

Danial Shirkavand

PhD Candidate - Geotechnical Engineering

Geotechnical Engineer

Pars GeoEnviro Co.

17 Dec 1989

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Education

- 2014-2020 **PhD. Candidate in Geotechnical Engineering (Final Semester)**, (*Full PhD. Scholarship*), Civil and Environmental Engineering Department, Amirkabir University of Technology (Tehran Polytechnic), Tehran, Iran.
Dissertation and Research Topics (Sponsored by Global MTM):
1) Sand dynamic properties under unsaturated condition, a wide range of cyclic shear strain amplitude, and various states of stress using triaxial and simple shear approaches.
2) Cyclic triaxial device development providing unsaturated condition and shear wave propagation
3) Cyclic simple shear device development providing unsaturated condition and shear wave propagation
Supervisor: [Dr. K. Fakharian](#)
- 2012-2014 **MSc. Geotechnical Engineering**, (*Full Scholarship*), Amirkabir University of Technology (Tehran Polytechnic), Tehran, Iran.
Thesis Title: An Experimental Evaluation of Hydraulic Properties in Soil-Geotextile Systems.
Design and manufacturing Hydraulic Conductivity Ratio (HCR) apparatus for evaluating soil-geotextile systems efficiency
Supervisor: [Dr. K. Fakharian](#)
(Overall GPA: 17.1 out of 20)
- 2008-2012 **BSc. Civil Engineering**, (*Full Scholarship*), Amirkabir University of Technology (Tehran Polytechnic), Tehran, Iran.
(Overall GPA: 16.6 out of 20)
- 2007-2011 **Diploma in Mathematics and Physics**, *National Organization for Development of Exceptional Talents (NODET)*, Tehran, Iran.

Main Fields of Interest and Competence

- Device Development
- Element Testing - Soil Laboratory Experimental Study
- Soil Dynamics
- In-situ Investigations (CPTu)
- Physics and Science Education

Publications

- **D. Shirkavand; K. Fakharian**; "Stress State, Strain Amplitude and Capillary Effects on Shear Modulus of Unsaturated Silica Sands", *Soil Dynamics and Earthquake Engineering* (In progress).

- **D. Shirkavand; K. Fakharian**; "Impact of Stress Anisotropy on the Small Strain Shear Modulus of Unsaturated Sand" (In progress).
- K. Fakharian; **D. Shirkavand**; M. Hejazi, "A Comparison between Simple Shear and Triaxial Tests for Evaluating the Variations of G and D with Matric Suction", E3S Web of Conferences, Vol. 92, EDP Sciences, 2019. (DOI: <https://doi.org/10.1051/e3sconf/20199207010>)
- **D. Shirkavand**; K. Fakharian, "An Experimental Study of Effective Parameters on Soil-Geotextile Combination Filters and Separators", 5th International Conference on Geotechnical Engineering and Soil Mechanics, Tehran, Iran, 2019.
- **D. Shirkavand**; K. Fakharian, "Soil Gradation Effects on Filter Bridge Zone in Soil-Geotextile Systems", 10th International Congress on Civil Engineering, Tabriz, 2015.
- **D. Shirkavand**, "An Experimental Study on Water Flow in Soil-Geotextile Systems (Master's Thesis)", Amirkabir University of Technology, Tehran, Iran, 2014.

Work Experience

Geotechnical Engineering

- September 2013 - Present **Soil mechanics and soil dynamics laboratory manager**, *Pars GeoEnviro*, Tehran, Iran.
- Responsible for:
- 1) Arranging the test plan based on the field characteristics
 - 2) Results interpretation
 - 3) Lab report presentation
 - 4) Instructing lab technicians in accordance with standard codes of test methods
 - 5) Managing the personnel working schedule respecting to test traffic

Equipment Manufacturing

- 2013 - Present **QC/QA Engineer**, *Global MTM* (a subsidiary of *Pars GeoEnviro*), Soil lab equipment of high quality and precision are professionally manufactured in Global MTM. Triaxial, simple shear, shaking table, and UTM to name a few., Tehran, Iran.
- Responsible for:
- 1) Quality control and quality assurance of the final product with emphasis on the test results validation
 - 2) Product presentation through international exhibitions and geotechnical events
 - 3) Device operator training and instruction for beginners (university labs)

High School Teacher

- 2008 - Present **Part-time physics teacher (half day a week)**, *National Organization for Development of Exceptional Talents (NODET)*, Tehran, Iran.

