Kunal Rao

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https://portfolio-website-ep64fviy9-kunal112003.vercel.app

Education

- **Bachelor of Science in Computer Science** – University of Alberta, Canada **September 2021 –Expected 2025**

Relevant Coursework

- Tangible Computing, Algorithms, Machine Learning, Database Management, Software Engineering, Discrete Math, Search and Planning in AI, Calculus 1 and 2, Introduction to Advanced Statistics, Linear Algebra.

Technical Skills

- Programming Languages: Python, C, Java, Java Script, Dart, XML.
- Database Management: MySQL, SQL, NoSQL, MongoDB.
- Web Dev and Mobile Dev: React.js, CSS, Android Studio, Flutter.
- Software Engineering: Object-Oriented Programming, Agile Methodology, Scrum.
- Data Analysis: NumPy, Pandas, Data Visualization.

Experience

Math Tutor: **July 2023 –Present**

Self-Employed

- Tutored high school students (grades 9-10) in math, providing comprehensive support for homework assignments and exam readiness.
- Achieved an increase in average grades by ~10% through personalized instruction and guidance.

Abu Dhabi Indian School: **September 2019 –May 2021**

Prefect

- Supervised disciplinary procedures for a student body of 5000+.
- Collaborated with the school council and staff to organize and execute over 20 school events.

Projects

SpendWise Android App: **June 2023 –Present**

Technology Used: Android Studio, Java, XML, Firebase, OpenAI API

- Created budget app aiding users to cut monthly spending by ~5% for significant long-term savings.
- Enabled real-time data analytics for users to monitor budget adherence and visualize spending patterns.
- Constructed the app using Java, XML, and Android Studio, amassing around 5,000 lines of code, while adhering to **Agile methodology** to ensure streamlined development and **Software Engineering** best practices.

Search and planning AI models: **March 2023 –April 2023**

Technology Used: Python, Numpy, Panda Library

- Engineered Python AI models using Numpy for game and quiz solving with almost **100%** efficiency.
- **Sudoku Solver:** Solved the **top 95** most challenging Sudoku puzzles in the world with success rate of 99%.
- **Connect 4 AI:** Optimizes gameplay, achieving an average win rate of **95%** against human players using game tree search algorithms like minimax with alpha-beta pruning.
- **Path Finding AI:** Determined optimal paths in complex maze-like environments, surpassing traditional search algorithms such as A*, Dijkstra's algorithm, or Breadth-First search by ~**60%** in terms of computational efficiency.

QRiffic Android App: **January 2023 –May 2023**

Technology Used: Android Studio, Java, XML, Firebase, Google Maps API

- Led and directed a team of 6 developers in creating QRiffic, an Android app.
- Attained **98%** QR code recognition accuracy for seamless scanning.
- Designed a user profile and search feature to browse 100,000+ player profiles and track progress.
- Integrated Firebase and Google APIs for leaderboard, 3D map environment, and secret QR code functionalities.
- Utilized Java, XML, and Android Studio for Full stack development of the app with a code base of over 10,000 lines.
- Followed **Agile methodology** and **Software Engineering practices** for development efficiency.