Masoud Samaei

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Summary

- I am a highly motivated researcher who was able to conduct several research projects independently and find the best solutions for the most demanding problems—resulting in the publication of several research papers and getting research grants for the proposals.

- I am a cross-functional collaborator that have collaborated with Geotechnical, Mining, and Water Resource Management Engineering professors to achieve the best solutions for a problem.

Education

- **M.Sc. in Geotechnical Engineering, University of Tabriz, Iran** (Feb 2018)

  Thesis: "Prediction of Penetration and Advance Rate in Mechanized Tunneling Using Data Mining Techniques."

  Abstract: In my thesis, I studied the relationship between rocks' mechanical characteristics and TBM performance. I could improve the accuracy of predictions by proposing three novel models and did more deep analyses on one of the most complex datasets in this field. The proposed models can be remarked as an ultimate stage to one decade of researchers' attempts to improve the accuracy of predictive equations.

- **B.Sc. in Civil Engineering, Azad University of Zanjan, Iran** (Jan 2015)

Research Interests

- Environmental Geotechnics
- Numerical modeling
- Soil liquefaction and Geohazard
- Geothermal Engineering
- Soil Improvement
- Statistical and probabilistic analysis
- Soft computing and artificial intelligence methods' applications in Geotechnics
- Application of non-invasive methods in rock and soil mechanics
- Tunneling and underground space technology

Publications

Journal

- **M. Samaei**, M. Ranjbarnia, V. Nourani, M. Zare Naghadehi. "Performance prediction of tunnel boring machine through developing high accuracy equations: a case study in adverse geological condition." Measurement, vol. 152, 2020. IF= 2.79 (Q1) (Link) (citation: 9)

- M. Zare Naghadehi, **M. Samaei**, M. Ranjbarnia, V. Nourani. "A state-of-the-art predictive modeling of TBM performance in changing geological conditions through gene expression programming," Measurement, vol. 126, pp. 46-57, 2018. IF= 2.79 (Q1) (Link) (citation: 26)

- **M. Samaei**, M. Ranjbarnia, M. Zare Naghadehi. "Prediction of the rock brittleness index using the nonlinear multivariable regression and the CART regression tree," Journal of Civil and Environmental Engineering, 2018, vol. 48.3(92), pp. 33-40 (Link) (citation: 2)

- **M. Samaei**, S. Yagiz. "Prediction of thermal conductivity of rocks by meta-heuristic algorithms." (*Under revision*)

- P. Samui; A. Abdolhosseinzadeh; A. Garousi; **M. Samaei**. *"*Numerical Analysis of Bearing Capacity of Circular Footing Reinforced with Geogrid Layers." (*Under revision*)

- D.J. Armaghani, **M. Samaei**. "Flyrock prediction using AdaBoost, XGBoost, Random Forest, and Decision Tree algorithms." (*Submitted*)

- M. Alinejad, N. Rahimpour, **M. Samaei**, A. Bazrafshan "Comprehensive behavioral study of reinforced soil with PET elements: A case study of Anzali seaport sand." (*Submitted*)

- **M. Samaei,** N. Rahimpour, D.J. Armaghani, M. Alinejad. "Application of machine learning in study of soil improvement using PET" (*Under preparation*)

Conference
- M. Zare Naghadehi, **M. Samaei**, M. Ranjbarnia. "Superior Modeling of Hard Rock TBM Performance Using Novel Predictive Analytics Methodologies," 3rd International Conference on Applied Research in Structural Engineering and Construction Management, Sharif University of Technology, June 2019. (Link) (citation:1)

Career History

- **Co-founder / IT manager**
  Non-governmental Society of Supporters of Arasbaran Environment
  Ahar, Iran (Aug 2021 – present)

  This NGO aims to improve the environmental status of the Arasbaran region (in the northwest of Iran) by a scope of solutions such as educating children and villagers, fundraising for tree plantations, organizing groups of volunteers for dump collection from the countryside, etc.

- **Researcher**
  Science and Technology Park of East Azerbaijan province (STPEA)
  Tabriz, Iran (Mar 2021 – present)

  I was accepted as a researcher at the STPEA for a project and received a research grant; however, this project is not related to Civil Engineering. You may read about this project at this link.