Professional Skills

- Site Investigation Report
- Test Result Interpretation
- Technical instruction for soil tests operators
- Geotechnical product presentation
- Demonstrated teamwork ability

Laboratory and Testing Skills

- **Triaxial Test:** Monotonic (CU, CD, UU) - Cyclic - Unsaturated Condition - Liquefaction Assessment - Shear Modulus and Damping Ratio - Various Stress Paths (TCT, TET, TLCT, TLET) Based on ASTM
- **Bidirectional Simple Shear Test:** Monotonic (Based on ASTM) - Cyclic - Constant Volume - Constant Stress - Liquefaction Assessment - Shear Modulus and Damping Ratio - Dry - Saturated and Unsaturated Condition
- **Resonant Column:** Small Strain Dynamic Properties

- **Unsaturated Tests** (Axis Translation Technique)
- **In-Situ Procedures:** Borehole rotary auger – SPT – Seismic CPTu
- **Direct Shear Test:** Small and Large Scale
- **Geosynthetics:** Wide Tensile - Trapezoidal Tearing – Dumbbell Tensile – Tearing - Grab – Index Puncture – CBR – Welding Shear – Peel strength - Swell Index – Fluid Loss – Flux – Density – HCR – Durability – AOP, etc.
- **Conventional Soil Tests**
- **Dispersive Soils-** Double Hydrometer Ratio – Crumb – Pinhole
- **Road and Pavement**
- Concrete Assessment Tests: Compression Strength – Aggregates Assessment, etc.
- Rebar QC Tests

Presentations

- Presenting geotechnical lab equipment in annual [Iran Lab Expo](#) held in Tehran international fair ground for six periods (2014 to 2019)
- Presenting geotechnical lab products for client faculty members

Softwares

- **Geotechnical:** PLAXIS, Geo Studio (Geo-Slope), SAFE
- **Engineering:** SAP2000, ETABS, Auto Cad, Solid Works
- **MS Office:** Excel, Word, Power Point, Access, Project

Awards and Grants

- 2014 **Scholarship, *PhD. Student Scholarship***, Ranked 31 among more than 2000 participants in university entrance exam for PhD. degree and got **Full Scholarship** for doctorate of Geotechnical Engineering.
- 2014 **Sponsorship, *PhD. Student Sponsorship***, Sponsored by Global MTM for PhD. dissertation supplementary tests.
- 2012 **Straight Admission and Scholarship, *MSc. Student Scholarship***, Ranked as top talented student and got **Straight Admission** and **Full Scholarship** for Master of Geotechnical Engineering.
- 2008 **Scholarship, *BSc. Student Scholarship***, Ranked among the top 0.3 percent of participants in university entrance exam for B.Sc. degree and got full scholarship for Bachelor of Civil Engineering .

Professional Memberships

- Member of Iranian Geotechnical Society (IGS)
- Member of Tehran Construction Engineering Organization

Academic Activities

- Participation in Robocup Iran Open international competitions, Real Rescue League, April 2007 and 2008
- Participation in Urban Robots competition, November 2006, Tehran
- Participation in implementation of Spaghetti Bridge competitions for three rounds, Amirkabir University of Technology, Tehran, Iran, 2008 to 2010

Conferences and Workshops Attendance

- First Aid Training Course certified by Iranian Red Crescent Society, July 2017
- Volunteer Firefighter Training Course (Level C), July 2017

- 1st Special Seminar on Slope Stability: Landslides and Rock falls, Tehran, Iran, December 2017
- 5th International Conference on Geotechnical Engineering and Soil Mechanics, Tehran, Iran, November 2016
- 1st Seminar on "Special Foundations", Tehran, Iran, February 2016
- Seminar on "Geosynthetic Solutions for Excavation Waterproofing", Tehran, Iran, January 2016
- Special seminar on "Mechanically Stabilized Soil Retaining Walls (MSEW)", Tehran, Iran, November 2015
- 10th International Congress on Civil Engineering, Tabriz, Iran, May 2015
- 1st Seminar on "Geosynthetics: Application, Design and Construction", Tehran, Iran, February 2014

Languages

- **English:** Full Professional proficiency - MSRT: 84 out of 100
- **Persian:** Native

General Interests

- Football Playing
- History and Literature
- Travelling

References

- **References are available upon request.**