



Malcolm M. Sande

PhD

R&D Technical Consultant

Academic Qualifications

2019–2022 — PhD Electronic Engineering,
University of Pretoria
Thesis Topic: *Resource Management and Backhaul Routing in Millimeter-Wave IAB Networks using Deep Reinforcement Learning*

2016–2018 — MEng. Electronic Engineering,
with distinction, University of Pretoria
Research Topic: *Fast Converging Robust Beamforming for Downlink Massive MIMO Systems in Heterogeneous Networks*

2014–2016 — BEng. Honours Electronic Engineering,
with distinction,
University of Pretoria

2010–2013 — BEng. Electronic Engineering,
University of Pretoria

Memberships (Professional)

Engineering Council of South Africa (ECSA),
Candidate Engineer

Institute of Electrical and Electronic Engineers (IEEE),
ComSoc Member

Experience

Malcolm is a academic and a part-time industry consultant in Electronic Engineering. Throughout his postgraduate studies, Malcolm has specialized in the research area of telecommunications and signal processing, particularly next-generation wireless networks. At the Independent Institute of Education (IIE), he is a Head of Programme and Senior Lecturer in Electrical and Electronic Engineering.

From the research work that he has carried out under the University of Pretoria and the IIE, Malcolm has published about 10 peer-reviewed journal articles and conference papers. Malcolm's teaching and research work is complemented with cutting-edge technology industry consulting.

He adds significant value to our clients in the electrical engineering, telecoms and manufacturing sectors and wider sectors where a clients project involves electrical engineering.

Industry Experience

With the University of Pretoria, he worked on a rural broadband project from 2015 to 2017, which aimed to provide internet access to rural/remote areas using long-range Wi-Fi technology. In 2018/19, he developed a free open-source software migration methodology for SMEs. He has also done consulting work on using artificial intelligence for business optimization and growth for an SME incubation company.

Expertise

Advanced

- Signal Processing and Telecommunications
- Digital systems design
- Wireless networks and RF hardware
- Machine learning theory and applications

Intermediate

- Analogue electronics
- Control systems and automation
- Embedded systems

Awards

2012

- SABS Academic Award

2010–2011

- Dean's Merit List Award

2010–2013

- Golden Key Award

Programming Skills

Advanced

- MATLAB

Intermediate

- Very-high-speed integrated circuits Hardware Description Language (VHDL)
- Linux Networking

Basic

- Python
- C++
- Assembly language