

Melika Torabgar

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✉ torabgar.m@gmail.com

SUMMARY

- Experienced **Machine Learning** and **data analysis** enthusiast in **healthcare** with over **4 years** in academia and industry.
- Passionate about leveraging data-driven insights for innovative solutions.
- Skilled in **transforming data** insights into **actionable business strategies**.

SKILLS

Technical skills

- **Programming:** Python, SQL
- **Database/Datawarehouse:** Snowflake, MySQL, IBM SPSS Statistics
- **ML Tools:** Scikit-learn, Numpy, Pandas, Scipy, TensorFlow, Matplotlib, Seaborn, plotly, OpenCV
- **Other Tools:** Microsoft Azure, Git, PowerBI, Streamlit, Docker, Flask, Linux, Jira, Confluence

Soft skills

- **Communication & Teamwork:** Effectively convey project updates to non-technical stakeholders through high-quality presentations.

EDUCATION

MSc, Rehabilitation Science

Jan 2020 – July 2022

Department of Rehabilitation Medicine, University of Alberta, Edmonton, AB

*Thesis: Using **Machine Learning** to identify common engagement-related behaviours demonstrated by **older adults with dementia** While Playing Video Games*

BSc, Biomedical Engineering

Sep 2015 – Sep 2019

Department of Engineering, Azad University of Tehran, Iran

Thesis: Femur Simulation with the 3D slicer software

WORK EXPERIENCE

Machine Learning Engineer (Permanent - Full time)

May 2023 – Feb 2024

Origin Electrical LTD.

Electricity Bill Prediction

- Implemented **ETL pipelines** of electrical data from meters for electricity bill prediction model training using Snowflake
- Leveraged **Azure Data Lake** and **Azure AutoML** to optimize data management, automate model training and boost project efficiency
- Adopted Facebook Prophet **time series** ML models to predict electricity usage and bills for the upcoming months
- **Deployed** bill prediction model for production on the Digital Ocean platform
- Improved Prophet model performance by **30%** using **feature engineering**
- Collaborated with front-end developers to design and illustrate the model performances.
- *Technology: Python, SQL, Azure, Scikitlearn, Facebook Prophet, **Snowflake**, Docker, Flask, Git, Digital Ocean, MySQL, Jira, Confluence*

Associate Machine Learning Developer (Contract - Full time)

Sep 2022 – April 2023

AltaML Inc.

Government Building application permit


- Collected and labelled data from different databases for the City of Edmonton building application permit
- Trained models on City of Edmonton permit images using **Azure's** object detection and Custom Vision, achieving **78% accuracy**.
- Optimized the **Streamlit dashboard**, enhancing government efficiency and saving over **\$5 million annually**.
- Presented technical training on **Exploratory Data Analysis(EDA)** to over **30+ associates**, and staff at the company
- *Technology: Python, Azure, Custom Vision, OpenCV, Streamlit, Git, Pandas, Scikit-learn, Numpy, Matplotlib, Seaborn*


Solar Forecasting

- Processed **time-series data** from the NASA Power Project
- Developed various Machine Learning models such as **XGBoost**, **Random Forest**, and **LSTM** for solar forecasting
- Applied LSTM model with the **highest performance of %82 accuracy** and **lowered the error to 4%** for **time-series** prediction
- Stored data and used AutoML on **Azure Cloud Services** to find the best model for this prediction

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- Developed the User Journey, Persona, and ML Canvas for Business Strategies
- *Technology: Python, Azure, Git, Pandas, Scikit-learn, Tensorflow, Numpy, Matplotlib, Plotly*

Highly Qualified Personnel (HQP)

Feb 2020 – July 2022

AGE-WELL Canada's Technology and Aging Network

Distinguish Dementia with Machine Learning on Older Adults

- Collected, annotated, and cleaned healthcare data from people with **dementia**
- Achieved important features for dementia prediction using **Random Forest** with **91% F1-score**
- Identified significantly different behaviours using **Chi-squared statistical analysis**
- Constructed four different input variables with important features to get the **highest recall (93%)**
- *Technology: Python, Pandas, Scikit-learn, Numpy, Matplotlib, Seaborn*

Research and Teaching Assistant

Sep 2017 – June 2022

University of Alberta and Islamic Azad University.

- Screened and reviewed collected data with the Covidence Software for tracking the procedure
- Researched on Measuring Engagement of older adults while Playing Video Games using Machine Learning
- Teaching Assistant in Physiology of Exercise, and Enabling Occupation Through the Use of Assistive Technology
- *Technology: MS Office software e.g. Excel, PowerPoint, Covidence*

CERTIFICATES

- **Azure AI** fundamentals (AI-900) - Microsoft
- **Machine Learning Technician** Certificate – Alberta Machine Intelligence Institute (Amii)
- **Machine Learning Foundation 1 & 2** - Alberta Machine Intelligence Institute (Amii)
- Python and Machine Learning – Udemy
- **Ethical Conduct** for Research Involving Humans Course on Research Ethics (TCPS2:CORE)

HONORS & AWARDS

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|---|----------|
| • Amii Machine Learning Technician Scholarship, Alberta | Jan 2022 |
| • Rehabilitation Medicine Graduate Student Scholarship, University of Alberta | Feb 2021 |
| • Covid-19 Graduate Student Support Award, University of Alberta | Mar 2021 |
| • Alberta Graduate Excellence Scholarship (AGES), University of Alberta | Sep 2020 |

PUBLICATIONS & CONFERENCES

- **Torabgar, M.**, Figeys, M. , Esmail,S., Stroulia, E, Rios Rincon, A. The Role of Gaming Behaviours in **Identifying Dementia** Among Older Adults: An Exploratory Study. *JMIR Serious Games Publication. (Under Review).*
- **Torabgar, M.**, Esmail,S., Stroulia, E, Rios Rincon, A. Using **Machine Learning to Distinguish Dementia** in Older Adults Based on Engagement-Related Behaviours While Playing Video Games. *Reverse EXPO, AI4 Society, February 18, 2022. Edmonton, Alberta.*
- **Torabgar, M.**, Rios Rincon, A. Using artificial intelligence to assess engagement. *Oral presentation at the World Federation of Occupational Therapists (WFOT) conference. March 27- 30, 2022. Paris, France.*
- **Torabgar, M.**, Rios Rincon, A. Do computers know whether older adults are engaged while playing mobile games? *Twitter presentation at AGE-WELL EPIC Conference 2021 (#AWepic2021). June 10, 2021.*