Vansh Taneja

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Education

University of Alberta Edmonton, AB

Bachelor of Science in Computing Science – Artificial Intelligence Option *Sep 2022 – Apr 2026*

- **Relevant Coursework**: Data Structures and Algorithms, Software Engineering, Reinforcement Learning, Search and Planning in AI, C Programming, Computer Vision, Advanced Machine Learning, Ethics in Artificial Intelligence, Database Management Systems

Experience

Research Assistant Feb 2025 – Mar 2025

University of Alberta *Edmonton, AB*

- Extracted and processed large-scale job posting data using **SEMrush API**.
- Performed **traffic and keyword analysis** on **6,000+ websites** to support labour market research.
- Built **data cleaning pipelines** to validate and scale web metrics across countries and timeframes.

Software Development Intern May 2024 – Aug 2024

Vita Actives *Edmonton, AB*

- Engineered internal **Flask microservices** to automate reporting, cutting manual data work by **30%**.
- Built modular **React.js dashboards** with TailwindCSS/Chart.js integrated with SQL for real-time analytics.
- Integrated third-party **CRM and ERP systems** via secure REST APIs, improving cross-department data sync.
- Performed **unit and integration testing** (PyTest, Jest) with detailed documentation; collaborated in Agile sprints to ensure reliable, client-ready software delivery.

Data Science Intern May 2023 – Aug 2023

Vita Actives *Edmonton, AB*

- Optimized inventory management using predictive models (**Random Forest, XGBoost**) to reduce overstock.
- Performed **customer segmentation** using K-means and DBSCAN for targeted marketing.
- Built a **demand forecasting model** with time-series analysis to optimize restocking.
- Applied **NLP** to analyze customer feedback, generating insights that guided product development.
- Documented data workflows and model results to support cross-functional teams in deployment and maintenance.

Projects

Spam Message Classifier | *Python, NLP, Scikit-learn, Streamlit*

- Built a **spam classifier** using **VotingClassifier (SVM, Naive Bayes, Extra Trees)** with soft voting.
- Preprocessed text by tokenizing, stemming, and vectorizing to capture semantic similarity.
- Evaluated model with **precision, recall, and F1-score** to ensure balanced classification between spam and ham.
- Deployed via **Streamlit** with proper documentation for real-time classification and interactive visualization of predictions.

Event Lottery System Application | *Android, Java, Firebase, XML, Google QR API*

- Implemented **lottery pooling algorithm** and waiting list management in Java.
- Integrated **Firebase Firestore** for storing events, attendees, and role-based access (entrant, organizer, admin).
- Built **Android UI components** for event listings, QR code scanning, and profile management.
- Configured **Firebase Authentication** and Cloud Messaging for secure sign-in and push notifications.
- Collaborated in Agile sprints with Git version control, performing code reviews, unit testing, and structured documentation.

Self-Driving Race Car (Capstone) | *Python, PyTorch, OpenAI Gym, RLlib*

- Built a **Deep Q-Learning** agent for autonomous driving in simulation.
- Integrated with **OpenAI Gym's CarRacing-v0** for training policies via reward-based learning.
- Implemented PyTorch neural networks with experience replay for stable training.
- Reported results in team sessions, highlighting tradeoffs in exploration tuning and hyperparameter optimization.

Technical Skills

Languages: Java, Python, C++, C, SQL, JavaScript, TypeScript, HTML, CSS
Frameworks & Tools: React.js, Flask, Node.js, .NET (basic), Streamlit, FastAPI, Docker, Git, Jenkins (basic)
Databases: MySQL, PostgreSQL, MongoDB, Oracle (basic), Firebase
Cloud/DevOps: AWS EC2, GitHub Actions, Terraform, Nginx, Docker, familiarity with Azure/GCP
Testing: Unit Testing, Integration Testing, PyTest, Jest, Structured Documentation

Certifications

Amazon Junior Software Developer Specialization – Coursera (7-Course Series)