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SUMMARY

Data Scientist and Data Engineer with over a decade of combined industry and academia experience in coding, ML, Big Data, Data-Driven, and Prediction Models, Tree-based and Bayesian Approach, Timeseries analysis, Simulation, Uncertainty Quantification, NN and DL with strong mathematics and statistics background; author and collaborator of multiple open-source tools, libraries, and projects, books, as well as research and technical reports, over $2.5M grants and papers with over 150 citations; led over 10 data science teams and projects
Computer Skills: Python, R, Matlab, C++, Spark, SQL and NoSQL Databases, Scala, GCP, AWS, Databricks, TensorFlow, Tableau, Terraform

PROFESSIONAL EXPERIENCE

Senior Data Scientist, Rivian ***Sep. 2021 – Present***

- Leveraging big data to develop prediction, diagnostics, and prognostic models (SQL, Spark, PySpark, Python, Databricks, AWS, MLflow)
- Developed package and APM to monitor, optimize, and improve data interaction in distributed environment saving $4M annually
- Collaborating with cross-functional teams to aggregate and analyze field data and failures to identify usage, patterns, and anomalies
- Implemented machine learning-based model to monitor trends in parts replacement at service centers (iforest and CausalInference)
- Led data collection and proposed prediction model to evaluate tire degradation in the field (Random Effect Model, Bayesian Reg.)
- Creating and managing over 50 ETL, data pipelines, live tables, and dashboards (Airflow, Databricks, Tableau, Preset, Delta Lake)
- Contributing to open-source project led by NASA supporting research and development of prognostics and forecasting (Python)

Applied Data Scientist, DOT & Institute for Software Integrated Systems (ISIS) ***Jan. 2020 – Sep. 2021***

- Launched applied pipeline and Machine Learning models for prediction of rare events, 12% improvement (Python, NoSQL, ArcGIS)
- Assured Cyber-Physical Systems with Learning Components and Anomaly Detection (coauthored $200k grant funded by CISCO)
- Introduced robust approach and simulation for resource allocation and decision making under uncertainty (Python)
- Designed Data-driven and Deep (Transfer) Learning models to predict and optimize energy of Multi-Modal transit systems for DOE
- Led team to evaluate Bangladesh transportation networks using Graph Theory and Landsat (OpenCV, Networkx, NSF Grant #1600319)
- Worked with INRIX and Waze to use Crowdsourced Data and CNNs for Early Incident Detection (Python, TensorFlow, BigQuery, SQL)
- Assisted PI to secure over $2M in grant funding by skillfully leading team of researchers, Department of Transportation (DOT)

Data Scientist Intern, Department of Mathematics, University of Arizona ***May 2019 – Dec. 2019***

- Developed Optical Character Recognition (OCR) for Arabic/Chinese and Computer Vision (CV) scripts for data preparation (Matlab)
- Generated Natural Language Processing (NLP) using various models including LSTM for post processing of OCR (Python)
- Developed Predictive Model for hurricanes in North Atlantic basin using Machine Learning and climate data (R)

NSF Graduate Researcher and Instructor, University of Arizona ***Jan. 2017 – Dec. 2019***

- Directed research and development for $400k-NSF project (Grant #CMMI-1403844) to develop Computational Tools for Risk and Reliability Analysis of Complex Nonlinear Stochastic Dynamical Systems (Matlab, FEM, Tcl)
- Proposed statistical model based on Weibull Distribution and Hierarchical Bayes using recorded data and data analysis (R)
- Teaching Assistant and Instructor of record of various courses: totally over 200 students

Research Engineer, UNESCO ***Sep. 2015 – Dec. 2016***

- Cooperated in building database and data mining for uncovering mechanisms of injury in seismic damage (R)

EDUCATION

The University of Arizona, Tucson ***Jan. 2017 – Jan. 2020***

- Ph.D. in Structural Reliability Engineering, Minor in Computer Science
  Dissertation: A Novel Integrated Method for Reliability Estimation of Dynamic Nonlinear Complex Systems
- M.Sc. in Industrial Engineering
  Thesis: Uncertainty Quantification of Sea Waves - An Improved Approach

Sharif University of Technology, Tehran, Iran ***Sep. 2013 – Sep. 2015***

- M.Sc. in Risk and Earthquake Engineering
  Thesis: Online Nonlinear Structural Damage Detection Using Signal-base Methods and Neural Networks

Iran University of Science & Technology, Tehran, Iran ***Sep. 2009 – Sep. 2013***

- B.Eng. in Civil & Environmental Engineering

SELECTED PUBLICATIONS (over 35 papers and 150 citations)

FULL LIST: https://scholar.google.com/citations?user=rbegTHsAAAAJ&hl=en

- Author of book "Reliability Evaluation of Dynamic Systems Excited in Time Domain, REDSET," Wiley, 2023
- A Review of Emergency Incident Prediction, Resource Allocation and Dispatch Models," Accident Analysis & Prevention, 2022
- Energy and Emission Prediction for Mixed-Vehicle Transit Fleets Using Multi-Task Inductive Transfer Learning, ECML, 2021
- Practitioner-Centric Approach for Early Incident Detection Using Crowdsourced Data for Emergency Services, ICDM, 2021
- A Novel Risk Evaluation Procedure Using a Kriging-Based Surrogate Modeling, KSCE, 2021
- Editor of book "A First Course in Machine Learning," Chapman & Hall, 2018
- Seismic reliability assessment of structures using artificial neural network, J Build Eng, 2017