# Ali Forghani, PhD

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## SUMMARY

- Four years of industry experience in geospatial data analysis and python programming
- 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

**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