

# GABRIEL SHODERU

Pretoria, South Africa · +27 61 757 9633

[Email](#) · [Linked In](#) · [GitHub](#) · [Website](#)

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. Alongside my technical background, I have a foundation in multimedia and digital design, with a strong interest in visual communication and creative problem-solving.

## RECENT PROJECT

### GroomBuzz E-Commerce Backend System

- Designed backend architecture for a scalable service marketplace platform
- Implemented RESTful APIs for product/service management, booking, and user interaction
- Modeled relational database schemas supporting multi-entity relationships (users, services, bookings)
- Applied authentication mechanisms and structured API design practices
- Tech Stack: Django, PostgreSQL, Docker, [REST APIs](#)

### Insider Threat Detection System (Machine Learning Pipeline)

- Developed a research-driven anomaly detection pipeline using Python for insider threat analysis in cloud environments
- Processed and analysed user activity logs, transforming raw events into structured behavioural features
- Selected and applied unsupervised and semi-supervised learning models under limited-label conditions
- Performed feature engineering on temporal and behavioural data to support anomaly detection
- Built and evaluated a prototype pipeline from data preprocessing to model experimentation
- Tech Stack: Python, Pandas, Scikit-learn, Jupyter

Additional projects and ongoing work can be found on my [GitHub](#)

## RESEARCH EXPERIENCE

### **MSc Research – Digital Forensic Readiness for Insider Threat Detection in Cloud Environments (To be Awarded MSc Computer Science in May, 2026)**

University of Pretoria | Proceedings of the ICCWS 2026

- 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 Computer Science (To be Awarded in May 2026 with Distinction)**

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 Pro Development** | [Completed](#)

**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

**Design Tools:** Adobe Suites, Canva

## **REFERENCES**

Available upon request or visit [my website](#) for full CV with references.