on Information and Computer Elements, ISICE, 2007*, Kitakyushu, Japan, pp. 343-347.
- Conf.-63.** D. Surajpal and **T. Marwala**. An Independent Evaluation of Subspace Face Recognition Algorithms. *Proceedings of the 18th Annual Pattern Recognition Association of South Africa*, 2007, ISBN: 978-86840-656-2, ArXiv: 0705.0952.
- Conf.-64.** S. Scurrall, D.M. Rubin and **T. Marwala**. Automatic Detection of Pulmonary Embolism using Computational Intelligence Techniques, *Proceedings of the 18th Annual Pattern Recognition Association of South Africa*, 2007, ISBN: 978-86840-656-2.
- Conf.-65.** E. Hurwitz and **T. Marwala**. Learning to bluff: A multi-agent approach. *IEEE International Conference on Systems, Man and Cybernetics*, 2007, Montreal, Canada, pp. 1188-1193.
- Conf.-66.** I. Msiza, F.V. Nelwamondo and **T. Marwala**. Artificial neural networks and support vector machines for water demand time series forecasting. *Proceedings of the IEEE International Conference on Systems, Man and Cybernetics*, Montreal, Canada, 2007, pp. 638-643.
- Conf.-67.** Gidudu, G. Hulley and **T. Marwala**. Image classification using SVMs: One-against-one vs One-against-all. *Proceeding of the 28th Asian Conference on Remote Sensing*, 2007, Malaysia, ISBN: 978-983-43550-0-5.
- Conf.-68.** Gidudu, G. Hulley and **T. Marwala**. An SVM multiclassifier approach to land cover mapping. ASPRS 2008 Annual Conference Portland, Oregon.
- Conf.-69.** E. Hurwitz and **T. Marwala**. Multi-agent modeling of interaction-based card games. In *the Proceedings of the 3rd International North American Conference on Intelligent Games and Simulation*, 2007, University of Florida, USA, pp. 23-28.
- Conf.-70.** B.B. Leke, **T. Marwala** and J.V. Manana. Computational intelligence for HIV modelling. *Proceedings of the IEEE Conference on Intelligent Engineering Systems*, 2008, pp. 127-132.
- Conf.-71.** V. Marivate, G. Ssali, **T. Marwala**. An intelligent multi-agent recommender system for human capacity building. *Proceedings of the 14th IEEE Mediterranean Electrotechnical Conference*, 2008, pp. 909 – 915.
- Conf.-72.** V.N. Marivate, V. F. Nelwamondo, **T. Marwala**. Investigation into the use of Autoencoder Neural Networks, Principal Component Analysis and Support Vector Regression in estimating missing HIV data, *Proceedings of the 17th World Congress of The International Federation of Automatic Control*, Seoul, Korea, July 6-11, 2008, pp. 682-689.
- Conf.-73.** G. Ssali and **T. Marwala**. Estimation of missing data using computational intelligence and decision trees. *Proceedings of the IEEE International Joint Conference on Neural Networks*, 2008, pp. 201-207.
- Conf.-74.** B.B.E. Kiremile and **T. Marwala**. Non-stationarity detection: A stationarity index approach. *Proceedings of the IEEE International Congress on Image and Signal Processing*, 2008, pp. 373-378.

- Conf.-75.** F. V. Nelwamondo and **T. Marwala**. Key issues on computational intelligence techniques for missing data imputation- A review, *Proceedings of the 12th World Multi-Conference on Systemics, Cybernetics and Informatics: WMSCI 2008*, June 29th –July 2nd, Orlando, Florida, U.S.A., pp. 36-41.
- Conf.-76.** J. Mistry, F. V. Nelwamondo and **T. Marwala**. Using principal component analysis and autoassociative neural networks to estimate missing data in a database, *Proceedings of the 12th World Multi-Conference on Systemics, Cybernetics and Informatics: WMSCI 2008*, June 29th –July 2nd, Orlando, Florida, U.S.A., pp. 24-29. **Best Paper Award.**
- Conf.-77.** A.K. Mohamed, F. V. Nelwamondo and **T. Marwala**. Estimation of missing data: Neural networks, principal component analysis and genetic algorithms. *Proceedings of the 12th World Multi-Conference on Systemics, Cybernetics and Informatics: WMSCI 2008*, June 29th –July 2nd, Orlando, Florida, U.S.A., pp. 36-41.
- Conf.-78.** V. Marivate and **T. Marwala**. Relational networks for HIV classification. *Proceedings of the IASTED Africa Conference on Modelling and Simulation*, Editor: F.J. Ogwu, pp. 275-279.
- Conf.-79.** N. Hlalele, F.V. Nelwamondo and **T. Marwala**. Estimation of missing data using a neuro-fuzzy architecture. *Proceedings of the IASTED Africa Conference on Modelling and Simulation*, Editor: F.J. Ogwu, pp. 24-29.
- Conf.-80.** L. Masisi. F.V. Nelwamondo and **T. Marwala**. The effect of structural diversity of an ensemble of classifiers on classification accuracy *Proceedings of the IASTED Africa Conference on Modelling and Simulation*, Editor: F.J. Ogwu, pp. 135-140.
- Conf.-81.** J. Mistry, F.V. Nelwamondo and **T. Marwala**. Investigation of autoencoder neural network accuracy for computational intelligence methods to estimate missing data. *Proceedings of the IASTED Africa Conference on Modelling and Simulation*, Editor: F.J. Ogwu, pp. 275-279.
- Conf.-82.** M. Perez, D. Rubin and **T. Marwala**. Simulation of Retinal Function: A fuzzy-linear approach. *Proceedings of the IEEE International Conference on Man, Systems and Cybernetics*, 2008, pp. 1079-1084.
- Conf.-83.** W.S. Miya, L.J. Mpanza, F.V. Nelwamondo and **T. Marwala**. Condition monitoring of oil-impregnated paper bushings using extension neural network, Gaussian mixture models and hidden Markov models. *Proceedings of the IEEE International Conference on Man, Systems and Cybernetics*, 2008, pp. 1954-1959.
- Conf.-84.** **T. Marwala** and B. Crossingham. Neuro-rough models for modelling HIV. *Proceedings of the IEEE International Conference on Man, Systems and Cybernetics*, 2008, pp. 3089-3095.
- Conf.-85.** P. Patel and **T. Marwala**. Interactive voice response field classifiers. *Proceedings of the IEEE International Conference on Man, Systems and Cybernetics*, 2008, pp. 3425-3430.
- Conf.-86.** B. Crossingham, **T. Marwala**, and M. Lagazio. Optimized rough sets for modelling interstate conflict. *Proceedings of the IEEE International Conference on Man, Systems and Cybernetics*, 2008, pp. 1198-1204.
- Conf.-87.** W. Majavu, T. van Zyl and **T. Marwala**. Classification of web resident sensor resources using latent semantic indexing and ontologies. *Proceedings of the IEEE International Conference on Man, Systems and Cybernetics*, 2008, pp. 518-523.

- Conf.-88.** P.B. Patel and **T. Marwala**. Interactive voice response field classifiers. *Proceedings of the IEEE International Conference on Man, Systems and Cybernetics*, 2008, pp. 3425-3430.
- Conf.-89.** L. Mthembu and **T. Marwala**, M.I. Friswell and S. Adhikari. Bayesian evidence for finite element model updating. *Proceedings of the IMAC XXVII*, Orlando, Florida, 9-12 February 2009.
- Conf.-90.** M. Perez, D.M Rubin, **T. Marwala**, L.E Scott, W. Stevens. A hybrid fuzzy-SVM classifier, applied to gene expression profiling for automated leukaemia diagnosis. *Proceedings of the IEEE Conference Israel*, 2008, pp. 041-045.
- Conf.-91.** J. Mistry, F.V. Nelwamondo and **T. Marwala**. Estimating missing data and determining the confidence of the estimate data. *Proceedings of the 2008 International Conference on Machine Learning and Applications (ICMLA'08)*, pp. 752-755.
- Conf.-92.** V.N. Marivate and **T. Marwala**. Social learning methods in board game agents. *Proceedings of the 2008 IEEE Symposium on Computational Intelligence and Games*, Australia, pp. 323-328.
- Conf.-93.** Masisi, L.; Nelwamondo, V.; **Marwala, T.** The use of entropy to measure structural diversity. *Proceedings of the IEEE International Conference on Computational Cybernetics*, 2008, pp. 41 – 45.
- Conf.-94.** Gidudu, Abe, B., and **T. Marwala**. Ensemble Feature Selection for Hyperspectral Imagery. In *Proceedings of the 19th Annual Symposium of the Pattern Recognition Association of South Africa*. Cape Town, South Africa 27th – 29th November 2008.
- Conf.-95.** Kiremire, B.E. and **Marwala, T.** Non-stationarity Detection: The Use of the Cross Correlation Integral in ECG, and EEG Profile Analysis. *IEEE Congress on Image and Signal Processing*, 2008. CISP '08. , Volume 5, 27-30 May 2008 pp. 373-378.
- Conf.-96.** Mistry, J.; Nelwamondo, F.V.; **Marwala, T.** Investigating a Predictive Certainty measure for Ensemble Based HIV Classification. *IEEE International Conference on Systems, Computational Cybernetics*, 2008. ICCS 2008, pp. 231-236.
- Conf.-97.** **T. Marwala** and Meir Perez. Stochastic optimization approaches for solving Sudoku. *Proceedings of SAGO*, 2008, ArXiv: 0805.0697.
- Conf.-98.** T.C. Malumedzha and **T. Marwala**. Classification of Satellite Sensed Data using Genetically Optimized Auto-Associative Cellular Neural Networks. *Intelligent Systems and Control Symposia: Computational Biology and Bioinformatics Environmental Modelling and Simulation Modern Nonlinear Theory* (2008)
- Conf.-99.** Abe, A. Jimoh and **T. Marwala**. Optimization of Radio Frequency Usage. *IEEE Africon 2009*, Digital Object Identifier 10.1109/AFRCON.2009.5308110.
- Conf.-100.** P.B. Patel and **T. Marwala**. Genetic Algorithms, Neural Networks, Fuzzy Inference System, Support Vector Machines for Call performance classification. *IEEE International Conference on Machine Learning Application*, 2009, pp. 415-420.
- Conf.-101.** M. Perez, J. Featherston, **T. Marwala**, L.E. Scott, W. Stevens, D.M. Rubin. Differentially Expressed Gene Identification based on Separability Index. *IEEE International Conference on Machine Learning Application* 2009, pp. 429-434.
- Conf.-102.** M. J. Russell, D. M. Rubin, **T. Marwala** and B. Wigdorowitz. A Voting and Predictive Neural Network System for use in a New Artificial Larynx. *IEEE ICBPE* 2009, Digital Object Identifier 10.1109/ICBPE.2009.5384105.

