Stephan Fourie

Software engineer

Contact

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Known Languages

C
Java
SQL
Assembly
Python
PHP
JavaScript
Object Pascal
R
HTML
CSS

Skills

Git
Linux
VIM/NeoVIM
Docker(basic)

I am a qualified software engineer from Stellenbosch univeristy with strong foundations in algorithms, networks, and software engineering. Experienced as an undergraduate teaching assistant, with hands-on project work in systems programming, networking, and compiler design.

Education

Stellenbosch University

BSc Computer Science with second major in Operations Research
Graduated: 2025

Degree average: **60%**
Computer science average: **65.9%**
Operations Research average: **57.3%**

Program focused on problem solving with efficient algorithm design from low level assembly to high level html. Full stack development was the whole focus of the program, teaching us backend, frontend and everything in between. Some of the core things we focused on were algorithms and skills of a good software engineer, not just having us learn a language, but to have us truly know how to code. Some of the things the program involved where: Networking, Server and client side code, data handling, efficient code, low level system design and tools like version control systems.

Computer Science 113: 82%
Computer Science 144: 63%
Computer Science 214: 51%
Computer Science 244: 60%
Computer Science 313: 77%
Computer Science 314: 56%
Computer Science 343: 73%
Computer Science 344: 65%

Data Science 141: 50%
Data Science 241: 50%

Applied Mathematics 214: 61%
Applied Mathematics 244: 65%

Operations Research 214: 68%
Operations Research 244: 63%
Operations Research 314: 50%
Operations Research 322: 60%
Operations Research 344: 52%
Operations Research 352: 51%

Mathematics 114: 64%
Mathematics 144: 54%
Mathematics 154: 50%
Mathematics 214: 51%
Mathematics 244: 50%

Probability Theory and Statistics 114: 66%
Physics 114: 68%

Brackenfell High school

Graduated 2020
Achieved 85% in Mathematics
Achieved 89% in Information Technology
Achieved 78% in Physical Science
Achieved 72% in Life Science
Achieved 80% in Afrikaans
Achieved 78% in English
Achieved 82% in Life Orientation

Projects

Collaborative Payment Splitting Application

Technologies: Python, Supabase, JavaScript, HTML, CSS

Developed in collaboration with a real company, providing valuable industry experience. Built the frontend interface for a group expense management system enabling users to create friend groups, record shared expenses, and automatically calculate bill splits. Application tracks payment history and outstanding balances between group members. Responsible for frontend development including user interface design and client-side logic.

Multiplayer Trivia Game

Technologies: Python, Supabase, JavaScript, HTML, CSS, Web Scraping

Created a real-time multiplayer trivia game with server-based architecture supporting multiple concurrent players. Primarily responsible for data acquisition pipeline, developing web scrapers to gather trivia questions and implementing data cleaning procedures to ensure question quality and consistency. Utilized Supabase for backend services managing game state, player connections, and question database.

Interactive CV Website

Technologies: React, Vite, JavaScript, CSS

Developed a fully functional single-page application featuring user authentication, dynamic blog post management, and editable profile sections. Implemented client-side state management without backend dependencies, utilizing browser storage for data persistence. Independently designed and built all components including a custom login system that enables content editing capabilities.

Multi-User Chatroom with VoIP Capabilities

Technologies: Java, JavaFX, Socket Programming, Encryption

Built a real-time communication platform supporting hundreds of concurrent users with live text chat, voice calling, and voice note functionality. Primarily responsible for backend architecture and server implementation, handling client connections, message routing, and end-to-end encryption. Developed custom GUI using JavaFX with user authentication and account creation system. Server managed all client communications with encrypted data transmission for secure messaging.

Peer-to-Peer File Sharing Application

Technologies: Java, Custom Network Protocol

Designed and implemented a decentralized file sharing system using a custom-built protocol. Features include searchable public folders across connected peers with privacy-preserving anonymous connections. Users can search shared content across the network without exposing their full directory structure. Developed both command-line and GUI interfaces, with significant technical challenges in maintaining user anonymity while enabling efficient peer discovery and file transfer.

Custom Language Compiler

Technologies: C, JVM Bytecode

Built a complete compiler from scratch targeting JVM bytecode for a custom programming language specification. Implemented all compilation stages including lexical analysis, parsing, semantic analysis with type checking, and code generation. Successfully generated executable JVM bytecode with particular complexity in implementing robust type checking and understanding JVM instruction set architecture.

Banking Fraud Detection System

Technologies: Python, Machine Learning (Regression, Random Forest)
Developed a machine learning model to identify fraudulent banking transactions using regression and random forest algorithms. Trained on a large-scale financial dataset, achieving strong accuracy in fraud classification. Implemented feature engineering and model evaluation to optimize detection performance.

Automated Irrigation Control System

Technologies: Python, PHP, HTML, Raspberry Pi
Engineered an IoT irrigation system using Raspberry Pi to control solenoid valves and water pumps via relay modules. Python handles hardware control logic for automated and manual watering activation, while a web interface built with PHP and HTML provides remote scheduling and manual control capabilities. System enables programmed watering schedules accessible through a browser-based dashboard.
