Ali Forghani, PhD

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SUMMARY

- Four years of industry experience in python programming, uncertainty analysis, and geospatial analysis
- Awarded for a groundbreaking software for geospatial analysis of groundwater models
- Proven expertise in machine learning

EDUCATION

- PhD, Civil Engineering-Groundwater Modeling, Utah State University, June 2017
- M.Sc., Civil Engineering-Water Resources Engineering, Sharif University of Technology, Oct 2007
- B.Sc., Civil Engineering, Isfahan University of Technology, Aug 2005

EXPERIENCES

Senior Water Resources Engineer, ERM, Washington DC, Jan 2021-Current

- Extensively uses Python to create innovative solutions for complex water resources and mining projects
- Performs geospatial data analysis/visualization on structured and unstructured data
- Performs data assimilation and evaluates models uncertainty

Groundwater Modeler, INTERA Inc, Austin, Texas, Aug 2017- Jan 2021

- Performed groundwater numerical modeling and uncertainty analysis with PEST
- Awarded for developing a software for geospatial data analysis and visualization of groundwater models
- Prepared a web-application using Python/bokeh to interactively visualize a particle tracking model

Research Assistant, Utah State University, Utah, Aug 2011-May 2017

- Developed a Neural Networks based software to evaluate the performance of ASR wells. The study published in: www.sciencedirect.com/science/article/pii/S0022169418304645
- Implemented a C++ MPI code to run in parallel 10,000 groundwater simulations (in a cluster of computing nodes in Linux environment) to prepare the dataset for training the Neural Networks models.
- Developed a Genetic Algorithm based solution (with C++) to optimize the performance of an ASR system

SELECTED PROJECTS

- **Modflow Data processor:** A production-level software for data analysis of groundwater models
- **ASR performance estimator:** A Neural network based software to evaluate performance of ASR wells
- **Leitnerapy**: A software for learning new words efficiently based on Leitner method: github.com/AliForghani/Leitnerapy

SKILLS

- Programming: Python (GeoPandas, SciKit-Learn, PyTorch, Numpy), Flask, C++, R, Linux, SQL
- Fluency in Git and GitHub for software development and maintenance
- Leadership: Successfully taught 14 Civil Engineering courses in several universities
- Presentation: Published several research papers in prestigious journals and presented at conferences