Asher Khan

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Education

McMaster University **Sep. 2021 – Apr 2026**
*Bachelor of Engineering in Software Engineering - **GPA: 3.8*** *Hamilton, ON*

- **Achievements**: McMaster Engineering Award of Excellence, Dean's Honour List
- **Relevant Coursework:** Data Structures & Algorithms, Databases, Probability & Statistics, Calculus I, II, III, Linear Algebra, Linear Optimization, Software Design I, II, III, Operating Systems, Software Requirements

Experience

Ericsson **September 2023 – August 2024**
Software Developer Intern *Ottawa, ON*

- Assisted in the development of **EricChat**, an internal company chat-bot by utilizing the **Hugging Face** library. Gathered data from internal documents, then applied **tokenization** and **normalization**, increasing data quality.
- Influenced the transition to **EricSearch**, an AI internal search engine, replacing the legacy system. Contributed with **data collection, pre-processing**, and **transformation** to enhance search relevance by **27%**.
- Automated data transformation from legacy MySQL to the new Search Engine database using **Object-Oriented Python** and **SQL**, streamlining data processing and improving the efficiency of **LLM** fine-tuning.

Blue Guardian **May 2023 – August 2023**
Machine Learning Engineer Intern *Remote, London, ON*

- Enhanced a PyTorch tonal analysis model by incorporating additional layers and performing **hyperparameter optimization**, leading to an **8% accuracy improvement** for mental health detection.
- Integrated the **OpenAI Whisper API** to implement Speech-to-Text (STT) and Text-to-Speech (TTS) features, enhancing accessibility and usability for users by **20%.**

Projects

EthniVision | *Tensorflow, Keras, OpenCV, Pandas, Docker, React, Node.js, MongoDB*

- Developed a multi-class classification **Neural Network** and trained it on the **FairFace** dataset, achieving **87%** gender, **72%** ethnicity, and **56%** age accuracy by utilizing **Residual Blocks**.
- Preprocessed **108,501** images, utilizing the **dlib Facial Recognition** model for filtering unrecognizable faces, then performed **Exploratory Data Analysis** to analyze and optimize the data for model training.
- Deployed the model to a Node.js web app using Tensorflow.JS, then encapsulated the application via **Docker.**

NFL Record Predictor | *Sci-kit Learn, Pandas, Flask, SQLite, BeautifulSoup4*

- Built and deployed a full-stack website for NFL team record predictions. Integrated Flask for back-end functionality and connected to an **SQLite** database with SQLAlchemy for user input storage.
- Developed a Decision Tree Regression model, achieving **86%** accuracy with a **1.12-win** margin of error. Compared multiple models and selected Decision Tree Regression based on superior **MAE**.
- Scraped NFL team statistics, including team performance metrics and financial data. Cleaned and preprocessed the data, formatting the data for model training and removing irrelevant metrics.

House Price Prediction — Kaggle Competition | *Python, Pandas, Numpy, Sci-kit learn, Seaborn*

- Performed exploratory data analysis **(EDA)** on **79 real estate features**, handling missing values, detecting outliers, transforming skewed features, and engineering new features to improve model prediction.
- Optimized **LightGBM, XGBoost, and Gradient Boosting** models using **GridSearchCV** for hyperparameter tuning. Implemented ensemble model stacking and weighted averaging to enhance model prediction.
- Utilized **7-fold cross validation** and achieved a **leaderboard RMSE score of 0.13295**, ranking in the **top 25%** among thousands of competitors.

Technical Skills

Languages: Python, R, MATLAB, C++, JavaScript, Java, Bash, HTML, CSS
Libraries: Tensorflow, PyTorch, Sci-kit Learn, LightGBM, XGBoost, SciPy, Pandas, NumPy, Matplotlib, Seaborn
Other Tools: Azure, MySQL, MongoDB, Docker, Kubernetes Django, React, Jira, Git, Linux