Marcus Kamuntu

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SUMMARY

Third-year Computer Science student with a strong foundation in **full-stack development** and **system architecture**. Experienced in building **high-availability tools**, AI-driven applications, and managing production software for clients. Founder of a development agency with a proven track record of delivering scalable solutions. Seeking a **Software Engineering Industrial Placement** to apply technical expertise in a challenging, production-grade environment.

EDUCATION

University of Dundee   Scotland, United Kingdom
BSc (Hons) Computer Science (Data Science and AI) with Industrial Placement   *2024 – 2028*
  - Relevant coursework: Software Engineering, Multi-Paradigm Programming, Data Structures & Algorithms

PROFESSIONAL EXPERIENCE

Yarn Development   London, England [Hybrid]
Founder and CEO   *Mar 2021 – Present*
  - Spearhead freelance **full-stack solutions** for clients, including company portfolios and educational content management platforms.
  - Implement responsive UI with **React/Next.js** and deploy applications using **Vercel** and **Supabase**.
  - Coordinate with clients on requirements, version control workflows, and feature delivery.
  - Key Skills: Next.js, DevOps, CI/CD, PostgreSQL

Rover (formerly Documatic)   London, England [Online]
Beta Manager   *Jun 2022 – Sep 2022*
  - Led beta testing for **AI-related developer tools**, gathering insights to improve NLP-driven features like **Codesearch**.
  - Collaborated with engineering teams to refine system usability and feature prioritization based on **user feedback**.
  - Key Skills: Teamwork, Git, Communication, Software Project Management

Pollo Game Boat   Boston, MA, USA [Online]
Co-Founder and Lead Developer   *Feb 2021 – Jun 2022*
  - Built and scaled **automated moderation tools** serving 250,000+ users, reducing manual workload for community managers.
  - Migrated backend infrastructure from **MySQL** to **MongoDB** to improve **data pipeline efficiency** and system scalability.
  - Developed APIs and modular architecture for scalability and maintainability.
  - Key Skills: Node.js, TypeScript, Express, MongoDB

PROJECTS

Distributed Task Scheduler (Quartz-Lite) | *Java, Concurrency, SQL, JUnit*   Oct 2025
  - Engineered a **high-availability job orchestration engine** in Java, utilizing `java.util.concurrent` for thread-safe execution.
  - Implemented strict **OOP patterns** (Strategy, Factory, Observer) to decouple job logic from the execution engine.
  - Designed a custom thread-pool manager to optimize resource allocation, mimicking production-grade pipeline infrastructure.
  - Designed a **fault-tolerant architecture** with **SQL persistence** to ensure job durability during system failures.

QGenie | *Express, Node.js, LLMs*   Jun 2024
  - Engineered an **AI-driven question generation system** leveraging **pretrained large language models** with a Node.js/Express backend.
  - Designed **prompting strategies** and response parsing algorithms for domain-specific, exam-style content.
  - Implemented **data validation pipelines** to parse and format raw LLM outputs into consistent, usable JSON data.

PoeAPI | *Python, FastAPI, Uvicorn, BeautifulSoup* May 2023

- Engineered a high-performance **REST API** using **FastAPI** to interface with Quora's Poe platform, unifying access to diverse LLMs (Claude, ChatGPT, Sage) under a single programmatic endpoint.
- Deconstructed internal web traffic to reverse-engineer authentication flows, implementing **cookie-based session management** and header spoofing to successfully bypass browser-only restrictions.
- Designed a modular architecture with **dynamic bot-aliasing**, enabling developers to self-host the solution and integrate premium AI capabilities into external applications without official API costs.
- Created a tool used by the open-source community to build integrations on top of closed platforms

Autonomous EV Pathfinding Engine | *Python, NetworkX, GeoPandas, A* Algorithm* Dec 2024

- Developed a **dynamic routing model** for Electric Vehicles, optimizing pathfinding to mitigate range anxiety by integrating traffic congestion metrics and charging station availability.
- Engineered a custom **A* search** algorithm over a directed graph of 370,000+ nodes, utilizing heuristic functions to balance geodesic distance with energy constraints.
- Implemented a geospatial data pipeline using **GeoPandas** to process OS Open Roads shapefiles and built a Tkinter GUI for real-time path visualization and interaction.

SKILLS

Programming Languages: Java, JavaScript (ES6+), TypeScript, Python, C, Swift
Frameworks: React, Next.js, Express, FastAPI, Bootstrap, Tailwind CSS
Tools: Git, Docker, Supabase, Vercel, GitHub Actions, Maven
Testing: JUnit, Jest, Mocha (unit and integration testing)
Languages: English (Advanced), French (Limited)