

Gerhard Venter

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Work Experience

*Department of Mechanical and Mechatronic Engineering, Stellenbosch University,
Stellenbosch, South Africa*

Jun 2008–Current	Professor
Jan 2008–Current	Head: Mechanics Division
Feb 2015–Jun 2016	Chairman: Department of Mechanical and Mechatronic Engineering
Jun 2011–Jun 2014	Chairman: Department of Mechanical and Mechatronic Engineering
Nov 2006–May 2008	Associate Professor

- Provide input to the strategic leadership, management and overall performance of the department. Chairman duties included the management of personnel, budgets, contracts, facilities and equipment. The chairman is also responsible for the teaching and research activities in the department as well as interaction with the faculty, the University, industry and the national and international academic community. The department has about 30 academic and 40 non-academic staff members and more than 700 undergraduate and 100 post-graduate students. It is the largest department in the engineering faculty at Stellenbosch University
- Teach at both the under-graduate and post-graduate levels
- Perform research in the areas of structural and multi-disciplinary design optimization as well as high performance computing and related technologies, e.g. design of experiments (DOE), meta-modelling and reliability based design optimization (RBDO)
- Perform industry sponsored research and consulting work, typically in the areas of structural analysis and structural and general-purpose design optimization
- Study leader for postgraduate students - mostly fully funded from industry funds
- Member of the executive committee of the Department of Mechanical and Mechatronic Engineering, previously a member of the management committee of the Institute for Thermodynamics and Mechanics, previously a member of the management committee of the Center for Renewable and Sustainable Energy Studies and member of the Bursary and Loans Committee
- Previous chairman of the high performance computing steering committee. Personally secured funding for a high performance computing facility, leading the effort to specify, select and purchase the machine
- Rated as an “Established researcher with a sustained recent record of productivity” by the South African National Research Foundation. The rating is based on a peer reviewed process consisting of both national and international researchers

Vanderplaats Research & Development, Inc., Colorado Springs, Colorado

Oct 2000–Oct 2006

VisualDOC Project Manager / Lead Developer

Oct 1998–Oct 2000

Senior Research & Development Engineer / Developer

- Provide leadership and overall direction for VisualDOC development. VisualDOC is a commercially available, general-purpose optimization software system, developed by a team of Ph.D. level optimization experts
- Software development responsibilities include: cross-platform graphical user interface (Java); database engine (C++); network licensing system (C/C++); interfaces to third party analysis programs (C/C++); porting to all non-Windows systems; implementing and maintaining a version control system; implementing and maintaining an automatic quality assurance program
- Provide expertise and guidance for implementing design optimization solutions to a wide range of customer specific problems, for example: rocket engine design, tuning numerical simulations to match experimental data; linear and non-linear structures; injection molding; computational fluid dynamics; pumping systems; electro-magnetic devices and more
- Manage externally funded research projects which among others include: hybrid vehicle control strategy optimization (funded by NREL); massively parallel optimization algorithms (funded by NASA); using optimization to solve large systems of linear equations (e.g., finite element models) in a parallel environment (funded by NASA)
- Research and implement new algorithms for inclusion in future versions of VisualDOC (e.g., genetic algorithms and particle swarm optimization)
- Design, implement and test high performance computing solutions using Virginia Tech and NASA Ames parallel computers
- Teach design optimization theory and VisualDOC specific training courses
- Supervise and mentor international graduate students performing internships
- Participate in proposal writing for research funding, including NASA and Air Force SBIR's
- Introduce prospective clients to VisualDOC and guide them through the evaluation process. This typically include the setup and solution of evaluation problems provided by the client
- Write VisualDOC documentation and provide general customer support

*Department of Aerospace Engineering, Mechanics and Engineering Science,
University of Florida, Gainesville, Florida*

May 1995–Aug 1998

Graduate Research Assistant

- Research the use of genetic algorithms for designing minimum weight composite laminate structures subject to uncertain loading conditions
- Research the use of response surface approximations and fuzzy set theory for designing minimum weight dropped-ply composite laminate structures with uncertain input parameters
- Use of dimensional analysis to identify intrinsic variables for structural design optimization problems
- Development of a new minimum-bias based statistical design of experiments

Ford Motor Co., Dearborn, Michigan

May 1996–Aug 1996

Summer Intern

- Use of response surface methodology for minimum weight design of automotive structures subject to fatigue life constraints

