## PROFILE

**Full-Stack Software Developer** with hands-on experience building scalable, real-time applications across web, desktop, and mobile platforms. Proficient in Python, JavaScript, and PostgreSQL, with working knowledge of AWS services including EC2, S3, Route 53, and CloudFront. Experienced in implementing secure JWT-based authentication and deploying full-stack systems to the cloud.

Independently developed and deployed a modular, cross-platform multiplayer game room system designed for future extensibility. Self-taught developer with a BCom Honors in Financial Management from Stellenbosch University, triple certified as an AWS Associate, and certified in project planning (CAPM). I bring a blend of technical skills and business acumen, and I'm eager to contribute meaningfully within a collaborative development team while continuing to grow as a software engineer.

## FEATURED PROJECT

**Online Multiplayer Game Room System**
Solo-developed a full-stack, cross-platform multiplayer game room system over 9 months. Currently supports 'Tic Tac Toe', but designed with a modular, scalable architecture for easy expansion to additional games.

**Core Features**:

- Real-time gameplay via WebSockets across web, desktop, and mobile client-side frontends.
- JWT-secured user authentication with session management using multiple frontend local storage methods.
- PostgreSQL-backed persistent and temporary data storage.
- AWS cloud deployment ensuring availability, scalability and HTTPS support.

**Backend Architecture – Five Microservices**:

- **API Gateway** – Routes requests across all services.
- **Authentication** – Manages secure sign-up/login.
- **Room Management** – Handles room creation and player sessions.
- **Chat** – Enables live messaging between players.
- **Game** – Governs game state, turn logic, and rematches.

## DEVELOPMENT HIGHLIGHTS

- **State Management**: Implemented a tailored state management solution in Python for PyQt5, leveraging signals/slots and asyncio to synchronize real-time UI state across components and WebSocket events.
- **Microservices**: Refactored a monolithic backend into loosely coupled microservices. Used an API-first design and dual PostgreSQL databases (for persistent vs. session data) to eliminate the need for Redis while maintaining data consistency.
- **UI/UX**: Redesigned both web and desktop interfaces using core UX principles to improve clarity, responsiveness, and visual appeal. Also revamped the landing page for improved portfolio presentation.
- **Scalability Trade-offs**: Evaluated MVP vs production-level decisions, focusing on cost-efficient, scalable cloud infrastructure without unnecessary complexity.
- **Cloud Deployment**: Deployed services on AWS using HTTPS via Nginx reverse proxy and Certbot. Managed CORS configurations across development and production to ensure secure frontend-backend communication.

## QUALIFICATIONS & EDUCATION

**Amazon Web Services (AWS) Certified Associates:**

- SysOps Administrator – October 2024
- Developer – August 2024
- Solutions Architect – April 2024

**Full-Stack Web Development Boot Camp,** Dr Angela Yu – 2024

**Python Programming Boot Camp,** Dr Angela Yu – 2023

**Certified Associate Project Management (CAPM),** Project Management Institute (PMI) – April 2023

**BCom Honors in Financial Management,** The University of Stellenbosch – December 2021

## SKILLS

*Technical Skills*

- **Languages:** Python, JavaScript, HTML/CSS, SQL (PostgreSQL)
- **Frameworks & Libraries:** React.js, React Native, Node.js, Express.js, Socket.io, PyQt5
- **Cross-Platform Development:** Frontend — React (Web), PyQt5 (Desktop), React Native (Mobile); Backend integrated for real-time functionality and game logic
- **Cloud & Infrastructure:** AWS (EC2, S3, Route 53, CloudFront), Nginx, Certbot, Git
- **Authentication & Security:** JWT (JSON Web Tokens), PostgreSQL, CORS
- **Real-Time Systems:** WebSocket-based messaging and gameplay using Socket.io
- **Dev Tools & Deployment:** Git & GitHub, Vite, PyInstaller
- **Project & Application Architecture:** Microservices-ready structure, modular game system, scalable deployment
- **Project Management:** Applied Agile principles, task breakdown, and incremental development to manage a multi-phase solo capstone; PMI CAPM certified with knowledge of project lifecycle, scope control, risk management, and iterative delivery

*Soft Skills*

- **Analytical Problem-Solving**: Resourceful and methodical when debugging and troubleshooting, focusing on root cause analysis to implement efficient, lasting solutions.
- **Self-Motivation & Discipline**: Self-taught full-stack developer who earned three AWS Associate certifications, learned multiple programming languages, and consistently enhanced the game room platform.
- **Resilience**: Persist through challenges such as major refactoring and architectural redesign, committed to continuous improvement and lifelong learning.
- **Eagerness to Learn**: Open to feedback, actively seeking new technologies, tools, and best practices to grow and refine skills.
- **Adaptability**: Able to switch between tech stacks and quickly learn unfamiliar systems—from cloud infrastructure to cross-platform development.
- **Ownership & Accountability**: Designed, managed, and built a full multiplayer game room system from the ground up, prioritizing the user experience.