Abdullah Almaini

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EDUCATION

- **UNIVERSITY OF TORONTO** — Mississauga, ON
  Honours Bachelors of Science - Computer Science, Mathematics and Statistics & PEY Co-op   Sep. 2022 - Present

- **Relevant Coursework:**
  Software Design, Software Tools and Systems Programming, Data Structures and Analysis, Software Engineering

EXPERIENCE

- **AIP Labs** — Mississauga, ON
  Machine Learning Engineer Intern   Jun. 2024 - Sep. 2024
  - **End-to-end ML Pipeline**: Curated and analyzed over 200,000 medical images, trained deep neural networks, evaluated model performance, and refined the training pipeline (achieving a 1.5x improvement in precision and recall metrics across classes).
  - **Dataset Analysis**: Conducted image similarity and retrieval tasks (cosine image similarity, feature extractor) on large datasets to identify and resolve issues, ensuring accurate image curation.
  - **Image Classification**: Developed and trained advanced image classifiers using state-of-the-art models like ResNet, achieving over 98% precision and recall in a 3-way classifier for macroscopic, dermoscopic, and non-skin images.
  - **Technical Expertise**: Hands-on experience with PyTorch, PyTorch Lightning, & Scikit-Learn for model development; conducted data analysis using Pandas & NumPy and visualized results with Matplotlib.

PROJECTS

- **Scheduling AI Full Stack Web Application**

  Jan. 2025 - Present
  * **AI Integration and Development**: Developed an intelligent scheduling assistant using the Claude API, implementing natural language processing capabilities to enhance user interaction and automate schedule optimization.
  * **Full-Stack Development**: Built a responsive frontend using ReactJS, NextJS, JavaScript, and TypeScript, while implementing scalable microservices architecture for the backend services with Node.js.
  * **Database Management**: Architected and optimized PostgreSQL and SQLite databases using Prisma ORM, designing efficient schemas and queries for academic planning features and user data management.
  * **API Development**: Created and consumed RESTful APIs for seamless integration between frontend components, backend services, and third-party educational platforms, ensuring robust data exchange.
  * **DevOps and Team Leadership**: Led a team of 7 developers using agile methodologies with Jira, managing sprint planning and conducting code reviews to ensure consistent development.

- **Deerhacks 2025 Hackathon Project**

  Feb. 2025
  * **Full Stack Development**: Created a full stack NextJS app for students in 36 hours that generates quick and easy recipes, working in a team of 4 and demonstrating rapid development skills under time constraints.
  * **API Integration**: Utilized REST APIs to automate recipe creation and processed ingredients to generate comprehensive grocery lists, enhancing the app's functionality.
  * **User Interface Design**: Designed and implemented a sleek UI using React, focusing on user experience and intuitive navigation for the recipe generation platform.
  * **Rapid Prototyping**: Thrived in a fast-paced environment, employing rapid prototyping techniques and effective communication skills to meet hackathon deadlines.
  * **Database Implementation**: Leveraged Supabase for user accounts and authentication, implementing secure login functionality and data management systems.

- **Receipt OCR Application**

  Aug. 2024
  * **Automated Text Extraction**: Utilized OpenCV and PyTesseract to extract and process text from over 1,000 images, achieving a 90% accuracy in data extraction tasks.

* **Correcting Textual Errors with LLMs**: Integrated Large Language Models (LLMs) to automatically correct errors in OCR-extracted text, improving overall text accuracy and readability.
* **Optimized Image Preprocessing**: Improved image preprocessing steps, leading to a 30% increase in text detection accuracy, ensuring optimal recognition even in low-resolution or noisy images.

TECHNICAL SKILLS

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

○ **Frameworks & Libraries**: ReactJS, NextJS, NodeJS, PyTorch, PyTorch Lightning, Scikit-Learn, OpenCV, PyTesseract, NumPy, Pandas, Matplotlib, JavaFX, TKinter

○ **Tools & Technologies**: Git, Docker, PostgreSQL, Prisma, REST API, Heroku, Linux, OpenAI API, Unity