Teaching Experience

Fall, 2006	Graduate level optimization course for Denver University
Since Nov 2006	Under-graduate and post-graduate finite element course Post-graduate numerical design optimization course Under-graduate C programming course

Post-Graduate Students

Graduated	23 MSc(Research) students 3 PhD students
Current	7 MSc(Research) students 5 PhD students

Research Visits

2011	Visiting Researcher at NASA Langley Research Center (4 Months)
	<ul style="list-style-type: none"> • Investigated the use of proof test data in reliability based design optimization • Research resulted in a journal publication and a post-graduate student working in the same area

Education

May 1995–Aug 1998	Doctor of Philosophy, Engineering Mechanics	GPA 4.0/4.0
	University of Florida, Gainesville, FL “Non-Dimensional Response Surfaces for Structural Optimization with Uncertainty” Advisor: Dr. Raphael. T. Haftka	
Jan 1994–May 1995	Master of Science, Mechanical Engineering	GPA 4.0/4.0
	Virginia Polytechnic Institute & State University, Blacksburg, VA “Sensitivity Analysis with Respect to Elastic Boundary Conditions and Laser Spatial Variables within Experimental Spatial Dynamic Modeling” Advisor: Dr. Robert L. West	
Jan 1993–Dec 1993	Honours Degree,¹ Mechanical Engineering	CUM LAUDE
	University of Pretoria, Pretoria, South Africa	
Jan 1989–Dec 1992	Bachelors of Science, Mechanical Engineering	CUM LAUDE
	University of Pretoria, Pretoria, South Africa	

¹A honours degree consists of eight graduate courses.

Professional Activities

1998–Current	Frequent reviewer for several international journals and conferences
2000	Session co-chair at the 8 th AIAA/USAF/NASA/ISSMO Symposium on Multidisciplinary Analysis and Optimization, Long Beach, CA
2002	Session co-chair at the 43 rd AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference, Denver, CO
2003	Session co-chair at the 5 th World Congress of Structural and Multidisciplinary Optimization, Lido di Jesolo, Italy
2003	Invited as panel session member at the 5 th World Congress of Structural and Multidisciplinary Optimization, Lido di Jesolo, Italy
2004	Invited to present at the Japan Society for Computational Engineering and Science's International Colony of Workshops on Advances in Computational Mechanics, Tokyo, Japan
2008	Session co-chair at the 9 th International Conference on Computational Structures Technology, Athens, Greece
2008	Member of the International Scientific Committee, 2 nd International Conference on Applied Mechanics and Materials, Umhlanga Rocks, South Africa
2009	Member of the International Scientific Committee for the First African Conference on Computational Mechanics, Sun City, South Africa
2009	Session co-chair at the 50 th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference, Palm Springs, CA
2010	Member of the International Scientific Committee for the Second African Conference on Computational Mechanics, Cape Town, South Africa
2011	Session co-chair at the 52 th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference, Denver, CO
2012	Member of the South African National Research Foundation SARChI research chair assessment panel
2014	External examiner for Chinhoyi University of Technology (Zimbabwe) Mechatronics Program
2014	Member of the Academy of Science of South Africa (ASSAf) Peer Review Panel on Scholarly Books and Conference Proceedings (Architecture, Build environment and Engineering)
2014	Member of the Academy of Science of South Africa (ASSAf) Ad Hoc Committee Considering New and Renewal Applications form South African Journals for DHET Subsidy
2015	Chairman of the Academy of Science of South Africa (ASSAf) Peer Review Panel on Scholarly Books and Conference Proceedings (Architecture, Build environment and Engineering)
2016–2017	External examiner for the University of Mauritius (Republic of Mauritius)
2016–2017	Chairman of the Academy of Science of South Africa (ASSAf) Peer Review Panel for South African Journals (Architecture, Build environment and Engineering)

Professional Societies

1996–Current	Member of the American Institute of Aeronautics and Astronautics (AIAA). Currently at the Associate Fellow membership level
2000–Current	Member of the International Society for Structural and Multidisciplinary Optimization (ISSMO)
2001–2003	Member of the AIAA Young Members Technical Committee
2001–2003	Member of the AIAA Software Systems Technical Committee
2008–Current	Member of the South African Institution of Mechanical Engineering

