# Maanas Saxena

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## Education

**University of Alberta**                                **Expected Graduation: December 2026**
*Bachelor of Science in Computer Nano-Engineering*                                *Edmonton, Alberta*
- Relevant Course Work: Data Structures and Algorithms, Database Management, Fundamentals of Programming

## Experience

**Dassault Systèmes SolidWorks**                                **May 2025 – August 2025**
*Machine Learning Intern*                                *Waltham, MA*
- Developed a **synthetic-data pipeline** that cut feature-detection model production time by **75%** through **reusable, programmatically-labeled datasets** adaptable to multiple tasks
- Optimized **dual-branch GNN** achieving **98% accuracy**, reducing manual review workload for **300+ engineers**
- Deployed the **ONNX-converted model** into **xDesign** enabling enterprise-wide adoption and boosting team efficiency
- Authored documentation and runbooks for the pipeline and model internals, cutting new-hire onboarding time by **80%**

**CIBC**                                **January 2025 – April 2025**
*System and Process Analyst*                                *Toronto, ON*
- Deployed and managed **Azure resources** to handle **200+ daily requests** with **99% uptime**, preventing disruptions
- Containerized Kong's **data and control planes** on **Azure Kubernetes Service**, ensuring stability and reducing deployment time by **30%**
- Developed **REST APIs** for banking workflows boosting development efficiency for **100+ interns** at CIBC's hackathon
- Implemented **OAuth 2.0** and **mTLS** to secure financial data and ensure regulatory compliance

**SpeechDojo**                                **July 2024 – August 2025**
*Software Engineer*                                *Edmonton, AB*
- Built a **RAG pipeline** to extract job details and create practice questions, enhancing interview prep for **100+ users**
- Deployed a **CPU-optimized LLM** with **Flask**, optimizing inference efficiency and sustaining **sub-20s response** times
- Built an **audio-processing pipeline** to deliver live personalized feedback, improving users' communication skills
- Integrated **React speech-to-text**, boosting engagement by **40%** through seamless voice-based interview simulation

## Projects

**Answerly** | *Python, Supabase, Voyage AI, Langchain, Gemini, FastAPI, Tavily* | 
- Designed a **RAG pipeline** via **LangChain** automating extraction, deduplication, and semantic summarization of resume and LinkedIn data into optimized embeddings for vector retrieval
- Configured **Supabase vector DB** with **MMR search**, achieving **sub-second retrieval** for diverse profile matching
- Built workflow with **LLM decision nodes**, reducing generic answer patterns by **60%** via dynamic company research
- Architected **cost-optimized system** using **free-tier APIs** with monthly refresh, enabling scalable usage at **sub 20s response time**

**VybeFinder** | *Python, OpenCV, MediaPipe, React.js, Flask, Spotify API* | 
- Built **gesture-based image capture** with **MediaPipe** and **OpenCV**, enabling touchless user control
- Developed a **full-stack app** generating **personalized recommendations** from images, streamlining music discovery

**Blood Guard** | *Python, Pandas, Scikit-learn, LightGBM* | 
- Analyzed **70,000 patient records** with **LightGBM** to predict cardiovascular risk for early intervention
- Improved model accuracy from **67% to 73.25%** via feature engineering of BMI, arterial stiffness, and lifestyle metrics
- Increased model robustness with **IQR-based outlier removal** and validated health metrics using **Pandas**

**Tidy Tunes** | *MERN Stack, Spotify API, AWS, Scikit-learn* | 
- Enabled personalized music discovery by building full-stack app using **MERN stack** with **Spotify API** integration
- Enhanced user engagement by using listening habits for **25+ users** to generate personalized recommendations
- Optimized music matching via search algorithms using **Euclidean distance** and **cosine similarity** for audio features

## Technical Skills

**Languages:** Python, TypeScript/JavaScript, SQL, Bash, HTML/CSS
**Frameworks & Libraries:** PyTorch Geometric, Flask, React, Node.js/Express, Django, Firebase, MongoDB, PostgreSQL, React Native
**ML / Data:** LightGBM, scikit-learn, OpenCV, MediaPipe, feature engineering, RAG, LangChain, MCP
**Tools & Platforms:** Docker, AWS, Azure, ONNX, Git, Postman, Linux, Figma, VS Code