

Ryan Mutiga Gichuru

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TECHNICAL SKILLS

Languages: Python, C++, JavaScript, HTML/CSS, SQL, WSL

Frameworks & Libraries: NumPy, Pandas, Scikit-Learn, TensorFlow, PyTorch

Tools & Technologies: Git, Github, CUDA, Linux(Ubuntu), BigQuery, Oracle, Docker, AWS

Areas of Expertise: Machine Learning, Data Analysis, LLM Finetuning and RAG Applications, AI Systems Design

EDUCATION

University of Northampton

BSc in Artificial Intelligence and Data Science

Northampton, UK

Expected May 2026

- **Relevant Coursework:** Introduction to Artificial Intelligence, Data Structures and Algorithms, Cloud Computing and Big Data, Mathematics for Computer Science, Machine Learning, Statistics

Generative AI Bootcamp, GetSeen Ventures

6-week intensive program on Generative AI technologies

Remote

Jul. 2024 – Sep. 2024

- Focused on LLMs, Retrieval-Augmented Generation (RAG), and building production-level AI applications
- Developed practical skills in AI solution development and collaborative project execution

AI and GPT Bootcamp, Encode Club

8-week program on AI applications and development

Remote

Aug. 2024 – Oct. 2024

- Gained proficiency in AI techniques for NLP, image recognition, and content generation
- Built and deployed AI-powered applications using cloud services and local hardware

EXPERIENCE

Founding AI Engineer

BARBAH Games (Startup)

Jun. 2024 – Present

Remote

- Developing AI solutions/integrations for esports and education applications
- Leading initiatives in AI development and deployment, currently working on a customer support chatbot for the MVP
- Collaborating with cross-functional teams, improving communication and project management skills

Research Assistant

University of Northampton

Nov. 2023 – Jul. 2024

Northampton, UK

- Conducted data analysis and visualization using Python libraries (Pandas, NumPy, Seaborn, Matplotlib)
- Delivered AI literacy workshops within the university, presenting at three conferences on AI in education
- Engaged in prompt engineering, prompt versioning and fine-tuning of a custom GPT model

Student Ambassador

Intel Corporation

Jun. 2024 – Present

Remote

- Promoting learning and collaboration within developer communities
- Enhancing skills in oneAPI and exploring cutting-edge Intel hardware and software
- Organising and delivering hands-on training sessions on AI and HPC

Campus Ambassador

Facia AI

May 2024 – Present

London, UK

- Spearheading awareness campaigns for Facia's liveness detection and facial recognition solutions
- Creating engaging content to showcase Facia's impact against cybercrime
- Representing the company at various campus events and initiatives

PROJECTS

UniMind: Mental Health Chatbot for UON Students (Group Leader) | *Python, Multi-Agent AI, API Orchestration*

- Led development of an innovative multi-agent AI mental health support system achieving 100% crisis detection accuracy and 8.2/10 user satisfaction across comprehensive testing with external participants and public demonstration.
- Architected and implemented a sophisticated multi-agent system with strategic planning overseer, local conversation agent using Psychotherapy-LLM (8B parameters), and university resource integration components.
- Orchestrated complex API integration between Gemini 2.0 Flash, OpenAI Assistant API, and local LLM hosting, achieving 40% cost optimisation through innovative unified prompt architecture.
- Designed multi-layer crisis safety system with real-time escalation protocols, preventing false negatives through redundant detection across OpenAI Resources and Gemini APIs with predefined professional responses.
- Delivered 89% cost reduction compared to traditional counselling (£13.36/user/month vs £128/month) while maintaining therapeutic conversation quality and comprehensive UON resource integration.
- Led evidence-based research including primary surveys with 70+ students for requirements gathering, professional mental health expert interviews, and comprehensive evaluation strategy with public demonstration and external participant validation.