Computer Skills

Operating Systems:	UNIX, Linux, Windows
Programming:	JAVA, C/C++, FORTRAN 77, Perl, Python, MATLAB, CVS, Subversion, MPI
Analysis:	Variety of Finite Element pre- and post-processors and analysis codes

- System administrator for University of Florida research group (Windows NT machines)
- System administrator at VR&D (Sun, SGI, HP, Linux, Mac OS X and Windows NT/2000/XP machines)

Academic Awards

1993	Rentmeesters Award for best honours student in the Faculty of Engineering, University of Pretoria
1996–1998	Award for Academic Achievement by an International Student, University of Florida
1996–1998	Award for Academic Achievement by an International Student, University of Florida
2014–2015	Rector's Award for General Performance

Publications and Presentations

Chapters in books and articles in refereed journals

- [1] J. Marais and G. Venter. Numerical Modelling of the Temperature Distribution in the Cross-Section of an Earthmover Tyre. *Applied Mathematical Modelling*, DOI: 10.1016/j.apm.2018.01.018, 2018.
- [2] M. P. Venter and G. Venter. Simple Implementation of Plain Woven Polypropylene Fabric. *Journal of Industrial Textiles*, 47(6):1097–1120, 2018.
- [3] G. Erfort, T. W. von Backström, and G. Venter. Numerical Optimisation of a Small-Scale Wind Turbine Through the use of Surrogate Modelling. *Journal of Energy in Southern Africa*, 28(3):79–91, 2017.
- [4] M. P. Venter and G. Venter. A Numerical Evaluation of Dunnage Bag Pressure Drop Subject to a Single Void Reduction Cycle. *R&D Journal of the South African Institute of Mechanical Engineering*, 33:42–48, 2017.
- [5] J. L. Cuperus and G. Venter. Numerical Simulation and Parameterisation of Rail-Wheel Contact. *Proceedings of the Institution of Mechanical Engineers, Part F: Journal of Rail and Rapid Transit*, 231:419–430, 2017.
- [6] J. D. Brandsen, S. J. Van der Spuy, and G. Venter. Prediction of Axial Compressor Blade Excitation by Using a Two-Way Staggered Fluid-Structure Interaction Model. *Proceedings of the Institution of Mechanical Engineers, Part G: Journal of Aerospace Engineering*, DOI: 10.1177/0954410017694056D, 2017.
- [7] C. J. Jekel, G. Venter, and M. P. Venter. Modeling PVC-Coated Polyester as a Hypoelastic Non-linear Orthotropic Material. *Composite Structures*, 161:51–64, 2017.
- [8] J. E. Kretzmann, G. Venter, and K. Schreve. Non-Destructive Testing with Transient Thermography on Composite Materials. *R&D Journal of the South African Institute of Mechanical Engineering*, 32:35–43, 2016.
- [9] C. J. Jekel, M. P. Venter, and G. Venter. Obtaining a Hyperelastic Non-Linear Orthotropic Material Model via Inverse Bubble Inflation Analysis. *Structural and Multidisciplinary Optimization*, 54:927–935, 2016.
- [10] J. N. Stander, G. Venter, and M. J. Kamper. High Fidelity Multidisciplinary Design Optimisation of an Electromagnetic Device. *Structural and Multidisciplinary Optimization*, 53:1113–1127, 2016.
- [11] W. Beyers, A. Zapke, and G. Venter. Improved Cover Type Header Box Design Procedure. *R&D Journal of the South African Institute of Mechanical Engineering*, 31:76–85, Dec 2015.
- [12] J. N. Stander, G. Venter, and M. J. Kamper. Structural Mass Reduction by Integrating Active Material in Direct Drive Generator Design. *Structural and Multidisciplinary Optimization*, 52(2):405–416, 2015.
- [13] E. C. Joubert, T. M. Harms, and G. Venter. Computational Simulation of the Turbulent Flow Around a Surface Mounted Rectangular Prism. *Journal of Wind Engineering and Industrial Aerodynamics*, 142:173–187, 2015.
- [14] J. N. Stander, M. J. Kamper, and G. Venter. Analytic Modelling and Optimization of Slip Synchronous Permanent Magnet Wind Turbine Generator Topologies. *Wind Energy*, 18(7):1221–1238, 2015.
- [15] B. de Lange and G. Venter. High-Accuracy Numerical Model of the Southern African Large Telescope Mirror Support Truss. *Optical Engineering*, 52(10):105102–105102, 2013.
- [16] M. P. Venter and G. Venter. Overview of the Development of a Numerical Model for an Inflatable Paper Dunnage Bag. *Packaging Technology and Science*, 25(8):467–483, Dec 2012.
- [17] J. N. Stander, G. Venter, and M. J. Kamper. Review of Direct-Drive Radial Flux Wind Turbine Generator Mechanical Design. *Wind Energy*, 15(3):459–472, 2012.

