

# AMIN SAFARZADEH

## CONTACT

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## SKILLS

- **Data Analysis:** (Clustering, Classification and Prediction)
- **Python for ML** (Scikit-learn, TensorFlow, NumPy, Pandas, PyTorch, AWS Sagemaker)
- **Practical Optimization** (CPLEX, CVXOPT, PULP, pymultiobjective)
- **Image Processing** (Scipy, Scikit-Image, VTK, ITK)
- **Time Series Analysis** (Prediction)
- **Data Engineering** (SQL)

## HONORS

- **Alberta Data Enabled Innovation Graduate Student Scholarships**, 2020-2023, Awarded \$93,000
- **T. Chen Fong Research Excellence in Medical Science Scholarship**, 2020-23, Awarded \$93,000
- **U of C Brain Create Scholarship**, 2024 Awarded \$39,000
- **Member of Iran's National Elites Foundation**, 2014

## SUMMARY

With over five years of hands-on experience in managing diverse medical datasets, coupled with expertise in machine learning and optimization, across various sectors, I specialize in creating impactful solutions.

## WORK HISTORY

**Research Assistant**, 01/2020 - present

**University Of Calgary, Calgary, Alberta**

- Introducing explainable AI in medical field (OCTune framework)
- Designing a prototype that utilizes wearable sensors and RL to stimulate student learning
- Retina vascular bed segmentation using CNN (MCC=0.83)
- Retina layer segmentation using U-Net (IoU=0.93)
- Introducing the first 3D segmentation algorithm for choroid (Dice=0.81)
- RNA-seq analysis (dimension reduction)
- Nerve activity signal processing (clustering)
- EEG signal processing using CNN (AUC=0.84)
- Retina layer segmentation using AWS sage-maker (IoU=0.94)

**Data Scientist**, 6/2021 to 8/2021

**Deep Surface AI, Calgary, Alberta**

- Cosmetic surgery procedure optimization using AI algorithms based on 3D scan of human faces, patient budget and doctors' availability

**Data Administrator**, 01/2019 to 12/2019

**Access Corp., Calgary, Canada**

- Digital transformation (medical data)
- Selected as the employee of month (May 2019)

**Data Analyst/Reservoir Engineer**, 01/2014 to 12/2018

**Tehran Energy Consultants (TEC), Tehran, Iran**

- Analysis of energy consumption data using SARIMA, LSTM and SVM models ( $R^2$  range: 84-88%)
- Hydrocarbon production forecast using 50 years of production history using SVM, RF and NN ( $R^2$  range: 87-91%)
- Water production prediction using SVM ( $R^2 = 85\%$ )
- Water injection scenario optimization using GA, PSO and GWO algorithms
- Fracture detection and clustering using oil well image data
- Handwritten text recognition using CNN (Real-time monitoring)

## VOLUNTEERING

- **Research Coordinator of Youth WPC**, World Petroleum Congress, Managing 8 multi-disciplinary teams, 2014-2018
- **Editorial Reviewer: Modeling, Simulation and ML** Journals of Fuel and Energy, Exploration and Production, Energy Sources, 2014-2020

## CERTIFICATIONS

- **AWS Sage maker**, Jan 2023, Coursera
- **Decision Making & RL**, Apr 2022, Coursera
- **IBM Data Science - 9 courses IBM**, Aug 2019, Calgary
- **Deep Learning Specialization**, Sep 2020, Coursera
- **Neural Networks and Deep Learning** Jun 2020, Deep Learning.AI
- **Data Visualization**, Jun 2020, Calgary
- **Java Programming**, Sep 2019, Calgary
- **Computational Neuroscience Workshop** , May-June 2021, University of Lethbridge

**Simulation Software Technical Support**, 01/2014 to 12/2018

**Rock Flow Dynamics (RFD), Tehran, Iran**

- Providing training and consulting services for a simulation software to over 11 companies and 4 universities

**Data Analyst**, 08/2012 to 12/2013

**Research Institute of Petroleum Industry (RIPI), Tehran, Iran**

- Field production optimization using multi objective GA
- SQL database generation using 60 hydrocarbon reservoirs
- Smart oil well optimization to improve oil production

## EDUCATION

**Ph.D.: Computational Neuroscience**, 2020-2024

**University Of Calgary, Calgary, Alberta**

- Thesis: non-invasive study of cerebrovascular autoregulation and sympathetic nervous system via 3D OCT imaging of the human eye and MSNA signal
- Supervisors: Richard Wilson (neuroscience), Usman Alim (data science)
- Completed courses: computational neuroscience, statistics, extreme physiology, neurotechnology, cellular, molecular, developmental neuroscience and advanced image processing

**M.Sc.: Reservoir Engineering (Modeling, Simulation)**, 2009-2011

**Sahand University of Technology, Tehran, Iran**

- Thesis title: Fluid flow modeling in porous media
- Supervisor: Alireza Tabatabaei-nejad
- Graduation with distinction (ranked third)
- Teaching Matlab to engineering students

**B.Sc.: Reservoir Engineering**, 2004-2008

**Tehran Science and Research University, Tehran, Iran**

- Graduation with distinction (ranked third)
- Fluid properties prediction plugin development