

# Curriculum Vitae

## Kristiaan Schreve

19 July 2017



### Personal Details

*Full Name:* Kristiaan Schreve  
*Date and Place of Birth:* 3 August 1973, Paarl, Republic of South Africa  
*Nationality:* South African  
*Languages:* Afrikaans (First language), English (Fluent)  
*Marital Status:* Married (2007) to Marié-Louise  
*Children* Eduard Stefan Schreve (born 7 Dec 2009)  
Carmé Alida Schreve (born 19 Sept 2011)  
*Work Address:* Department of Mechanical Engineering, University of Stellenbosch, Private Bag X1, Matieland, 7602, South Africa  
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### University Training

2003-2006 (*October*): Postgraduate Diploma in Tertiary Education, University of South Africa. Graduate: October 2006.

1998-2002 (March): Ph.D. (Mechanical Engineering). University of Stellenbosch, Graduate: March 2002, Topic: Edge Scanning and Sweep Surface Approximation in Reverse Engineering

1996-1998 (March): M.Eng. (Mechanical Engineering), University of Stellenbosch, Graduate: March 1998, Thesis Title: Cost Estimating Welded Assemblies Produced in Batches

1992-1995 (December): B.Eng. (Mechanical Engineering), University of Stellenbosch, Graduate: December 1995

## High School Training

*School:* Huguenot High School, Wellington, South Africa

*Matriculation Date:* December 1991

## Work Experience

### University of Stellenbosch, Department of Mechanical Engineering, Professor and Chairman

*Duration of Employment:* July 2016 – present

*Short Description:* Chairman of the department, lecture courses in the Design and Mechatronics Division. Courses include Machine Design and Robotics (post-graduate). Lead undergraduate final year projects. Supervise masters and PhD students.

### University of Stellenbosch, Department of Mechanical Engineering, Professor

*Duration of Employment:* July 2014 – June 2016

*Short Description:* Lecture courses in the Design and Mechatronics Division. Courses include Machine Design and Robotics (post-graduate). Lead undergraduate final year projects. Supervise masters and PhD students. Program coordinator.

### University of Stellenbosch, Department of Mechanical Engineering, Associate Professor

*Duration of Employment:* October 2008 – June 2014

*Short Description:* Lecture courses in the Design and Mechatronics Division. Courses include Engineering Drawing, Machine Design and Robotics (post-graduate). Lead undergraduate final year projects. Supervise masters and PhD students.

### University of Stellenbosch, Department of Mechanical Engineering, Senior Lecturer

*Duration of Employment:* January 2004 – September 2008

*Short Description:* Lecture courses in the Design and Mechatronics Division. Courses include Engineering Drawings 124,

Computer Aided Engineering 314 and Mechatronics 444. Lead undergraduate final year projects.

University of Stellenbosch, Global Competitiveness Centre, Operations Manager

Duration of Employment: February 2002 to December 2003

Short Description: Responsibilities include projects coordination, integration of Rapid Product Development process chain, quotations, training on CAD software and measuring machines, project work on the CAD software, 3D Printer (Zcorp Z402) and measuring machines (see the work description for *University of Stellenbosch, Global Competitiveness Centre, Research Assistant, 1 October 1998 – 31 December 1999* below).

University of Stellenbosch, Department of Mechanical Engineering, Part Time Lecturer

Duration of Employment: 1 February 2003 – 30 June 2003

Presenting the course: Computer Aided Engineering for 3<sup>rd</sup> year mechanical engineering students.

Duration of Employment: 1 February 2001 – 30 June 2001

Short Description: Presenting a course in Design for Manufacturing for the 3<sup>rd</sup> year mechanical engineering students.

University of Stellenbosch, Global Competitiveness Centre, Research Assistant

Duration of Employment: 1 October 1998 – 31 December 1999

Short Description: The work included assisting with the commissioning of the Reverse Engineering facilities. Responsibilities included meeting with clients, quoting on projects, training new staff members on the CMM's and doing measuring, CAD modelling and quality control. The clients were mainly from the plastic moulding industry. Students doing research projects were also trained and assisted. The facilities included a Mitutoyo CMM with Renishaw PH10M probe and a Renishaw Cyclone. The CAD work was mainly surface modelling in AutoCAD R14 and Metris (Shapid)

## **Research Areas**

Reverse Engineering; Metrology; Machine Vision; Photogrammetry

## **Publications**

### **Book Chapter**

1. Dimitrov, D., de Beer, N., Hugo, P. and Schreve, K., 2014, *Three Dimensional Printing. In Comprehensive Materials Processing*, Masood, S., Ed., Elsevier Ltd., Vol. 10, pp 217–250, ISBN 978-0-08-096532-1.

