

# Mehdi Korjani

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## Summary of Qualification

Senior data scientist at Capital Group, Over ten years of experience in machine learning algorithm development and deployment in production environment, Leading on-shore off-shore team of data scientists and data engineers

Working on machine learning, deep learning and NLP for news recommendation, information retrieval, audio processing, and predictive modeling with PhD from University of Southern California on Machine Learning

- Skills: Deep learning, NLP, Machine learning, Information Retrieval, Recommendation Systems, Descriptive and Predictive models, Fuzzy Logic, Optimization, Signal Processing
- Programming: Python, Tensorflow, PyTorch, Keras, Spark, Sklearn, Numpy, Spacy, Pandas, SQL
- Experienced in Google cloud platform (GCP certificate), Amazon AWS, Microsoft Azure
- Research Skills: Excellent mathematical and statistical machine learning analysis and independent research skills

## Experience

Capital Group, Senior Data Scientist, Los Angeles, CA 2018-present

- Architecture design and implementation of financial news recommendation for financial advisors in production environment, using name entity recognition, topic modeling and knowledge graph, news relevancy models, clustering algorithms
- Develop and deploy information retrieval model and cognitive search in production environment on Enterprise corpora, shortlisting, re-ranking, query understanding, query expansion, query suggestion, autocomplete and autocorrect
- Lead offshore and onshore data engineering and data science teams, collaborate with IT and infrastructure teams

KPMG, Senior Data Scientist, Irvine, CA 2017

- Developed hybrid recommendation engine based on deep learning algorithms
- Developed personalized dialogue based personal assistant using NLP and deep learning
- Developed machine learning algorithm to extract protected health information PHI from medical records using OCR and NLP

Oben Artificial Intelligence, Research Scientist, Pasadena, CA 2016

- Developed lyrics generation model using attention based seq2seq deep learning algorithms, word2vec, natural language translation and classification.
- Speech enhancement and voice activity detection using deep Learning algorithms to remove background noise from speech data, patented on Feb 2017.
- Speaker verification and identification using machine learning algorithms to determine speaker identify, patented on Sep. 2016

Chevron Inc., Post-doc Researcher, Bakersfield, CA 2015

- Developed Deep Learning Neural Network for reservoir modeling and prediction of oil production, published 2 peer-reviewed papers
- Developed adaptive non-linear regression algorithm for fracture optimization for unconventional reservoirs, published a patent on Dec. 2015

National Science Foundation (NSF), Co-Principal Investigator, Los Angeles, CA 2014-2016

- Develop algorithms for creating sense of touch, over the air, using high frequency ultrasound transducers, won first place, NSF I-Corps Georgia Tech cohort

CiSoft, Research Assistant, Los Angeles, CA 2010-2015

- Intelligent Knowledge Acquisition Systems: From Descriptive to Predictive Models
- Developed a parametric nonlinear regression method for forecasting multivariate function
- Modeling databases and generating rules/patterns from data, summarized a model in linguistic format
- Developed a causality model to find the combination of causal conditions for a desired outcome

Medtronic Inc., Data Science Intern, Northridge, CA Summer 2014

- Developed a new algorithm for modeling Continuous Glucose Monitoring (CGM) using the Unscented Kalman filtering, patented on Dec. 2015
- Analyzed and quantified large amounts of data of blood glucose to interpret results to aid product development, decisions and designs

Asia Telecommunication Co. technical manager, Tehran 2006- 2009

- Designed and developed satellite tracking system based on Thuraya Satellite
- Lead team of hardware and software engineers for design and development

AUT Robotic Center, Software Engineer, Tehran 2003- 2009

- Designed and Implemented machine learning methods for multi-agent decision making and path planning
- Designed and developed autonomous small size soccer robots for RoboCup competitions at China, Japan, USA

### Education

- Post-doctoral researcher, University of Southern California Jun. 2016
- Ph.D., Electrical Engineering, Signal Processing, University of Southern California, GPA: 3.87 Aug. 2015
- M.Sc., Electrical Engineering, Signal Processing, University of Southern California, GPA: 3.92 May 2013

### Teaching

University of California, Berkeley, Tutor, Artificial Intelligence Strategy, CA Summer 2019

- Implementing an AI strategy, Resource Requirements for Adopting an AI, Identifying Threats

University of California, Irvine, Lecturer, Machine Learning, Irvine, CA Summer 2018

- Instructor of Machine Learning algorithms and modeling methods, designed course materials and assignments

### Patents

1. **M. M. Korjani**, “*Deep learning speech enhancement model using dynamic noise profile estimation*,” Application Number: 62461725, filed on Feb. 2017.
2. M. M. Korjani, “*Speaker Recognition Using Deep Learning*,” Application Number: 62393597, Sep. 2016.
3. A. Varsavsky, J. Mung, Y. Lu, and **M. M. Korjani**, U.S. Application No. 14/980114, “*Sensor-unspecific Calibration Methods and Systems*,” Published on Jun. 2017.
4. **M. M. Korjani**, M. Milani, and A. Sarafi, IR52906, “*Real time vehicle tracking system using Thuraya satellite network*,” Granted: Feb. 2009.

### Selected Publications

1. **M. M. Korjani**, “Fast Complex Answer Retrieval by Learning to Outline,” Text Retrieval Conference (TREC), 2018.
2. **M. M. Korjani**, A. Popa, E. Grijalva, S. Cassidy, I. Ershaghi, “Reservoir Characterization using Fuzzy Kriging and Deep Learning Neural Networks,” ATCE, SPE 181578, 2016.
3. **M. Korjani**, A. Popa, I. Ershaghi, “A New Approach to Reservoir Characterization Using Deep Learning Neural Networks,” SPE-180359-MS, 2016.
4. A. Bakshi, E. Uniacke, **M. M. Korjani**, I. Ershaghi, “A Novel Adaptive Non-Linear Regression Method to Predict Shale Oil Well Performance Based on Well Completions and Fracturing Data,” WRM, 185695, 2017.
5. J. M. Mendel and **M. M. Korjani**, “On establishing nonlinear combinations of variables from small to big data for use in later processing,” *Information Sciences*, vol. 280, no. 0, pp. 98–110, 2014.
6. **M. M. Korjani** and J. M. Mendel, “Non-linear Variable Structure Regression (VSR) and its Application in Time-series Forecasting,” *IEEE International Conference on Fuzzy Systems (FUZZ-IEEE)*, pp. 497-504, 2014.
7. J. M. Mendel and **M. M. Korjani**, “Charles Ragin’s Fuzzy Set Qualitative Comparative Analysis (fsQCA) used for linguistic summarizations,” *Information Sciences*, Vol. 202, pp. 1-23, 2012.
8. **M. M. Korjani** and J. M., Mendel, “Fuzzy set Qualitative Comparative Analysis (fsQCA): Challenges and applications,” *Fuzzy Information Processing Society (NAFIPS)*, 2012 (**Best paper award**).
9. **M. M. Korjani**, O. Bazaz, and M. B. Menhaj, “Real time identification and control of dynamic systems using recurrent neural networks,” *Journal of Artificial Intelligence Review*, pp. 1-17, 2008.