

# JAVAD FATTAHI

PhD candidate in geotechnical engineer

## PERSONAL ATTRIBUTES

Nationality: Iranian  
Date of birth: 17-01-1990  
Marital status: Single  
Type of Visa: Student (Schengen visa)

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## OVERVIEW

The profile presents a goal-oriented geotechnical engineer with a track record of over four years in the field, gained through engagement with leading consulting engineering groups.

This professional has played an integral role in designing and analyzing large-scale infrastructure projects. Their skill set encompasses proficient programming and adept linkage of software, leveraging tools like Python, Matlab, Plaxis, and Abaqus for meticulous analysis and seamless software synthesis.

An inherent enthusiasm drives their commitment, with a profound passion for the essence of creation permeating their work.

## EXPERIENCES

### RESEARCH ENGINEER

[Reykjavík, Iceland](#)

DEC 2021 - CURRENT

Employer: [University of Iceland](#)

Project: Seismic site characterization

- Conducting extensive field and laboratory soil testing, including CPT, SPT, direct simple shear, bender element, MASW, SASW, and more.
- Executing model calibration and performed nonlinear site response analysis using software tools like PLAXIS, DeepSoil, and STRATA.
- Streamlining and automating the tuning process of advanced soil models within PLAXIS, employing Python to incorporate results from element testing.

### RESEARCH ENGINEER

[Brussels, Belgium](#)

JULY 2020 – JUNE 2021

Employer: [OWI-Lab](#)

Project: Fleet-based model updating for design optimization and structural health monitoring

- Utilized various custom-developed Python packages proficiently.
- Implemented FEM updating strategies to enhance agreement between measured and numerical data.
- Applied diverse optimization methods and worked with a meta-database of measured data.

### SITE ENGINEER

[Tehran, Iran](#)

SEP 2017 – MARCH 2019

Employer: [LAR Consulting Engineers Company](#)

Project: Seismic analysis for an underground flying junction; Tehran metro line No. 7 and primary west sewage line

- Evaluated site conditions and gathering precise measurements to inform project design decision makers.
- Developed a FE model using ABAQUS software.

Project: Participation in the design team of a 48 km-long main water pipeline connecting western cities (Nowsud tunnel, National Project)

- Compiled comprehensive technical reports by aggregating data from participating companies, subsequently submitted to the Ministry of Energy.

## RESEARCH ENGINEER

Tehran, Iran

AUG 2017 – OCT 2018

**Employer:** International Institute of Earthquake Engineering and Seismology (IIEES)





Project: Advanced earthquake engineering laboratory assistant

- Performed probabilistic analysis to evaluate dynamic strain demands as system responses in the time domain.
- Investigated transfer functions of subterranean structures under shear wavefields at various incident angles.
- Conducted parametric studies on box-shaped and 2D structures using FEM.
- Derived a simplified formula for initial estimation of dynamic strain demands in linear analysis of diverse tunnels, whether in time or frequency domain.
- Was part of a 12-member team conducting extensive laboratory testing on steel frames, funded by IIEES.
- Devised an Advanced Software Package using MATLAB and ABAQUS to simulate linear seismic behavior of arbitrary-shaped underground structures.

## EDUCATION

- **PhD Researcher – Geotechnical Engineering** - Civil and Environmental Engineering Current  
Reykjavík, Iceland  
University of Iceland
- **R&D Researcher – OWI-Lab** 2021  
Brussels, Belgium  
Vrije Universiteit Brussel
- **Master of Science – Geotechnical Engineering** - Civil Engineering 2017  
Tehran, Iran  
International Institute of Earthquake Engineering and Seismology
- **Bachelor of Science – Civil Engineering** - Civil Engineering 2014  
Kerman, Iran  
Shahid Bahonar University of Kerman

## MAIN SKILLS

- |  |   |  |   |
|--|---|--|---|
| • MATLAB / Python  |  | • Creating Excel macros                    |  |
| • Proficient in software integration, adept at adapting to new tools |  | • Seismic analysis and geotechnical design |  |
| • PLAXIS / DeepSoil / STRATA   |  | • Abaqus                                   |  |

## LANGUAGES

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Persian

Native

English

Academic IELTS with 6.5 band - 2020

## PROJECTS

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### Erasmus Plus Mobility Grants outside Europe

2023

- This application establishes a long-term agreement involving the University of Iceland and the University of Colorado Boulder. The agreement is aligned with two key objectives of the European Commission: fostering learning mobility of individuals and promoting cooperation for innovation and the exchange of best practices.

### Erasmus Plus Mobility Grants within Europe

2022

- The grant for an internship at Deltares company in the Netherlands was secured in June 2022. The internship occurred between September and November 2022, with the primary objectives of gaining practical expertise in working with DSS, CDSS devices, and PLAXIS software. The program's outcomes led to a forthcoming peer-reviewed journal paper.

### Iran's National Elites Foundation

2017

- Created two Software Packages designed for rapid assessment of seismic demands in elliptical and circular-shaped tunnels using FEM.

## TRAINING and CERTIFICATES

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- Constitutive modelling of geomaterials – Polytechnic University of Milan 2022
- Introduction to Python – Datacamp 2021
- Intermediate Python – Datacamp 2021
- Python Data Science Toolbox 1 & 2 – Datacamp 2021
- Object-Oriented Programming – Datacamp 2021
- Industrial Electronics Engineering diploma - State Technical & Vocational Training Organization 2008
- Mathematics and physics diploma - National Organization for Development of Exceptional Talents 2008

## PUBLICATIONS

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- Model calibration and nonlinear site response analysis for medium compacted saturated volcanic sand, **9th International Conference on Computational Methods in Structural Dynamics and Earthquake Engineering**, Accepted and presented at the conference 2023
- Liquefaction Assessment of a Loose Silty Sand Site in the 2008  $M_w$  6.3 Ölfus Earthquake, **3<sup>rd</sup> European Conference on Earthquake Engineering & Seismology Bucharest, Romania**, Accepted and presented at the conference 2022
- Fleetwide sensitivity analysis of offshore monopile wind turbines under conditions of scour and marine growth, **European Academy of Wind Energy**, Accepted and presented at the conference 2021
- Building an updatable integrated model of an offshore wind turbine with a reduced soil-model using the open-source FEM software OpenSees, **European Academy of Wind Energy (impending proceeding publication)**, Accepted and presented at the conference 2020
- Upper bound frequency-dependent strains imposed on deep underground box-shaped structures under shear wave field of motion with different incident angles, **Tunnelling and Underground Space Technology incorporating Trenchless Technology Research**, Accepted 2020

- Predicting strain demand histories imposed on box-shaped underground structures in seismic events, **8<sup>TH</sup> International Conferences on Seismology and Earthquake Engineering (See8)**, Accepted and presented at the conference 2019
- An Investigation on the Effect of Shear Wave Field of Motion on Seismic Demands of Underground Structures: the Case of 2D Rectangular-Cross-Section Structures, **master of science thesis** 2017