### **Journal Papers:**

1. Kretzmann, JE, Venter, G and Schreve, K, 2016, *Non-destructive testing with transient thermography on composite materials*, R&D Journal, Vol 32, pp. 35-43.
2. Van der Merwe, B, Van der Spuy, J, Von Backtröm, T and Schreve, K, 2016, *Reverse Engineering and Performance Analysis of a Small-scale Centrifugal Compressor Impeller*, International Journal of Computer Aided Engineering and Technology, Vol. 8, No. 3, pp. 219-233, ISSN 1757-2657.
3. Rugbani, A. and Schreve, K., 2015, *The Kinematics and Error Modelling of a Novel Micro-CMM*, International Journal of Advanced Manufacturing Technology, Vol. 78, No. 5-8, pp. 961-969.
4. Kruger, O., Hungwe, F., Farid, N. and Schreve, K., 2014, *The Design of a Double Ended Interferometer (DEI)*, International Journal of Metrology and Quality Engineering, Vol. 5, No. 4, ISSN 2107-6839.
5. Heunis, J.S., Scheffer, C. and Schreve, K., 2013, *A User Interface for a Seven Degree of Freedom Surgical Robot*, R&D Journal, Vol. 29, pp. 44-54, ISSN 0257-9669.
6. Brink, Y., Louw, Q., Grimmer, K., Schreve, K., Van der Westhuizen, G. and Jordaan, E., 2013, *Development of a Cost Effective Three-dimensional Posture Analysis Tool: Validity and Reliability*, BMC Musculoskeletal Disorders, Vol. 14, pp. 335, ISSN 1471-2474.
7. Kotlinski, J., Migus, M., Kesy, Z., Kesy, A., Hugo, P., Deez, B., Schreve, K. and Dimitrov, D., 2013, *Fabrication of Hydrodynamic Torque Converter Impellers by Using the Selective Laser Sintering Method*, Rapid Prototyping Journal, Vol. 19 Iss. 6, pp. 430 – 436, ISSN 1355-2546.
8. Swart, W., Scheffer, C. and Schreve, K., 2013, *A Video-Oculography Based Telemedicine System for Automated Nystagmus Identification*, Journal of Medical Devices, Vol. 7, pp. 031002-1 – 031002-7, ISSN 1932-6181.
9. Janse van Vuuren, F., Kim, Y. and Schreve, K., 2013, *A Low-Cost Stewart Platform for a Radio Telescope*, Applied Mechanics and Materials, Vol. 300-301, pp. 362-370, ISSN 1662-7482.
10. Dippenaar, D.J., and Schreve, K., 2013, *3D printed tooling for vacuum-assisted resin transfer moulding*, International Journal of Advanced Manufacturing Technology, Vol. 64, No. 5, pp. 755-767, ISSN 0268-3768.
11. Conradie, J.-P., Scheffer, C., Schreve, K. and Zarrabi, A., 2011, *Semi-autonomous Needle-positioning Device for Percutaneous Nephrolithotomy Procedures*, Journal of Mechanics in Medicine and Biology, Vol. 11, No. 1, pp 177-203.
12. Zarrabi, A.D., Conradie, J.-P., Heyns, C.F., Scheffer, C., Schreve, K., 2010, *Development of a Computer Assisted Gantry System for Gaining Rapid and Accurate Calyceal Access during Percutaneous Nephrolithomy*. International Braz Journal of Urology, Vol. 36, No. 6, pp 738-748.
13. Christiane, P.-J., Schreve, K. and Scheffer, C., 2010, *Developing a low-cost seven degree of freedom minimally invasive surgical manipulator*, R & D Journal of the SAIMEchE, Vol. 26, pp. 27-33, available at <http://www.saimeche.org.za>
14. Brink, Y., Crous, L.C., Louw, Q.A., Grimmer-Somers, K., Schreve, K., 2009, *The association between postural alignment and psychosocial factors to upper*

