Abolfazl (Abe) Eslami

Ph.D., PE

Professor & Private Consultant: Geotechnical & Foundation Engineering

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PROFESSIONAL SUMMARY

A globally recognized authority in geotechnical and foundation engineering, Dr. Eslami brings more than 35 years of integrated experience spanning academic research, graduate education, and high-stakes consulting across four continents. He is the co-developer of the widely adopted **Eslami–Fellenius CPT Pile Capacity Method**, validated against 102 case histories and referenced in leading US foundation engineering textbooks and the NAVFAC UFC (2025), and the creator of the AUT Geo-CPT/Pile and FELADD load-displacement databases, which serve as authoritative resources for design calibration and reliability analysis. He is the author of two major reference works published by Elsevier (2020) and Wiley (2026) and has supervised over 150 M.Sc. and 25 Ph.D. theses. His technical portfolio encompasses deep foundation design and review, CPT/CPTu-based design validation, ground improvement, slope stability, physical modeling, and forensic engineering. Dr. Eslami has led landmark projects involving offshore wind turbine foundations, liquefiable coastal deposits, high-rise structures, and major infrastructure across the Middle East, North America, and Europe, and regularly presents at premier venues including ASCE Geo-Congress and the Deep Foundations Institute (DFI). With a scholarly H-index of 35 and over 4,340 citations across 170+ peer-reviewed publications, he offers exceptional depth of knowledge, professional rigor, and a rare combination of field-proven methodology and scholarly credibility.

EDUCATION

Ph.D., Geotechnical Engineering (1992–1997) — University of Ottawa
M.Sc., Geotechnical Engineering (1986–1988) — Tehran Polytechnic
B.Sc., Civil Engineering (1982–1985) — Sharif University of Technology

ADVISORY & CONSULTING EXPERIENCE

Principal Geotechnical Engineer | AFE Consulting Inc. | 2024 – Present | Irvine, CA, USA
Senior Advisor | Medro Engineering Co. | 2023 – Present | Los Angeles, CA, USA
Visiting Scholar | UC San Diego (2022–23), UNLV (2021–24), McGill (2017–18), UBC (1994)
Professor | Tehran Polytechnic | 2007 – 2020
Founder & Chairman | Sham-e Consulting Engineering Co. | 2000 – 2020
Assistant & Associate Professor | University of Guilan, Civil Engineering Dept. | 1997 – 2007

SELECTED PROJECTS — TECHNICAL LEAD

- **Urmia Lake Causeway** — CPTu-based site characterization and long pile design in super-soft sediments
- **Amirabaad Tank Farm, Caspian Sea** — sustainable ground improvement and hybrid foundation on liquefiable deposit
- **Ghasre Aseman Twin Towers** — hybrid drilled shaft and micropile foundation optimization for high-rise structure
- **Fourth Bridge, Babolsar (600-m Bridge)** — pile integrity testing, substructure design, and forensic flood-event analysis
- **Guilan Deylaman Cement Complex** — large-scale landslide control via deep soil mixing (DSM) and drilled shafts
- **Storage Tanks, Persian Gulf Northern Coast** — optimization of piled foundation systems for industrial tank farms
- **FCV-AUT (Frustum Confining Vessel)** — physical modeling apparatus for pile and penetration testing
- **Caspian Sea Piling Research Sites** — supervision of full-scale testing at Anzali Harbor, Babolsar, and Incheh Borun
- **North Sea Offshore Wind Turbine** — gravity-based foundation (GBF) feasibility and substructure design control

SELECTED PRESENTATIONS — US & INTERNATIONAL

- **"A Unified Approach to Foundation Engineering: CaSeLD"** — University of California, Berkeley, 2026
- **"Enhancement of Deep Foundations Performance"** — ASCE Geo-Congress, Salt Lake City, 2026
- **"CPT and Pile Foundations: Past, Present & Prospects"** — ASCE Geo-Congress, Kentucky, 2025
- **"Conceptual Axial Stress-Strain Behavior of Drilled Displacement Piles"** — DFI 50th Annual Conference, 2025
- **"CPT & CPTu Application for Piles; Databased Approach"** — ASCE Geo-Congress, Louisville, KY, 2025
- **"Cone Penetration Tests (CPT & CPTu) Records for Deep Foundations Design"** — UC San Diego, 2023
- **"CPTu & CPT Applications in Geotechnical & Foundation Engineering"** — CUMT, Online, China, 2022
- **"Uncertainty & Reliability Appraisal of CPT-Based Methods for Piles"** — DFI 46th Annual Conference, 2021

SELECTED PUBLICATIONS

Books

- Karakouzian, M. & **Eslami, A.** (2026). *Advanced Foundation Engineering: Principles, Performance and Prospect*. Wiley. Link.
- **Eslami, A.**, Moshfeghi, S., Molaabasi, H., & Eslami, M. (2020). *Piezocone and Cone Penetration Test (CPTu and CPT) Applications in Foundation Engineering*. Elsevier. Link.

Representative Peer-Reviewed Papers — +170 papers · ~4,390 citations · h-index 35. Link.

