

# Tony Mogoao Ombaso

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## Personal Profile

I aspire to be a leading research scientist and lecturer in computer science, making an impact in Africa through scientific research in Artificial Intelligence.

## Education

### University of Pretoria

Pretoria, South Africa

BScHons Computer Science

Feb 2025 - Present

- Coursework: Computer Science Education; Scientific Research; Artificial Intelligence I and II; Formal Aspects of Computing (Model Checking), Natural Language Processing, Image Processing.

### Strathmore University

Nairobi, Kenya

BSc in Informatics and Computer Science

July 2019 - July 2023

- First Class Honours, Grade: A (84.14)
- Graduated top of the class, the best student in the School of Engineering and Computing Sciences.
- Coursework: Web Application Programming; API development; Scientific Research; Artificial Intelligence; Machine Learning; Data Structures and Algorithms; Software Engineering; Databases; Cryptography and CyberSecurity

## Work Experience

### Strathmore University @iLabAfrica

Nairobi, Kenya

Junior Software Developer

Jan 2023 - Jan 2025

- Collaborating with a four-person team in the development of the Public Procurement Information Portal (PIIP). A portal, mandated by law and used country-wide for the accountability of the use of public funds.
- Migrated data from the old PIIP portal to the new enhanced one.
- Implemented the Open Contracting Data Standard (OCDS) on the PIIP portal to comply with international standards.
- Deployed the PIIP portal on a production environment.
- **Technical Skills:** Laravel (PHP), Vue.js (JavaScript), Cypress, MySQL, Docker, Test Driven Development, Linux, Git, GitLab

## Research Experience

### Honours Research Project (mark: 94/100)

Pretoria, South Africa

University of Pretoria

Feb 2025 - November 2025

- Research report titled: A Python Library for Explainable Problem Landscape Analysis.
- Developed a Python library for Explainable Landscape Analysis (xLA) comprising 17 xLA features.
- Showed that the developed library is effective for xLA.
- **Technical Skills:** PyTorch, Google Colab, Python

### Natural Language Processing module

Pretoria, South Africa

University of Pretoria

Feb 2025 - June 2025

- Semester research report titled: Meta-learning for Semantic Relatedness: A Comparative Study of Meta-Learning and Transfer Learning for Semantic Relatedness Tasks in African Languages using the SemRel2024 Dataset.
- Aim: determine whether meta-learning (model-agnostic meta-learning) could outperform transfer learning in low-resourced African languages STR tasks.
- Showed that transfer learning outperformed the meta-learning approach.
- **Technical Skills:** PyTorch, Google Colab, Python

### Undergraduate Final Research Project (mark: 81.94)

Nairobi, Kenya

Strathmore University

Apr 2022 - Dec 2022

- Developed a deep learning model for segmentation and classification of melanoma skin cancer lesions.
- Carried out a comparative study of fine-tuning 6 neural network architectures: ResNet34, ResNet50, ResNet152, InceptionV3, VisionTransformer, and EfficientNet-B7.
- Trained on an ensemble dataset of 5 different medical image datasets: MED-NODE, PAD-UFES-20, 7-point, DermIS, and DermQuest.
- Developed mobile app for taking and uploading photos of skin lesions to a RESTful API for inference.
- Sep 2024: Recognised as a 2024 Highly Commended Entrant and subsequently as the 2024 Africa and the Middle East Regional Winner by the Global Undergraduate Awards.
- Published on The Global Undergraduate Award Library (HERE)
- **Technical Skills:** PyTorch, Flask, SQLite, React Native, Google Colab, Python, Talend

## Skills

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<b>Programming</b>	Systems Programming: Laravel, MySQL, Vue.js, React.js, Typescript, Git, Docker, Test Driven Development, Linux
<b>Artificial Intelligence</b>	Python, PyTorch, Deep Learning, Jupyter Notebook
<b>Scientific Research</b>	$\LaTeX$ , Research Writing
<b>Miscellaneous</b>	UI/UX Design, Poster Design

## Achievements

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2025	<b>MasterCard Foundation Scholarship</b> , For Honours and Msc	University of Pretoria
2024	<b>Global Undergraduate Awards Regional Winner</b> , Africa & Middle East of the Computer Science Category	Dublin, Ireland
2024	<b>Global Undergraduate Awards Highly Commended</b> , in the Computer Science Category	Dublin, Ireland
2023	<b>Academic Award</b> , Best undergraduate in the School of Computing and Engineering Sciences.	Strathmore University
2022	<b>Ideas Festival Winner</b> , Won 1st prize in an innovation competition	Strathmore University
2021	<b>Dean's List Award</b> , Best student overall in my 3rd year of undergraduate.	Strathmore University
2020	<b>Dean's List Award</b> , Best student overall in my 2nd year of undergraduate.	Strathmore University
2019	<b>Dean's List Award</b> , Best student overall in my 1st year of undergraduate.	Strathmore University