Grant Booysen

Somerset West, Western Cape, South Africa

grantbooysen002@gmail.com

+27 61 4722 843

www.linkedin.com/in/grant-booysen-bb6b6b246

Education

Bdatsci Data Science focal area Computer Science, Stellenbosch University — 2022 – Ongoing

- Senior Merit Bursary Holder – awarded to top 5% in the faculty.
- **Coursework:** Computer Architecture, Comparison of Learning Algorithms, Computational Theory, Statistical Modeling, Machine Learning, Data Modeling, Computer Vision, Parallel Computing, Computer Networks, Advanced Algorithm and Data Structure design.

High School, Northcliff High School — 2017 – 2021

- Top 20 Academic Achiever.
- Final NSC Average: 85.5%.
- Extra: Advanced Programme Mathematics – 74%.

Projects

Knowledge Graph Enhanced Recommender System, Stellenbosch University, Shoprite Holdings

- Developed a recommender system integrating knowledge graph embeddings to improve product suggestions within a retail environment.
- Built a graph database using Neo4j to capture relationships between customers, products, and transactions.
- Enhanced model performance using contextual reasoning, graph traversal, and neighborhood-based recommendations.
- Tools: Python, Neo4j, PyTorch Geometric, Pandas

Custom Grid-World RL Environment (OpenAI Gym) — In Progress, Personal *GitHub Repository*

- Designing and implementing a wraparound grid-world with procedural obstacles and power-up mechanics, laying the foundation for RL experiments.
- Wrapping the maze logic into a custom ‘gym.Env‘ API: defining relevant methods and reward scheme to support Q-Learning, SARSA, and DQN agents.
- Currently integrating training scripts and logging to evaluate agent performance over multiple runs.
- **Tools**: Python, OpenAI Gym, Pygame, NumPy

Mobile Health Translator Platform (Flutter) — Personal, view on request

- Developed a cross-platform Flutter app to guide rural users through an interactive symptom assessment “sick test” and provide logging mechanisms to build medical histories.
- Implemented a Retrieval-Augmented Generation (RAG) pipeline to filter and contextualize user prompts in their native language, ensuring accurate and culturally appropriate health guidance.
- Designed an accessible, low-bandwidth UI and offline caching layer to support intermittent connectivity in remote areas.
- **Tools**: Flutter, Dart, LangChain (RAG)

Parallel Minimax Gomoku Solver, Stellenbosch University

- Implemented a competitive Gomoku engine using Iterative Deepening and Heuristic-based Alpha-Beta Pruning.
- Leveraged concurrency to parallelize the Minimax search for real-time move calculations.

- Tools: C, Multi-threading, Game Trees, Search Algorithms

Analysis of New Testament using Deep Learning, Stellenbosch University

- Applied sentiment analysis to biblical texts using modern NLP and deep learning techniques.
- Fine-tuned transformer models and RNNs to analyze emotional tone and theological themes.
- Tools: Python, BERT, RNNs, HuggingFace Transformers

C-based Compiler for mock language, Stellenbosch University

- Built a custom compiler capable of lexical, syntactic, and semantic analysis of a simplified programming language.
- Targeted the JVM, generating bytecode compatible with Java runtime environments.
- Tools: C

Server-Client Chat Program (Discord-inspired), Stellenbosch University

- Designed and implemented a multi-user communication platform supporting text, file sharing, and voice calls.
- Utilized both TCP and RBUDP protocols for real-time messaging and VOIP functionality.
- Implement simple encryption protocols using RSA.
- Tools: Java, TCP Sockets, UDP, VOIP, Multithreading

Customer Spend Prediction Model, Stellenbosch University

- Built a supervised learning pipeline to predict customer spending and identify key influencing factors.
- Performed feature engineering and EDA to improve prediction accuracy using ensemble models.
- Tools: Python, scikit-learn, XGBoost, pandas, matplotlib

Experience

BlckRhino, Software Development Intern — Cape Town, South Africa — Dec 2024 – Jan 2025

- Contributed to backend services using the ABP development framework in C#.
- Managed containerization and deployment pipelines with Docker and TeamCity.
- Integrated security scanning and compliance tracking via DependencyTrack.

Workworth, Software Development Intern — Cape Town, South Africa — Jul 2024 – Aug 2025

- Developed and maintained Shopify applications and WordPress-based tools for e-commerce clients.
- Built cloud functions using Azure Functions to automate backend workflows.
- Contributed to full-stack development, including frontend integrations and CMS customization. Integration of REST Api's for external services.

BlckRhino, Software Development Intern — Cape Town, South Africa — Dec 2023 – Jan 2024

- Developed online web services using C# and SQL Server.
- Participated in code reviews and Agile development sprints.

Tools & Technologies

Python, C, C#, Dart, SQL, JavaScript, HTML, CSS, Flutter, Neo4j, PyTorch Geometric, Pandas, BERT, NLTK, RNNs, Docker, TeamCity, DependencyTrack, ABP Framework, Azure Functions, Shopify, WordPress, API, TCP, RBUDP, SQL Server, JVM, Git, Java

Other

Languages: English (native), Afrikaans (proficient in comprehension)