- Conf.-103.** Gidudu, A., B. Abe and **T. Marwala**. Random ensemble feature selection for land cover mapping. *Geoscience and Remote Sensing Symposium, IGARSS 2009*, Volume 2, 2009, pp. II-840-II-842.
- Conf.-104.** B. Xing, F.V. Nelwamondo, K. Battle, W. Gao and **T. Marwala**. Application of Artificial Intelligence (AI) Methods for Designing and Analysis of Reconfigurable Cellular Manufacturing System (RCMS) *2nd IEEE International Conference on Adaptive Science & Technology Catching Up With Technology*, 2009, Ghana, pp. 402-409.
- Conf.-105.** B. Xing, W. Gao, F.V. Nelwamondo, K. Battle and **T. Marwala**. Cellular Manufacturing System Scheduling under Fuzzy Constraints: A Group Technology Perspective. *FUZZ-IEEE 2010*, pp. 887-894.
- Conf.-106.** B. Xing, W. Gao, F.V. Nelwamondo, K. Battle and **T. Marwala**. Ant Colony Optimization for Automated Storage and Retrieval System. *Proceedings of the IEEE Conference Evolutionary Computation 2010*, pp. 1133-1139.
- Conf.-107.** G.G. Anderson, FV Nelwamondo and **T. Marwala**. A Response Surface Methodology Approach to Operating System Scheduler Tuning. *IEEE Conference on Systems, Man and Cybernetics*, pp. 2684-2689.
- Conf.-108.** B. Abe, A. Gidudu and **T. Marwala**. Investigating the effects of ensemble classification on remotely sensed data for land cover mapping. *2010 IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*, 2832-2835.
- Conf.-109.** C.D. Boesack, **T. Marwala** and F.V. Nelwamondo. Application of GA-Fuzzy Controller Design to Automatic Generation Control. *IEEE IWACI2010*, Digital Object Identifier: 10.1109/IWACI.2010.5585127, 2010, pp.: 227 – 232.
- Conf.-110.** B. Xing, W.J. Gao, K. Battle, F.V. Nelwamondo, and **T. Marwala**. Ant Stigmergy Shop Floor Control Architecture for Intelligent Product Oriented Manufacturing System. *Proceedings of the IEEE Conference on Systems Man and Cybernetics*, pp. 4182-4189.
- Conf.-111.** B. Xing, W.J. Gao, K. Battle, F.V. Nelwamondo, and **T. Marwala**. Intelligent Travel Route Planning for Bridge Crane Type of Material Handling Equipment in Cellular Manufacturing. *Proceedings of the IEEE Conference on Systems Man and Cybernetics*, pp. 2795-2799.
- Conf.-112.** B. Xing, W.J. Gao, K. Battle, F.V. Nelwamondo, and **T. Marwala**. Can Ant Algorithms Make Automated Guided Vehicle System More Intelligent? *Proceedings of the IEEE Conference on Systems Man and Cybernetics*, pp. 3226-3234.
- Conf.-113.** G.G. Anderson, FV Nelwamondo, and **T. Marwala**. Application of Global and One-Dimensional Local Optimization to Operating System Scheduler Tuning. *Proceedings of PRASA*, 2010, pp. 7-11.
- Conf.-114.** B. Xing, W.J. Gao, K. Battle, **T. Marwala**, and F.V. Nelwamondo. Artificial Intelligence in Reverse Supply Chain Management: The State of the Art. *Proceedings of PRASA*, pp. 305-310.
- Conf.-115.** O.F Hamad and **T. Marwala**. Enhanced-Delivery Overlay Multicasting Scheme by Optimizing Bandwidth and Latency Discrepancy Ratios. *Proceedings of the ICCET*, Amsterdam, 2010, pp. 534-542.

- Conf.-116.** M. Duma, B Twala, **T. Marwala**, and F.V. Nelwamondo. Classification Performance Measure Using Missing Insurance Data: A Comparison between Supervised Learning Models. *2010 International Conference on Computer and Computational Intelligence*, pp. 550-555, Nanning, China.
- Conf.-117.** L.J. Mpanza and **T. Marwala**. Rough Set Theory for HV Bushings Fault Detection Trade-off between accuracy and transparency. *Proceedings of the 3rd International Conference on Machine Learning and Computing (ICMLC 2011)*, pp. 121-125.
- Conf.-118.** M. Perez, J. Featherston, **T. Marwala**, L.E. Scott, W. Stevens, and D.M. Rubin. A population-based incremental learning approach to microarray gene expression feature selection. *IEEE 26th Convention of Electrical and Electronics Engineers*, Israel, DOI: 10.1109/EEEL.2010.5661897.
- Conf.-119.** I. Msiza, M. Szewczyk, A. Halinka, J-H. Pretorius, P. Sowa, and **T. Marwala**. Neural Networks on Transformer Fault Detection: Evaluating the Relevance of the Input Space Parameters. *2011 IEEE PES Power Systems Conference & Exposition*, 2011, Phoenix, Arizona, U.S.A., DOI: 10.1109/PSCE.2011.5772567.
- Conf.-120.** T. Thejane, F.V. Nelwamondo, T.C. Malumedzha, and **T. Marwala**. Otoacoustics emissions: A review on existing human auditory system modelling approaches. *IASTED Conference on Modelling and Simulation* DOI: 10.2316/P.2011.735-096, 2011.
- Conf.-121.** M. Perez and **T. Marwala**. The fuzzy gene filter: A classifier performance assessment. IASTED Conference, Cambridge, DOI: 10.2316/P.2011.742-015 *Proceeding of Intelligent Systems and Control: Computational Bioscience – 2011*.
- Conf.-122.** L.J. Mpanza and **T. Marwala**. Artificial Neural Network and Rough Set for HV Bushings Condition Monitoring. *15th IEEE International Conference on Intelligent Engineering Systems*, 2011, DOI: 10.1109/INES.2011.5954729, pp. 109-113.
- Conf.-123.** A. Hassan, K. Ouahada, **T. Marwala**, and B. Twala. Optimization of the compressed air-usage in South African Mines. *IEEE Africon*, DOI: 10.1109/AFRCON.2011.6072145, 2011, pp. 1-6.
- Conf.-124.** E. Hurwitz and **T. Marwala**. Suitability of using technical indicators as potential strategies within intelligent trading systems. *IEEE International Conference on Systems, Man, and Cybernetics*, 2011, DOI: 10.1109/ICSMC.2011.6083646, 80-84.
- Conf.-125.** A-K. Mohamed, **T. Marwala**, and L. John. Single-trial EEG Discrimination between Wrist and Finger Movement Imagery and Execution in a Sensorimotor BCI. Engineering in Medicine and Biology Society, *International Conference of the IEEE EMBC, 2011*, DOI: 10.1109/IEMBS.2011.6091552, pp. 6289–6293.
- Conf.-126.** M. Khoza and **T. Marwala**. A rough set theory based predictive model for stock prices. *2011 IEEE 12th International Symposium on Computational Intelligence and Informatics*. DOI: 10.1109/CINTI.2011.6108571, pp. 57–62.
- Conf.-127.** Boesack, C.; **Marwal, T.**; Nelwamondo, F.V. A GA-Fuzzy Automatic Generation Controller for interconnected power systems. 2011 Fourth International Workshop on Advanced Computational Intelligence (IWACI), DOI: 10.1109/IWACI.2011.6160102, 2011, pp. 720 – 724.
- Conf.-128.** Shukla, R.; Clarke, W.A.; **Marwala, T.** Object oriented modeling framework of a Kohonen network based character recognition system. *Computer Communication and Informatics (ICCCI)*, 2012, DOI: 10.1109/ICCCI.2012.6158810, pp. 1 – 7.