- [18] G. Venter and S. J. Scotti. Accounting for Proof Test Data in a Reliability Based Design Optimization Framework. *AIAA Journal*, 50(10):2159–2167, 2012.
- [19] G. Venter. *Encyclopedia of Aerospace Engineering*, chapter Review of Optimization Techniques, pages 5229–5238. John Wiley & Sons, 2010.
- [20] F. A. C. Viana, G. Venter, and V. Balabanov. An Algorithm for Fast Optimal Latin Hypercube Design of Experiments. *International Journal for Numerical Methods in Engineering*, 82(2):135–156, Apr 2010.
- [21] G. Venter and R. T. Haftka. Constrained particle swarm optimisation using a multi-objective formulation. *Structural and Multidisciplinary Optimization*, 40(1–6):65–76, Jan 2010.
- [22] G. Venter and G. N. Vanderplaats. Using a filter-based SQP algorithm in a parallel environment. *Journal of Aerospace Computing, Information, and Communication*, 6(12):635–648, Dec 2009.
- [23] G. Venter and J. Sobieszczanski-Sobieski. A Parallel Particle Swarm Optimization Algorithm Accelerated by Asynchronous Evaluations. *Journal of Aerospace Computing, Information, and Communication*, 3(3):123–137, Mar 2006.
- [24] J. Sobieszczanski-Sobieski and G. Venter. Imparting desired attributes in structural design by means of multi-objective optimization. *Structural and Multidisciplinary Optimization*, 29(6):432–444, Jun 2005.
- [25] X. Qu, G. Venter, and Haftka R. T. New Formulation of Minimum-Bias Central Composite Experimental Design and Gauss Quadrature. *Structural and Multidisciplinary Optimization*, 28(4):231–242, Oct 2004.
- [26] G. Venter and J. Sobieszczanski-Sobieski. Multidisciplinary Optimization of a Transport Aircraft Wing using Particle Swarm Optimization. *Structural and Multidisciplinary Optimization*, 26(1):121–131, Jan 2004.
- [27] G. Venter and J. Sobieszczanski-Sobieski. Particle Swarm Optimization. *AIAA Journal*, 41(8):1583–1589, Aug 2003.
- [28] G. Venter and R. T. Haftka. Two-Species Genetic Algorithm for Design under Worst Case Conditions (Invited Paper). *Evolutionary Optimization, An International Journal on the Internet*, 2(1):1–19, 2000.
- [29] G. Venter and R. T. Haftka. Using Response Surface Approximations in Fuzzy Set Based Design Optimization. *Structural Optimization*, 18(4):218–227, Dec 1999.
- [30] G. Venter, R. T. Haftka, and J. H. Starnes, Jr. Construction of Response Surfaces for Design Optimization. *AIAA Journal*, 36(12):2242–2250, Dec 1998.

Refereed conference proceeding papers

- [1] C. F. Jekel, R. T. Haftka, G. Venter, and M. P. Venter. Lack-of-fit Tests to Indicate Material Model Improvement or Experimental Data Noise Reduction. In *Proceedings of the 2018 AIAA Non-Deterministic Approaches Conference, AIAA SciTech Forum, Kissimmee, FL, AIAA 2018-1664* 8–12 Jan, 2018.
- [2] J. L. Cuperus and G. Venter. On the Convective Heat Transfer from Railway Wheels. In *Proceedings of the 11th International Heavy Haul Association Conference, Cape Town, South Africa*, 2–6 Sep 2017.
- [3] M.P. Venter and G. Venter. Numerical Replica of a Dunnage Bag Certification Test. In *Proceedings of the 10th South African Conference on Computational and Applied Mechanics, Potchefstroom, South Africa*, 3–5 Oct 2016.
- [4] B.M. Nickerson and G. Venter. Fatigue Analysis of Class 5M Railway Bogie. In *Proceedings of the 10th South African Conference on Computational and Applied Mechanics, Potchefstroom, South Africa*, 3–5 Oct, 2016.