SensoryNeural: AI-Driven Sensory Support System (Team Leader) | *Python, IoT, Machine Learning, Wearables*

- Led end-to-end technical implementation of a stress-sensing companion for neurodivergent children (0–5), including a Python backend that streams wearable telemetry to a real-time caregiver dashboard.
- Converted recorded heart-sound audio into beat series via band-pass filtering, envelope extraction, and peak detection; computed inter-beat intervals to derive HR/HRV and establish age-appropriate baseline heart rates for early childhood.
- Implemented a hybrid stress-detection loop that combines calibrated thresholds with AI-guided recommendations, producing context-aware interventions parents and practitioners can act on.
- Delivered multiple demos: rapid static dashboards for usability tests and a production React (TypeScript + Vite + Tailwind) frontend for the competition final.
- Produced the technical roadmap for privacy/safeguarding and deployment in nurseries/clinics; finalist (runner-up) in the Elevate Great AI Competition 2025 live final.

RAG-Based Chatbot for BARBAH Games Website | *Python, NLP, RAG*

Jul. 2024 – Present

- Designing and developing a Retrieval-Augmented Generation (RAG)-based chatbot to enhance user engagement on the BARBAH Games website.
- Implementing an end-to-end AI solution, including data ingestion, preprocessing, model fine-tuning, and deployment pipelines to ensure scalability and reliability.
- Conducting rigorous testing and continuous monitoring to optimize performance, achieve low latency, maintain high response accuracy, and incorporate user feedback for ongoing improvements.

Warehouse Optimisation with AI | *Python, Machine Learning, Data Analysis*

May 2024 – Jul. 2024

- Collaborated with GXO on a project to improve operational efficiency in logistics order consolidation
- Applied k-means clustering and decision tree algorithms for data analysis and trend identification across both proprietary and open datasets
- Developed AI-driven optimisation models and delivered a comprehensive report recommending tailored AI/ML systems for specific logistics use cases

Study Smart: AI Literacy Initiative | *Data Analysis, GPT, Python*

Nov. 2023 – Jul. 2024

- Conducted data analysis to enhance AI literacy among staff and students.
- Fine-tuned custom GPT models for data analysis, contributing to one of the first university-led research efforts assessing the quality of both qualitative and quantitative AI analytics
- Collaborated with a team to present findings at educational conferences.

ACHIEVEMENTS AND INVOLVEMENT

Mentor, UON AI and Robotics Society Sep. 2023 – Present

- Expanded membership by 60% and funding by 52% through strategic initiatives like industry partnerships, fundraising etc
- Provide strategic guidance and expertise on AI, robotics, and society initiatives.
- Facilitated the merger of the AI and Robotics societies, marking one of the first successful society mergers at the university
- Assisted in building industry and academic partnerships, event planning, workshops, and competitions while president and treasurer previously.E.g: Takara AI, NN1 Dev Club within Northampton
- **Won Society Event of the Year (STAAR Awards)** for partnering and organising the IEEE Robotics Competition, bringing together students across the university for line-following robot challenges combining programming with hands-on hardware engineering

Student Careers Coach, University of Northampton Sep. 2024 – Present

- Provide career support on CV writing and interview preparation
- Conduct career coaching sessions, helping students recognise their strengths and utilise them

Volunteer, FISH (Friendship International Students and Hosts) Mar. 2024 – Present

- Volunteer at FISH, assisting with setup and coordination of weekly Monday Globe Cafe events at University of Northampton Waterside Campus
- Support international students by facilitating cultural exchange, English practice, and community integration in a welcoming environment
- Active community member since October 2023, contributing to enriching experiences for international students and fostering positive UK cultural immersion

Volunteer Store Assistant, Barnardo's Charity Mar. 2023 – Aug. 2023

- Managed store operations and merchandising for charitable causes
- Handled transactions and provided customer service

Certifications

- Kaggle Certificate in Pandas: Completed advanced data manipulation course
- **AWS Academy Graduate - AWS Academy Cloud Foundations** 2025

Competition Achievements May 2024 – Present

- **Finalist, Elevate Great AI Competition 2025** - Selected as one of three finalists for SensoryNeural project, an AI-driven sensory support system for neurodivergent children
- Participated in 1 hackathon and 2 competitions, developing rapid prototypes under time pressure
- Learned multiple new technologies during time-constrained development challenges e.g: hardware development in Arduino and Particle's Photon 2