

VANSH SINGH

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PROFESSIONAL SUMMARY

Computer Science student at the University of Alberta with interdisciplinary experience across full-stack software engineering, AI systems, frontend architecture, backend APIs, databases, technical support, and analytical media studies. Experienced building production-focused web and mobile applications using React, Next.js, React Native, Node.js, FastAPI, TypeScript, Python, PostgreSQL, MongoDB, and REST APIs. Strong foundations in operating systems, distributed systems, algorithms, databases, AI systems, and software engineering principles through academic and professional experience.

Combines technical systems thinking with strong communication, analytical writing, problem solving, and creative reasoning developed through Computer Science and Film Studies. Interested in AI systems, intelligent interfaces, recommendation systems, information architecture, human-computer interaction, and scalable software products.

EDUCATION

University of Alberta

Bachelor of Science in Computing Science, Minor in Film Studies

Edmonton, Alberta

Sep. 2021 – Apr. 2026

- Relevant Coursework: Operating Systems, Parallel & Distributed Systems, Artificial Intelligence, Search & Knowledge Simulation, Algorithms I, File & Database Management, Computer Organization & Architecture, Practical Programming Methodology, Non-Procedural Programming Languages, Formal Systems & Logic, Functional Programming, Logic Programming
- Additional Studies: Film Theory, Media Analysis, Philosophy of Technology, Ideology Critique, Cultural Analysis, Communication Theory, Psychoanalytic Theory, Spectatorship, Aesthetics, Narrative Systems, Global Television Studies, Action Cinema, Horror Cinema, Screening Race, Screening Socialism, Eastern European Cinema, Film & Philosophy
- Recipient of the International Student Scholarship

EXPERIENCE

Shop Squad (Startup)

Application Developer Intern (Mobile + Backend)

Remote / Singapore

May 2023 – Aug. 2023

- Developed and maintained production mobile application features using React Native, JavaScript, Node.js, REST APIs, and Git-based collaborative workflows
- Integrated authentication systems, payment systems using Stripe, backend APIs, and structured data workflows for scalable deployment
- Improved frontend responsiveness and rendering performance through optimization of component architecture and state-management workflows
- Worked across frontend UI development, backend integrations, debugging, testing, issue resolution, and production-focused iteration cycles
- Collaborated remotely with cross-functional teams in agile environments while maintaining clear technical documentation and communication

University of Alberta Library

Library Specialized Technical Support

Edmonton, Alberta

Feb. 2024 – Apr. 2024

- Resolved 100+ technical support requests involving Windows systems, Linux systems, networking, multimedia workstations, VR systems, and institutional technologies
- Performed structured troubleshooting, debugging, system evaluation, documentation, hardware setup, lifecycle management, and operational maintenance
- Maintained operational reliability for specialized digital infrastructure and public-facing systems across institutional environments
- Communicated technical issues clearly with users while translating complex problems into actionable solutions
- Developed strong analytical problem-solving, independent judgment, QA, and technical communication skills

University of Alberta Film Society

Treasurer

Edmonton, Alberta

Sep. 2024 – Apr. 2025

- Managed budgeting, organizational operations, event planning workflows, and stakeholder communication for a multidisciplinary student organization
- Maintained structured records, documentation systems, collaborative planning workflows, and operational coordination
- Strengthened leadership, analytical communication, teamwork, and organizational planning through collaborative event execution

PROJECTS

Thinking Studio / Thinking Dashboard | React, TypeScript, IndexedDB, Chrome Extensions, RSS Systems

- Designed and developed a local-first Chrome new-tab extension serving as a structured intellectual reading environment and knowledge dashboard
- Built RSS ingestion pipelines supporting 50+ curated knowledge sources across AI, philosophy, systems thinking, research, and media
- Implemented article ranking, filtering, deduplication, search workflows, and IndexedDB persistence architecture
- Focused on frontend architecture, information organization, scalable UI systems, asynchronous workflows, and cognitive-focused interface design

ApplyIntel | Next.js, TypeScript, FastAPI, PostgreSQL

- Designed and developed a full-stack SaaS platform for job tracking, analytics dashboards, workflow visualization, and application management
- Built scalable REST APIs and relational database systems using FastAPI and PostgreSQL
- Implemented filtering systems, follow-up scheduling workflows, responsive dashboard interfaces, and structured frontend architecture
- Applied debugging, testing, API validation, and maintainability-focused engineering practices

News Nexus | React, Node.js, Express.js, REST APIs, Tailwind CSS

- Developed a real-time news aggregation platform integrating multi-source APIs and responsive frontend systems
- Engineered backend workflows for asynchronous data fetching, filtering, ranking, deduplication, and API orchestration
- Implemented reusable frontend components, loading states, responsive layouts, and structured state management workflows
- Focused on scalable frontend architecture, maintainable backend systems, and optimized user experience