- [5] S. Jivan, G. Venter, and S. J. Van der Spuy. Design and Evaluation of a Flutter-Suppression Control System for an Aircraft Wing. In *Proceedings of the 10th South African Conference on Computational and Applied Mechanics, Potchefstroom, South Africa*, 3–5 Oct, 2016.
- [6] D. Ellis, M.P. Venter, and G. Venter. Methodology for the Mechanical Characterisation of Uncoated Woven Polymer Textiles. In *Proceedings of the 10th South African Conference on Computational and Applied Mechanics, Potchefstroom, South Africa*, 3–5 Oct 2016.
- [7] J. Marais and G. Venter. Numerical Modelling and Validation of Heat Generation in Haul Truck Tyres. In *Proceedings of the 10th South African Conference on Computational and Applied Mechanics, Potchefstroom, South Africa*, 3–5 Oct, 2016.
- [8] S. Azankpo and G. Venter. Surface Accuracy and Pointing Error Prediction of a 32 m Class Radio Astronomy Telescope. In *Proceedings of the 10th South African Conference on Computational and Applied Mechanics, Potchefstroom, South Africa*, 3–5 Oct, 2016.
- [9] J. L. Cuperus, G. Venter, and D. C. Blaine. Finite Element Analysis of the Tread Quenching of Railway Wheels. In *Proceedings of the 10th South African Conference on Computational and Applied Mechanics, Potchefstroom, South Africa*, 3–5 Oct, 2016.
- [10] W. Beyers, G. Venter, and A. Zapke. Modelling the Structural Behaviour of a Round Nozzle to Flat Plate Interface in Pressure Vessels. In *Proceedings of the 10th South African Conference on Computational and Applied Mechanics, Potchefstroom, South Africa*, 3–5 Oct, 2016.
- [11] D. J. Ludick, M. P. Venter, D. B. Davidson, and G. Venter. A Multiphysics Analysis of Dish Reflector Antennas for Radio Astronomy Applications. In *10th European Conference on Antennas and Propagation (EuCAP)*, pages 1–4, 2016.
- [12] J. N. Stander, M. J. Kamper, and G. Venter. Novel Dual Rotor Permanent Magnet Machine Design. In *Accepted for the IEEE Energy Conversion Congress and Exposition, Milwaukee, WI*, 18–22 September 2016.
- [13] J. N. Stander, G. Venter, and M. J. Kamper. Multidisciplinary Optimisation of a Slip Synchronous PM Generator (SSPMG). In *Proceedings of the 12th German Wind Energy Conference (DEWEK), Bremen, Germany*, 19–20 May 2015.
- [14] J. N. Stander and G. Venter. The Development of Pressure Rigidised Blades: The Challenges. In *Proceedings of the 12th German Wind Energy Conference (DEWEK), Bremen, Germany*, 19–20 May 2015.
- [15] E. C. Joubert, T. M. Harms, and G. Venter. One Way FSI in a Vertical Cantilever Beam. In *Proceedings of the 9th South African Conference on Computational and Applied Mechanics, Somerset West, South Africa*, Jan 14–16 2014.
- [16] M. P. Venter and G. Venter. Modelling of an Inflatable Structure. In *Proceedings of the 3rd African Conference on Computational Mechanics, AfriCOMP, Livingstone, Zambia*, Jul 30 – Aug 2 2013.
- [17] J. N. Wise, G. Venter, M. Hubbert-Batton, and E. Touboul. Parameter Optimisation in Groundwater Using Proper Orthogonal Decomposition as a Reduced Modelling Technique. In *Proceedings of the 5th International Conference from Scientific Computing to Computational Engineering, Athens, Greece*, July 4–7 2012.
- [18] G. Venter and S. J. Scotti. Accounting for Proof Test Data in a Reliability Based Design Optimization Framework. In *Proceedings of the 53rd AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference, Honolulu, HI*, AIAA-2012-1364, Apr 23–26 2012.
- [19] J. Reinecke, T. W. Von Backström, and G. Venter. Effect of a Diffuser on the Performance of an Ocean Current Turbine. In *The 9th European Wave and Tidal Energy Conference Series*, 2011.
- [20] F. A. C. Viana, R. T. Haftka, R. Hamman, and G. Venter. Efficient Global Optimization with Experimental Data: Revisiting the Paper Helicopter Design. In *Proceedings of the 52nd AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference, Denver, CO*, AIAA-2011-2099, Apr 4 – 7 2011.

