Rahul Rakesh

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Education

University of Western Ontario 2023–2027 (Expected)
B.Sc. Honours Specialization in Computer Science (CO-OP) *London, Ontario*
- **Relevant Coursework:** Data Structures & Algorithms, Databases, Software Engineering, Machine Learning

Work and Leadership Experience

Freelance Web Developer Sept 2024 – Present
Self-Employed *Remote*
- Delivered production-grade full-stack applications for **5+ clients** using **React, HTML, CSS** and **PostgreSQL**.
- Improved website performance with **50% faster load times** and **40% higher engagement** through code optimization, lazy loading, and SEO best practices.
- Led projects end-to-end, including requirements gathering, system design, deployment to **AWS** and **Vercel**.

Ultimate Frisbee Captain / Coach June 2022 – Aug 2025
School / Merciful Redeemer Parish *Mississauga, Ontario*
- Led and coached a competitive team of **15+ players** to **2 tournament championships** by coordinating training, strategy, and logistics.
- Achieved **90% year-over-year player retention** by developing structured training programs emphasizing skill development and teamwork.
- Cultivated a positive team culture through mentorship, leadership development, and community outreach initiatives.

Projects

Fake Out – Real-Time Multiplayer Game — *React, TypeScript, Node.js, Socket.IO, Docker, Fly.io*
- Built a real-time multiplayer game achieving **sub-100ms latency** and **99.5% uptime** using **React**, **TypeScript**, **Node.js**, and **Socket.IO**.
- Designed **authoritative server-side game state** with room-based events and heartbeat monitoring, supporting **10 concurrent players** without desynchronization.
- Deployed containerized services via **Docker** on **Fly.io** with CI/CD pipelines, handling **1,000+ game sessions**.

NeuroScan – RL-Driven HPC Workload Optimizer — *PyTorch, Gymnasium, AWS EC2, Docker*
- Improved HPC scheduling efficiency by **25%** and reduced job wait time by **35%** using deep reinforcement learning agents built with **PyTorch** and **Gymnasium**.
- Executed **10,000+ distributed simulations** on **AWS EC2** to evaluate policy performance at scale.
- Optimized **multi-objective reward functions** balancing completion time and resource utilization, analyzed via TensorBoard.
- – Developed and deployed applications on Linux-based cloud environments using Docker, AWS EC2, and REST APIs.

Schedula – Serverless Booking Backend — *Azure Functions, Azure SQL, JWT, REST API*
- Developed a serverless booking API with **sub-200ms response times** using **Azure Functions**, **Azure SQL**, and JWT-based authentication.
- Prevented race conditions and double bookings through **transaction-safe scheduling**, SQL isolation levels, and idempotent requests.

VitaLink (TerraHacks 2025) – AI Healthcare Platform — *React Native, Django REST, PostgreSQL*
- Reduced patient intake time by **30%** by building a healthcare platform using **React Native** and **Django REST Framework** with intelligent form pre-filling, with **Postgres** for backend
- Built **LLM-powered workflows** using **Gemini AI** for real-time reasoning, prompt-driven analysis, and automated decision support.
- Designed **AI prompts** and response pipelines to generate **structured outputs** for downstream applications and services.

Technical Skills

Languages: Languages: Python (AI/LLMs), Java (OOP, backend systems), JavaScript, TypeScript, C/C++, SQL
Web & Backend: React, Node.js, Express.js, Django, REST APIs, Socket.IO
Databases & Caching: PostgreSQL, MongoDB, SQLite, Redis, Azure SQL
Cloud & DevOps: AWS (EC2, S3, Lambda), Azure Functions, Docker, Git, GitHub Actions
ML: PyTorch, TensorFlow, Scikit-learn, Pandas, NumPy, Gymnasium (RL), OpenAI API, Gemini AI