Shahied Rustin

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Professional Profile

I am a Computer Engineering graduate (BEngTech) with a strong foundation in embedded systems, signal processing, and full-stack development. I combine academic graph theory and engineering mathematics with practical expertise in 5+ years of Linux automation and system architecture. I am passionate about applying linear programming and network optimisation to solve complex infrastructure challenges.

Education

Bachelor of Engineering Technology in Computer Engineering (NQF 7)
Cape Peninsula University of Technology (CPUT) | Feb 2021 – Nov 2025
- **Core Engineering Competencies:** Signal Processing (AM/FM, Quantisation), Antenna Theory, RLC Circuit Analysis, Control Systems, Digital Electronics.
- **Mathematical Foundations:** Engineering Mathematics (Calculus, Linear Algebra), Graph Theory, Flow Optimisation, Linear Programming.

MERN Stack Bootcamp
AstroLabs | Jan 2022 – Mar 2022

National Senior Certificate
Wynberg Boys' High School | Jan 2009 – Dec 2021

Technical Skills

Engineering & Embedded Systems:
- Microcontroller programming (C/C++), Circuit Design & Analysis, IoT Sensor Integration.
- Communication Systems Protocols, Signal Modulation/Demodulation.
- 3D Modelling (Onshape, Blender) & Additive Manufacturing (Slicing/Printing).

Software Development & Data:
- **Languages:** Python, Java, C, JavaScript (React/Next.js), GLSL/WebGL.
- **Database Theory:** Relational DBs (MySQL), Graph Databases (Neo4j), Data Normalisation.
- **Architecture:** System Design, Multi-modal AI integration, RESTful APIs.

Infrastructure & DevOps:
- **Linux Administration:** Arch/Debian/Ubuntu, Bash Scripting, Kernel configuration.
- **Networking:** TCP/IP Stack, Network Flow Optimisation, DNS Management (CloudDNS).
- **Tools:** Docker, Git, FFMPEG, OpenCV, VirtualBox.

Projects & Engineering Accomplishments

- **AI Video Summarisation System (Capstone - 96%):** Engineered a three-layer system architecture using a Multi-modal Large Language Model. Integrated Python, FFMPEG, and OpenAI Whisper for automated content processing. Optimised GPU resource allocation using Cuda-Utils and Arch Linux.
- **Infrastructure Maintenance Database Project:** Applied Graph Theory principles to model public works infrastructure. Evaluated MySQL vs. Neo4j to optimise data relationships and query performance for municipal maintenance tracking.
- **Enterprise Windows Server Roll-out:** Led a team of 10 to win 1st place in a technical deployment challenge. Managed the configuration of Active Directory, XRDP, and RustDesk, utilising virtualisation to simulate a scalable corporate network environment.
- **Automated Business Web Deployment:** Developed a React-based commercial platform incorporating custom bash scripts for automated backups and QuickBooks integration. Implemented a CI/CD workflow for seamless updates.
- **Embedded Home Automation (HomeLab):** Designed and implemented a custom IoT ecosystem including NAS, IP surveillance, and power management (EcoFlow). Utilised Docker containers for network-wide ad blocking and service orchestration.

Professional Experience

Freelance Engineering & IT Consultant

Rustin Systems | 2022 – Present

- Delivered end-to-end technical solutions for private clients, ranging from hardware repair to custom software configuration.
- Provisioned Ubuntu servers for campus environments to enable remote student access via VNC.
- Managed client expectations and provided technical training to ensure long-term system maintainability.