- **Eslami, A.**, Arjmand, A., Ebrahimipour, A., & Ebrahimian, P. (2026). Load-Displacement Assessment of T-Shaped Soil-Cement Columns Enhancement through Numerical Simulation. *Transportation Infrastructure Geotechnology*
- **Eslami, A.**, Ebrahimipour, A., & Mehrazma, A. (2026). Strain-Based Performance of Drilled Displacement Piles through Load Tests and CPT Database. *Results in Engineering*
- **Eslami, A.**, Ebrahimipour, A., Fattahi, S.M., Omrani Rekavandi, A., Moazzami, A., & Khoshbakhty, K. (2025). Sustainable Ground Improvement and Hybrid Foundation for Tank Farm on Liquefiable Coastal Deposit: Case Study. *Marine Georesources & Geotechnology*.
- **Eslami, A.**, Shadlou, D., & Ebrahimipour, A. (2025). Pore water pressure generation and sensitivity aspects for pile dynamics and capacity loss: CPTu records and case studies. *Soil Dynamics & Earthquake Engineering*.
- **Eslami, A.**, Ebrahimipour, A., Imani, M., Imam, R., & Mo, P.Q. (2025). Form and load transfer aspects of foundation systems; case-based implementation and adaptation for buildings. *Deep Underground Science & Engineering*.
- Esmailzade, M., **Eslami, A.** (2025). Experimental study on performance and enhanced methods of helical piles using Frustum Confining Vessel in Anzali Sand. *Ocean Engineering*.
- **Eslami, A.**, Moghadasi, H., & Akbarimehr, D. (2025). Physical Modeling Appraisal for Evaluating Tilt and Settlement Due to Adjacent Building Construction. *Iranian Journal of Science and Technology, Transactions of Civil Engineering*.
- Ebrahimipour, A., & **Eslami, A.** (2024). Analytical study of piles behavior for marine challenging substructures. *Ocean Engineering*.
- **Eslami, A.**, & Ebrahimipour, A. (2024). Load-displacement appraisal and analysis for driven piles; a data-centric approach. *Computers and Geotechnics*.
- Arjmand, A., & **Eslami, A.** (2024). Appraisal of soil-cement columns load displacement behavior through full-scale tests database. *Marine Georesources & Geotechnology*.
- **Eslami, A.**, Heidarie Golafzani, S., & Naghibi, M.H. (2023). Developed triangular charts; deltaic CPTu-based soil behavior classification using AUT: CPTu-Geo-Marine Database. *Probabilistic Engineering Mechanics*.
- **Eslami, A.**, Rostami, F., Heidarie Golafzani, S., & Arabameri, M. (2023). Experimental investigation of helical pile performance for loess deposits improvement. *DFI Journal*.
- **Eslami, A.**, & Heidarie Golafzani, S. (2020). Relevant data-based approach upon reliable safety factor for pile axial capacity. *Marine Georesources & Geotechnology*.
- **Eslami, A.**, Lotfi, S., Infante, J.A., Moshfeghi, S., & Eslami, M.M. (2020). Pile shaft capacity from cone penetration test records considering scale effects. *International Journal of Geomechanics, ASCE*.
- **Eslami, A.**, Moshfeghi, S., Heidarie, S., & Valikhah, F. (2019). AUT:Geo-CPT&Pile database updates and implementations for pile geotechnical design. *Geotech Eng J SEAGS & AGSSEA*.
- **Eslami, A.**, Akbarimehr, D., Aflaki, E., & Hajitaheriha, M.M. (2019). Geotechnical site characterization of the Lake Urmia supersoft sediments using laboratory and CPTu records. *Marine Georesources & Geotechnology*.
- Heidari Golafzani, S., **Eslami, A.**, & Jamshidi Chenari, R. (2017). Reliability based assessment of pile foundation bearing capacity: static analysis, SPT and CPT-based methods, *Probabilistic Engineering*.
- Eslami, M.M., & **Eslami, A.** (2017). Seawall case studies and failure analysis of sloped concrete walls under static and dynamic loads. *Marine Georesources & Geotechnology*.
- **Eslami, A.**, Valikhah, F., Veiskarami, M., & Salehi, M. (2017). CPT-based investigation for pile toe and shaft resistances distribution. *Geotechnical and Geological Engineering*.
- **Eslami, A.** & Mohammadi, A. (2016). Drained soil shear strength parameters from CPTu data for marine deposits by analytical model. *Ships and Offshore Structures*.
- Moshfeghi, S. & **Eslami, A.** (2016). Study on pile ultimate capacity criteria and CPT-based direct methods. *International Journal of Geotechnical Engineering*.
- **Eslami, A.**, Heidarie Golafzani, S., & Jamshidi Chenari, R. (2016). Assessment of Babolsar Concrete Pedestrian Bridge Failure for 1964 Flood Event and Retrofitting Practice. *Engineering Failure Analysis*.
- **Eslami, A.** (2015). Investigation of explosive compaction (EC) for liquefaction mitigation using CPT records. *Bulletin of Earthquake Engineering*.
- **Eslami, A.**, Aflaki, E., & Hosseini, B. (2011). Evaluating CPT and CPTu based pile bearing capacity estimation methods using Urmiyeh Lake Causeway piling records. *Scientia Iranica*.
- **Eslami, A.**, Fellenius, B.H. (2004). CPT and CPTu data for soil profile interpretation: review of methods and proposed new approach. *Iranian Journal of Science and Technology*.
- **Eslami, A.**, & Fellenius, B.H. (1997). Pile capacity by direct CPT and CPTu methods applied to 102 case histories. *Canadian Geotechnical Journal*. *(seminal paper for the Eslami–Fellenius method)*