- [21] B. R. Potgieter and G. Venter. Experimental Modal Analysis and Model Validation of Antenna Structures. In *Proceedings of the International Conference on Industrial and Mechanical Engineering, Bali, Indonesia*, Nov 25 – 27 2009.
- [22] J. N. Wise and G. Venter. Optimization of a low-speed wind turbine using support vector regression. In *Submitted to the 8th World Congress of Structural and Multidisciplinary Optimization, Lisbon, Portugal*, June 1–5 2009.
- [23] G. Venter and G. N. Vanderplaats. Using a filter-based SQP algorithm in a parallel environment. In *Submitted to the 50th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference, Palm Springs, CA*, May 4 – 7 2009.
- [24] N. J. D. Joubert and G. Venter. Numerical design optimization for the KAT. In *Proceedings of the 9th International Conference on Computational Structures Technology, Athens, Greece*, Sep 2–5 2008.
- [25] G. Venter and R. T. Haftka. Constrained particle swarm optimisation using a multi-objective formulation. In *Proceedings of the 9th International Conference on Computational Structures Technology, Athens, Greece*, Sep 2–5 2008.
- [26] F. A. C. Viana, V. Balabanov, G. Venter, J. Garcelon, and V. Steffen Jr. Generating optimal latin hypercube designs in real time. In *Proceedings of the 7th World Congress on Structural and Multidisciplinary Optimization, Seoul, Korea*, May 21–25 2007.
- [27] F. A. C. Viana, V. Steffen Jr, G. Venter, and V. Balabanov. On how to implement an affordable optimal latin hypercube. In *Proceedings of the 19th International Congress of Mechanical Engineering: COBEM 2007, Brasilia, Brazil*, Nov 5–9 2007.
- [28] M. Sekishiro, G. Venter, and V. O. Balabanov. Combined Kriging and Gradient-Based Optimization Method. In *Proceedings of the 11th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference, Portsmouth, VA*, AIAA-2006-7091, Sep 6–8 2006.
- [29] G. Venter and J. Sobieszczanski-Sobieski. A Parallel Particle Swarm Optimization Algorithm Accelerated by Asynchronous Evaluations. In *Proceedings of the 6th World Congress of Structural and Multidisciplinary Optimization, Rio de Janeiro, Brazil*, May 30 – Jun 3 2005.
- [30] R. Hassan, B. Cohanin, O. de Weck, and G. Venter. A Comparison of Particle Swarm Optimization and the Genetic Algorithm. In *Proceedings of the 46th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference, Austin, TX*, AIAA-2005-1897, Apr 18 – 21 2005.
- [31] G. Venter and J. Sobieszczanski-Sobieski. A Particle Swarm Optimization Accelerated by Incomplete Evaluation. In *Book of Abstracts of the JSCES International Workshops on Advances in Computational Mechanics, Tokyo, Japan*, Nov 3 – 6 2004.
- [32] V. O. Balabanov and G. Venter. Multi-Fidelity Optimization with High-Fidelity Analysis and Low-Fidelity Gradients. In *Proceedings of the 10th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference, Albany, NY*, AIAA 2004–44459, Aug 30 – Sep 1 2004.
- [33] G. Venter, V. O. Balabanov, and G. Vanderplaats. What-If Post-Processing of General-Purpose Optimization Results Using VisualDOC. In *Proceedings of the 10th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference, Albany, NY*, AIAA 2004–4566, Aug 30 – Sep 1 2004.
- [34] V. O. Balabanov and G. Venter. Response Surface Optimization with Discrete Variables. In *Proceedings of the 45th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference, Palm Springs, CA*, AIAA 2004–1872, Apr 19 – 22 2004.
- [35] G. Venter, R. T. Haftka, and J. Sobieszczanski-Sobieski. Robust Design Using Particle Swarm and Genetic Algorithm Optimization. In *Proceedings of the 5th World Congress of Structural and Multidisciplinary Optimization, Lido di Jesolo, Italy*, May 19 – 23 2003.
- [36] X. Qu, R. T. Haftka, and G. Venter. New Formulation of a Minimum-Bias Experimental Design Based on a Gauss Quadrature. In *Proceedings of the 5th World Congress of Structural and Multidisciplinary Optimization, Lido di Jesolo, Italy*, May 19 – 23 2003.

