

# Ayanda Thabo Phaketsi

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## EDUCATION

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### University of Cape Town Cape Town, South Africa

BSc Computer Science and Business Computing

**Expected 2026**

**Revant Coursework:** Software Engineering, Algorithms and Data Structures, Databases, Operating Systems, Computer Networks, Machine Learning, Systems Analysis and Design

## RELEVANT EXPERIENCE

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### Software Engineering Projects

*Self-Employed / Portfolio Development*

*2021 – Present*

- Developed 20+ software projects demonstrating expertise in full-stack development, AI/ML integration, and system design
- Created production-ready applications with focus on clean design and user-centric solutions
- Specialized in turning concepts into real, working systems with clean code
- Focused on practical tech solutions that solve real-world problems

## PROJECTS

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### AI-Powered PDF to Interactive Notebook

**2025**

- Built an AI-powered web application using React and TypeScript that converts static PDF files into interactive, editable study notebooks using the Google Gemini API
- Custom quiz generation based on saved material, managed client-side using local storage
- Featured technologies: React, TypeScript, Google Gemini API, Vite, Tailwind CSS

### Q-Learning Multi-Package Collection System

**2025**

- Developed a Q-learning implementation to solve package collection tasks in the classic Four-Rooms grid world environment
- Implemented learning algorithms for three complexity levels: single-package collection, multi-package unordered collection, and strict sequential multi-package collection (RGB order)
- Supported both deterministic and stochastic environment dynamics
- Featured technologies: Python, Reinforcement Learning, Q-Learning, NumPy

### clia - Autonomous Local Software Engineer AI Assistant

**2025**

- Developed an advanced, conversational AI assistant for software engineering that operates as both a command-line tool (CLI) and web UI
- Powered by Google Gemini, using a local Model Context Protocol (MCP) tool server to safely interact with the user's filesystem and command line
- Implemented streaming AI thoughts for transparency and mandatory tool call permissions for security
- Featured technologies: Python, Google Gemini, FastAPI, rich, prompt-toolkit, Model Context Protocol (MCP)

## AWARDS & ACHIEVEMENTS

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- **Entecl University Challenge 2025 Winner** - Featured in UCT Official News
- **2nd Place - Predictive Insights 2025 Hackathon** - Featured in Predictive Insights LinkedIn
- Featured in UCT Official News for Entecl University Challenge 2025 victory

## TECHNICAL SKILLS

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**Programming Languages:** Java, Python, JavaScript, TypeScript, C#

**Demos at:** [phaketsi.vercel.com](https://phaketsi.vercel.com)