

# Ntlakanipho Mgaguli

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## SUMMARY

A self-directed Computer Engineering student who learns by building. Published a WebGL course to demystify 3D graphics, developed full-stack applications, and tutored peers on programming concepts. Leverages modern AI tools for efficient development and rapid prototyping.

## TECHNICAL SKILLS

**Languages:** Java, C, SQL, JavaScript, HTML/CSS

**Technologies:** WebGL, MySQL, JDBC, Swing, Git, GitHub

**Concepts:** Data Structures & Algorithms, OOP, 3D Graphics, Database Design, AI-Assisted Development

**Exploring:** React, Cloud Services (AWS/GCP), Python

## RELEVANT PROJECTS

### Bank Management System

Java, Swing, MySQL

[GitHub](#)

- Built a full-stack banking application with a dual interface supporting both GUI and console interaction.
- Implemented secure user authentication, transaction processing, and an efficient binary search algorithm for user lookups.
- Designed a normalized MySQL database schema from first principles for scalable data management.

### WebGL Fundamentals Course

Udemy

[Course](#)

- Self-taught WebGL to create and publish a complete video curriculum teaching 3D graphics fundamentals.
- Authored and scripted content covering the rendering pipeline, shaders, and transformation matrices.

### RLC Circuit Calculator

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[GitHub](#)

- Developed a command-line tool to perform electrical circuit analysis, applying engineering mathematics to a practical software solution.
- Engineered robust I/O and handled edge cases to ensure calculation stability and user-friendly error messages.

## EXPERIENCE

### Programming Tutor

Remote

2024 – Present

- Mentor first-year students, helping them debug code in C, Java, and the WebGL JavaScript API.
- Break down complex Object-Oriented Programming and data structure concepts through practical, hands-on problem-solving sessions.

## EDUCATION

### Bachelor of Engineering Technology in Computer Engineering

2023 – Present

Cape Peninsula University of Technology, Cape Town, South Africa

### High School

2020 - 2022

Blythswood institution, Eastern Cape, South Africa

Relevant Coursework: Data Structures, Algorithms, Database Systems, Computer Architecture