

SALI ELLOH

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OBJECTIVE:

Passionate Artificial Intelligence graduate eager to use AI to make a meaningful impact on the well-being of others.

EDUCATION

UNIVERSITY OF MICHIGAN

Dearborn, MI

Masters: Artificial Intelligence, Knowledge Management and Reasoning, GPA: 3.9/4.0.

Sep 2022 – Dec 2024

UNIVERSITY OF MICHIGAN

Dearborn, MI

Bachelors: Biomedical Engineering and Mechanical engineering, GPA: 3.7/4.0.

Sep 2017 – Dec 2021

SKILLS

Programming Languages: Python, Matlab, C++, JavaScript, C#, HTML.

Libraries: Pytorch, pandas, NumPy, Scikit-learn, Keras, TensorFlow, Seaborn.

Big Data & Cloud Technologies: PySpark, Hadoop, Google Cloud Platform (Dataflow, Cloud Composer, DataProc),

AWS Platforms: GitHub, Google Cloud Platform, Firebase, Jupyter Notebook, Hadoop, Pyspark, MediaPipe

PROFESSIONAL EXPERIENCE

UNIVERSITY OF MICHIGAN

Dearborn, MI

Research Assistant – Deep Fake Lab

Apr. 2024 - Present

- Conducting **audio deepfake detection research**, focusing on differentiating synthetic audio data from authentic audio content.
- Extracting and analyzing **high-dimensional audio-visual features** using MFCCs, spectrogram analysis, etc.
- Enhancing model **training efficiency** by leveraging **CUDA optimization and NVIDIA A100 GPUs** for large-scale experimentation.
- Developed and automated **ETL pipelines**, leveraging Python libraries for data extraction, transformation, and loading

PROJECTS

PASSIVE FATIGUE DETECTION – Master's Project

Summer 2024

- Developed a **multi-modal framework** for **Level 3 autonomous vehicles** to predict driver **passive fatigue** using eye-tracking, facial cues, pose estimates, and environmental factors.
- Built **automated data pipelines** to process in-car video streams and detect deviations in eye, head pose, and speed data.
- **Preprocessed gaze and speed data**, applying **Random Forest** for **92%** fatigue detection accuracy.
- **Visualized results** using Matplotlib, Seaborn, Scikit-learn, and NumPy.
- Integrated **VGGNet-based weather classification models** trained on **Dreyeve dataset** to assess **environmental** impacts on alertness.

PREDI: HEALTH PREDICTIVE APP

Summer 2024

Flutter, Python, TensorFlow, PyTorch, FastAPI, Redis, NLP, Firebase

- Developed a cross-platform **MVP mobile app** using Flutter to stream real-time vitals (heart rate, SpO₂, activity) via the **Fitbit API**.
- Led **frontend development** for viewing **drug intake history** and **patient search analytics**, utilizing **NLP** to analyze and extract insights from user data.
- Analyzed user-reported symptoms to **flag early health** risks using Python.
- Designed a **rule-based alert system** for behavioral trend detection and clinical escalation.
- Enabled secure doctor-patient communication with **Firebase Auth and Firestore**, ensuring privacy-first UX

AMAZON PRODUCTS RECOMMENDATION SYSTEM

Winter 2024

- Built a **collaborative filtering recommendation** system using Deep Learning to predict user purchasing behavior.
- **Pre-processed and analyzed** the **10M+** interactions from the Amazon 2023 Reviews using Pandas, NumPy, and SQL to extract key trends and **optimize feature selection**.
- Delivered personalized product recommendations, achieving **15% Root Mean Squared Error (RMSE)**.

MULTIMODAL SENTIMENT ANALYSIS

Fall 2023

- Implemented **NLP methods** using **ML** (SVM, Decision Tree, XGBoost) and **deep learning** (LSTM) for **text-based emotion analysis**.
- Optimized **predictive modeling performance** through **GloVe embeddings and GridSearchCV**, improving **accuracy by 15%**.
- Generated **comprehensive documentation** detailing model performance, feature contributions, and optimization strategies

EDUVENTURE

Fall 2023

- Won **second place** at the University of Michigan, Dearborn Hackathon.
- Developed an **interactive AI-powered career exploration** website using Python, NLP, HTML/CSS, Firebase, Flask, and Figma

HUMAN ACTION RECOGNITION

Fall 2023

- Developed an **end-to-end ML pipeline** for classifying human actions in videos, leveraging **ConvLSTMs and LRCN architectures**.
- Conducted **data mining and feature extraction** using **MediaPipe and OpenPose** to capture motion cues.
- Trained models on **UCF101 dataset**, optimizing hyperparameters with **K Fold Cross-Validation**.