

Kunal Rao

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| <https://portfolio-kunal-one.vercel.app>

EDUCATION

University of Alberta

Bachelor of Science in Computer Science, Specialization in Software Practice

Expected Graduation: May 2026

Edmonton, AB

Relevant Coursework: Data Structures & Algorithms, Machine Learning, Database Management, Software Engineering, Operating Systems, Computer Architecture, Reinforcement Learning, Statistics, Data Science.

EXPERIENCE

Software Developer Co-op

Royal Bank of Canada (RBC)

January 2025 – Present

Toronto, ON

- Develop **Wealth Management Technology (WMT)** components using **Python, SQL, JavaScript, Java**, and cloud technologies, enhancing the platform experience for **70,000+ financial advisors**.
- Implement **Azure DevOps**, automated **CI/CD pipelines**, and cloud infrastructure best practices, reducing deployment time by **30%** and improving system reliability and scalability.
- Develop **real-time data pipelines** using **Kafka and GraphQL**, optimizing data ingestion and streaming efficiency, cutting latency by **35%**, and enabling seamless integration across wealth management systems.
- Built an **AI financial assistant** using **LangChain, Azure OpenAI, ARIMA, and Snowflake** to provide real-time investment insights with **85% accuracy**.

Software Engineer

S.P.E.A.R (Space Exploration Alberta Robotics)

September 2023 – April 2024

Edmonton, AB

- Led the Mars rover development for **90%+** autonomous navigation, sensory integration, and object detection.
- Collaborated with teams to define project requirements, design **software architecture**, and conduct rigorous testing using **Agile** and **DevOps** methodologies.
- Enhanced rover autonomy by **30%** through the integration of **SLAM with LiDAR and IMU technologies** and optimizing path planning, obstacle detection through TensorFlow-based computer vision algorithms.

PROJECTS

MediCheck | *Next.js, Java, Python, LangChain, Hugging Face, PostgreSQL, Redis* | **HackEd 2025 - Winner**

- Built a **full-stack healthcare platform** with **Next.js and Java**, enabling real-time patient-doctor interactions and cutting scheduling time by **40%**.
- Built a **custom RAG-based LLM pipeline** with **vector search and retrieval augmentation**, improving medical response accuracy by **35%** and reducing irrelevant recommendations.
- Optimized backend performance with **PostgreSQL, REST APIs, and Redis**, increasing data retrieval speed by **50%** and ensuring seamless integration with AI-driven diagnostics.

StudyAmp | *React, Python, FastAPI, LangChain, Gemini, Neural Networks, Muse 2 EEG* | **NatHacks 2024 Winner**

- Built a **real-time attention monitoring system** using Muse 2 EEG and Brainflow, achieving **95% accuracy** in tracking focus and live data synchronization.
- Engineered an **AI-powered focus analysis tool** with **Gemini API RAG LLM and Neural Networks**, improving focus retention by **30%** and generating **personalized summaries** for low-focus segments.
- Developed a scalable **FastAPI backend** for real-time EEG data processing and audio analysis, supporting **multi-user sessions** efficiently.

Shelter For Women | *React, Express.js, Firebase, Node.js, CSS* | **Morgan Stanley - Code To Give 2024 Winner**

- Led the development of an intervention plan system, amplifying **Le Chaînon's** support for women in need.
- Implemented **SMART-based goal-setting**, increasing care plan customization by **80%**.
- Built a **real-time messaging and scheduling system** using **WebSockets, Firebase, and Google Calendar API**, reducing response times by **50%** and improving scheduling efficiency by **30%**.

TECHNICAL SKILLS

Languages: Python, C, C++, C#, Java, Java Script, ROS, Dart, Linux, Ruby, Go, GoLang, HTML, CSS, XML, R.

Database Management: SQL, MongoDB, Firebase, AWS Cloud, Chroma DB, Snowflake, Kafka, Postgresql.

Frameworks: React, Next.js, Node.js, Flask, JUnit, TensorFlow, PyTorch, Express.js, LangChain, Fast Api, Jest

Developer Tools: Git, Docker, VS Code, PyCharm, IntelliJ, Android Studio, Linux, Flutter, Jira, Jenkins.