

# Mehdi Korjani

U.S Green Card Holder

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## Summary of Qualification

Senior data scientist, PhD from USC with focus on machine learning, deep learning, NLP, over ten years of experience in machine learning algorithm design and modeling in a variety of applications including NLP, text analysis, audio processing, predictive modeling, signal processing and Robotic

- Skills: Deep learning, NLP, Machine learning, Neural Networks, Fuzzy Logic, Recommendation Systems, Nonlinear Regression, Optimization, Signal Processing
- Programming: Python, Tensorflow, Keras, Sklearn, Numpy, Spacy, Pandas, MATLAB, SQL
- Experienced in Google cloud platform (data engineering on GCP certificate), Amazon AWS, Microsoft Azure
- Research Skills: Excellent mathematical and statistical machine learning analysis and independent research skills

## 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

## Experience

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

- Develop and deploy information retrieval model in production environment on Enterprise Corpora (text, video, charts, images)
- Developing full data pipeline using Tensorflow for cognitive search engine and information retrieval system in a horizontal scaled environment
- Design and develop query understanding, query suggestion, query expansion, autocomplete and autocorrect model for information retrieval model
- Work with offshore and onshore data engineering and data science teams

University of California, Irvine, Lecturer, Machine Learning, Irvine, CA Jun. 2018-Spt. 2018

- Taught Machine Learning algorithms and modeling methods, design course material and assignments

KPMG, Senior Data Scientist, Irvine, CA Jul. 2017-Apr. 2018

- Developed recommendation engine based on deep learning algorithm on GCP for google cloud next
- Developed personalized dialogue based personal assistant using NLP and deep learning (presented at KPMG Lighthouse)
- Developed time series modeling to forecast ambulance demands in Victoria, Australia considering historical events, population, air pollution, weather and traffic data using deep learning algorithm

Oben Artificial Intelligence, Research Scientist, Pasadena, CA Jun. 2016-Jul. 2017

- 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 Aug. 2015-Jun. 2016

- Developed Deep Learning Neural Network for reservoir modeling and prediction of oil production, published 2 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 Jan. 2016-Jun. 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 Jan. 2010-Aug. 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 the database in linguistic format, transformed data into knowledge
  - Mathematically developed a causality model to find the combination of causal conditions for a desired outcome
- Medtronic Inc., Data Science Intern, Northridge, CA May 2014-Aug. 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
- Amada Miyachi, Software Engineer Intern, Monrovia, CA May 2013-Aug. 2013
- Feature extraction and selection for classification of Resistance welding quality and forecasting weld quality
  - Developing motion controller and PLCs for robotic applications using Programmable Multi-Axis Controller
- AUT Robotic Center, Software Engineer, Tehran Jun. 2003-Feb. 2009
- Designed and Implemented machine learning methods for multi-agent decision making and path planning algorithms

### 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, filed on 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**, A. Popa, E. Grijalva, S. Cassidy, I. Ershaghi, “Reservoir Characterization using Fuzzy Kriging and Deep Learning Neural Networks,” ATCE, SPE 181578, 2016.
2. **M. Korjani**, A. Popa, I. Ershaghi, “A New Approach to Reservoir Characterization Using Deep Learning Neural Networks,” SPE-180359-MS, 2016.
3. 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, SPE 185695, 2017.
4. 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.
5. **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, July 2014.
6. 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.
7. **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**).
8. **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.