- Conf.-129.** Thejane, T.; Nelwamondo, F.V.; Smit, Jacoba E.; **Marwala, T.** Influence of the auditory canal number of segments and radius variation on the outer ear frequency response. *2012 IEEE-EMBS International Conference on Biomedical and Health Informatics (BHI)*, DOI: 10.1109/BHI.2012.6211595, pp. 384 – 387.
- Conf.-130.** E. Hurwitz and **T. Marwala** (2012) Optimising a Targeted Fund of Strategies using Genetic Algorithms. *2012 IEEE International Conference on Systems, Man, and Cybernetics*. pp. 2139-2143.
- Conf.-131.** M. Alvares, F. Buarque and **T. Marwala**. Optimizing Risk Management Using NSGA-II. *2012 IEEE Congress on Evolutionary Computation*.
- Conf.-132.** M. Duma, B Twala, **T. Marwala** and F.V. Nelwamondo Classification with Missing Data using Multi-Layered Artificial Immune Systems, *2012 IEEE Congress on Evolutionary Computation*.
- Conf.-133.** S. Paul, B. Twala, and **T. Marwala**. Organizational adaptation to Complexity: A study of the South African Insurance Market as a Complex Adaptive System through Statistical Risk Analysis. *Systems Engineering Procedia*, 2012, 4 (2012) 1–8.
- Conf.-134.** M. Khoza and **T. Marwala** Computational Intelligence Techniques for Modelling an Economic System. *2012 International Joint Conference on Neural Networks*.
- Conf.-135.** W.J. Gao; B. Xing; **Marwala, T.** Teaching-Learning-based optimization approach for enhancing remanufacturability pre-evaluation system's reliability. *Proceedings of the 2013 IEEE Symposium on Swarm Intelligence (SIS)*, DOI: 10.1109/SIS.2013.6615184, 2013, pp. 235-239.
- Conf.-136.** Hasan, A.N.; Twala, B.; **Marwala, T.** Predicting mine dam levels and energy consumption using artificial intelligence methods. *2013 IEEE Symposium on Computational Intelligence for Engineering Solutions (CIES)*, 2013, pp. 171-175.
- Conf.-137.** Maumela, J.T.; Nelwamondo, F.V.; **Marwala, T.** Condition monitoring of transformer bushings using Rough Sets, Principal Component Analysis and Granular Computation as pre-processors. *Proceedings of the 2013 International Conference on System Science and Engineering (ICSSE)*, DOI: 10.1109/ICSSE.2013.6614689, 2013, pp. 345-350.
- Conf.-138.** Boulkaibet I, Mthembu L, **Marwala, T.** and De Lima Neto F, Finite Element Model Updating Using Fish School Search Optimization Method, *1st BRICS & 11th CBIC Brazilian Congress on Computational Intelligence*, Brazil 2013.
- Conf.-139.** Paul, S.; Janecek, A.; Buarque De Lima Neto, F.; **Marwala, T** Applying the Negative Selection Algorithm for Merger and Acquisition Target Identification Theory and Case Study. *2013 BRICS Congress on Computational Intelligence and 11th Brazilian Congress on Computational Intelligence (BRICS-CCI & CBIC)*, DOI: 10.1109/BRICS-CCI-CBIC.2013.107, 2013, pp. 609-616.
- Conf.-140.** Parasuram, K.V., Reddy, K.Obi, Shukla, M. and **Marwala, T.** Morphological, structural and thermal characterization of acetic acid modified and unmodified Napier grass fiber strands. *Proceedings of the 7th International Conference on Intelligent Systems and Control (ISCO)*, 2013, DOI: 10.1109/ISCO.2013.6481207, pp. 506-510.
- Conf.-141.** Mekuria, F.; Twala, B.; **Marwala, T.**; Ntlatlapa, N. Building a sustainable research & HCD eco-system: Case study of two wireless communication eco systems. *IST-Africa Conference and Exhibition (IST-Africa)*, 2013, pp. 1-7.

- Conf.-142.** Alvares, M.; **Marwala, T.**; de Lima Neto, F. Buarque. Application of computational intelligence for Source Code classification. *Proceedings 2014 IEEE Congress on Evolutionary Computation (CEC)*, 2014, pp. 895-902.
- Conf.-143.** Hasan, A.N.; Twala, B.; **Marwala, T.** Moving towards accurate monitoring and prediction of gold mine underground dam levels. *Proceedings of the 2014 International Joint Conference on Neural Networks (IJCNN)*, 2014, pp. 2844-2849.
- Conf.-144.** Hasan, A.N.; Twala, B.; **Marwala, T.** Underground water dam levels and energy consumption prediction using computational intelligence techniques. *2014 IEEE International Conference on Computational Intelligence and Virtual Environments for Measurement Systems and Applications (CIVEMSA)*, 2014, pp. 94-98.
- Conf.-145.** S. Paul, B Twala, **T. Marwala**. Modeling after Sales Customer Satisfaction using Multinomial Logistic Regression: Insights from a South African car company. *Proceedings of the 2014 IEEE International Conference on Systems, Man and Cybernetics*.
- Conf.-146.** C. Leke, B. Twala and T. Marwala. Modeling of missing data prediction: Computational intelligence and optimization algorithms. *Proceedings of the 2014 IEEE International Conference on Systems, Man and Cybernetics*.
- Conf.-147.** R Selvaraj, VM Kuthadi, **T Marwala** (2015) Hybrid Technique for Frequent Pattern Extraction from Sequential Database. *Proceedings of the 3rd International Conference on Frontiers of Intelligent*.
- Conf.-148.** MA Fernandes, P Patel, **T Marwala** (2015) Automated Detection of Human Users in Twitter. *Procedia Computer Science* 53, pp. 224-231.
- Conf.-149.** G. Mabuza-Hocquet, F. Nelwamondo, **T. Marwala**, Robust Iris Segmentation through Parameterization of the Chan-Vese Algorithm, 2015, *Advanced Computer and Communication Engineering Technology*. pp. 183-194.
- Conf.-150.** R. Selvaraj, V. Madhav Kuthadi, **T. Marwala**. Honey Pot: A Major Technique for Intrusion Detection. 2015, *Proceedings of the Second International Conference on Computer and Communication Technologies*, pp. 73-82.
- Conf.-151.** V. Madhav Kuthadi, R. Selvaraj, **T. Marwala**. An Enhanced Security Pattern for Wireless Sensor Network. *Proceedings of the Second International Conference on Computer and Communication Technologies*, 2015, pp. 61-71.
- Conf.-152.** M. Alvares, F. Buarque de Lima Neto and **T. Marwala**. Tolerance to Complexity: Measuring Capacity of Development Teams to Handle Source Code Complexity. *Proceedings of the 2016 IEEE International Conference on Man, Systems and Cybernetics*.
- Conf.-153.** A.Y. Ali and **T. Marwala**. Hybrid Optimization Algorithm to the Problem of Distributed Generation Power Losses. *Proceedings of the 2016 IEEE International Conference on Man, Systems and Cybernetics*.
- Conf.-154.** M. Alvares, F. Buarque de Lima Neto and **T. Marwala**. Prioritising Security Tests on Large-Scale and Distributed Software Development Projects by Using Self-Organised Maps. *Proceedings of The 23rd International Conference on Neural Information Processing*, 2016, pp. 60-69.
- Conf.-155.** G.P. Mabuza-Hocquet, F. Nelwamondo, **T. Marwala**. Ethnicity prediction and classification from iris texture patterns: A survey on recent advances. 2016 IEE

International Conference on Computational Science and Computational Intelligence (CSCI), pp. 818-82

- Conf.-156.** C. Leke, AR Ndjiongue, B. Twala, **T. Marwala**. Deep learning-based high-dimensional missing data estimator, 2017 IEEE International Conference on Systems, Man, and Cybernetics (SMC), pp. 483-488

