FARZAD ROOZITALAB

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KEY COMPETENCIES

Machine Learning (ML) & Deep Learning (DL) - Optimization - Data science - Time-series forecasting - Renewable energies - R&D - Teamwork

SUMMARY

Research assistant, teacher assistant, and AI workshop lead at Carleton University. Spent one year at Tessella (Capgemini Engineering) as an ML engineer and consultant. Collaborated with different research groups at Politecnico di Milano (Italy), University of Pavia (Italy), Beihang University (China), and Carleton University (Canada). Has strong teamwork skills and passion to work on ML projects and learn new concepts.

WORK EXPERIENCES

1. AI Workshop Lead *Sep 2022 - Now (Volunteer_PT)*
@ Carleton Artificial Intelligence Society (CAIS) *Ottawa - Canada*
2. Research Assistant & Teacher Assistant *Jan 2022 - Now (FT)*
@ Carleton University *Ottawa - Canada*
3. Junior Consultant *Feb 2021 - Dec 2021 (FT)*
@ Capgemini Engineering (Tessella) *Milan - Italy*
Role: Machine learning engineer and data scientist
4. Junior Electrical Engineer *Feb 2015 - Nov 2016 (FT)*
@ Niroo Gostar Fars *Shiraz - Iran*
Project: Doroodzan - Shiraz, water pipeline design

EDUCATION

Carleton University (Ottawa - Canada) *2022 - Present*
- Granted full NSERC Doctoral Scholarship
- Degree: Ph.D in Mechanical and Aerospace Engineering
- Research title: Development of physics-informed deep learning models for atmospheric fluid dynamics
Politecnico di Milano University (Milan - Italy) *2017 - 2020*
- Degree: MSc in Electrical Engineering
- Thesis title: Development of a multi-Task protection algorithm for fault detection, classification, and fault line identification in DC Microgrids
Azad University of Marvdasht (Shiraz - Iran) *2011 - 2013*
- Degree: BSc in Electrical Engineering
Bahonar University of Technology *2009 - 2010*
- Degree: Associate Degree in General Electronics

PROGRAMMING AND SOFTWARE CAPABILITIES

Machine Learning and Deep Learning:
- Some tasks: Timeseries forecasting - Anomaly and fault detection - Classification -Supervised, semi supervised, and unsupervised learning, Transfer learning
- Some Deep architectures: Attention based models - Transformers (Informer, Autoformer, Spacetimeformer) - Auto-encoders (Convolution based - GRU/LSTM based) - ResNet
- Probabilistic models: DeepAR - DeepFactor - Multi-Horizon Quantile Recurrent Forecaster (MQRNN)
- Some ML models: SVM - XGBoost - LightGBM - CatBoost - Random forest - KNN
Some libraries: Tensorflow, Keras, PyTorch, Darts, scikit-learn, mlFlow
Optimization:
- Some algorithms: Genetic Algorithm - Evolutionary Programming - Differential evolution - Tabu search - Particle Swarm optimization - Salp swarm Optimization

Python:
- Some tasks: ML and DL design, Object Oriented Programming, debugging, and testing
- Some packages: mlFlow, Luigi, poetry, pipenv, conda, unittest, pytest
R:
- Some tasks: ML design, Data science, Package design, Shiny dashboard
- Some Libraries: tidyverse, dplyr, purr, ggplot2, Mlr, caret, knitr, Janitor, etc.
Version control: Git, AWS CodeCommit
MATLAB: Programming and Simulink
SQLite
LATEX

SELECTED PUBLICATIONS

1. Jarrahi, M. A., **Roozitalab, F.**, Arefi, M. M., Javadi, M. S., Moghaddam, A. A., & Catalão, J. P. (2020). **DC Microgrid Energy Management System Containing Photovoltaic Sources Considering Supercapacitor and Battery Storages**. 3rd International Conference on Smart Energy Systems and Technologies (SEST), Istanbul, Turkey.

2. **Roozitalab, F.**, Jarrahi, M. A., Arefi, M. M., Javadi, M. S., Moghaddam, A. A., & Catalão, J. P. (2020). **Development of A Hybrid Method to Control the Grid-Connected PV Converter.** 2020 EEEIC International Conference on Environment and Electrical Engineering, Madrid, Spain (pp. 1-6). IEEE Press.

3. Li, G., Li, Y., & **Roozitalab, F.** (2020). **Mid-term Load Forecasting: A Multi-step Approach Based on Phase Space Reconstruction and Support Vector Machine**. IEEE Systems Journal.

CERTIFICATIONS

SQL for Data Science *University of California, Davis - 2022*

Deep Learning Specialization: *Deeplearning.ai - 2021*
- Neural Network and Deep Learning/ Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization/ Structuring Machine Learning Projects/ Convolutional Neural Networks/ Sequence Models

Machine Learning Engineering for Production Specialization: (GC) *Deeplearning.ai - 2021*
- Introduction to Machine Learning in Production/ Machine Learning Data Lifecycle in Production/ Machine Learning Modeling Pipelines in Production/ Deploying Machine Learning Models in Production

Practical Data Science Specialization: (AWS) *Deeplearning.ai & AWS -2021*
- Analyze Datasets and Train ML Models using AutoML/ Build, Train, and Deploy ML Pipelines using BERT/ Optimize ML Models and Deploy Human-in-the-Loop Pipelines

TensorFlow 2 for Deep Learning Specialization: *Imperial College London - 2021*
- Getting started with TensorFlow 2/ Customising your models with TensorFlow 2/ Probabilistic Deep Learning with TensorFlow 2

Sequences, Time Series and Prediction *Deeplearning.ai - 2021*

Practical Time Series Analysis *The state university of New York - 2021*

Mining Data from Time Series *Pluralsight - 2021*

Building Data Pipelines with Luigi and Python *Pluralsight - 2021*

Core python - Object Oriented Progeamming *Pluralsight - 2021*

Advanced Python *Pluralsight - 2021*

Data Science with R *Pluralsight - 2021*

Exploratory Data Analysis with R *Pluralsight - 2021*

Data Analysis with Shiny: R Playbook *Pluralsight - 2021*

LANGUAGES

English: Professional Proficiency, **Italian:** Elementary, **Persian:** Native