

DIMITRIOS LOUKIDIS

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Personal information

Year of birth: 1976
Place of birth: Athens, Greece
Nationality: Greek

Education

Doctor of Philosophy (Ph.D.), Civil Engineering, Purdue University, May 2006
GPA: 4.0/4.0
Dissertation title: Advanced Constitutive Modeling of Sands and Applications to Foundation Engineering

Master of Science in Civil Engineering (M.S.C.E.), Purdue University, December 2000
Area of specialization: Geotechnical Engineering
GPA: 4.0/4.0
Thesis title: Seismic Design of Pile Foundations in Southern Indiana

Civil Engineering Diploma (5-year course), National Technical University of Athens (NTUA), July 1999
Area of specialization: Structural Engineering
Final grade: 8.62/10.0
Diploma thesis title: Active Fault Propagation through Soil

Employment

- (Aug. '19 – present) Associate Professor, Department of Civil and Environmental Engineering, University of Cyprus.
- (Dec. '13 – Jul. '19) Assistant Professor, Department of Civil and Environmental Engineering, University of Cyprus.
- (Jan. '09 – Dec. '13) Lecturer, Department of Civil and Environmental Engineering, University of Cyprus.
- (May '06 – Dec. '08) Post-Doctoral Research Associate, School of Civil Engineering, Purdue University.
- (Aug. '99 – May '06) Research Assistant and Teaching Assistant, School of Civil Engineering, Purdue University.

Awards and scholarships

ASCE Outstanding Reviewer 2018 for the Journal of Geotechnical and Geoenvironmental Engineering

Estus H. and Vashti L. Magoon Outstanding Teaching Assistant Award, 2003 (for the course Statics)

Alexander S. Onassis Public Benefit Foundation Scholarship, 2001-2003

National Technical University of Athens Award and Medal for the 3rd highest final GPA in 1999 civil engineering graduating class

Three awards of the Technical Chamber of Greece for outstanding performance during the studies at NTUA (academic years 1996-1997, 1997-1998 and 1998-1999)

Reviewer

Completed reviews for the following journals:

- Applied Ocean Research
- Canadian Geotechnical Journal
- Computers and Geotechnics
- Geomechanics and Engineering, An international journal
- Géotechnique
- Géotechnique Letters
- Geotechnical and Geological engineering
- International Journal for Numerical and Analytical Methods in Geomechanics
- International Journal of Geomechanics
- International Journal of Solids and Structures
- Journal of Applied Mechanics Reviews (ASME)
- Journal of Geotechnical and Geoenvironmental Engineering (ASCE)
- Oil & Gas Science and Technology - Review d'IFP Energies Nouvelles
- Proceedings of Institution of Civil Engineers (ICE) – Geotechnical Engineering
- Soils and Foundations
- Soil Dynamics and Earthquake Engineering

Use of computer programs

Finite element software: Abaqus, Plaxis 2D, Plaxis 3D, SAP2000

Geotechnical software: FLAC, SHAKE, SEISRISK, PCSTABL, SLOPE/W, GRLWEAP

Programming: Fortran77, Visual Fortran, MATLAB

Teaching

Instructor

CEE251 – Soil Mechanics – University of Cyprus (2015)

CEE253 – Soil Mechanics Laboratory – University of Cyprus (2010-2014)

CEE353 – Foundation Engineering – University of Cyprus (2015-2019)
CEE450 – Geomechanics – University of Cyprus (2009-2014,2016-2017)
CEE451 – Engineering Geology – University of Cyprus (2009-2018)
CEE535 – Plasticity Theory – University of Cyprus (2010,2012,2014)
CEE555 – Soil Dynamics and Engineering Seismology – University of Cyprus
(2009,2011,2013,2015,2017,2018)
CEE556 – Advanced Foundation Engineering – University of Cyprus (2018-2019)
PET511 – Petroleum Geology – University of Cyprus (2013) (co-instructor)
PET541 – Petroleum Geomechanics – University of Cyprus (2014) (co-instructor)
CE383 – Geotechnical Engineering I – Purdue University (2008) (co-instructor)
CE483 – Geotechnical Engineering II – Purdue University (2005)
Teaching Assistant
CE297 – Statics – Purdue University (2003)
CE483 – Geotechnical Engineering II – Purdue University (2004)

Research Projects

Principal Investigator

INTEGRATED/0916/0049 project EXPASOL: The effects of soil expansion/shrinkage on building foundations and their mitigation. Duration 2019-2021. Funding Body: Cyprus Research Promotion Foundation.

