

Technical Skills

PROGRAMMING LANGUAGES: Python | SQL | MATLAB | PySpark

DATA SCIENCE & MACHINE LEARNING: Machine Learning (Scikit-Learn), Neural Networks and Deep Learning (PyTorch, TensorFlow, Keras), Computer Vision (OpenCV), Statistical Data Analysis and Hypothesis testing (SciPy, Statsmodels), Data Wrangling & Visualization (SQL, Numpy, Pandas, BeautifulSoup, Matplotlib, Seaborn, Tableau), Time Series Analysis, Natural Language Processing (spacy, nltk, regex), Distributed Version Control (Git), Distributed Computing (Spark), Geospatial Data Analysis and Mapping (GIS, GeoPandas), Web development (Flask, Streamlit, CSS, HTML)

Education and Certificates

[Large Language Models Professional Certificate](#) | Databricks | December 2023

[Interpreting Machine Learning Models](#) | Uplimit | September 2023

[Deep Learning Specialization](#) | DeepLearning.AI | February 2023

[Data Scientist Certification](#) – Fellowship Program | The Data Incubator | April 2022

Ph.D. in Civil & Environmental Engineering | University of California – Davis | 2011

B.S. in Chemical & Petroleum Engineering | Sharif University of Technology | 2004

Experience

Machine Learning Researcher | University of California – San Francisco April 2023 _ Present

- Improving performance of a **Generative model** that uses a novel **Variational Autoencoder** (VAE) architecture to provide interpretable deep learning methods for medical imaging data ([link](#))
- Building the trust between medical practitioners and network's decision-making processes by providing interpretable AI

Data Scientist | Freelance Jan 2023 _ Present

- Trained a **Semantic Segmentation** model to extract key geologic features from historic USGS maps (Dice Coefficient = 0.89, Precision = 0.85, Recall=0.93). The model offers a fully operational approach for large-scale geologic feature extraction from diverse maps ([link](#))
- Sentiment Analysis of Yelp reviews ([link](#))
- Merchandise sale prediction, Retail demand forecasting, Loan foreclosure prediction

Data Science Fellow | The Data Incubator 2022

- Completed various real-world data science projects covering: Data Wrangling, Web Scraping, Graph Analysis, Machine Learning, Visualization, Time Series Analysis, Natural Language Processing, Distributed Computing, Neural Network
- Developed capstone project that uses machine learning to predict county_level daily COVID-19 case count in the State of California. Built a Streamlit app for the model and deployed it on Heroku for the end user ([link](#))

Engineering Consultant | Montgomery & Associates 2014 – 2022

- Developed highly parameterized conceptual flow models of regional and local groundwater basins
- Leveraged statistical analysis and machine learning to evaluate and recommend groundwater management strategies. Delivered robust, sustainable decision-making support that served clean water to 1M+ residents in Northern California.
- Produced informative and visually compelling geospatial analysis products, maps, and web-based GIS applications in support of project development, planning, execution, and operations
- Scripted Python codes for efficient data wrangling, web scraping, exploratory data analysis and data visualization.
- Defined key performance metrics to provide business insights and to quickly and accurately provide stakeholders with relevant data and reports that drive decision-making processes.

Research Assistant | University of California – Davis 2005 – 2011

- Calibrated a highly parametrized flow model of a local groundwater basin by leveraging supervised machine learning.
- Designed a 2-D motion model for the SFBD striped bass. Utilized the model to study the spatial and temporal contaminant uptake during the individual fish lifecycle.
- Performed integration, analysis, and synthesize of data from several open sources.