Selected Papers in Local / Popular Journals / Magazines / Archives

1. **T. Marwala**. Relevance of artificial intelligence in South African technology arena. BIT Forum Supplement, Enterprise Magazine, May 2002, pp. 10-11.
2. **T. Marwala**. Using computers to monitor the health of structures. *Science in Africa*, Issue. 27, June 2003.
3. **T. Marwala**. *Column*: Moulding leaders for 21st-century challenges. *City Press*, 24 April 2005, p. 18.
4. **T. Marwala**. Condition monitoring of mechanical systems. *Electricity + Control*, January 2005, pp. 33-35.
5. **T. Marwala**. The artificial beer taster. *Electricity + Control*, May 2005, pp. 22-23.
6. **T. Marwala**. The national democratic revolution, technology and a developed economy. *Umrabulo*, Vol. 22, 2005, pp. 58–60.
7. **T. Marwala**. Mobilising the cadre to defeat the challenges of the 21st century. *Umrabulo*, Vol. 23, 2005, pp. 80-82.
8. **T. Marwala**. Strategies and tactics for increasing economic participation. *Umrabulo*, Vol. 24, 2005, pp. 41-43.
9. **T. Marwala**. Bridging the digital divide. *South Africa: The Quarterly Journal for Trade Partners and Investors*. Vol. 3, No. 4, 2006, pp. 19-22.
10. **T. Marwala**. *Column*: Power blackouts can be beaten. *City Press*, 5 March 2006, p. 22.
11. **T. Marwala**. Local Loop Unbundling. *EngineerIT* April 2007, p. 8.
12. E. Marais, **T. Marwala**. Predicting the presence of internet worms using novelty detection. *ArXiv: 0705.1288*.
13. **T. Marwala**. *Column*: South Africa's economy can be revolutionised. *City Press*, 30 April 2006, p. 22.
14. **T. Marwala**. Die kragonderbrekings hou 'n paar lesse in. *Rapport* 4 March, 2006.
15. **T. Marwala**. Skills necessary for the advancement of South Africa. *Umrabulo*, Vol. 26, 2006, pp. 60-61.
16. **T. Marwala**. Prospects for improved skills capacity. *Umrabulo*, Vol. 28, 2007, pp. 6-8.
17. **T. Marwala**. The anatomy of capital and the national democratic revolution. *Umrabulo*, Vol. 29, 2007, pp. 57-59.
18. **T. Marwala**. Local loop unbundling recommendations-What does it mean for an ordinary person? *EngineerIT*, p. 10, June 2007.
19. **T. Marwala**. Letters: The Chinese Century. *Time Magazine*. February 2007, Vol. 169, No. 6, p. 10.
20. **T. Marwala**. Building human capital in South Africa. *Acumen 3rd Quarter* 2007, pp. 22-29.
21. **T. Marwala**. Letters: A South African success story. *Time Magazine*, 22 September 2008, p. 8.
22. **T. Marwala**. Letters: Democracy in South Africa. *Time Magazine*, 30 April 2009, p.8.
23. **T. Marwala**. Letters: First amongst equals. *The Economist* 16 May 2009, p. 20.

24. B. Lubinsky, B. Genc and **T. Marwala**. Dynamically Weighted Mixture of Experts for the Prediction of Platinum Prices. ArXiv: 0812.2785 (December 2008).
25. S. Wright, **T. Marwala**. Artificial Intelligence Techniques for Steam Generator Modelling. 2006, arXiv: 0811.1711.
26. D. Golding, L. Wilson, **T. Marwala**. Emergency Centre Organization and Automated Triage System. 2008, arXiv: 0810.3671.
27. D. Blend and **T. Marwala**. Comparison of Data Imputation Techniques and their Impact. 2008, arXiv: 0812.1539.
28. D. Moon and **T. Marwala**. Missing Data using Decision Forest and Computational Intelligence. 2008, arXiv: 0812.1615.
29. **T. Marwala**. Foundations for a Developmental State: A case for technical education, 2009, arXiv: 0907.2019.
30. E. Hurwitz and **T. Marwala**. Machine Learning Techniques to Portfolio Optimisation. arXiv:0910.2276
31. **T. Marwala**. Telecoms unbundling will be good for consumers. City Press 8 July 2007, p. 22.
32. **T. Marwala**. Foundations of the developmental state, the case for engineering education. *Umrabulo*, **Number 33, 2nd Quarter 2010**.
33. **T. Marwala**. Work Integrated Learning and the National Democratic Revolution. *ANC Today*, **Vol. 10, No. 23, 25 June – 1 July 2010**.
34. G.G. Anderson, FV Nelwamondo and **T. Marwala**. Use of Data Mining in Scheduler Optimization. ArXiv: 1011.1735.
35. **T. Marwala**. Reflections on industrial strategy. *Umrabulo*, **Number 35, 1st Quarter 2011, pp. 10-13**.
36. L.J. Mpanza and T. Marwala. (2011) Ant Colony Optimization of Rough Set for HV Bushings Fault Detection. arXiv:1108.4548.
37. **T. Marwala**. The platinum group metals and the national democratic society. *The Thinker*, 2011, Vol. 28, pp. 28-30.
38. **T. Marwala** and Monica Lagazio. The Anatomy of Interstate Conflicts: An Artificial Intelligence Perspective. *The Thinker*, 2011, Vol. 30, pp. 40-42.
39. B. Xing and **T. Marwala**. The role of remanufacturing in building a developmental state. *The Thinker*, 2011, Vol. 33, pp. 18-20.
40. S. Paul, P. Mjwara, **T. Marwala**, E. Mabuza, and M. Cele. South Africa's National System of Innovation: Complex Adaptive System Perspective. *The Thinker*, 2012, Vol. 36, pp. 36-39.
41. M. Khoza, **T. Marwala** and A. Ramabulana. The anatomy of savings and the developmental agenda. *The Thinker*, 2012, Vol. 38.
42. **T. Marwala**. Causality, correlation and artificial intelligence: Implication for policy formulation. *The Thinker*, 2013, Vol. 49, pp. 36-37.
43. **T. Marwala**. Investing in the sciences will help boost our economy. *The Sunday Independent*, 24 March 2013, p. 14.
44. **T. Marwala**. South Africa's national economic revolution. *Umrabulo*, Number. 36, 2nd Quarter 2011
45. **T. Marwala**. Role of intellectuals in driving social change. *The Thinker*, 2015, Vol. 65, pp. 36-38.
46. **T. Marwala**, Postgrad study key to development. *Mail & Guardian*, September 4 to 10, 2015 P. 35.

47. **T. Marwala.** Growing SA's economy the best policy to beat poverty, *Sunday Independent*, 4 October 2015.
48. **T. Marwala.** The political economy of the electricity industry, *The Thinker*, 2015, Vol. 66, pp. 28-29.
49. **T. Marwala.** How black professors can transform higher education. *Independent Thinking* (Supplement of *Sunday Independent*), 11 October 2015, p. 6.
50. **T. Marwala.** How can we ensure Africa wins more Nobel Prizes? *The Mercury*, 15 October 2015, p. 10.
51. Boulton, Geoffrey and Hodson, Simon and Babini, Dominique and Li, Jianhui and **Marwala, Tshilidzi** and Musoke, Maria G. N. and Uhler, Paul F. and Wyatt, Sally Datos abiertos en un mundo de grandes datos. Un acuerdo internacional ICSU-IAP-ISSC-TWAS. *Revista Iberoamericana de Ciencia, Tecnología y Sociedad*, 2017, vol. 12, n. 34, pp. 267-272.
52. Bo Xing and **Tshilidzi Marwala.** Implications of the fourth industrial revolution on education. *The Thinker*, 2017, Vol. 17, pp. 10-15.
53. **Tshilidzi Marwala** and Bo Xing. Blockchain and Artificial Intelligence, *Computer Science* (2018), <https://arxiv.org/abs/1802.04451>.
54. **Tshilidzi Marwala.** Move from superstition to scientific thinking crucial. *Sunday Independent* 1 April 2018. Page 15.
55. **Tshilidzi Marwala.** The fourth industrial revolution. *Sunday Independent* 25 March 2018. Page 17.
56. **Tshilidzi Marwala.** The fourth industrial revolution is discriminating against Africans. *Sunday Independent* 15 April 2018. Page 17.
57. **Tshilidzi Marwala.** Can artificial intelligence prevent future wars? *Sunday Independent* 6 May 2018. Page 15.
58. **Tshilidzi Marwala.** Artificial Intelligence can't master Xhosa clicks. *Sunday Independent* 13 May 2018. Page 15. Republished as Artificial intelligence can't master Xhosa clicks. *Weekend Argus (Sunday Edition)* as African "clicks" outwit artificial intelligence. *Sunday Tribune*.
59. **Tshilidzi Marwala.** Knowing concepts without theory. *Sunday Independent* 27 May 2018. Page 13. Republished as 'Organic' intellects abound in Africa. *Weekend Argus (Sunday Edition)*.
60. **Tshilidzi Marwala.** SA needs laws to regulate self-driving vehicles. *Sunday Independent* 10 June 2018. Page 15. Republished as 'Laws to regulate self-driving vehicles. *Weekend Argus (Sunday Edition)*.
61. **Tshilidzi Marwala.** Will AI affect our standard of living? *Sunday Independent* 24 June 2018. Page 15.
62. **Tshilidzi Marwala.** Leadership in a new industrial age. *Sunday Independent*, 8 July 2018. Page 15.
63. **Tshilidzi Marwala.** Decoding Madiba's M-Plan and blockchain technology. *Sunday Independent* 29 July 2018. Page 15.
64. **Tshilidzi Marwala.** Peaceful use of nuclear technology. *Sunday Independent* 19 August 2018. Page 13.
65. **Tshilidzi Marwala.** Mining in the fourth industrial revolution. *Sunday Independent* 9 September 2018. Page 18.