UCY internal research project SLOSTAPILES: Large-strain finite element analysis of the limit resistance of slope stabilizing piles. Duration: 2010-2012. Funding Body: University of Cyprus.

Participant

THALES project: Innovative design of bridge piers on liquefiable soils with the use of “natural” seismic isolation. Duration: 2012-2016. Funding Body: General Secretariat for Research and Technology of Greece.

SERIES Transnational Access (TA) project: Experimental Verification of Shallow Foundation Performance Under Earthquake – Induced Liquefaction Cambridge University. Duration: 2010-2012. Funding Body: European Commission – FP7 Capacities.

Activities

President of the Cypriot Society of Soil Mechanics and Geotechnical Engineering (CSSMGE) (2016-present)

Member of the ISSMGE Technical Committee TC205 – Safety and Serviceability in Geotechnical Engineering (2018-present)

Member of the European Committee for Standardization CEN /TC250 /SC7 - Eurocode 7 - Geotechnical Design (2019-present)

Member of the Cyprus Organisation for Standardisation committee CYS TC 18/SC7 for the update of the Cyprus National Annex to Eurocode 7 (2018-present)

Head of the Geomechanics Laboratory of the University of Cyprus (2009-present)

Consulting

Analysis of a landslide in bentonitic clays in Armou, Paphos district and design of required stabilization measures (litigation) (2017)

Member of consulting team for the analysis and stabilization of the landslide at the site of the Archangel Michael Monastery in Analiontas, Nicosia District (2010-2011)

Conducted laboratory experiments (consulting services of the UCY Geomechanics Laboratory) for the Water Development Department and Public Works Department of Republic of Cyprus

Participated in three consulting projects undertaken by Prof. Rodrigo Salgado (Purdue University):

- Stability of a caisson breakwater for the port of Barcelona using the program PCSTABL, for Alatec-Proes, SA (2001).
- Estimation of the seismic ground motion for the retrofitting of a parking garage structure, for Walker Parking, Inc. (2003).
- Analysis of the sinking of an open-dredge caisson for the pier of a cable-stayed bridge (litigation) (2003-2006).

Support, improvements and additions to the slope stability computer code PCSTABL of Purdue University (2001-2008).

Member of the organizing committee of 4 conferences/workshops in Cyprus and Greece.

Professional membership

- Scientific Technical Chamber of Cyprus
- Cyprus Association of Civil Engineers
- Technical Chamber of Greece

PUBLICATIONS

Journal papers

- Loukidis, D., Bandini, P. & Salgado, R. (2003). "Stability of seismically loaded slopes using limit analysis." *Géotechnique*, Vol. 53, No. 5, pp. 463-479.
- Murthy, T. G., Loukidis, D., Carraro, J.A.H., Prezzi, M. & Salgado R. (2007). "Undrained monotonic response of clean and non-plastic silty sands." *Géotechnique*, Vol. 57, No. 3, pp. 273-288.
- Loukidis, D. & Salgado, R. (2008). "Analysis of the shaft resistance of non-displacement piles in sand." *Géotechnique*, Vol. 58, No. 4, pp. 283-296.
- Loukidis, D., Chakraborty, T. & Salgado, R. (2008). "Bearing capacity of strip footings on purely frictional soil under eccentric and inclined loads." *Canadian Geotechnical Journal*, Vol. 45, No. 6, pp. 768-787.
- Loukidis, D. & Salgado, R. (2009). "Modeling sand response using two-surface plasticity." *Computers and Geotechnics*, Vol. 36, No. 1-2, pp. 166-186.
- Loukidis, D. & Salgado, R. (2009). "Bearing capacity of strip and circular footings in sand using finite elements." *Computers and Geotechnics*, Vol. 36, No. 6, pp. 871-879.
- Loukidis, D., Bouckovalas, G. D., Papadimitriou, A. (2009). "Analysis of fault rupture propagation through uniform soil cover." *Soil Dynamics and Earthquake Engineering*, Vol. 29, pp. 1389-1404.
- Loukidis, D. & Salgado, R. (2011). "Effect of relative density and stress level on the bearing capacity of footings on sand." *Géotechnique*, Vol. 61, No. 2, pp. 107-119.
- Basu, P., Loukidis, D., Prezzi, M. & Salgado, R. (2011). "Analysis of shaft resistance of jacked piles in sands." *International Journal for Numerical and Analytical Methods in Geomechanics*, Vol. 35, No. 15, pp. 1605-1635.
- Loukidis, D. & Salgado, R. (2012). "Active pressure on gravity walls supporting purely frictional soils." *Canadian Geotechnical Journal*, Vol. 49, No. 1, pp. 78-97.
- Vavourakis, V., Loukidis, D., Charmpis, D. C. & Papanastasiou, P. (2013). "Remeshing and remapping strategies for large deformation elastoplastic finite element analysis." *Computers and Structures*, Vol. 114-115, pp. 133-146.
- Chakraborty, T., Salgado, R. & Loukidis, D. (2013). "A Two-Surface Plasticity Model for Clay." *Computers and Geotechnics*, Vol. 49, pp. 170-190.
- Vavourakis, V., Loukidis, D., Charmpis, D. C. & Papanastasiou, P. (2013). "A robust finite element approach for large deformation elastoplastic plane-strain problems." *Finite Element Analysis and Design*, Vol. 77, pp. 1-15.