- quadrant pain in high school students: A prospective study*, Manual Therapy, Vol. 14, No. 6, pp. 647-653.
15. Brink, Y., Hiller, S., Louw, Q.A., Schreve, K., 2009, *The influence of computer use on the sitting posture of high school students who develop neck and shoulder pain*, South African Journal of Physiotherapy/Suid-Afrikaanse Fisioterapie Tydskrif, Vol. 65, No. 2, pp. 21-26.
  16. Schreve, K., 2009, *Sufficient Conditions for Draft Angles on General B-spline Surfaces*, Computer-Aided Design, Vol. 41, No. 9, pp. 681-684.
  17. Van den Heever, D.J., Schreve, K. and Scheffer, C., 2009, *Tactile Sensing using Force Sensing Resistors and a Super-Resolution Algorithm*, IEEE Sensors Journal, Vol. 9, No. 1, pp. 29-35.
  18. Van Niekerk, S., Louw, Q., Vaugh, K., Grimmer-Somers, K. and Schreve, K., 2008, *Photographic measurement of upper-body sitting posture of high school students: A reliability and validity study*, BMC Musculoskeletal Disorders, 9:113.
  19. Schreve, K., 2008, *An Algorithm for Adding Draft Angle to B-spline Surfaces*, Computer-Aided Design and Applications, Vol. 5, No. 1-4, pp. 452-460.
  20. Dimitrov, D., Schreve, K., De Beer, N. and Christiane, P-J., 2008, *Three Dimensional Printing in South African Industrial Environment*, SA Journal of Industrial Engineering, Vol. 19, No. 1, pp. 195-213.
  21. Dimitrov, D., Schreve, K., Taylor, A. and Vincent, B., 2007, *Rapid Prototyping Driven Design and Realisation of Large Components*, Rapid Prototyping Journal, Vol. 13, No. 2, pp. 85-91.
  22. Schreve, K., Goussard, G.L., Basson, A.H. and Dimitrov, D., 2006, *Interactive Feature Modeling for Reverse Engineering*, Journal of Computing and Information Science in Engineering, Vol. 6, No. 4, pp. 422-424.
  23. Schreve, K., 2006, *Fitting 2D B-splines with Draft Angle to Point Data*, Computer-Aided Design, Vol. 38, No. 8, pp. 836-844.
  24. Dimitrov, D., Schreve, K. and De Beer, N., 2006, *Advances in Three Dimensional Printing – State of the Art and Future Perspectives*, Rapid Prototyping Journal, Vol. 12, No. 3, pp. 136-147.
  25. Dimitrov, D., Van Wijck, W., Schreve, K., and De Beer, N., 2006, *Investigating the Achievable Accuracy of Three Dimensional Printing*, Rapid Prototyping Journal, Vol. 12, No. 1, pp. 42-52.
  26. Schreve, K. and Basson, A.H., 2005, *Edge Detection in Reverse Engineering using a Scanning Approach. Part 2: Testing, Including Design of Experiments*, The International Journal of Advanced Manufacturing Technology, Vol. 26, No. 9-10, pp. 1055-1062.
  27. Schreve, K. and Basson, A.H., 2005, *Edge Detection in Reverse Engineering using a Scanning Approach. Part 1: Scanning Algorithm*, The International Journal of Advanced Manufacturing Technology, Vol. 26, No. 9-10, pp. 1048-1054.
  28. Schreve, K. and Basson, A.H., 2004, *Small Volume Fabrication Cost Estimation Models for Embodiment Design*, R&D Journal, Vol. 20, No. 1, pp. 9-15.

29. Schreve, K., Schuster, H.R. and Basson, A.H., 1999, *Manufacturing Cost Estimation during Design of Fabricated Parts*, Short Communications in Manufacture and Design, In: Proceedings of the Institute of Mechanical Engineers, Part B, Engineering Manufacture, Vol. 213, No. B7, pp. 731-736.

