

## 1. PERSONAL DETAILS

Name Gerhard  
Surname Durandt  
Date and place of birth 11 November 1994, Johannesburg, South Africa  
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## 2. EDUCATION

### 2.1. Secondary Education

2013 **National Senior Certificate (IEB) - Helpmekaar Kollege**  
Location: Johannesburg, Gauteng

### 2.2. Tertiary Education

2022 **PhD candidate (pending proposal approval) - Stellenbosch University**  
Part time registration (2022 – present) | Supervisor: Prof. A. Bekker

Proposed dissertation title: *Fatigue Life Estimation of the SA Agulhas II's Hull Structure with Virtual Measurement and Hybrid Modelling.*

2020 **M.Eng (Research) Mechanical Engineering - Stellenbosch University**  
Part time registration (2018-2020) | Supervisor: Prof. A. Bekker

Thesis title: *Data-driven Regression Models for Voyage Cost Optimisation Based on the Operating Conditions of the SA Agulhas II*

A master's degree in mechanical engineering was completed on a part time and off-campus bases while working full time in the private sector. The scope of the project was to develop a data-driven model of the performance characteristics of the SA Agulhas II, a South African owned polar supply and research vessel. Models were developed using machine learning methods which were able to predict to power demand for various operating conditions. This allowed for an optimisation exercise to find optimum operational settings to reduce running costs while at sea. The research depended on exclusive access to the SAII where data was captured during annual relief voyages to Antarctica.

2017 **B.Eng (Mechatronic Engineering) - Stellenbosch University**  
Full time registration (2014-2017)

## 3. PROFESSIONAL EXPERIENCE

### 3.1. Employment History

2023 - present **Junior Lecturer (Part time) | PhD Candidate – Stellenbosch University**  
Location: Stellenbosch, Western Cape.

2020-2023 **Technical Manager: Fluid Technology – Bearing Man Group (Pty) Ltd**  
Location: Johannesburg, Gauteng.

2018-2020 **Hydraulic Project Engineer – Bearing Man Group (Pty) Ltd**  
Location: Johannesburg, Gauteng.

2018      **Hydraulic Project Engineer – Hyflo Southern Africa (Pty) Ltd**  
Location: Johannesburg, Gauteng.

2015      **Classroom Tutor – Stellenbosch University**  
(Jan-Nov) Location: Stellenbosch, Western Cape.

## **4. RESEARCH EXPERIENCE**

### **4.1. Research Interests**

An interest in mathematics and physics can be attributed as the primary motivation to pursue a professional and academic career in the field of engineering. The combination of mechanical and electrical systems, i.e., mechatronics, has laid the foundation for my interests in the modelling and control of dynamic systems. In addition, my professional experience on the design and control of hydraulically driven machinery has cultivated practical competency in fluid mechanics and fluid machines. My main research interests would thus be to innovate in the field of fluid dynamics, control theory and modelling (complimented by machine learning) to achieve practical solutions to a variety of problems in industry.

### **4.2. Research Expeditions**

2017-      SANAE 57 relief expedition (Dec 2017 – Feb 2018)  
2018      Participated in the 57<sup>th</sup> South African National Antarctic Expedition on the SA Agulhas II as part of a research team from Stellenbosch University.

### **4.3. Conference Proceedings**

2018      5<sup>th</sup> South African National Antarctic Programme (SANAP) Symposium, Cape Peninsula University of Technology (CPUT) and the South African National Space Agency (SANSA), Hermanus, South Africa.  
Presentation title: *Exploring the possibilities towards automated data acquisition, monitoring and decision aiding technology*

### **4.3. Awards**

2017      PRASA research chair award for the best railway related final year project in the Department of Mechanical and Mechatronic Engineering, Stellenbosch University.