

Abdullah Almaini

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Education

UNIVERSITY OF TORONTO

Mississauga, ON

Honours in Bachelors of Science (H.Bsc.), Computer Science, Mathematics and Statistics + PEY Co-op

Relevant Coursework: Software Design, Software Tools and Systems Programming, Computational Linguistics

Work Experience

Machine Learning Intern: AIP Labs

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, and Scikit-Learn for model development; conducted data analysis using Pandas and visualized results with Matplotlib.

Projects

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.
- **Pattern Matching with Regex:** Applied regular expressions to extract and validate specific patterns like amounts and product names from the processed text.
- **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.

Accessible Adventure Game

Sep. 2023 – Dec. 2023

- **Java Application Development:** Utilized Java and JavaFX to develop an accessible-oriented adventure game, applying SOLID principles to practical scenarios.
- **Scrum Experience:** Participated in 6 Scrum sprints, enhancing skills in project management, teamwork, and iterative development.
- **Problem-Solving and Critical Thinking:** Cultivated problem-solving abilities and critical thinking through tackling complex software challenges when developing.
- **Git Version Control and Conceptual Thinking:** Demonstrated conceptual thinking in software design and mastered version control for effective code repository management with branches and merges.

Skills

Technical: Java, Python, C, C++, C#, HTML, CSS, Javascript, Git, Heroku, PostgreSQL, JavaFX, TKinter, Linux, Matplotlib, Sci-kit Learn, PyTorch, OpenCV, PyTesseract, OpenAI API