**Peer Reviewed Conference Papers:**

1. Schreve, K., 2014, *How Accurate can a Stereovision Measurement Be?*, 15<sup>th</sup> International Workshop on Research and Education in Mechatronics, REM 2014, 9-11 September, El Gouna, Egypt, ISBN 978-1-4799-3029-6.
2. Kruger, O., Hungwe, F., Farid, N. and Schreve, K., 2014, *The design of a Double Ended Interferometer (DEI)*, 5<sup>th</sup> International Conference of Metrology – CAFMET, 31 March – 3 April, Pretoria, South Africa.
3. Rugbani, A. and Schreve, K., 2014, *Design and Structure of a Novel 3-DOF Micro-CMM*, International Conference on Mechanical Design, Manufacture and Automation Engineering, 11-12 January, Phuket, Thailand.
4. Prinsloo, GJ, Dobson, RT and Schreve, K, 2014, *Mechatronic Platform with 12 m<sup>2</sup> Solar Thermal Concentrator for Rural Power Generation in Africa*, SolarPACES 2013 International Conference (Energy Procedia), Las Vegas, Nevada, USA, Energy Procedia 2014, pp. 1470-1480.
5. Prinsloo, GJ, Dobson, RT and Schreve, K, 2014, *Carbon Footprint Optimization as PLC Control Strategy in Solar Power System Automation*, SolarPACES 2013 International Conference (Energy Procedia), Las Vegas, Nevada, USA, Energy Procedia 2014, pp. 2180-2190.
6. Holtzhausen, D., Schreve, K. and Blanckenberg, M., *Distributed Control Architecture for SSL Soccer Robots*, Proceedings of the 2013 IEEE 8<sup>th</sup> Conference on Industrial Electronics and Applications (ICIEA), 19-21 June, Melbourne, pp. 1804-1809, ISBN 978-1-4673-6321-1.
7. Schreve, K., 2013, *Teaching and Assessing Team Work in Machine Design*, Proceedings of the 2<sup>nd</sup> Biennial Conference of the South African Society for Engineering Education, Cape Town, 11-12 June, pp. 158-165.
8. Schreve, K., 2013, *Feature Based Reverse Engineering of Compressor Blades*, Proceedings of COMA'13 International Conference on Competitive Manufacturing, 30 January – 1 February, Stellenbosch, South Africa, pp. 47-50, ISBN 978-0-7972-1405-7.
9. Heunis, J.S., Scheffer, C. and Schreve, K., 2012, *A User Interface for a Seven Degree of Freedom Surgical Robot*, Proceedings of the 5<sup>th</sup> Robotics and Mechatronics Conference of South Africa, RobMech 2012, Pretoria, South Africa, 26-27 November, ISBN 9781467351829.
10. Rugbani, A. and Schreve, K. 2012, *Modelling and Analysis of the Geometrical Errors of a Parallel Manipulator Micro-CMM*, Proceedings of the 6<sup>th</sup> International Precision Assembly Seminar, IPAS 2012, Chamonix, France, 12-14 February, pp. 105-117.
11. Rugbani, A. and Schreve, K. 2011, *The Use of Parallel Mechanism micro-CMM in Micrometrology*, Proceedings of the 4<sup>th</sup> Robotics and Mechatronics Conference of South Africa, RobMech 2011, Pretoria, South Africa, 23-25 November.

12. Schreve, K., 2010, *Error Distribution of a 3D Vision Based Measurement System*, CARSFOF 2010, 13-16 July, Pretoria, South Africa, pp 1-12, ISBN: 978-0-620-46582-3.
13. Hall, L., and Schreve, K., 2010, *Error Distribution of an Articulated Arm Measurement System*, CARSFOF 2010, 13-16 July, Pretoria, South Africa, pp 1-12, ISBN: 978-0-620-46582-3.
14. Dimitrov, D., Du Preez, N.D., Basson, A.H., Van der Merwe, A., Fourie, C.J., Schreve, K., Scheffer, C., 2010, *Manufacturing Research at Stellenbosch During the First Decade and Beyond*, Proceedings of the International Conference on Competitive Manufacturing, COMA'10, 2-5 February, Stellenbosch, South Africa, pp. 7-14.
15. Schreve, K., 2010, *Limitations of a Selection of Micrometrology Techniques*, Proceedings of the International Conference on Competitive Manufacturing, COMA'10, 2-5 February, Stellenbosch, South Africa, pp. 269-275.
16. Zarrabi, A.D., Conradie, J.P., Heyns, C.F., Scheffer, C., Schreve, K., 2009, *Development of a cost-effective Computer-Assisted robotic gantry system for gaining rapid and accurate Calyceal access during percutaneous nephrolithotomy*. 30th Congress of the Société Internationale d'Urologie, Shanghai, China.
17. Zarrabi, A.D., Conradie, J.P., Heyns, C.F., Scheffer, C., Schreve, K., 2009, *Fluoroscopy based robotic needle access system for use in Percutaneous Nephrolithotomy (PCNL)*, 44th Congress of the European Society for Surgical Research, Nimes, France.
18. Schreve, K. and Basson, A.H., 2007, *Edge Detection and Draft Angles in Feature Based Reverse Engineering*, Proceedings of the International Conference on Competitive Manufacturing, COMA'07, 31 January – 2 February, Stellenbosch, South Africa, pp. 165-170.
19. Schreve, K., 2005, *Fitting B-splines with Draft Angle to Scanned Data*, In: Bártolo, P.J., editor, *Virtual Modeling and Rapid Manufacturing: Advanced Research in Virtual and Rapid Prototyping*, Proceedings of the 2nd International Conference on Advanced Research and Rapid Prototyping, 2005 Sept 28 – Oct 1, Leiria, Portugal, Taylor and Francis, London, pp. 269-275.
20. Dimitrov, D., Schreve, K., De Beer, N., 2004, *Advances in Three Dimensional Printing – State of the Art and Future Perspectives*, Proceedings from the 10th European Forum on Rapid Prototyping: Rapid Prototyping & Manufacturing, Paris, France, September 2004.
21. Dimitrov, D., Schreve, K. and Bartel, K., 2004, *Analysis of Current Reverse Engineering Practice and Possibilities for Improvements to the Process*, COMA'04 International Conference on Competitive Manufacturing, February 4-6, Stellenbosch, South Africa, pp. 131-136.
22. Dimitrov, D., Van Wijk, W., Schreve, K. and De Beer, N., 2003, *On the Achievable Accuracy of the Three Dimensional Printing Process for Rapid Prototyping*, International Conference on Advanced Research in Virtual and Rapid Prototyping, October 1-4, Leiria, Portugal, pp. 575-582.