66. **Tshilidzi Marwala.** The banker of the fourth industrial revolution. *Daily Maverick* 12 September 2018 (Republished as Bankers of the future will have to be both engineers and economists. *Business Day* 8 October 2018, pp. 9).
67. **Tshilidzi Marwala.** The are no free lunches as we risk remote control from California. *Sunday Independent* 23 September 2018. Page 17.
68. **Tshilidzi Marwala.** Democracy in Peril. *City Press*, 30 September 2018.
69. **Tshilidzi Marwala.** Why South Africa should take part in global university rankings. *Daily Maverick* 15 October 2018.
70. **Tshilidzi Marwala.** Are South African markets efficient? *Daily Maverick* 2 November 2018.
71. Yu Ke and **Tshilidzi Marwala.** Human identity in the age of Artificial Intelligence, *Daily Maverick* 12 November 2018.
72. **Tshilidzi Marwala.** Black Panther: The story without irony. *Sunday Independent* 2 December 2018. Page 6. Republished on *Weekend Argus (Sunday Edition)* and *Sunday Tribune* newspapers.
73. **Tshilidzi Marwala.** The limit of artificial intelligence: Can machines be rational? arXiv:1812.06510, 2018.
74. **Tshilidzi Marwala.** The fourth industrial revolution and the prospect of human irrelevance. *Sunday Times*. 23 December 2018, pp. 10.
75. T. Marwala (2018) Can rationality be measured? arXiv:1812.10144.
76. **Tshilidzi Marwala.** Can AI make us more rational? *City Press*, 6 January 2019.
77. **Tshilidzi Marwala.** Should machines learn the world as it is or as we wish it to be? *Sunday Independent*, 20 January 2019.
78. **Tshilidzi Marwala.** Artificial intelligence: An inhumane future? *Daily Maverick*, 29 January 2019.

COMPLETED AND CURRENT RESEARCH STUDENTS

Master's Supervision (47 students in total)

1. Name: Lungile Mndileki Zanoxolo Mdlazi
 Nationality: **South Africa**
 Degree: MEng: Mechanical Engineering, University of Pretoria
 Year of Completion: 2003
 Project Information: A Synchronous Filter for Gear Vibration Monitoring Using Computational Intelligence.
Co-supervisors: P.S. Heyns & C.J. Stander
 Where Last Tracked? Senior engineer at Anglo American Corporation.

2. Name: Nadim Mohamed
 Nationality: **South Africa**
 Degree: MSc: Electrical Engineering, University of the Witwatersrand
 Year of Completion: 2003, **Completed with Distinction**
 Project Information: Detection of Epileptic Activity in the EEG Using Artificial Neural Networks
Co-supervisor: D.M. Rubin
 Where Last Tracked? Consultant at the Accenture.

3. Name: Brain Betechuoh Leke
 Nationality: **Cameroon**

- Degree: MSc: Electrical Engineering, University of the Witwatersrand
Year of Completion: 2005, **Completed with Distinction**
Project Information: 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.
4. Name: Zaheer Ahmed Dindar
Nationality: **South Africa**
Degree: MSc: Electrical Engineering, University of the Witwatersrand
Year of Completion: 2005
Project Information: Artificial Neural Networks Applied to Option Pricing.
Where Last Tracked? Consultant at FeverTree Consulting.
5. Name: Michael M. Pires
Nationality: **South Africa**
Degree: MSc: Electrical Engineering, University of the Witwatersrand
Year of Completion: 2005, **Completed with Distinction**
Project Information: Option Pricing Using Support Vector Machines and Neural Networks.
Where Last Tracked? IT engineer at Standard Bank.
6. Name: Bradley van Aardt
Nationality: **South Africa**
Degree: MSc: Electrical Engineering, University of the Witwatersrand
Year of Completion: 2005
Project Information: Multi-Agent Communication and Collaboration.
Where Last Tracked? IT engineer at Intellect Solutions.
7. Name: Lukasz A. Machowski
Nationality: **South Africa**
Degree: MSc: Electrical Engineering, University of the Witwatersrand
Year of Completion: 2005, **Completed with Distinction**
Project Information: Image Shape Classification Using Computational Intelligence and Object Orientation.
Where Last Tracked? IT engineer at Synthesis Software Technologies.
8. Name: Mussa Abdella
Nationality: **Eritrea**
Degree: MSc: Electrical Engineering, University of the Witwatersrand
Year of Completion: 2006, **Completed with Distinction**
Project Information: The Use of Genetic Algorithms and Neural Networks to Approximate Missing Data in Database.
Where Last Tracked? IT engineer in Norway.
9. Name: E Habtemariam
Nationality: **Eritrea**
Degree: MSc: Electrical Engineering, University of the Witwatersrand
Year of Completion: 2006, **Completed with Distinction**
Project Information: Artificial Intelligence for Conflict Management.
Co-supervisor: M. Lagazio
Where Last Tracked? IT engineer in Johannesburg.

10. Name: Elbert Marais
 Nationality: **South Africa**
 Degree: MSc: Electrical Engineering, University of the Witwatersrand
 Year of Completion: 2006
 Project Information: Predicting Global Internet Instability Caused by Worms Using Neural Networks.
 Where Last Tracked? Engineer in New Zealand.
11. Name: Trevor Ransome
 Nationality: **South Africa**
 Degree: MSc: Electrical Engineering, University of the Witwatersrand
 Year of Completion: 2006
 Project Information: Automatic Minimization of Patient Setup Errors in Proton Beam Therapy.
Co-supervisors: D.M. Rubin & E.A. de Kok
 Where Last Tracked? IT engineer at Glacier in Cape Town.
12. Name: Gareth Setati
 Nationality: **South Africa**
 Degree: MSc: Electrical Engineering, University of the Witwatersrand
 Year of Completion: 2007
 Project Information: Machine Learning for Decision-Support in Distributed Networks.
 Where Last Tracked? IT engineer at SAP in Germany.
13. Name: Morongwe Malebye
 Nationality: **South Africa**
 Degree: MBA, University of the Witwatersrand
 Year of Completion: 2007
 Project Information: Forecasting the JSE All Index Share Using Neural Network Techniques.
 Where Last Tracked? Consultant in the mining industry.
14. Name: T. Djonon Hypolyte
 Nationality: **Cameroon**
 Degree: MSc: Electrical Engineering, University of the Witwatersrand
 Year of Completion: 2007
 Project Information: Machine Condition Monitoring Using Neural Networks: Feature Selection Using Genetic Algorithm.
 Where Last Tracked? IT engineer in Johannesburg.
15. Name: Taryn Tim
 Nationality: **South Africa**
 Degree: MSc: Electrical Engineering, University of the Witwatersrand
 Year of Completion: 2007, **Completed with Distinction**
 Project Information: Predicting HIV Status Using Neural Networks and Demographic Factors.
 Where Last Tracked? Business analyst at ThoughtWorks.
16. Name: Pretesh Patel
 Nationality: **South Africa**
 Degree: MSc: Electrical Engineering, University of the Witwatersrand
 Year of Completion: 2007

- Project Information: 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.
17. Name: Simon Scurrell
 Nationality: **South Africa**
 Degree: MSc: Electrical Engineering, University of the Witwatersrand
 Year of Completion: 2007
 Project Information: Automatic Detection of Pulmonary Embolism Using Computational Intelligence.
Co-supervisor: D.M. Rubin, Wits
 Where Last Tracked? Design engineer at Magstim Company in London.
18. Name: Evan Hurwitz
 Nationality: **South Africa**
 Degree: MSc: Electrical Engineering, University of the Witwatersrand
 Year of Completion: 2007
 Project Information: 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.
19. Name: Lunga Dalton
 Nationality: **South Africa**
 Degree: MSc: Electrical Engineering, University of the Witwatersrand
 Year of Completion: 2007, **Completed with Distinction**
 Project Information: 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 in Tennessee USA.
20. Name: Dhiresb Surajpal
 Nationality: **South Africa**
 Degree: MSc: Electrical Engineering, University of the Witwatersrand
 Year of Completion: 2007, **Completed with Distinction**
 Project Information: An Independent Evaluation of Subspace Facial Recognition Algorithms.
 Where Last Tracked? Strategy manager at Accenture.
21. Name: Thando Tettey
 Nationality: **South Africa**
 Degree: MSc: Electrical Engineering, University of the Witwatersrand
 Year of Completion: 2007, **Completed with Distinction**
 Project Information: A Computational Intelligence Approach to Modelling Interstate Conflict: Conflict and Causal Interpretations.
 Where Last Tracked? Engineer at a Defense Industry and now a system engineer at the Investec Bank.
22. Name: Shakir Mohamed

- Nationality: **South Africa**
 Degree: MSc: Electrical Engineering, University of the Witwatersrand
 Year of Completion: 2007, **Completed with Distinction**
 Project Information: Dynamic Protein Classification: Adaptive Models Based on Incremental Learning Strategies.
Co-supervisor: D.M. Rubin
 Where Last Tracked? Went to complete a PhD at the University of Cambridge and now an engineer at Google Deepmind.
23. Name: Michael Herzog
 Nationality: **South Africa**
 Degree: MSc: Electrical Engineering, University of Pretoria
 Year of Completion: 2007, **Completed with Distinction**
 Project Information: Machine and Component Residual Life Estimation Through the Application of Neural Networks.
Co-supervisor: P.S. Heyns, UP
 Where Last Tracked? Senior engineer at ThyssenKrupp.
24. Name: Busisiwe Vilakazi
 Nationality: **South Africa**
 Degree: MSc: Electrical Engineering, University of the Witwatersrand
 Year of Completion: 2007, **Completed with Distinction**
 Project Information: Machine Condition Monitoring Using Artificial Intelligence: The Incremental Learning and Multi-Agent System Approach.
 Where Last Tracked? Went to complete a Doctorate degree at Oxford University in the UK and now an engineer at the CSIR.
25. Name: Daniyel Falk
 Nationality: **South Africa**
 Degree: MSc: Electrical Engineering, University of the Witwatersrand
 Year of Completion: 2007
 Project Information: Enhancement of Noisy Planar Nuclear Medicine Images using Mean Field Annealing.
Co-supervisor: D.M. Rubin
 Where Last Tracked? CTO at Smartlab Cellular Services.
26. Name: Jonathan Spiller
 Nationality: **South Africa**
 Degree: MSc: Electrical Engineering, University of the Witwatersrand
 Year of Completion: 2007
 Project Information: Object Localization Using Deformable Templates.
 Where Last Tracked? Engineer in Israel.
27. Name: Bodie Crossingham
 Nationality: **South Africa**
 Degree: MSc: Electrical Engineering, University of the Witwatersrand
 Year of Completion: 2008
 Project Information: Rough Set Partitioning Using Computational Intelligence Approach.
 Where Last Tracked? Consultant Accenture in Texas and Johannesburg.
28. Name: Greg Hulley
 Nationality: **South Africa**

