

# ABDULLAH ALMAINI

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## PROFESSIONAL SUMMARY

- **CS & Math** student at the U of T with hands-on experience building **production-scale AI systems** that serve **thousands of users**
- Proven expertise in **generative AI applications** using **ML inference pipelines**, including **Stable Diffusion models** with **LoRa**
- Track record of delivering **high-impact solutions** across the **full ML lifecycle**, from processing **200,000+ medical images** to architecting **microservices** that reduce **latency by 40%**
- Passionate about solving challenges at the intersection of **machine learning**, **software engineering**, and **scalable infrastructure**

## EDUCATION

### University of Toronto

Mississauga, ON

*Honours Bachelor of Science in Computer Science, Mathematics & Statistics | PEY Co-op Program*

*Sep 2022 – May 2027*

- **Coursework:** Software Design, Software Tools & Systems Programming, Data Structures & Analysis, Software Engineering
- **Leadership & Activities:** Google Developer Student Club Member, University of Toronto Machine Intelligence Student Team

## WORK EXPERIENCE

### L'Oréal

Toronto, ON

*Machine Learning Operations (MLOps) Intern*

*May 2025 – Present*

- Engineered production-scale **generative AI hair virtual try-on system** using **Stable Diffusion models with LoRa adapters** for hair style customization and **inpainting techniques** for seamless integration, serving beauty recommendation features to **millions of users** across L'Oréal's digital ecosystem
- Architected **distributed ML inference pipelines** with **microservices architecture**, reducing model serving latency by **40%** through optimized preprocessing, batching, and caching strategies
- Designed and implemented **RESTful API services** for generative AI models, building scalable **backend infrastructure** with FastAPI to handle concurrent inference requests and integrate ML capabilities across L'Oréal's product ecosystem
- Developed critical **data preprocessing pipeline** including image resizing, face swapping, background/foreground segmentation, and hair mask generation, contributing **2,500+ lines of peer-reviewed code** (10% of codebase)
- Built and deployed **containerized ML services** using **Docker and GCP** with automated **CI/CD pipelines**, ensuring reliable model serving at scale

### AIP Labs

Mississauga, ON

*Machine Learning Engineer Intern*

*Jun 2024 – Sep 2024*

- Architected comprehensive **end-to-end ML pipeline** processing **200,000+ medical images**, achieving **1.5x improvement** in model precision and recall through advanced data preprocessing and feature engineering
- Developed sophisticated **image similarity algorithms** utilizing **cosine similarity** and deep feature extraction for intelligent medical data curation, enhancing dataset quality and model training efficiency
- Built production-ready **ResNet-based classification models** achieving exceptional **98%+ precision and recall** across complex 3-way medical image classification tasks
- Implemented ML solutions using **PyTorch, PyTorch Lightning**, and **Scikit-Learn** with data analysis using **Pandas & NumPy**

## PROJECTS

### Avatar Me - Interactive 3D Portfolio | Three.js, Express.js, Claude API, JavaScript, RAG

Ongoing

- Architected immersive **3D portfolio website** with integrated **AI chatbot**, demonstrating advanced 3D web development skills
- Solved critical **performance optimization challenge** by redesigning real-time 3D text rendering, achieving **10x FPS improvement** through intelligent batching and pre-rendering techniques
- Integrated **Large Language Models with RAG** for contextual Q&A about experience and projects

### AI-Powered Scheduling Assistant | React.js, Next.js, Node.js, PostgreSQL, Claude API

Jan 2025 – April 2025

- Led development of intelligent scheduling web application integrating **Claude API** with **NLP capabilities** for automated schedule optimization and conflict resolution
- Architected full-stack solution with responsive **React.js/Next.js/TypeScript** frontend and **microservices backend** using **Node.js**
- Designed optimized **PostgreSQL database schemas**, implementing efficient queries for user management and scheduling logic
- Managed **cross-functional team of 7 developers** using **Agile methodologies** and **Jira**, delivering project milestones on schedule

## TECHNICAL SKILLS

**Programming Languages:** Python, Java, C++, C, C#, JavaScript, TypeScript, HTML, CSS, SQL

**ML & AI Frameworks:** PyTorch, Scikit-Learn, OpenCV, NumPy, Pandas, Matplotlib, Stable Diffusion, LoRa, RAG

**Web & Backend Technologies:** React.js, Next.js, Node.js, Express.js, Three.js, REST APIs, PostgreSQL, Prisma ORM

**DevOps & Tools:** Docker, Git, Linux, GCP, CI/CD Pipelines, Jira, Heroku, OpenAI API, Claude API, Unity Engine, Unreal Engine