Morteza Mogharrab

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Education

Master of Computing Science

(Multimedia), *2023 – 2025,* CGPA (4 / 4)
University of Alberta, Edmonton, Canada.
Courses: AI in Multimedia, Computer Vision and 3DTV, Image and Video Processing, Virtual Reality and Telepresence, Multimedia Communication, Graphics and Animations

Skills

Toolkits:
Web Development: TypeScript, React Native, React, Redux, GraphQL, Expo
AI/ML: PyTorch, Scikit-Learn, NLTK, Hugging Face
DevOps: Git, Docker, AWS, CI/CD pipelines
Project Management: Jira, Bitbucket
UI/UX: Storybook, Adobe Collection
IDE: VS Code, Anaconda
Other: SQL, Unity, Microsoft Office

Competencies:
Problem Solving, Critical Thinking, Creative Thinking, Adaptability to New Challenges, Team Collaboration, Leadership, Social Intelligence, Public Speaking, Time Management

Volunteer

- Google Map local Guider
- Musician - Event Assistant/Coordinator (Local Charities and music meetups)

References

Available upon request

Hobbies

Synthesizer & Piano, Podcast Listening, Design & Visual Arts, YouTube Surfer

Work Experience

Software Development Intern - PetoLab

May 2024 - Present, Edmonton, AB

- Developed cross-platform UI components, views, and screens using TypeScript, React/ Native, Redux, GraphQL, and Expo.
- Gained hands-on experience with CI/CD pipelines, Jira, Bitbucket, inclusive software testing, and system design principles.
- Implemented optimization techniques including LRU caching, media compression, and multilingual support (Lingui).

Academic Projects

LLM-Powered Document AI: Exploring Applications and Challenges

- Investigated layout-aware document understanding models, focusing on DocLLM architecture for processing unstructured legal documents.
- Familiarized with other related technologies, including LangChain, LangGraph, and Tesseract OCR.
- Explored open-source document datasets and training methodologies for document AI models

Human Fall Detection (Multimodality Approach)

- Conducted a comprehensive review and synthesis of multimodal human fall detection systems, reimplementing and analyzing various approaches using CNN, LSTM, Vision Transformers, and Claude AI APIs across multiple datasets.

Arbitrary Style Transfer

- A comprehensive exploration of widely-known CNN-based Arbitrary Style Transfer models (VGG19 and ResNet34), trained on the ImageNet dataset.

Stock Market Visualization Dashboard

- Developed a real-time data visualization application using React.js, Plotly.js, and RESTful API, providing detailed information on top tech stocks through various chart types.

Movie Recommender System

- Explored collaborative filtering, SVD, and K-NN algorithms, together with RMSE, ARHR, etc. evaluation metrics using Movie-Lens datasets, Scikit-learn, and Surprise libraries. Searched on Apache Spark, Hadoop, Multi-Modal Dual-GNN, and Cloud services in large-scale systems like TikTok.

NLP Apps: Translation, Chatbots, Q&A, Summarization

- Developed GUI apps, powered by BERT, BART, and GPT-2 models, utilizing PyQt5, Transformers, and Sacremoses Python libraries.

VR Training App for Factory Robot Repair Technicians

- Developed a Meta-Quest-3 app in Unity 3D, including haptic feedback, clear text instructions, 3D spatial audio, and high-quality assets, as well as conducting usability tests for better UX.