

# Samuel Mbiya

Phone: +27 68 259 9616 | Mail: [samuelkmbiya@gmail.com](mailto:samuelkmbiya@gmail.com) | [Linkedin](#) | [Github](#) | [Website](#)

## PROFILE

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- Working as a junior engineer, in the Digital Electronic Warfare research group at the Council for Scientific and Industrial Research (CSIR), on exciting problems in Electronic Support Measures (ESM) and Electronic Intelligence (ELINT)
- Graduated with a Bachelor's degree in Electrical and Computer Engineering from the University of Cape Town.
- Interested in research and development (R&D) work in Embedded Systems, Artificial Intelligence, Radar, Electronic Defence, and Sensor and Data Fusion.
- Passionate about engineering, research and entrepreneurship.
- Willing to relocate

## SKILLS

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### Personal:

Self-motivation, Problem-solving and resourcefulness, Teamwork, Leadership, Communication, Fast-learner

### Technical:

Programming Languages - Python, Matlab, Java, Julia, C/C++, Verilog

Software development tools - Git, Github, VS Code, Jupyter Lab/Notebook, Linux CLI

Electronics - Soldering, Breadboard prototyping, Circuit design (with LTSpice), Microcontroller programming

### Spoken Languages:

English (Fluent), French (Professional working proficiency)

## EDUCATION

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### BScEng in Electrical and Computer Engineering

Feb. 2018 – Dec. 2022

*University of Cape Town*

*Cape Town, South Africa*

- Focus areas of coursework: Embedded Systems, Signal Processing, Computer Science, Electronics, Engineering design

### Self-Driving Cars Specialisation

Aug. 2022 – present

*University of Toronto*

*Online/Coursera*

- This is an ongoing course that I've enrolled in due to my interest in autonomous vehicles. The course is helping me develop skills and knowledge in Autonomous vehicle technology. The course covers an Introduction to Self-Driving Cars, State Estimation and Localisation for Self-Driving Cars, Visual Perception and Motion Planning

## PROFESSIONAL REGISTRATION

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### Candidate Engineer

May 2023 – present

*Engineering Council of South Africa (ECSA)*

*South Africa*

## WORK EXPERIENCE

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### Junior Signal Analyst

Jul. 2023 – present

*Council for Scientific and Industrial Research (CSIR)*

*Pretoria, South Africa*

- Working on Electronic Warfare Support Measures (ESM) research and software development (Matlab) in the Digital Electronic Warfare Research Group at the CSIR.

### Graduate (Signal Analyst) in Training

Nov. 2022 – Jul. 2023

*Council for Scientific and Industrial Research (CSIR)*

*Pretoria, South Africa*

- Working on Electronic Warfare Support Measures (ESM) research and software development (Matlab) in the Digital Electronic Warfare Research Group at the CSIR.

### Tutor: Electrical Engineering Design Principles (EEE3088F)

Feb. 2022 – Nov. 2022

*University of Cape Town - Department of Electrical Engineering*

*Cape Town, South Africa*

- Involved marking tests, assignments and project submissions
- Involved mentoring 4 teams throughout their course project, which involved designing and fabricating an environment sensing expansion board (HAT) for the STM32 discovery board.

- Students were exposed to circuit board design using KiCAD 6.0 and collaborative tools for version control and documentation such as Git and Github

## Vacation work student

Nov. 2021 – Feb. 2022

*Council for Scientific and Industrial Research (CSIR)*

*Pretoria, South Africa*

- Worked in the Defense and Security Unit: Digital Electronic Warfare Research Group
- Involved benchmarking the performance of deep learning models for a classification problem in Electronic Warfare Support Measures (ESM), using Python (together with TensorFlow and PyTorch) and Julia (together with MLJFLux and Flux)
- Gained practical experience in applied Machine Learning (Deep Learning)

## Vacation work student

July 2021

*Council for Scientific and Industrial Research (CSIR)*

*Pretoria, South Africa*

- Worked in the Defense and Security Unit: Digital Electronic Warfare Research Group
- Involved an investigation on the use of deep learning models for a classification problem in Electronic Warfare Support Measures (ESM), using Julia and Julia ML packages (MLJFLux and Flux)
- Gained practical experience in applied Machine Learning (Deep Learning)

## Vacation work student

Dec. 2019

*Council for Scientific and Industrial Research (CSIR)*

*Pretoria, South Africa*

- Worked in the Defense and Security Unit: Digital Electronic Warfare Research Group
- Involved writing a script using Python and OpenCV for the segmentation and extraction of spectrogram images
- Gained practical experience and was exposed to concepts in Radar, Electronic Warfare and Computer Vision

## Vacation work student

Jun. 2019 – Jul. 2019

*Council for Scientific and Industrial Research (CSIR)*

*Pretoria, South Africa*

- Worked in the Next Gen. Enterprises and Institutions Unit
- Involved working in a team on the design and development of workplace peer review web application using a modern web development stack and collaboration tools, such as ReactJS, SQL, Github and Trello
- Exposed to web development and agile software development; performed the role of scrum master, facilitating weekly stand-up meetings

## VOLUNTEER EXPERIENCE

### Faculty Mentor

Mar. 2021 – Dec. 2021

*University of Cape Town - Department of Electrical Engineering*

*Cape Town, South Africa*

- Part of the Dept. of Electrical Engineering First Years Mentorship Team
- Involved providing mentorship to a group of 3 first year Electrical Engineering students, through advice and resources to enable them to successfully navigate through their first year of engineering studies at university

### Technical Mentor

Oct. 2020 – Oct. 2021

*Google Developers Student Club UCT*

*Cape Town, South Africa*

- Ideation and planning of hackathons, together with the Core DSC-UCT Committee
- Providing technical support for DSC-UCT hosted hackathons
- Facilitated a progress report session, during the 2021 DSC-UCTxYOCO Hackathon

### Residence Mentor

Oct. 2018 – Oct. 2019

*University of Cape Town - Leo Marquard Hall*

*Cape Town, South Africa*

- Part of the 2019 Leo Marquard Hall Mentorship Team
- Helped incoming first year students, through advice and guidance to enable them to easily navigate through their first year of university

### Logistics Coordinator

Oct. 2018 – May 2019

*TeachOut*

*Cape Town, South Africa*

- Communicated with teachers and educators to set up tutoring sessions at different schools and youth centres
- Organised transport for tutors to go to tutoring sessions

### Tutor

Aug. 2018 – Oct. 2018

*TeachOut*

*Cape Town, South Africa*

- Tutored highschool learners, Maths and Science, in less privileged learning centres and schools in and around Philippi community in Cape Town, South Africa