

# GABRIEL SHODERU

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Mastercard Foundation Scholar and MSc Candidate in Computer Science with a strong foundation in software engineering, cybersecurity, and applied machine learning. My work focuses on building and understanding intelligent systems that operate under uncertainty, particularly in security and data-intensive environments. I have experience spanning research, teaching, and production systems, and I thrive in unstructured settings that demand rapid learning, experimentation, and independent problem-solving.

## RESEARCH EXPERIENCE

### MSc Research – Digital Forensic Readiness for Insider Threat Detection in Cloud

#### Environments

University of Pretoria

- Designed and implemented a machine learning pipeline for detecting anomalous insider behaviour using behavioural and temporal features derived from a well-established synthetic insider threat dataset designed to model real-world organisational behaviour.
- Performed feature engineering and statistical analysis on large-scale user activity logs, translating raw events into structured representations suitable for anomaly detection.
- Evaluated unsupervised and semi-supervised learning approaches under limited-label conditions, with a focus on model behaviour, assumptions, and failure modes.
- Built a functional research prototype demonstrating the end-to-end workflow from data ingestion to model evaluation; core ML components are fully implemented and tested.
- Open-source prototype and machine learning implementation available on GitHub.
- Journal article accepted pending final revisions. Additional manuscript currently under peer review.

### Honours Research – A Privacy-Compliant Process for Digital Forensics Readiness

University of Pretoria | Proceedings of the ICCWS 2024

- Proposed the BlockTrace model extending ISO/IEC 27043 with explicit privacy-preserving mechanisms.
- Designed the Privacy Initialization Process (PIP) and Privacy Check Process (PCP) for controlled access to digital evidence.
- Integrated cryptographic and blockchain concepts to ensure confidentiality, integrity, and accountability.

## TECHNICAL EXPERIENCE

### SOFTWARE DEVELOPER INTERN

Consnet | August 2024 – February 2025

- Developed and maintained Magento-based e-commerce solutions, including custom modules involving database schema design and repository-based data access.
- Managed Docker-based development environments (WSL, Warden) and contributed to a major Magento upgrade (2.4.2-p1 - 2.4.7-p2).
- Worked within structured Git workflows, participated in code reviews, and adhered to clean code and Magento best practices.

## TEACHING & ACADEMIC SUPPORT

### TEACHING ASSISTANT

University of Pretoria | 2022 - July 2023

- Assisted in teaching core Computer Science and Object-Oriented Programming concepts, including inheritance, polymorphism, and memory management.
- Supported students in developing strong problem-solving skills and conceptual understanding through tutorials and mentoring.

### IT LAB ASSISTANT

University of Pretoria | 2021 - 2022

- Ensured reliable operation of computer labs and supported students during academic and institutional activities.

### TUTOR

University of Pretoria | 2020

- Demonstrated the full program development lifecycle, from problem formulation to debugging and execution.
- Assisted with grading and supervision of practical and tutorial sessions..

## EDUCATION

### Current Engagement

#### MSc Candidate in Computer Science

University of Pretoria | Mastercard Foundation Scholar

### Recent Degree

#### BSc Honours in Computer Science with Distinction

University of Pretoria | 2023

### Previous Engagement and Degree

#### Software Engineering

University of Pretoria | 2022

#### Bachelor of Information Science in Multimedia

University of Pretoria | 2021

## PROFESSIONAL CERTIFICATIONS

ALX Backend Web Development | Student member

AWS Solutions Architect Associate | Student member

AWS CLOUD PRACTITIONER | Completed

ALX-T FULL STACK DEVELOPER NANODEGREE PROGRAM | Completed

## TECHNICAL SKILLS

**Programming, Frameworks & Tools:** Angular, Assembly, C++, HTML, CSS, Java, JavaScript, Nestjs, PHP, Jupyter Lab, Python, React, TypeScript, Magento, Docker.

**Database:** MySQL, PostgreSQL

**Operating Systems:** Linux (Ubuntu), Windows

## REFERENCES

Dr. Abiodun Modupe  
(Academic Supervisor)

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