- Degree: MSc: Electrical Engineering, University of the Witwatersrand
Year of Completion: 2008
Project Information: Incremental Learning Algorithms Applied to Flow Cytometry Data for Multi-Class Diagnosis of Leukemia.
Where Last Tracked? F.L. Schmidt Minerals.
29. Name: Bunty Kiremile
Nationality: **Uganda**
Degree: MSc: Electrical Engineering, University of the Witwatersrand
Year of Completion: 2008
Project Information: Non-stationarity Detection.
Where Last Tracked? Engineer at the Eskom and now in Uganda.
30. Name: Nthabiseng Unathi Hlalele
Nationality: **South Africa**
Degree: MSc: Electrical Engineering, University of the Witwatersrand
Year of Completion: 2009, **Completed with Distinction**
Project Information: The Impact of Missing Data Imputation on HIV Classification.
Co-supervisor: F.V. Nelwamondo
Where Last Tracked? Engineer at the CSIR and now at Eskom.
31. Name: Vukosi Marivate
Nationality: **South Africa**
Degree: MSc: Electrical Engineering, University of the Witwatersrand
Year of Completion: 2009
Project Information: Investigation into the Effect of Social Learning in Reinforcement Learning Board Game Playing Agents.
Co-supervisor: F.V. Nelwamondo
Where Last Tracked? PhD graduate of Rutgers University in the USA and now an engineer at the CSIR.
32. Name: Jaisheel Mistry
Nationality: **South Africa**
Degree: MSc: Electrical Engineering, University of the Witwatersrand
Year of Completion: 2009
Project Information: Estimating Missing Data with Confidence Intervals.
Co-supervisor: F.V. Nelwamondo
Where Last Tracked? Engineer at the CSIR.
33. Name: Lesedi Masisi
Nationality: **South Africa**
Degree: MSc: Electrical Engineering, University of the Witwatersrand
Year of Completion: 2009
Project Information: Investigating the Structural Diversity within a Committee of Classifiers and Their Generalization Performance.
Co-supervisor: F.V. Nelwamondo
Where Last Tracked? Engineer at the CSIR and a PhD graduate from Concordia University in Canada.
34. Name: Tendani Malumedzha
Nationality: **South Africa**
Degree: MSc: Electrical Engineering, University of the Witwatersrand
Year of Completion: 2009

- Project Information: Modeling Multiple Object Scenarios for Feature Recognition and Classification Using Cellular Neural Networks.
Co-supervisor: F.V. Nelwamondo
- Where Last Tracked? Engineer at the CSIR.
- 35.** Name: Wabo Majavu
Nationality: **South Africa**
Degree: MSc: Electrical Engineering, University of the Witwatersrand
Year of Completion: 2009
Project Information: 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.
- 36.** Name: Miguel Fernandes
Nationality: **South Africa**
Degree: MSc: Electrical Engineering, University of the Witwatersrand
Year of Completion: 2011, **Completed**
Project Information: SVM to Automatically Detect Epileptic Patterns in EEG.
Co-supervisor: D.M. Rubin, University of Witwatersrand
Where Last Tracked? Consultant at Deloitte in Singapore.
- 37.** Name: A.K. Mohamed
Nationality: **South Africa**
Degree: MSc: Electrical Engineering, University of the Witwatersrand
Year of Completion: 2011
Project Information: The Use of the Improved EEG Interpretation in a Sensorimotor BCI for the Control of Prosthetic Hand.
Co-supervisor: L. John, University of Cape Town
- 38.** Name: Lindokuhle J. Mpanza
Nationality: **South Africa**
Degree: MSc: Electrical Engineering, University of Johannesburg
Year of Completion: 2012
Project Information: A Rough Set Approach to Bushings Fault Detection.
Where Last Tracked? Engineer at Denel.
- 39.** Name: Zanele Ngenisile Grace Mkhize
Nationality: **South Africa**
Degree: MPhil: Electrical Engineering, University of Johannesburg
Year of Completion: 2012
Project Information: Motion Planning Approaches for Autonomous Robot in Static and Dynamic Environment.
Where Last Tracked? Engineer at the CSIR.
- 40.** Name: Msizi Khoza
Nationality: **South Africa**
Degree: MEng: Electrical Engineering, University of Johannesburg
Year of Completion: 2013
Project Information: Economic Modeling Using Computational Intelligence Techniques.
Where Last Tracked? Consultant at Kearney.
- 41.** Name: Tshhegofatso Thejane

- Nationality: **South Africa**
Degree: MEng: Electrical Engineering, University of Johannesburg
Year of Completion: 2013
Project Information: A Comprehensive Electrical Model of the Human Auditory Periphery for Auto-acoustic Emissions Study.
Co-supervisor: F.V. Nelwamondo
Where Last Tracked? Engineer at the CSIR.
42. Name: Collin Achepta Leke
Nationality: **Cameroon**
Degree: MEng: Electrical Engineering, University of Johannesburg
Year of Completion: 2014, **Completed with Distinction**
Project Information: Empirical Evaluation of Optimization Techniques for Prediction and Classification Tasks.
Where Last Tracked? Engineer at the CSIR and now a Consultant at Thoughtworks.
43. Name: Joshua F. Maumela
Nationality: **South Africa**
Degree: (MEng: Electrical Engineering, University of Johannesburg
Year of Completion: 2014
Project Information: Condition Monitoring of Transformer Bushings Using Computational Intelligence: Focus on Attribute Reduction.
Co-supervisor: F.V. Nelwamondo
Where Last Tracked? Graduate Student at Waseda University in Japan.
44. Name: Norman Nelufule
Nationality: **South Africa**
Degree: MPhil: Electrical Engineering, University of Johannesburg
Year of Completion: 2014
Project Information: Combining Multiple Iris Matchers using Advanced Fusion Techniques to Enhance Iris Matching Performance.
Co-supervisor: F.V. Nelwamondo
Where Last Tracked? PhD student at Chiba University Japan.
45. Name: Sicelo Xulu
Nationality: **South Africa**
Degree: MPhil: Electrical Engineering, University of Johannesburg
Year of Completion: 2015, **Completed with Distinction**
Project Information: Modelling Renewable Energy Sources for South Africa.
Co-supervisor: B. Twala
Where Last Tracked? Managing director of City Power Johannesburg.
46. Name: Daniel J. Joubert
Nationality: **South Africa**
Degree: MPhil: Mechanical Engineering, University of Johannesburg
Year of Completion: 2016, **Completed with Distinction**
Project Information: Markov Chain Monte Carlo Methods for Finite Element Model Updating.
Where Last Tracked? Engineer at AHRLAC.
47. Name: Yanga C. Tekane
Nationality: **South Africa**
Degree: MPhil: Electrical Engineering, University of Johannesburg

Year of Completion: 2016, **Completed with Distinction**
 Project Information: Landscape Aware Miniature Aerial Vehicles.
Co-supervisor: B. Twala
 Where Last Tracked? Engineer at the CSIR.

