

PAUL NAMALOMBA^{cv}

🎓 **MSc(Eng) Structural | BSc(Hons.) Civil | Google, FreeCodeCamp Certified Data Analyst**

📍 36 Melville Road, Ottery East, Cape Town, South Africa, 7808

📞 +27637478981 | ✉ paulkbnamalomba@gmail.com | [in](https://www.linkedin.com/in/paulnamalomba) Paul Namalomba



SUMMARY

- Over **6 years of technical experience** in digital infrastructure and computational science initiatives in Civil Engineering research and teaching at UCT, including end-to-end deployment of Computational Modelling software, usage of HPC clusters (Slurm, Rocky Linux)
- 3 years and counting** of project maintenance, scientific implementation and development of **SESKA finite-element computational suite** written in GNU C++ and GNU Fortran. First of its kind port from Linux to Windows with Mingw64 whilst implementing new machine-level code for the UCRT/MVSC++ style-compilers.
- Over **750 hours of active training** in Data Science, Data Engineering, High Performance Computing and Back-End Development.
- Led cross-functional teams of up to five teaching assistants in lecturing undergraduate students—aligning curriculum with emerging technologies and strategic learning objectives, as well as managing course resources in the post-USAID era.
- Architected, maintained, and optimized the **SEAT EBE enrollment platform** using Python Django with HTML, PostgreSQL, and LDAP for Security Management – We protected against SQL injections by using the Python Django layer for additional security.
- Built open-source **predictive-modeling** applications with Python, SQLite, and CSV (Excel) for sports score-prediction and research analytic with web-scraping, machine learning, and database management; all code available through my GitHub portfolio (<https://github.com/diversecellar/paulnamalomba.github.io>).

CORE TECHNICAL SKILLS

- Operating Systems:** Linux Ubuntu >20.04, Windows >10, BIOS, WSL
- Web Scraping, Data Science and Statistical Data Analysis:** Python, Jupyter{*}, Microsoft Power BI, Microsoft Tableau, Microsoft Excel, Python RESTful APIs
- RDBMS, ETL Pipelines and Big Data (Cloud Computing):** MySQL, PostgreSQL, SQLite, Python DB API 2.0, Hadoop, Apache Spark.
- Machine-Level Computer Programming:** Microsoft VSC++, GNU Autotools, Mingw32/64 Cross-Compat Tools
- Programming IoT Devices:** Arduino-based MCUs
- Project Management and CI/CD Pipelines:** SEAT Enrolment Platform, SESKA – hosted GitHub
- High-Performance Computing and Parallel Computing:** HPC, Slurm Workload Manager, OpenMPI, PETSc, METIS.
- Web Programming and Web Administration:** Python requests, Django, HTML
- Data Security Policies:** LDAP Protocols
- Computational Modelling and Analysis:** SESKA, GiD, ABAQUS
- Machine Learning and Regression Analysis:** Scikit-Learn, TensorFlow, statsmodels
- Advanced Shell Scripting, File System and Server Management and Automation:** Windows CMD Prompt, PowerShell 7+, Git BASH, MSYS2 Shells, Linux BASH.

OTHER TECHINCAL+RESEARCH SKILLS

- Scientific Research Design, Reporting and Methodology**
- The Engineering Design Process Workflow**
- Entity-Relation Diagrams for RDBMS**
- Data and Task Parallelization Models for DFS and HPC**
- Relational Database Models (Logical and Physical)**
- Research Paper and Manuscript Production with LaTeX**
- A Multi-Disciplinary Depth of Knowledge (**Computing, Data Science and Statistics, Engineering and Research Management**)
- Graphics Design for Posters:** Adobe Photoshop, Canva.
- Other Advanced ICT Skills:** Microsoft Office, LibreOffice, Microsoft OneNote.

RESEARCH INTERESTS

- Computational Mechanics and Applied Mathematics**
- Shelf-Ice Mechanics and Rheology**
- Non-linear Large-Deformation Elasticity, Visco-Plasticity, and Elasto-Plasticity**
- Quasi-Brittle and Ductile Failure Modes**
- Computational Algorithm Optimization**
- Data Analysis and Digital Infrastructures**
- High-Performance and Parallel Computing**

EDUCATION

Ongoing Doctor of Philosophy: Civil Engineering

University of Cape Town | Cape Town, South Africa | September 2023 – Present | Expected Completion December 2026

- Topic of study** – *A Nonaffine Damage Theory for Multisolid Composites*
- Research Keywords:** Composite Materials, Viscoelasticity, Computational Mechanics, Applied Mechanics
- Skills Developed:** Research Management, Research Design and Reporting, HPC, Microsoft Visual Studio C++, GNU C++, GNU Fortran, Mingw32/64 Cross-Compatibility Tools, Python for Data Science, Git, MSYS2 Shells and Linux BASH.

