

# GARETH ERFORT

## PERSONAL INFORMATION

*DOB* Born in South Africa, 02 May 1984  
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## WORK EXPERIENCE

*SUN* 2016- Present Lecturer, STELLENBOSCH UNIVERSITY  
Lecturing at the University of Stellenbosch, in the mechanical and mechatronic department. Work includes supervision of final year projects and course content development. Provide a post graduate course in wind energy systems.

*Harambee* 2015 Maths tutor, HARAMBEE  
Contracted as a tutor for the youth development company Harambee. I taught maths to matriculated young adults who need to up skill their mathematics in order to secure entry level jobs at various retailers.

*DEME* 2011-2013 Project Engineer/ Superintendent, DEME  
Co-ordinate operations between sand fill and vessel, draw up crew planning and organise transport. Over see work planning, schedule maintenance. Ensure crew are trained and arrange training if required, handle ship administration. Over see equipment activities and perform safety officer functions

*CSIR* 2007-2011 Engineer, CSIR — Stellenbosch  
Junior engineer while completing Msc. Mechanical engineer in group projects, writing up specifications, field measurements and site visits. Project Manager for evaluation projects, develop planning, costing and related documents.

## EDUCATION

*Bachelor of Electro-Mechanical Engineering* 2002-2006 The University of Cape Town, South Africa  
Description: This degree was based in the Mechanical Engineering department with additional focus on robotics, programming and control systems. Final year project was the building of a 3 wheeled omnidirectional soccer robot. Utilising custom written code, and self manufactured omnidirectional wheels.

*Masters of Engineering* 2007-2009 The University of Cape Town, South Africa  
Thesis: *Investigation Into the Electromagnetic Field Generated by Explosions*  
Description: This thesis looked at the characteristics of the electromagnetic radiation generated during the detonation and tried to relate it to the size and location of the explosive.  
Research: Development of electromagnetic sensing equipment (sensors, filters and data analysis) that could detect radiation at low levels in a narrow bandwidth. Design and development of a momentum measuring rig, using photo diodes, custom PCB boards and trigger mechanisms, for use in the blast chamber. The research carried out in this time was very much instrumentation based.  
Advisors: Prof. GERALD NURICK & Assoc. Prof. ANDREW WILKINSON

2014-Present      The University of Stellenbosch, South Africa

*Doctor of  
Philosophy in  
Mechanical  
Engineering*

Description: Aerodynamic optimization of vertical axis wind turbines, through computational fluid dynamics.

Research: I am focused on CFD implemented in open source software. In particular single phase flow, dynamic meshing and turbulence modelling. The work also involves Meta modelling development for integration into optimisation algorithms. The study revolves around the aerodynamics of wind turbines in an effort to develop novel morphing foils, to be used in the energy industry,

Advisors: Prof. THEODORE VAN BACKSTRÖM & Prof. GERHARD VENTER

#### RESEARCH INTERESTS

I am interested in the field of robotics, both design and use, CFD, Opensource software development and control systems. The combination of these interests has led me to robotics in the field of biomimcry. My current work looks at the control of the lift and drag curves of a foil through the manipulation of the foil surface. Actuation of this surface is the final goal and my attention is on the use of electromagnetic field manipulation.

#### PUBLICATIONS

Numerical optimisation of a small-scale wind turbine through the use of surrogate modelling,  
*J. energy South. Afr. vol.28 n.3 Cape Town Aug. 2017*

#### SKILLS

<i>Basic</i>	C++
<i>Intermediate</i>	PYTHON, MATLAB, OpenFoam, AutoCAD, Pro E, Solid works, Mercurial
<i>Advanced</i>	L <sup>A</sup> T <sub>E</sub> X, OpenOffice, Linux, Microsoft Windows, Microsoft Office,

#### OTHER INFORMATION

<i>Affiliations</i>	2016 · SAIMECHE member 2014 · ECSA Professional Engineer
<i>Additional Training</i>	2012 · TUV Slings and Rigging 2011 · STCW 95 2010 · Project Management 1
<i>Languages</i>	ENGLISH · Mothertongue AFRIKAANS Intermediate (conversationally fluent) GERMAN · Basic (simple words and phrases only)
<i>References</i>	INUS GROBLER +27 (21) 888 2400 · <a href="mailto:igrobler@csir.co.za">igrobler@csir.co.za</a> PROF. GERALD NURICK +27 (021) 650 3234 · <a href="mailto:gerald.nurick@uct.ac.za">gerald.nurick@uct.ac.za</a>

June 4, 2018