Doctoral Supervision (28 students in total)

1. Name: Dr. Sizwe M. Dhlamini
 Nationality: **South Africa**
 Degree: PhD: Electrical Engineering, University of the Witwatersrand
 Year of Completion: 2007
 Project Information: Bushing Diagnosis Using Artificial Intelligence and Dissolved Gas Analysis.
 Where Last Tracked? Entrepreneur in Montreal, Canada.
2. Name: Dr. Fulufhelo Vincent Nelwamondo
 Nationality: **South Africa**
 Degree: PhD: Electrical Engineering, University of the Witwatersrand
 Year of Completion: 2008
 Project Information: Computational Intelligence Techniques for Missing Data Imputation.
 Where Last Tracked? Post-doctoral fellowship at Harvard University and now works as executive director of Modelling and Digital Science at the CSIR.
3. Name: Dr. Brain Betechuoh Leke
 Nationality: **Cameroon**
 Degree: PhD: Electrical Engineering, University of the Witwatersrand
 Year of Completion: 2008
 Project Information: Computational intelligence for modelling HIV.
 Where Last Tracked? IT engineer in Johannesburg and also worked for the CSIR.
4. Name: Dr. David Starfield
 Nationality: **South Africa**
 Degree: PhD: Electrical Engineering, University of the Witwatersrand
 Year of Completion: 2009
 Project Information: Towards Clinically Useful Coded Apertures for Planar Nuclear Medicine Imaging.
Co-supervisor: D.M. Rubin
 Where Last Tracked? Engineer in Texas, USA.
5. Name: Dr. Pretesh Bhoola Patel
 Nationality: **South Africa**
 Degree: PhD: Electrical Engineering, University of the Witwatersrand
 Year of Completion: 2010
 Project Information: 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.
6. Name: Dr. Megan Jill Russell
 Nationality: **South Africa**
 Degree: PhD: Electrical Engineering, University of the Witwatersrand
 Year of Completion: 2010

- Project Information: Towards an Innovative Electronic, Artificial Larynx.
Co-supervisor: D.M. Rubin, B. Wigdorowitz, University of the Witwatersrand
- Where Last Tracked? In private business.
7. Name: Dr. Meir Perez
Nationality: **South Africa**
Degree: PhD: Electrical Engineering, University of the Witwatersrand
Year of Completion: 2012
Project Information: Machine Learning and Soft Computing Approaches to Micro-array Differential Expression Analysis and Feature Selection.
Co-supervisor: D.M. Rubin, L.E. Scott, & W. Stevens, University of the Witwatersrand
- Where Last Tracked? A lecturer at the University of Johannesburg and now lives and works in Israel.
8. Name: Dr. Linda Simo Mthembu
Nationality: **South Africa**
Degree: PhD: Mechanical Engineering, University of the Witwatersrand
Year of Completion: 2012
Project Information: Finite Element Model Updating.
Co-supervisor: M. Friswell & S. Adhikari, Swansea University, U.K.
- Where Last Tracked? A senior lecturer at the University of Johannesburg.
9. Name: Dr. Bo Xing
Nationality: **Chinese with Permanent Resident of South Africa**
Degree: DIng: Mechanical Engineering, University of Johannesburg
Year of Completion: 2012
Project Information: Soft Computing in Remanufacturing.
Co-supervisors: K. Battle & F.V. Nelwamondo
- Where Last Tracked? An associate professor at the University of Johannesburg.
10. Name: Dr. Craig Boesack
Nationality: **South Africa**
Degree: PhD: Electrical Engineering, University of the Witwatersrand
Year of Completion: 2013
Project Information: 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.
Co-supervisor: F.V. Nelwamondo
- Where Last Tracked? Engineer at Eskom.
11. Name: Dr. George Anderson
Nationality: **Botswana**
Degree: DPhil: Electrical Engineering, University of the Witwatersrand
Year of Completion: 2013
Project Information: Operating System Scheduling Optimization.
Co-supervisor: F.V. Nelwamondo
- Where Last Tracked? Works as a senior lecturer at the University of Botswana.
12. Name: Dr. Mlungisi Duma

- Nationality: **South Africa**
 Degree: DPhil: Electrical Engineering, University of Johannesburg
 Year of Completion: 2013
 Project Information: Predicting Insurance Risk Using Incomplete Data.
Co-supervisor: F.V. Nelwamondo & B. Twala
 Where Last Tracked? Works for ABSA Bank.
13. Name: Dr. Ian Shaw
 Nationality: **South Africa**
 Degree: DPhil: Electrical Engineering, University of Johannesburg
 Year of Completion: 2013
 Project Information: A Study of Analogies between Processes in Technical and Biological Systems.
Co-supervisor: D.J. van Wyk
 Where Last Tracked? Retired.
14. Name: Dr. Bolanle Tolulope Abe
 Nationality: **Nigerian with Permanent Resident of South Africa**
 Degree: PhD: Electrical Engineering, University of Johannesburg
 Year of Completion: 2014
 Project Information: Ensembles Classifiers for Land Cover Mapping.
 Where Last Tracked? Senior lecturer at the Tshwane University of Technology.
15. Name: Dr. Ali Hassan
 Nationality: **Jordan**
 Degree: DPhil: Electrical Engineering, University of Johannesburg
 Year of Completion: 2014
 Project Information: Potential Use of Artificial Intelligence in the Mining Industry: South African Case Studies.
Co-supervisor: B. Twala
 Where Last Tracked? Senior lecturer at the University of Johannesburg.
16. Name: Dr. VP Kommulla
 Nationality: **India**
 Degree: DIng: Mechanical Engineering, University of Johannesburg
 Year of Completion: 2014
 Project Information: Characterization of Native African Napier Fibre and Napier Grass Fibre Strands/Epoxy Composites.
Co-supervisor: K.O. Reddy & M. Shukla MNNIT, India
 Where Last Tracked? Senior lecturer at the University of Botswana.
17. Name: Dr. Evan Hurwitz
 Nationality: **South Africa**
 Degree: DIng: Electrical Engineering, University of Johannesburg
 Year of Completion: 2014
 Project Information: Efficient Portfolio Optimization by Hybridized Machine Learning.
 Where Last Tracked? Senior lecturer at the University of Johannesburg.
18. Name: Dr. Satyakama Paul
 Nationality: **India**
 Degree: DPhil: Electrical Engineering, University of Johannesburg
 Year of Completion: 2014

- Project Information: Modelling of Merger and Acquisition Target Prediction for Novice Acquirer: A Computational Intelligence Perspective.
Co-supervisors: F. Buarque , University Pernambuco, Brazil
 Where Last Tracked? Associate Specialist Innovations Lab., Synechron, India
- 19.** Name: Dr. Ilyes Boulkaibet
 Nationality: **Algeria**
 Degree: DIng: Electrical Engineering, University of Johannesburg
 Year of Completion: 2015
 Project Information: Finite Element Model Updating Using Markov Chain Monte Carlo Techniques.
Co-supervisor: M. Friswell & S. Adhikari, Swansea University, U.K.
 Where Last Tracked? Senior lecture at the University of Johannesburg.
- 20.** Name: Dr. Stephen Akinlabi
 Nationality: **Nigeria**
 Degree: DIng: Electrical Engineering, University of Johannesburg
 Year of Completion: 2016
 Project Information: Experimental Study and Finite Element Analysis of Laser Formed Steel for Enhanced Structural Integrity.
Co-supervisor: M. Shukla, MNNIT, India
 Where Last Tracked? Postdoctoral Fellow, University of Johannesburg
- 21.** Name: Marcos Alvares
 Nationality: **Brazil**
 Degree: DPhil: Electrical Engineering, University of Johannesburg
 Year of Completion: 2017
 Project Information: Tolerance to Complexity: Automatic Prioritising Testing on Large Scale and Distributed Software Development Projects.
Co-supervisor: F. Buarque University of Pernambuco, Brazil
 Where Last Tracked? Senior Security Researcher at FireEye, Inc., Netherlands.
- 22.** Name: Pramod Kumar Parida
 Nationality: **India**
 Degree: DPhil: Electrical Engineering, University of Johannesburg
 Year of Completion: 2017
 Project Information: Causality: Exploratory Data Analysis and Knowledge Discovery.
Co-supervisor: S. Chakraverty National Institute of Technology, Rourkela, India
- 23.** Name: Ahmed Abdi Yusuf Ali
 Nationality: **Somalia**
 Degree: DIng: Electrical Engineering, University of Johannesburg
 Year of Completion: 2017
 Project Information: Various Optimization Algorithms Adaptation and Case Study Applied on Optimal Location and Sizing of Distribution Generation Systems in Electrical Power Grids. *Co-supervisor:* Bhekisipho Twala
- 24.** Name: Collins Leke
 Nationality: **Cameroon**
 Degree: DPhil: Electrical Engineering, University of Johannesburg

- Year of Completion: 2017
Project Information: Computational intelligence techniques for higher dimensional missing data estimation. *Co-supervisor*: Bhekisipho Twala
- 25.** Name: Venu Kuthadi
Nationality: **India**
Degree: DIng: Electrical Engineering, University of Johannesburg
Year of Completion: 2018
Project Information: An efficient web services framework for approximate data collection in wireless sensor networks.
- 26.** Name: Rajalakshmi Selvaraj
Nationality: **India**
Degree: PhD: Electrical Engineering, University of Johannesburg
Year of Completion: 2018
Project Information: Network security by preventing DDOS attack using honeypot.
- 27.** Name: Gugulethu P. Mabuza-Hocquet
Nationality: **South Africa**
Degree: PhD: Electrical Engineering, University of Johannesburg
Year of Completion: 2018
Project Information: Reconnaissance and Assessment of Iris Features towards Human Iris Classification.
- 28.** Name: Abhishek Ranjan
Nationality: **India**
Degree: PhD: Electrical Engineering, University of Johannesburg
Year of Completion: 2018
Project Information: Malicious Attacks Detection in Wireless ad hoc Networks.