RAG Film Theory Chatbot | FastAPI, LangChain, OpenAI API, ChromaDB, Python

- Architected a retrieval-augmented generation (RAG) system processing large-scale film theory PDFs using semantic search and vector embeddings
- Implemented chunking pipelines, embedding workflows, metadata tracking, and citation-aware retrieval systems
- Engineered RESTful backend APIs with FastAPI supporting contextual responses and persistent vector storage
- Focused on scalable backend architecture, AI-assisted retrieval systems, and transparent source attribution workflows

Film Wizard | Python, scikit-learn, Streamlit, Pandas, NumPy

- Built a machine-learning-based movie recommendation system using TF-IDF vectorization and cosine similarity scoring
- Processed large-scale TMDb datasets involving genres, metadata, keywords, and cast relationships
- Developed an interactive Streamlit interface supporting dynamic recommendation workflows and responsive user interaction
- Applied machine learning, structured preprocessing, recommendation systems, and analytical evaluation workflows

PDF Sage

Python, FastAPI, AI APIs

- Built an AI-powered document query platform supporting PDF uploads and contextual semantic retrieval workflows
- Implemented document ingestion pipelines, text extraction, semantic search, and AI-driven response generation
- Focused on backend orchestration, scalable document processing systems, and maintainable API workflows

Weather App

React Native, Expo, REST APIs

- Developed a cross-platform mobile weather application with GPS integration and real-time forecast rendering
- Implemented mobile-focused UI systems, asynchronous request workflows, and responsive frontend architecture

URL Shrinker

Node.js, Express.js, MongoDB

- Built a URL shortening service with REST API architecture, redirect systems, validation workflows, and scalable backend routing
- Implemented MongoDB persistence workflows, asynchronous request handling, analytics tracking, and backend debugging pipelines

QuickWit

Python, Tkinter

- Built a desktop RSVP-based speed-reading application for PDFs and text documents using Python and Tkinter
- Implemented text extraction workflows, configurable reading-speed controls, and lightweight event-driven UI systems

Price Monitor

TypeScript, APIs, Data Tracking

- Developed a monitoring platform for tracking pricing information across structured external data sources
- Implemented asynchronous monitoring systems, API reliability workflows, and operational tracking pipelines

TECHNICAL SKILLS

Programming Languages: Python, JavaScript (ES6+), TypeScript, SQL, C, C++, HTML5, CSS3, Bash/Shell, Lisp, Prolog, MIPS Assembly

Frontend Development: React, Next.js, React Native, Tailwind CSS, Responsive UI Design, Component-Based Architecture, State Management, Chrome Extensions, IndexedDB

Backend Development: Node.js, Express.js, FastAPI, REST APIs, Authentication Systems, API Integrations, Async/Await, Request-Response Handling, Middleware

AI / Machine Learning: LangChain, OpenAI API, RAG Architecture, Recommendation Systems, Semantic Search, Embeddings, scikit-learn, Pandas, NumPy, TF-IDF, ChromaDB

Databases & Data Systems: PostgreSQL, MongoDB, Firebase, Supabase, SQL Schema Design, Relational Data Modeling, Vector Databases

Cloud & DevOps: Git, GitHub, Linux/Unix, Windows, Docker (Basic), Google Cloud Platform, Firebase, Postman, VS Code

Computer Science Foundations: Operating Systems, Parallel & Distributed Systems, Algorithms, Database Systems, Computer Architecture, AI Systems, Search Algorithms, Debugging, QA & Testing

Creative & Media Tools: Figma, Canva, Adobe Premiere Pro, DaVinci Resolve, Technical Documentation, Multimedia Systems, Information Architecture

Professional Skills: Technical Communication, Cross-Functional Collaboration, Analytical Writing, Critical Analysis, Narrative Interpretation, Research, Structured Reasoning, Problem Solving, Independent Development, Workflow Design, Editorial Judgment, Media Analysis, Cultural Analysis, Presentation Skills, Public Speaking

Languages: English (Professional), Hindi (Native/Bilingual), French (Elementary), Japanese (Elementary)

HONORS, LEADERSHIP & ACTIVITIES

University of Alberta

Edmonton, Alberta

International Student Scholarship Recipient

2021

– Awarded for academic achievement and international student excellence

Calgary Youth Hackathon

Calgary, Alberta

Runner-Up Team

2023

– Built a web-based platform focused on mental health accessibility and community support in a competitive hackathon environment

University of Alberta Film Society

Edmonton, Alberta

Treasurer

2024 – 2025

– Managed budgeting, organizational operations, event coordination, and collaborative planning workflows

Student Activities

University of Alberta

Member

– English Conversation Club, Debate Club, Film Society, Badminton Club