23. Dimitrov, D., Van Wijk, W., Schreve, K. and De Beer, N., 2003, *An Investigation of the Capability Profile of the Three Dimensional Printing Process with an Emphasis on the Achievable Accuracy*, Annals of the CIRP, Vol. 52, No. 1, pp. 189-192.
24. Dimitrov, D. and Schreve, K., 2002, *Rapid Prototyping of a Differential Housing using 3D Printing Technology*, International Conference on Manufacturing Automation, 10-12 December 2002, Hong Kong, pp. 483-490.
25. Schreve, K. and Basson, A.H., 2000, *Edge Detection in Reverse Engineering Using a Virtual CMM*, Proceedings of DETC 2000, September 10-13, 2000, Baltimore, Maryland, USA, Paper No. DETC'00/DAC-14540.
26. Schreve, K., Schuster, H.R. and Basson, A.H., 1998, *Manufacturing Cost Estimation during Design of Fabricated Parts*, Presented at Design Engineering Conference '98, Burnel University, 28 - 25 June 1998, pp. 437-444.

#### **Other Papers:**

1. Schreve, K., Du Plessies, P.G. and Rättsch, M., 2017, *Localisation accuracy of semi-dense monocular SLAM*, Videometrics, Range Imaging, and Applications XIV, Proceeding of SPIE Vol 10332, Paper No 103320H, Munich, Germany, 26-27 June.
2. Henning, B. and Schreve, K., 2013, *Laser Based Stereovision Measurement of Aspherical Mirrors*, Test & Measurement Conference, Muldersdrift, South Africa, 6-9 October.
3. Dippenaar, D.J. and Schreve, K. 2009, *A Technical and Economical Evaluation of RP Technologies for Complex RTM Tooling*, RAPDASA 10<sup>th</sup> Annual International Conference on Competitive Tooling, East London, 4-6 November.
4. Van der Merwe, W. and Schreve, K., 2008, *Rapid 3D Measurement and Influences on Precision Using Digital Video Cameras*, PRASA'08, 27-27 November, Cape Town, South Africa, pp. 73-77.
5. Bögel, A., Queisser, S. and Schreve, K., 2006, *Investigating a Method to Digitize the Internal Geometry of 3D Objects*, RAPDASA 7th Annual International Conference on Competitive Tooling, Cape Town, 1-3 November.
6. Schreve, K., Dimitrov, D., Bester, A.G.J. and Deez, B., 2003, *Reverse Engineering – An Industrial View*, RAPDASA, November 4-6, Port Elizabeth, South Africa, pp. 26.
7. Dimitrov, D., Schreve, K. and Bradfield, E., 2002, *Accelerated Development of Plastic Components for Automotive Applications*, Plasmobile Conference, 22-23 October 2002, Johannesburg.
8. Dimitrov, D. and Schreve, K., 2002, *Rapid Prototyping & Manufacturing for Plastic Processing Applications Based on the 3D Printing Technology*, Composites Africa 2002, Johannesburg.
9. Dimitrov, D., Schreve, K. and Bradfield, E., 2002, *Product and Process Innovation by Means of Rapid Manufacturing*, RAPDASA 2002, Bloemfontein.