Students Currently Under Supervision

1. Rendani Mbuva, D.Phil., University of Johannesburg, **Nationality: South Africa.**
2. Joshua Maumela. D.Phil., University of Johannesburg, **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 Blen |

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. Satykama Paul, Intelligent Management, University of Johannesburg.
7. Dr. Ilyes Boulkaibet, Finite Element Updating, University of Johannesburg.
8. Dr. Sukanta Nayak, Mathematical Modeling, University of Johannesburg

EXTERNAL EXAMINATION

- Thapar University, Patiala, Punjab, **India**: PhD (Mechanical Engineering).
- University of Botswana, **Botswana**: PhD (Computer Science).
- 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, Pisa, **Italy**: PhD (Computer Science).
- Rand Afrikaans University, Johannesburg, **South Africa**: 2 Masters (Electrical Engineering).
- University of Pretoria, Pretoria, **South Africa**: Master (Mechanical Engineering).
- University of Pretoria, Pretoria, **South Africa**: PhD (Engineering Management).
- North-West University, **South Africa**: PhD (Engineering).
- North-West University, **South Africa**: Master (Engineering).
- University of Cape Town, Cape Town, **South Africa**: Master (Civil Engineering).
- University of Cape Town, Cape Town, **South Africa**: Master (Electrical Engineering).
- University of Cape Town, Cape Town, **South Africa**: Master (Physics).
- Tshwane University of Technology, Pretoria, **South Africa**: 2 Masters (Electrical Engineering).
- University of the Witwatersrand, Johannesburg, South Africa: Master (Electrical Engineering).
- University of the Witwatersrand, Johannesburg, South Africa: Master (Mechanical Engineering).

VISITING PROFESSORS / RESEARCHERS HOSTED

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

SELECTED JOURNAL / GRANT REVIEWER

Grant Review

- Grant Reviewer: NRF
- Grant Reviewer: Czech Science Foundation
- National Research Council of Canada

International Journals

- Annals of Nuclear Energy
- International Journal of Information Technology and Decision Making
- Applied Mathematical Modelling
- Neurocomputing
- Engineering Applications of Artificial Intelligence
- Information Sciences
- IEEE Transactions on Systems, Man and Cybernetics – Part A

- IEEE Transactions on Neural Networks
- Mechanical Systems and Signal Processing
- European Journal of Operations Research
- Engineering Structures
- Journal of Sound and Vibration
- Journal of Vibration and Acoustics
- Statistics and Probability Letters
- Smart Materials and Structures
- Pattern Recognition Letters
- International Journal of Pattern Recognition
- Pattern Recognition
- Neural Computing and Applications
- Applied Artificial Intelligence
- ASCE Journal of Bridge Engineering
- Computer Methods and Programs in Biomedicine
- Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science
- Computers in Biology and Medicine
- Journal of Zhejiang University-SCIENCE A

INTERNATIONAL / NATIONAL COLLABORATIONS

1. Project Title: Internet security
Collaborator: Prof. Fernando Buarque de Neto
Institution: University of Pernambuco
Country: **Brazil**
Duration: 2010 – Present
2. Project Title: Finite element updating
Collaborator: Profs. M.I. Friswell and S. Adhikari
Institution: Swansea University
Country: **U.K.**
Duration: 2008 – present
3. Project Title: Speech recognition
Collaborator: Prof. Rosalyn Hobson
Institution: Virginia Commonwealth University
Country: Virginia, **U.S.A.**,
Duration: 2004 – 2008
4. Project Title: Bioinformatics
Collaborator: Dr. Alioune Ngom
Institution: University of Windsor
Country: Ontario, **Canada**,
Duration: 2006 – 2007
5. Project Title: Control methods for flight test
Collaborator: Dr. Fola Soares
Institution: Contek Research, El Segundo
Country: California, **U.S.A.**

- Duration: 2005 – 2008
6. Project Title: Control methods for flight test
Collaborator: Dr. John Burken
Institution: NASA Dryden Flight Research Center
Country: Edwards, CA, **U.S.A.**
Duration: 2005 – 2007
 7. Project Title: Finite element model updating
Collaborator: Dr. Sondipon Adhikari
Institution: Universities of Bristol / Swansea University
Country: **U.K.**
Duration: 2000 – 2007
 8. Project Title: Structural health monitoring
Collaborator: Dr. Snehashish Chakraverty
Institution: Central Building Research Institute
Country: Roorkee, **India**,
Duration: 2003 – 2006
 9. Project Title: Interstate conflict
Collaborator: Dr. Monica Lagazio
Institution: University of Kent
Country: **U.K.**
Duration: 2004 – 2006
 10. Project Title: Condition monitoring
Collaborator: Prof. Akira Mita
Institution: Keio University
Country: **Japan**
Duration: 2005
 11. Project Title: Finite element model updating
Collaborator: Dr. Sibusiso Sibisi (President of CSIR)
Institution: Council for Scientific and Industrial Research (CSIR)
Country: **South Africa**
Duration: 2003 – 2005
 12. Project Title: Fault identification
Collaborator: Prof. P.S. Heyns
Institution: University of Pretoria
Country: **South Africa**
Duration: 2003 – 2008

RESEARCH GRANTS RECEIVED

1. Funding Source: National Research Foundation Modelling of Financial Markets
Amount Received: ZAR 243 000
Supporting Period: 2004 – 2006
2. Funding Source: Armscor/Kentron Automatic Target Recognition
Amount Received: ZAR 212 000
Supporting Period: 2004 – 2005

3. Funding Source: Armscor/CSIR DefenceTek Information Warfare
Amount Received: ZAR 1 137 000
Supporting Period: 2004 – 2006
4. Funding Source: Friedel Sellshop Award Financial Modelling
Amount Received: ZAR 75 000
Supporting Period: 2004
5. Funding Source: Dr. T.W. Kambule Research Awards
Amount Received: ZAR 50 000
Supporting Period: 2004
6. Funding Source: CSIR Fellowship
Amount Received: ZAR 70 000
Supporting Period: 2004
7. Funding Source: Indo-South Africa Research Collaboration Condition Monitoring
Amount Received: ZAR 120 000
Supporting Period: 2004 – 2006
8. Funding Source: National Research Foundation Condition Monitoring
Amount Received: ZAR 479 000
Supporting Period: 2005 – 2007
9. Funding Source: Technology and Human Resources for Industry Programme (THRIP)
Amount Received: ZAR 315 000
Supporting Period: 2005
10. Funding Source: Technology and Human Resources for Industry Programme (THRIP)
Amount Received: ZAR 390 000
Supporting Period: 2006
11. Funding Source: DST/NRF Chair
Amount Received: ZAR 10 million
Supporting Period: 2007-2012
12. Funding Source: Eskom
Amount Received: ZAR 500 000
Supporting Period: 2004 – 2008
13. Funding Source: South Africa/Poland Research Cooperation Programme
Amount Received: ZAR 200 000
Supporting Period: 2010 – 2012
14. Funding Source: NRF Grant: Competitive Programme for Rated Researchers
Amount Received: ZAR 1291 000
Supporting Period: 2010 – 2012
15. Funding Source: NRF/HESA IBSA Cooperation in Higher Education for Rated Researchers
Amount Received: ZAR 80 000
Supporting Period: 2010

CHARITABLE INITIATIVES

1. Beneficiary: Tshivhambe Lower Primary School
Donor: Personal Donation
Amount: ZAR 30 000
Use: Computers
Year: 2007
2. Beneficiary: Mbilwi Secondary School (an SET School)
Donor: Funds raised from the Carl and Emily Fuchs Foundation
Amount: ZAR 130 000
Use: Science Labs
Year: 2006 – 2010
3. Beneficiary: Tshildzini Special School
Donor: Funds raised from the Carl and Emily Fuchs Foundation
Amount: ZAR 25 000
Use: Disabled people
Year: 2008
4. Beneficiary: Ligege Secondary School
Donor: Funds raised from the Carl and Emily Fuchs Foundation
Amount: ZAR 15 000
Year: 2009
5. Beneficiary: Dimani Agricultural High School
Donor: Funds raised from the Carl and Emily Fuchs Foundation
Amount: ZAR 10 000
Year: 2010

REFERENCES

1. Name: Prof. Fernando Buarque
Affiliation: Professor Associado: Escola Politécnica, Universidade de Pernambuco, Brazil. Adjunct Professor: Electrical & Computer Engineering, Texas A&M University, (ECE@TAMU), U.S.A.
Email: fbln@ecomp.poli.br
Phone: +55(0)81 3184 7542
2. Name: Prof. Adam Habib
Affiliation: Vice-Chancellor: University of the Witwatersrand, South Africa
Email: adam.habib@wits.ac.za
Phone: 083 301 6536
3. Name: Prof. Thokozani Majazi
Affiliation: Chairman of CSIR, South Africa
Email: thokozani.majazi@wits.ac.za
Phone: 082 456 1500
4. Name: Prof. Snehashish Chakraverty
Affiliation: Professor, Dept. of Mathematics, National Institute of Technology Rourkela

Email: chakravertys@nitrkl.ac.in
Phone: 0661-246-2713 (Off.), 0661-246-3713 (Res.), 09438135400 (M)

5. Name: Prof. Lyu Jiangaol
Affiliation: Director of Confucius Institutes, Nanjing Tech University, China
Email: jiangaolv@njtech.edu.cn
Phone: + 86 13851590511

6. Name: Prof. Morgan Dundu
Affiliation: Vice Dean, Faculty of Engineering and the Built Environment
University of Johannesburg
Email: mdundu@uj.ac.za
Phone: 0115593815