- Salgado, R., Loukidis, D. Abou-Jaoude, G. & Zhang, Y. (2015). "The role of soil stiffness non-linearity in 1D pile driving simulations." *Géotechnique*, Vol. 65, pp. 169-187.
- Salgado R., Zhang Y., Abou-Jaoude, G., Loukidis D. and Bisht V. (2017). "Pile driving formulas based on pile wave equation analyses." *Computers and Geotechnics*, 81, 307–321.
- Loukidis, D. and Tamiolakis, G-P (2017). "Spatial distribution of Winkler spring stiffness for rectangular mat foundation analysis." *Engineering Structures*, 153, 443-459.
- Lazarou, G., Loukidis, D. & Bardanis, M. (2018). "Moisture migration under mat foundations in Nicosia marl". *Geotechnical and Geological Engineering*, 37(3), 1585-1608.

Conference papers

- Loukidis, D. N. & Bouckovalas, G. (2001). "Numerical simulation of active fault rupture propagation through dry soil." Proceedings of the 4th International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics, San Diego, California. CD-ROM, Univ. of Missouri-Rolla. Prakash (ed.), Paper No. 3-04.
- Loukidis, D., Lee, S-H, Yi, Q & Bourdeau, P. L. (2001). "Analytical study of the Nikawa landslide." Proceedings of the 4th International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics, San Diego, California. CD-ROM, Univ. of Missouri-Rolla. Prakash (ed.), Paper No. 5-31.
- Loukidis, D., Salgado, R. & Bobet, A. (2001). "Seismic design of pile foundations in southern Indiana." Proceedings of the 4th International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics, San Diego, California. CD-ROM, Univ. of Missouri-Rolla. S. Prakash (ed.), Paper No. 8-09.
- Bouckovalas, G. D., Loukidis D. & Antoniou K. (2001). "Fault rupture propagation through soft soil covers." Proceedings of the 9th International Conference of the Hellenic Geological Society, Athens. (in Greek, invited)
- Bandini, P., Loukidis, D. & Salgado, R. (2005). "Limit analysis of seismically loaded slopes." Proceedings of the 11th IACMAG 2005, Torino, Italy, Vol. 4, pp. 2685-2688.
- Loukidis, D., Bandini, P. & Salgado, R. (2005). "Critical seismic coefficient using limit analysis and finite elements." Proceedings of the 16th ICSMGE, Osaka, Japan, Vol. 3, pp. 457-464.
- Papadimitriou, A., Loukidis, D., Bouckovalas, G. & Karamitros, D. (2006). "Numerical Evaluation of Active Fault Rupture Propagation through Soil Layer." Proceedings of the 5th Panhellenic Conference on Geotechnical & Geoenvironmental Engineering, Xanthi, Greece. (in greek)