## Patents

Scheffer, C., Conradie, J.P., Zarrabi, A.D., Schreve, K., A method for positioning an instrument. Patent No. PCT/IB2010/000410, South Africa 2010.

## NRF Rating

C2

## Funding

- THIRP (Reverse Engineering) Co-investigator with Prof Dimitrov.
- THIRP (Surgical Robot) Amount: R35 000 (2007) R35 000 (2008).
- AMTS (Complex Composites Parts) Amount: ~R110 000 per annum for 3 years
- Subcommittee B Amount: ~R30 000 per annum from 2005 to 2007.
- NRF (3D Posture Measurement). Amount: R75 000 over two years (2008-2009) + 2 Masters Bursaries + 1 PhD bursary.
- NMISA Amount: R90 000 for bursaries
- THIRP (Dump Truck Load Calculation). Applied for R100 000 for 2009
- OSP Funding (Stellenbosch University): R900 000 (2010-2012)
- University Lab Fund: R180 000 (2010)
- NRF Incentive Funding: R14 000 (2010)
- NRF Incentive Funding: R20 000 (2011)
- NRF Incentive Funding: R20 000 (2012)
- South Africa – Egypt Science and Technology Research Cooperation: R214 000 (2013-2014)
- Bursary from Reutlingen University for sabbatical visit €4000 (2015)
- Bursary from Oppenheimer Trust for sabbatical visit R130 000 (2015)

## Student Supervision

Student	Degree	Year Started	Year Graduated	Title
Willie van der Merwe	Masters	2006	2008 (March)	Rapid 3D Measurement Using Digital Video Cameras
Dawie van den Heever	Masters	2006	2007 (Dec)	Development of a Neck Palpation Device for Telemedicine Environments
Peter-John Christiane	Masters	2007	2009 (March)	Development of a Minimally Invasive Robotic Surgical Manipulator
Ali Rugbani	Masters	2007	2009 (March)	Investigating the Influence of Fabrication Parameters on the Diameter and Mechanical Properties of Polysulfone Ultrafiltration Hollow-fibre Membranes
	PhD	2010	2014 (March)	The Design, Kinematics and Error Modelling of a Novel Micro-CMM Parallel Manipulator
JP Conradie	Masters (Co-	2006	2008 (Dec)	Fluoroscopy Based Needle-Positioning System for