Master of Science in Engineering: Structural Engineering & Materials

University of Cape Town | Cape Town, South Africa | March 2020 – December 2021

- Distinction in Thesis** – *Towards a material damage model using the logarithmic strain, with von Mises plasticity considerations.*

- **Research Keywords:** Material Damage, Computational Mechanics, Applied Mechanics
- **Skills Developed:** Research Management, Research Design and Reporting, HPC, GNU C++, Python for Data Analysis, Git and Linux BASH.

Bachelor of Science (Honours): **Civil Engineering**

University of Cape Town | Cape Town, South Africa | January 2016 – December 2019

- **Distinction in Dissertation** – *Design of A Climate Chamber for Uni-axial Compressive Strength Testing of Laboratory Grown Sea Ice.*
- **Dean's Merit List:** 2016, 2017.

LICENSES & CERTIFICATES

Ongoing Professional Certificate: **IBM Data Engineering**

Coursera | July 2025 – **Present** | Expected Completion **End September 2025** | 8/16 Modules Completed (**150+ hours**)

- IBM – Introduction to Data Engineering
- IBM – Python for Data Science, AI & Development
- IBM – Python Project for Data Engineering
- IBM – Introduction to Relational Databases (RDBMS)
- IBM – Databases and SQL for Data Science with Python
- IBM – Hands-on Introduction to Linux Commands and Shell Scripting
- IBM – Relational Database Administration (DBA)
- IBM – Introduction to Big Data with Spark and Hadoop

Ongoing Professional Certificate: **Microsoft Back-End Developer**

Coursera | September 2025 – **Present** | Expected Completion **End October 2025** | 3/8 Modules Completed (**40+ hours**)

- Microsoft – Foundations of Coding Back-End
- Microsoft – Security and Authentication
- Microsoft – Database Integration and Management

Ongoing Specialization: **Univ. Colorado-Boulder High-Performance and Parallel Computing**

Coursera | September 2025 – **Present** | Expected Completion **End September 2025** | 1/3 Modules Completed (**15+ hours**)

- Univ. Colorado-Boulder – Introduction to High-Performance and Parallel Computing

Professional Certificate: **Google Advanced Data Analytics**

Coursera | December 2024 – May 2025 | **300+ hours of training**

- Google - Foundations of Data Science
- Google - Regression Analysis: Simplify Complex Data Relationships
- Google - The Power of Statistics
- Google - Go Beyond the Numbers: Translate Data into Insights
- Google - Get Started with Python
- Google - The Nuts and Bolts of Machine Learning

Developer Certificate: **Data Analysis with Python**

Coursera | April 2025 – May 2025 | **300+ hours of training**

- Data Structures: Pandas dataframes, Numpy Arrays
- Data Cleaning and Visualization: Matplotlib, Seaborn
- Data Scraping and Data Extraction: .csv, HTML, BigQuery

EXPERIENCE

Academic: **SESKA* Computational Engineer** as part of **Doctor of Philosophy: Civil Engineering**

University of Cape Town | Cape Town, South Africa

September 2023 – **Present** | **Effective Experience: 3 Years**

***SESKA is an in-house Finite Element Analysis software package maintained in the Department of Civil Engineering**

Back-End: C++, and Fortran. **Client Computing:** PETSc. **HPC and Parallel Computing:** OpenMPI, UCT HPC.

- **Tasks and Achievements:**
 - Managed the project through Git and CI/CD Protocols.
 - Deployed SESKA onto UCT HPC, the EBE Computational Mechanics Labs, and Chemical Engineering Computer Labs.
 - Implemented of working **elasto-plasticity**, **visco-plasticity**, **material damage**, **cyclic loading**, and **variable elasticity** models.
 - Currently working on windows Port of SESKA with UCRT and MVSC++, **the first of its kind.**

Academic: Assistant Lecturer in Engineering Mechanics – Experience: 2 Years

University of Cape Town | Cape Town, South Africa

February 2025 – July 2025 | June 2024 – December 2024 | June 2023 – December 2023 | June 2022 – December 2022

• Tasks and Achievements:

- 85%+ Course Pass Rate for CIV2011F (2025), 93%+ Course Pass Rate for CIV1007S (2022, 2023, 2024)
- Crafted the course outlines, course content and exams from Scratch.
- Led and directed a team of five Teaching Assistants, managed budgets and schedules
- Enhanced technical and practical instruction of students using the aforementioned **SESKA**

SEAT* Backend Application Developer (Hybrid) – Experience: 1 Year

University of Cape Town | Cape Town, South Africa

November 2024 – July 2025 | December 2021 – January 2022

***SEAT is an in-house enrolment platform developed at the Faculty of Engineering & the Built Environment**

Front-end: Python Django with HTML Views. **Database Architecture:** PostgreSQL (psycopg2) - **Remote Server-Hosted.**