- Papadimitriou, A., Loukidis, D., Bouckovalas, G. & Karamitros, D. (2007). "Zone of excessive ground surface distortion due to dip-slip fault rupture." Proceedings of the 4th International Conference on Earthquake Geotechnical Engineering, Thessaloniki, Paper No. 1583 (CD-ROM).
- Loukidis, D. & Salgado R. (2008). "Numerical study of limit shaft resistance of bored piles in sand." Proceedings of the 12th IACMAG 2008, Goa, India, pp. 3376-3383.
- Murthy, T. G., Prezzi, M., Salgado R. & Loukidis, D. (2010). "Undrained response of clean and silty sands." Proceedings of the 5th International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics, San Diego, California. Paper No. 1.15b.
- Loukidis, D. & Salgado, R. (2010). "Equivalent friction angle in bearing capacity calculations for footings on granular soils." Proceedings of the Vardoulakis mini-symposia, 9th HSTAM International Congress on Mechanics, Limassol, Cyprus, pp. 285-292.
- Basu, P., Loukidis, D., Prezzi, M. & Salgado, R. (2011). "Numerical simulation of shaft resistance development for piles jacked in sand." Proceedings of the 13th IACMAG 2011, Melbourne, Australia, Vol. 2, pp. 905-912.
- Loukidis, D., Papadimitriou, A. G. & Bouckovalas, G. D. (2011). "Ground surface distortion zone in the vicinity of active dip-slip faults." Proceedings of the ISSMGE-ERTC 12 Workshop: Evaluation of Geotechnical Aspects of EC8, XV European Conference on Soil Mechanics and Geotechnical Engineering, Athens, Greece. Paper No. 15 (CD-ROM).
- Loukidis, D. & Konstantinopoulos, D. (2011). "Seismic active earth pressure: the effect of soil dilatancy angle." Proceedings of the ISSMGE-ERTC 12 Workshop: Evaluation of Geotechnical Aspects of EC8, XV European Conference on Soil Mechanics and Geotechnical Engineering, Athens, Greece. Paper No. 25 (CD-ROM).
- Loukidis, D. & Salgado, R. (2013). "Active earth thrust on walls supporting granular soils: effect of wall movement." Proceedings of the 18th ICSMGE, Paris, France, pp. 2043-2046.
- Loukidis, D. & Vavourakis, V. (2014). "Limit lateral resistance of vertical piles in plane strain." Proceedings of the 8th European Conference on Numerical Methods in Geotechnical Engineering, NUMGE 2014, Delft, The Netherlands, pp. 681-685.
- Basu, P., Loukidis, D., Prezzi, M. & Salgado, R. (2014). "The mechanics of friction fatigue in jacked piles installed in sand." Geotechnical Special Publication 233: From Soil Behavior Fundamentals to Innovations in Geotechnical Engineering, Geo-Congress 2014, Atlanta, Georgia, USA, pp. 546-557.
- Fragiadakis, M., Loukidis, D. & Papanastasiou, P. (2014). "Seismic capacity assessment of Kouris earth dam." Proceedings of the 2nd European Conference on Earthquake Engineering and Seismology, Istanbul, Turkey. Paper No. 1242 (CD-ROM).