	supervisor)			Percutaneous Nephrolithotomy Procedures
F Janse van Vuuren	Masters (Co-supervisor)	2008	2011 (March)	Design of a Hexapod Mount for a Radio Telescope
Pieter Greeff	Masters	2008	2010 (March)	A Study and Initial Development of a Laser Tracking System Utilizing Multilateration for Sub-Micron Measurement
Dawid Dippenaar	Masters	2008	2010 (March)	A Technical and Economical Evaluation of RP Technology for RTM Tooling
Yolandi Brink	PhD (Co-supervisor)	2008	2012 (Dec)	Sitting Posture: A Predictive Factor for Upper Quadrant Musculoskeletal Pain in Computing High School Students
Gareth van der Westhuizen	Masters	2009	2011 (March)	Design, Implementation & Analysis of a Low-Cost, Portable, Medical Measurement System through Computer Vision
Chris Vogt	Masters	2009	2011 (March)	An Experimental Cost Model for Composite Parts Using Vacuum Assisted Resin Transfer Moulding (VARTM)
Michael Burke	Masters (Co-supervisor)	2009	2010 (December)	Visual Servo Control for a Human-following Robot
Devon Swingbum	Masters (Co-supervisor)	2010	Discontinued	
Christo Worst	Masters (Co-supervisor)	2010	2012 (Dec)	Development of a Low Cost Secondary Slave Manipulator for a Minimally Invasive Robotic Surgical System
Wayne Swart	Masters (Co-supervisor)	2010	2011 (Dec)	Nystagmus and Eye Reflex Sensor
Bryan Garth-Davis	Masters (Co-supervisor)	2010	2012 (Dec)	A Needle Positioning System for Percutaneous Procedures
Sjan-Mari van Niekerk	PhD (Co-supervisor)	2010	2013 (March)	3D Measurement of Cervical and Thoracic Postural Dynamism in Sitting: A Pilot Study
Adriaan van Wyk	Masters	2011	Discontinued	
David Holtzhausen	Masters	2011	2013 (March)	Development of distributed control system for SSL soccer robots
Ingo von Petersdorf	Masters	2011	Discontinued	
Stephan Heunis	Masters (Co-supervisor)	2011	2012 (Dec)	A User Interface for a Seven Degree of Freedom Surgical Robot
Lorita Jacobs	Masters (Co-supervisor)	2011	2011	RoboCup Small Size League: Motor Control and Sensory Feedback
Ali Paramani	Masters	2012	Discontinued	
Gerro Prinsloo	Masters (Co-supervisor)	2012	2014 (Dec)	Automatic Positioner and Control System for a Motorized Parabolic Solar Reflector
Hugo Smit	Masters	2012	2014 (March)	RoboCup Small Size League: Active Ball Handling System
Jared Kretzmann	Masters (Co-supervisor)	2014	2016 (March)	Evaluating the Industrial Application of Non-destructive Inspection of Composites using Transient Thermography
X Zheng	Masters (Co-supervisor)	2014		An Error Propagation Model of a Heliostat
Emmanuel Bwembya	Masters	2015	2017 (March)	Numerical Analysis of Transient Infrared Thermography on Composite Materials with Practical Validation
Peter Labuschagne	Master	2017		Accuracy Improvement of a Coordinate Measurement Machine

## Collaboration

Prof Andrzej Keszy, Department of Mechanical Engineering, Technical University of Radom, Poland

Prof Karen Grimmer-Somers, Department of Physiotherapy, University of South Australia, Australia

Prof Gerhard Gruhler: Department of Mechatronic Engineering, Reutlingen University, Germany

Prof Dimitri Dimitrov: Department of Industrial Engineering, Stellenbosch University

Prof Ben Herbst: Department of Mathematics, Stellenbosch University

Prof Quinette Louw: Department of Physiotherapy, Stellenbosch University

Mr Oelof Kruger: National Metrology Institute of South Africa

Prof Matthias Rättsch: Reutlingen University, Germany

## **Journal Reviewer**

Computer-Aided Design (2006-present) – annual papers

R&D Journal (2006-present) - 4 papers total

Archives of Civil and Mechanical Engineering - 1 Paper

IEEE Sensors Journal – 1 Paper

Journal of Computers – 1 Paper

South African Journal of Industrial Engineering – 2 papers

International Journal of Rapid Manufacturing (IJRAPIDM) – 1 paper

Simulation Modelling Practice and Theory – 1 paper

Transactions on Mechatronics – 1 paper

## **Other Activities**

Chairman of the Editorial Committee for the 4<sup>th</sup> Robotics and Mechatronics Conference of South Africa, RobMech 2011, held from 23-25 November in Pretoria, South Africa.

Member of Technical Committee for Reliability of the International Federation for the Promotion of Mechanism and Machine Science.

Member of the International Programme Committee (IPC) for COMA'13, an international conference sponsored by CIRP.

## **Committees - Stellenbosch University**

Faculty Management Committee

Program Committee (Program management, ECSA accreditation)

Time Tables (classes)

Registration assistance to students repeating subjects.

ITM Management committee

Subject recognition of students from other programmes within Stellenbosch University and other institutes.

## **Professional Involvement**

Professional Engineer with the Engineering Council of South Africa (Registration Number 20130602) since October 2013.

Member of the South African Institute of Mechanical Engineers (SAIMEchE).

Editor: R & D Journal of the South African Institution of Mechanical Engineering.

Member of the South African Society for Engineering Education, Board Member.  
(until 2015)

SPIE Member (since 2015)

### **Prizes and Special Recognition**

Young Researcher of the Year (2008) in the Faculty of Engineering, Stellenbosch University.

Oppenheimer Trust Bursary (R60 000) for sabbatical research at Purdue University in 2009.

Oppenheimer Trust Bursary (R130 000) for sabbatical research at Reutlingen University in 2015.

### **Interests and Hobbies**

Bird Watching, Hiking, Running, Woodwork, Travelling

### **References**

Available on request