- **Coordinator of a research project**
  Khazar University, Baku, Azerbaijan (Aug 2020 – Dec 2020)

  In August 2020, based on a grant which was announcement by Swedish Institute (SI) (link), I started to develop connections between Khazar University and Swedish universities. Finally, I could start a collaboration with Dr. R. Stevens from Gothenburg University. We submitted a proposal to the SI and in December, the proposal was accepted; however, I could not continue with KU and this project. You may read further about this project in these links 1 2.

- **Civil Engineering Lab assistant**
  Khazar University, Baku, Azerbaijan (Feb 2020 – Dec 2020)

- **Lecturer**
  Khazar University, Baku, Azerbaijan (Feb 2020 – Dec 2020)

  I was teaching the following courses to undergraduate students.
  • Soil mechanics • Hydraulics • Hydraulic structures

- **Website manager (volunteer job)**
  Imam Sajjad charity against poverty, Ahar, Iran (Dec 2019- present)

    I manage the website and keep up its payment gateway which is developed for fundraising purposes to help poor people.

- **Military service (Obligatory)**
  Iran's national army (Aug 2018 – Jan 2020)

    I mainly served as a book translator and could translate 3 books.

- **AutoCAD expert**
  Nagsheh Negar consultant company, Ahar, Iran (Sep 2014 – Aug 2015)

    I worked as a professional AutoCAD designer for twelve buildings' structural and architectural plans.

- **Supervisor engineer**
  Bonyad Maskan organization, Ahar, Iran (Aug 2012 - Dec 2012)

    During the East Azerbaijan earthquake in 2012, I was the supervisor for the damaged buildings' reconstruction process according to national building codes. I worked in three villages and could monitor more than 20 construction projects.

Languages

- **English**
  - IELTS (MOCK exam: September 2021): Reading: 8, Listening: 8, Speaking: 7, Writing: 7
  (I can take the exam whenever is needed; however, I am postponing it to prepare myself for an 8 overall band score)

  - TOEFL: 94 (test date: August 2018): Reading:27, Listening:23, Speaking:22, Writing:22

Computer Skills

- MATLAB (code samples)

- Python   libraries →
  $$\begin{cases} Scikit\ learn \\ matplotlib \\ seaborn \\ numpy \\ pandas \\ opencv \end{cases}$$

- Microsoft Office
- EndNote
- Mendeley
- ABAQUS CAE (have done some projects)

- CSI ETABS, SAFE, SAP
- Data mining and statistical analyses
- Artificial Neural Networks
- Genetic Algorithm
- Imperialist Competitive Algorithm
- Classification and regression trees
- WordPress CMS
- Adobe Photoshop
- SPSS STATISTICA (Stat Soft)
- Autodesk AutoCAD

Honors and Certifications

- Member of Science and Technology Park of East Azerbaijan province and getting 3000 $ (750 million Rials) grant for a submitted proposal (June 2021 – present)

- Certification for Introduction to Python Programming Language course - University of Michigan (2019)

- The best MSc dissertation with the highest score among Geotechnical entries (2015)

- Ranked as top 5% in national universities entrance exam for M.Sc. degree

References

- **Dr. Masoud Ranjbarnia** (My MSc thesis advisor and course professor)
  Associate professor
  Department of Geotechnical Engineering, University of Tabriz, Iran
  Email: m.ranjbarnia@tabrizu.ac.ir

- **Dr. Masoud Zare Naghadehi** (My MSc thesis advisor)
  Project Engineer
  United Consulting, Atlanta, Georgia, USA

  Research engineer and scientist
  Department of Mining & Metallurgical Engineering, Nevada University, USA
  Email: masoud.zare@hotmail.com

- **Professor Vahid Nourani** (My MSc thesis referee and co-author of some journal papers)
  Professor
  Center of Excellence in Hydro-informatics, Faculty of Civil Engineering, University of Tabriz, Iran
  Faculty of Civil and Environmental Engineering, Near East University, Turkey
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- **Professor Saffet Yagiz** (co-author of a journal paper)
  Professor
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