

## **TERTIARY EDUCATION**

### **UNDERGRADUATE**

**University of Cape Town.**

**Bachelor of science in Mechatronic Engineering.**

**Graduated 2013**

**Successfully Completed in 4 years.**

**Related Course Work:** Control Theory, Circuit Design, Power Electronics and Machines, Digital Electronics, Energy Utilization, Dynamics, Professional Communication, Project Management, Social Infrastructures, Industrial Ecology, Industrial Law, Robotic Design, Fuzzy Logic, New Venture Planning, Applied Mathematics.

**Honors Thesis:** Force measurement instrumentation design for hexapod robot

### **POSTGRADUATE**

**University of Stellenbosch - Electronic Systems Laboratory**

**Masters of science in Electrical and Electronic Engineering.**

**In Process**

**Supervisor:** Mr. Johann Treurnicht

**Topic:** Development of a Close Quarter Intrinsically Safe Aerial Robot (CISAR)

## **LANGUAGES**

English - Native Language.

Afrikaans - Speak, read and write with competence.

## **AWARDS**

**Pretoria Boys High School Prefect**

**2009**

**Undergraduate CSIR Bursary.**

**2010 - 2013**

**CSIR Internal Funding Competition.**

**2014**

## **TECHNICAL SKILLS**

### **Electrical**

**Extensive and Detailed Soldering.**

**Schematic and PCB design of electric circuits.**

**Altium Designer.**

### **Mechanical**

**Basic Mechanical Design.**

**Basic Solidworks.**

### **Software**

**Arduino Coding.**

**C and Basic C++**

**LabVIEW**

## **PUBLICATIONS**

*2015 Pattern Recognition Association of South Africa and Robotics and Mechatronics International Conference (PRASA-RobMech) ~ Review of Standard Rotor Configurations for a Micro Unmanned Aerial System.*

**EXPERIENCE****Occupational****CSIR - Materials, Sciences and Manufacturing ~ Mechatronics and Micro-Manufacturing.*****Vacation Work Student.*****2010 - 2013**

During university holiday each year (June-July, December-January), would assist senior engineers with updating component libraries, extensive soldering and simple schematic and PCB design.

**CSIR - Materials, Sciences and Manufacturing ~ Mechatronics and Micro-Manufacturing.*****Full time employee.******Design Engineer.*****2014 - Present**

Assisted and trained the technical staff members and interns. Put in charge of the lab ordering and created a stock system for the components in the lab. Mill out printed circuit boards for our unit as well as created a user manual to teach the interns how to use the machine. Involved in various projects where the need became apparent, described below.

**Project Involvement**

<b>Project Name</b>	<b>Contribution</b>	<b>Year</b>
Smart Systems	PCB design of the ActiveGate. Assembled and tested the original devices. Helped develop a manufacturing process for the ActivePlugs and ActiveDins and assisted an intern with technical advice regarding the troubleshooting of the devices. Designed the schematics, PCBs and software for the ActiveSense device, which is still in the development stage.	2014/2015
Umbiflow	No involvement in design of the system. Assisted with testing and troubleshooting the final circuits.	2014
Cellnostics	Designed and built two test rigs to help with the testing and proving of new concepts.	2014/2015
Prosthetics	Was responsible for redesigning and refining the software as well as implemented a pressure sensor into the system.	2014/2015
Maths Mat	Co-Developer of the product. Designed the user interface and handled the wireless communications of the devices. Also handled the hardware development.	2014/2015
Digital White Cane	Lead Developer of the device. Developed the electrical systems, algorithms and the software. Was involved in approaching and obtaining clients as well as the initial proposals.	2014
Nano Sensor	Technical Assistance, troubleshooting and component design.	2014
Continuous Positive Air Pressure (CPAP)	Technical Assistance, troubleshooting and manufacturing.	2014
Safety and Security	Developed a high energy power management system including circuit boards and software. As well as developed a high powered flash circuit.	2015

**REFERENCES:**

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| 1. <b>Robyn Verrinder</b><br>Lecturer/Supervisor<br>UCT<br>Rondebosch<br>Cape Town, 7701<br>robyn.verrinder@uct.ac.za                    | Relationship: Lecturer and thesis supervisor at UCT from 2010-2013.                             |
| 2. <b>Peter Bosscha</b><br>Senior Design Engineer<br>CSIR<br>Beyers Naude Drive<br>Pretoria, 0081<br>012 841 3090<br>PBosscha@csir.co.za | Relationship: Research Group Leader at CSIR from 2010 - Present.                                |
| 3. <b>Dawid Oosthuizen</b><br>Design Engineer<br>CSIR<br>Beyers Naude Drive<br>Pretoria, 0081<br>012 841 2622<br>DOosthuizen@csir.co.za  | Relationship: Mentor and Senior Engineer at CSIR from 2012-Present.                             |
| 4. <b>Johann Treurnicht</b><br>Senior Lecturer<br>University of Stellenbosch<br>Stellenbosch, 7600<br>021 808 4409<br>JTreurn@sun.ac.za  | Relationship: Master's Research Supervisor at The University of Stellenbosch from 2015-Present. |