- Orologopoulos, N. & Loukidis, D. (2014). "Soil non-linear behavior and hysteretic damping in the spring-dashpot analog." Proceedings of the 2nd European Conference on Earthquake Engineering and Seismology, Istanbul, Turkey. Paper No. 1710 (CD-ROM).
- Karamitros, D., Bouckovalas, G., Dimitriadi, V., Papadimitriou, A., Loukidis, D., Madabhushi, S. & Cilingir, U. (2014). "Experimental investigation of the seismic performance of shallow foundations in a liquefaction regime." Proceedings of the 7th Panhellenic Conference on Geotechnical Engineering, Athens, Greece, Paper No. XVI.4 (CD-ROM). (in greek)
- Loukidis, D., Italos, Ch., Papanastasiou, P. & Lazarou, G. (2014). "Analysis and design of stabilizing measures of landslide in Analiontas of Nicosia District." Proceedings of the 7th Panhellenic Conference on Geotechnical Engineering, Athens, Greece, Paper No. X.8 (CD-ROM). (in greek)
- Loukidis, D. & Salgado, R. (2015). "Numerical investigation of gravity wall-granular soil interaction." Proceedings of the International Foundations Congress and Equipment Expo 2015, San Antonio, Texas, March, 2015, Geotechnical Special Publication No. 256, pp. 1370-1379.
- Zygounas, F-I & Loukidis, D. (2016). "Modeling hysteretic behavior of soils using bounding surface plasticity." Proceedings of the 11th HSTAM International Congress on Mechanics, Athens, Greece, Paper No. 91 (URL: 11hstam.ntua.gr/proceedings/).
- Loukidis, D., Bardanis, M. & Lazarou, G. (2016). "Classification, soil-water characteristic curve and swelling/collapse behaviour of the Nicosia marl, Cyprus." Proceedings of the 3rd European Conference on Unsaturated Soils (E-UNSAT 2016), Paris, France (DOI: <http://dx.doi.org/10.1051/e3sconf/20160911009>).
- Loukidis, D. & Ygeionomaki, N. (2017). "Bearing capacity in sand under eccentric and inclined loading using a bounding surface plasticity model." International Workshop on Bifurcation and Degradation in Geomaterials, Limassol, Cyprus, pp. 267-273.
- Loukidis, D., Salgado, R., Abou-Jaoude, G. & Yanbei, Z. (2017). "Non-linear base and shaft reaction models for 1-D pile driving analysis." Proceedings of the 19th ICSMGE, Seoul, South Korea, pp. 2809-2812.
- Loukidis, D. (2017). "A review of analysis methods of geotechnical problems pertinent to offshore pipelines and the role of numerical simulations." ILP 2017: 12th Worskhop of the International Lithosphere Program, Task Force VI Sedimentary Basins, Limassol, Cyprus (extended abstract, p. 2).
- Loukidis, D., Pasadakis, N., Sotiropoulou, E., Christanis, K., Koulermou, N., Alevizos, G. & Kallithrakas-Kontos, N. (2017). "A geochemical study of siliceous ferromanganese rocks of the Mamonia Complex, SW Cyprus." ILP 2017: 12th Worskhop of the

International Lithosphere Program, Task Force VI Sedimentary Basins, Abstracts Volume, Limassol, Cyprus (extended abstract, p. 2).

Loukidis, D., Abou-Jaoude, G., Salgado, R., Zhang, Y. & Bisht, V. (2018). "Soil stiffness non-linearity in 1D pile driving simulations and pile driving formulas." 10th International Conference on Stress Wave Theory and Testing Methods for Deep Foundations, San Diego, California, June 2018.

Triantafyllaki, A. E., Papanastasiou, P. & Loukidis, D. (2018). "The structural integrity of unburied offshore pipelines across active tectonic faults." Proceedings of the 9th GRACM International Congress on Computational Mechanics, Chania, Greece, June 2018, pp. 319-327.

Loukidis, D. & Tamiolakis, G-P. (2018). "On the pseudo-coupled Winkler spring approach for soil - mat foundation interaction analysis." China-Europe Conference on Geotechnical Engineering, Vienna, Austria, August 2018, Vol. 1, pp.386-389.

Lazarou, G, Loukidis, D. & Bardanis, M. (2018). "Seasonal soil moisture changes under mat foundations in Nicosia marl." Proceedings of the 26th European Young Geotechnical Engineers Conference, Reinischkogel, Austria, September 2018, pp. 205-214.

Technical Reports

Bobet, A., Salgado, R. & Loukidis, D. (2001). *Seismic design of deep foundations*. Final Report. Purdue University, FHWA/IN/JTRP-2000/22, SPR-2410.

Loukidis, D., Salgado, R. & Abou-Jaoude, G. (2008). *Assessment of axially-loaded pile dynamic design methods and review of INDOT axially-loaded pile dynamic design methods*. Final Report. Purdue University, FHWA/IN/JTRP-2008/6, SPR-2856.

Editing of Conference Proceedings

Proceedings of the 9th HSTAM International Congress on Mechanics, July 12-14, 2010, Limassol, Cyprus (CD-ROM). Editors: P. Papanastasiou, P. Roussis, D. Loukidis, E. Sarris, J. Katsikadelis.