- [37] V. O. Balabanov, R. Vitali, G. Venter, and J. Sobieszczanski-Sobieski. Use of Bayesian Analysis and Decision Theory to Improve Particle Swarm Optimization Performance. In *Proceedings of the 5th World Congress of Structural and Multidisciplinary Optimization, Lido di Jesolo, Italy*, May 19 – 23 2003.
- [38] J. Sobieszczanski-Sobieski and G. Venter. Imparting Desired Attributes by Optimization in Structural Design. In *Proceedings of the 44th AIAA SDM Conference, Norfolk, VA*, AIAA 2003-1546, Apr 7 – 10 2003.
- [39] V. O. Balabanov, C. Charpentier, D. K. Ghosh, G. Quinn, G. N. Vanderplaats, and G. Venter. VisualDOC: A Software System for General Purpose Integration and Design Optimization. In *Proceedings of the 9th AIAA/ISSMO Symposium on Multidisciplinary Analysis and Optimization, Atlanta, GA*, AIAA-2002-5513, Sep 6 – 8 2002.
- [40] G. Venter and J. Sobieszczanski-Sobieski. Multidisciplinary Optimization of a Transport Aircraft Wing using Particle Swarm Optimization. In *Proceedings of the 9th AIAA/ISSMO Symposium on Multidisciplinary Analysis and Optimization, Atlanta, GA*, AIAA 2002-5644, Sep 4 – 6 2002.
- [41] G. Venter and J. Sobieszczanski-Sobieski. Particle Swarm Optimization. In *Proceedings of the 43rd AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference, Denver, CO*, AIAA 2002-1235, Apr 22 – 25 2002.
- [42] D. K. Ghosh, J. H. Garcelon, V. O. Balabanov, G. Venter, and G. N. Vanderplaats. VisualDOC - a flexible design optimization software system. In *Proceedings of the 8th AIAA/USAF/NASA/ISSMO Symposium on Multidisciplinary Analysis and Optimization, Long Beach, CA*, AIAA 2000-4931, Sep 6 – 8 2000.
- [43] S. Candan, J. H. Garcelon, V. O. Balabanov, and G. Venter. Shape Optimization using ABAQUS and VisualDOC. In *Proceedings of the 8th AIAA/USAF/NASA/ISSMO Symposium on Multidisciplinary Analysis and Optimization, Long Beach, CA*, AIAA 2000-4769, Sep 6 – 8 2000.
- [44] G. Venter and B. Watson. Efficient Optimization Algorithms for Parallel Applications. In *Proceedings of the 8th AIAA/USAF/ NASA/ISSMO Symposium on Multidisciplinary Analysis and Optimization, Long Beach, CA*, AIAA 2000-4819, Sep 6 – 8 2000.
- [45] G. Venter, V. O. Balabanov, and J. H. Garcelon. Constructing High Quality Response Surface Approximations Using a Genetic Algorithm. In *4th EuroMech Solid Mechanics Conference (Oral Presentation), Metz, France*, pages 21-30, Jun 26 – 30 2000.
- [46] G. Venter and B. Watson. Exploiting Parallelism in General Purpose Optimization. In *Proceedings of the 6th International Conference on Applications of High Performance Computing in Engineering, Maui, HI*, pages 21-30, Jan 26 – 28 2000.
- [47] G. Venter and R. T. Haftka. Two Species Genetic Algorithms for Design under Worst Case Conditions. In *Proceedings of the 3rd World Congress of Structural and Multidisciplinary Optimization, Buffalo, NY*, May 17 – 21 1999.
- [48] G. Venter and R. T. Haftka. Response Surface Approximations for Designing Dropped-Ply Composite Laminates. In *Proceedings of the 7th AIAA/NASA/ISSMO Symposium on Multidisciplinary Analysis and Optimization, St. Louis, MO*, pages 1145-1163, AIAA 98-4856, Sep 2 – 4 1998.
- [49] G. Venter and R. T. Haftka. Response Surface Approximations for Designing Dropped-Ply Composite Laminates with Uncertainty. In *Proceedings of the 13th US National Congress of Applied Mechanics Proceedings, University of Florida, Gainesville, FL*, Jun 21 – 26 1998.
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