Curriculum Vitae of Yurvan Ramjan

BSc. Honours Graduate in Computer Science

🏠 KwaZulu-Natal, South Africa

📱 +27 81 430 2101

in [LinkedIn](#) | ⓖ [GitHub](#) | ✉ [Email](#)

Professional Summary

Computer Science Honours graduate specialising in Machine Learning and Data Science, with hands-on experience developing, evaluating, and optimising data-driven and deep learning models using Python. Strong background in Computer Vision, Statistical Analysis, and applied research, with experience translating academic projects into real-world solutions. Seeking a graduate or junior role where machine learning and analytical skills can drive data-informed decision-making.

Academic Focus

Machine Learning - Artificial Intelligence - Image Processing and Computer Vision - Deep Learning - Natural Language Processing - Data Analysis - Database Systems - Data Structures - Object-Oriented Programming - Quantum Computing

Projects

Efficient Segment Anything Model (EfficientSAM) for Medical Image Analysis

Honours Research Project   *2024*

GitHub: [EfficientSAM](#)

Technologies: Python, PyTorch, Deep Learning, Computer Vision

- Proposed and investigated **EfficientSAM**, a lightweight variant of the Segment Anything Model (SAM) to reduce computational complexity while maintaining competitive segmentation performance.
- Applied deep learning techniques for **Medical Image Segmentation**, focusing on efficiency, scalability, and model optimisation.
- Conducted experimental evaluations to analyse performance–efficiency trade-offs in medical imaging contexts.
- Achieved competitive segmentation performance while significantly reducing model complexity and computational cost compared to standard SAM.

NBA Performance Analysis & Game Outcome Prediction

Machine Learning Project   *2024*

GitHub: [NBA_Performance_Analysis](#)

Technologies: Python, Scikit-learn, Pandas, NumPy

- Applied machine learning techniques to **identify outlier players** based on performance statistics using unsupervised learning approaches.
- Built predictive models to **forecast NBA game outcomes** using team and player data.
- Identified statistically significant outlier players and developed predictive models that outperformed baseline approaches.

South African Banknote Recognition
Computer Vision Project *2024*

GitHub: SA_Banknote_Recognition
Technologies: Python, OpenCV, Image Processing, Computer Vision

- Developed a computer vision system to **classify South African banknotes**, accounting for old/new versions and both sides of each note.
- Implemented and compared multiple image processing techniques for **pre-processing, segmentation, feature extraction,** and **classification**.
- Achieved reliable classification performance across multiple bank note variations and imaging conditions.

Variational Quantum Eigensolver (VQE) for Quantum Chemistry
Quantum Computing Project *2024*

GitHub: Variational_Quantum_Eigensolver
Technologies: Python, PennyLane, Quantum Algorithms

- Implemented the **Variational Quantum Eigensolver (VQE)** to approximate the ground-state energy of the Helium–Hydride ion (HeH^+).
- Explored optimization techniques and variational circuits for molecular energy estimation.
- Successfully approximated the ground-state energy of (HeH^+), demonstrating the feasibility of quantum algorithms for molecular systems.

Ontology Development for Smart Traffic Management
Knowledge Representation Project *2024*

Technologies: Java, SPARQL, Ontology Modeling

- Designed and implemented a domain-specific ontology for **smart traffic management systems**.
- Performed data collection, vocabulary definition, and **logic-based modeling** to represent entities and relationships.
- Produced a queryable ontology capable of supporting reasoning and structured knowledge retrieval.

GPT-Powered Coding Assistant
Software Design Project *2023*

GitHub: AnacondaGPT
Technologies: Java, HTML, GPT APIs, Prompt Engineering

- Designed and implemented a coding assistant leveraging GPT-based models to provide contextual code suggestions and explanations.
- Applied prompt engineering techniques and experimented with pre-trained model behavior to improve response quality and usability.
- Improved response relevance through iterative prompt refinement and delivered a functional prototype supporting code suggestions and explanations.

3D Game Development
Computer Graphics & Modelling Project *2023*

GitHub: COMP307_Semester_Project
Technologies: C++, C#, Unity

- Developed a fully functional 3D game implementing **real-time rendering, shading**, and **animation techniques**.
- Designed and integrated 3D assets and implemented gameplay mechanics, user interactions, and visual effects.
- Delivered a stable, interactive game demonstrating correct application of computer graphics principles and real-time performance considerations.

Education

BSc. Honours in Computer Science   2024
University of KwaZulu-Natal   *KwaZulu-Natal, South Africa*

Relevant Courses: Machine Learning; Artificial Intelligence; Image Processing and Computer Vision; Data Visualisation; Data Pre-Processing; Quantum Computing; Ontologies and Knowledge Bases; Order and Lattice Theory

BSc. Computer Science & Information Technology   2021 - 2023
University of KwaZulu-Natal   *KwaZulu-Natal, South Africa*

Relevant Courses: Artificial Intelligence; Database Systems; Natural Language Processing; Object-Oriented Programming; Data Structures; Computer Organisation and Architecture; Computer Graphics and Modelling; Software Design; Theory of Computation

National Senior Certificate - High School   2016 - 2020
Apollo Secondary School   *KwaZulu-Natal, South Africa*

Relevant Courses: Core Mathematics; Information Technology; Physical Science; Engineering, Graphics and Design; Geography; English

Work Experience

Operations Data Assistant (Part-Time) | JD Board & Wrap   *07/2025 - present*

- Maintain and analyse structured operational and financial datasets in Excel to track job progress, invoicing, payments, and profitability trends.
- Capture, validate, and update operational and financial data to ensure accuracy and consistency across records.
- Create monthly sales, credit, and invoice summaries to support management reporting and decision-making.
- Improve data organisation and reporting efficiency using Excel formulas and structured tables.

COMP314 Demonstrator | University of KwaZulu-Natal   *07/2024 - 12/2024*

- Supervise and assist in tutorial sessions.
- Guide students with problem-solving and reinforcing lecture concepts.
- Help students with programming and technical tasks regarding the course material.
- Support test processes through invigilation.

Examination Assistant | KZN Department of Education   *12/2021*

- Receive and control examination answer books from courier services.
- Verify information submitted with examination answer books.
- Perform quality control during and after marking of examination answer books.
- Provide support to marking centre management when need arises.

Awards & Honours

- **Cum Laude:** BSc. Honours in Computer Science (82%), 2024
- **Cum Laude:** BSc. Computer Science & IT (79%), 2023
- **Dean's Commendation:** University of KwaZulu-Natal, 2021 - 2024
- **UKZN Postgraduate Bursary**, 2024
- **UKZN Undergraduate Merit Scholarship**, 2022, 2023