• Tasks and Achievements:

- Code inspection, debugging, re-factoring and module linking (Python Django, JavaScript, HTML)
- Relational database editing, version control and management (MySQL, PostgreSQL, PostgreSQL Admin Tools)
- Improving overall functionality of key tools: Curriculum Selection, Curriculum Form automation and Student Timetable Management
- User verification and authorization protocols with LDAP for PeopleSoft
- Web administration and relational database server administration
- Email automation with SMTP and Python

Civil & Project Engineer (Hybrid) – Experience: 1 Year

Eco-Construction Limited | Blantyre, Malawi

January 2023 – June 2023 | January 2024 – June 2024

• Tasks and Achievements:

- Managed three major construction projects: Kanyenga GVH Health and Design, Feasibility and Construction of Student Hostels at DMI-Mangochi for SN Properties, Upgrade of SN Properties Area 47(4) Residential Housing.
- Evaluating construction strategy and planning for resources, labour.
- Submitting tenders and evaluating contracts, by applying construction contract law and liaising with clients and contractors.
- Consultation on construction methods, for the purpose of optimizing the cost-benefit position of the projects.

ORGANIZATIONS

- South African Statistical Association, July 2025 – Present [ID 2748543]
- Statistics Without Borders, January 2025 – Present [ID 16089]
- South African Institution of Civil Engineering, 2021 – Present [ID 202100183]

CONFERENCES & PUBLICATIONS

- MSc Thesis 2022 [available: <http://hdl.handle.net/11427/37632>]: *Towards a material damage model using the logarithmic strain, with von Mises plasticity considerations.*
- ICMM7 Conference, November 2022.
- SACAM2020 Conference, November 2021.

COMMUNITY INVOLVEMENT & LEADERSHIP

- CRC Cape Town (Malawi): Service in Altar Team, July 2025 – Present
- Redeemed For a Purpose Ministries (Malawi): Service in Financial Coordination, April 2025 – Present
- International Students Forum (UCT): March 2025 – Present.
- Statistics Without Borders Volunteer, January 2025 – Present.
- Mentorship and Supervision of Honour's Researchers (UCT), June 2021 – Present: Supervising two students during their Honour's research project.
- Volunteer Work for IAPO Soccer Tournament (UCT), October 2022: Organised and installed food and drinks stalls, and general support and event coordination tasks.
- Flood and Disaster Relief Efforts (Mangochi, Malawi), January 2022: Made donations of needs items and cash to those affected by Cyclone Ana in T/A Chilipa, Mangochi, Malawi.
- Child Education Advocacy (Mangochi, Malawi), January 2017 & January 2018: Made personal donations to underprivileged primary-school.

REFEREES

Prof. Sebastian Skatulla^[1,2] – PhD Research Supervisor, MSc Research Supervisor, SEAT Lead Developer

[1] Professor of Structural Engineering & Materials | Department of Civil Engineering, Faculty of Engineering & the Built Environment, University of Cape Town

[2] Director | Computational Continuum Mechanics Research Group, University of Cape Town

📍 Room 3.41, New Engineering Building, Upper Campus, Cape Town

☎ +27216502595 | ✉ sebastian.skatulla@uct.ac.za

Ms. Ayesha Dalwai – Departmental Manager

Departmental Manager | Department of Civil Engineering, Faculty of Engineering & the Built Environment, University of Cape Town

📍 Level 2 Admin, New Engineering Building, Upper Campus, Cape Town

☎ +27216502591 | ✉ ayesha.dalwai@uct.ac.za

Dr. Keith MacHutchon – MSc Research Supervisor

Honorary Research Associate | Department of Civil Engineering, Faculty of Engineering & the Built Environment, University of Cape Town

📍 Room 3.40, New Engineering Building, Upper Campus, Cape Town

☎ +27216502591 | ✉ keith.machutchon@uct.ac.za

Dr. Maxime Nutte – Research Collaborator

Postdoctoral Fellow | Department of Civil Engineering, Faculty of Engineering & the Built Environment, University of Cape Town

📍 Level 3 Postdoc Research Space, New Engineering Building, Upper Campus, Cape Town

☎ +27216502591 | ✉ maxime.nutte@uct.ac.za

Mr. Shadric Namalomba – Father, Chairman of Eco-Construction Malawi (Ltd)

Chairman | Eco-Construction Malawi (Ltd), Blantyre, Malawi

📍 PO Box 31548, Chichiri 3, Blantyre, Malawi

☎ +265999965600 | ✉ shadricnamalomba@gmail.com