

SHIDEH DASHTI, Ph.D.

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Geotechnical Engineering and Geomechanics
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Academic Background

University of California at Berkeley	Civil/Geotechnical Engineering	PhD	2009
University of California at Berkeley	Civil/Geotechnical Engineering	MS	2005
Cornell University	Civil and Environmental Engineering	BS	2004

Professional History

<i>Associate Professor, University of Colorado Boulder, Boulder, CO</i>	<i>06/2018-Present</i>
<i>Visiting Professor (on sabbatical) at ETH-Zurich, Switzerland</i>	<i>01/2019-09/2019</i>
<i>Assistant Professor, University of Colorado Boulder, Boulder, CO</i>	<i>2011-2018</i>

Shideh Dashti joined the faculty of Civil, Environmental, and Architectural Engineering (CEAE) at the University of Colorado Boulder (CU) in January 2011. Her research interests include dynamic physical and numerical modeling, performance-based design of soil-structure systems, resilience of geotechnical infrastructure, underground structures in urban settings, seismic soil-structure and structure-soil-structure interaction, liquefaction consequences and mitigation, earthquake reconnaissance. She has also served as the director of the *Geotechnical Centrifuge Facility* since 2015 and co-director of the *Center for Infrastructure, Energy, and Space Testing* at CU since 2017.

Postdoctoral Scholar, University of California at Berkeley, Berkeley, CA *2009-2010*

Dashti served as the lead post-doctoral scholar and project manager of a USGS funded research project titled “iShake: using cell phones as seismic sensors during earthquakes,” for 9 months at UC Berkeley. This research included planning and performing of 1-D and 3-D shaking table tests at the UC San Diego and UC Berkeley earthquake testing facilities. She also performed fully-coupled nonlinear dynamic simulations of building performance on liquefiable ground using FLAC, validated with centrifuge experimental results.

Doctoral Researcher, University of California at Berkeley, Berkeley, CA *2006-2009*

Doctoral research: “NEESR-II: Towards Developing an Engineering Procedure for Evaluating Building Performance on Softened Ground,” PI: Prof. Jonathan Bray, funded by NSF. Dashti performed a series of four centrifuge experiments at the NEES facility at UC Davis Center for Geotechnical Modeling (CGM), during which she led teams of professionals, student researchers, and faculty at CGM.

Geotechnical Engineer, Bechtel National, Inc., San Francisco, CA *2005-2006*

After completing her M.S. degree and before pursuing Ph.D., Dashti joined Bechtel’s Geotechnical group, where she worked on several engineering projects in the US and around the world: she performed numerical analyses on the Bay Area Rapid Transit (BART) tunnel project; performed seismic slope stability analyses for the retrofit of the BART immersed tube; and worked with engineering seismologists to develop design ground motions for projects internationally.

Awards and Honors

Received after Joining University of Colorado

- American Society of Civil Eng. (ASCE) Arthur Casagrande Professional Development Award (2018)
- ASCE Outstanding Reviewer Award (2016)
- National Science Foundation CAREER Award (2015)
- Departmental Young Researcher Award, Civil, Architectural, and Env. Engineering, CU Boulder (2015)

- Dean's Faculty Fellowship, College of Engineering and Applied Sciences, CU Boulder (2015)
- Departmental Teaching Award, Civil, Architectural, and Env. Engineering, CU Boulder (2014)
- National Science Foundation (NSF) Fellow for ENHANCE (since December 2012)

Received as a Student

- Outstanding Graduate Student Instructor Award from the Department of Civil and Environmental Engineering, UC Berkeley (2009)
- Graduate Research Assistantship through NSF (PI: Prof. Jonathan Bray), UC Berkeley (2006 –2009)
- Graduate Full Fellowship in GeoEngineering, UC Berkeley (2004-2005)
- Magna cum Laude distinction from Cornell University (May 2004)
- Distinguished Leadership Award, Cornell University (April 2004)

Publications

Underline denotes Dashti's student or post-doctoral advisee (with Dashti typically listed as the corresponding author).
*Denotes Dashti's PhD Advisor

Refereed Journal Articles Accepted or Published

- [J43] Paramasivam, B., **Dashti, S.**, Liel, A. (2020). "In-Ground Gravel-Rubber Panel Walls to Mitigate and Base Isolate Shallow-Founded Structures on Liquefiable Ground," *ASCE Journal of Geotechnical and GeoEnvironmental Engineering* (Accepted and in press).
- [J42] Roudbari, S., Heris, M., Hakhamaneshian, M., **Dashti, S.** (2020). "Mediating Design Claims: Social Media and the Housing Disaster of the 2017 Halabja Earthquake," *Natural Hazards Review* (Accepted and in press).
- [J41] Badanagki, M., **Dashti, S.**, Paramasivam, B., Tiznado, J.C. (2019). "How Do Granular Columns Affect the Seismic Performance of Non-Uniform Liquefiable Sites and Their Overlying Structures?" *Soil Dynamics and Earthquake Engineering*, 125
- [J40] Bullock, Z., **Dashti, S.**, Liel, A., Porter, K., Karimi, Z. (2019). "Assessment Supporting the Use of Outcropping Rock Evolutionary Intensity Measures for Prediction of Liquefaction Consequences," *Earthquake Spectra*, 35(4), 1899-1926.
- [J39] Paramasivam, B., **Dashti, S.**, Liel, A. (2019). "Impact of Spatial Variations in Permeability of Liquefiable Deposits on the Seismic Performance of Structures and Effectiveness of Drains," *ASCE Journal of Geotechnical and GeoEnvironmental Engineering*, 145(8).
- [J38] Stewart, J.P., Zimmaro, P., Lanzo, G., Mazzoni, S., Ausilio, E., Aversa, S., Bozzoni, F., Cairo, R., Capatti, M.C., Castiglia, M., Chiabrando, F., Chiaradonna, A., d'Onofrio, A., **Dashti, S.**, De Risi, R., De Silva, F., Della Pasqua, F., Dezi, F., Di Domenico, A., Di Sarno, L., Durante, M.G., Falcucci, E., Foti, S., Franke, K.W., Galadini, F., Giallini, S., Gori, S., Kayen, R.E., Kishida, T., Lingua, A., Passeri, F., Pelekis, P., Pizzi, A., Reimschiessel, B., Santo, A., Magistris, F., Scasserra, G., Sextos, A., Silvestri, F., Simonelli, A.L., Spano, A., Tommasi, P., Tropeano, G. (2019). "Reconnaissance of 2016 Central Italy Earthquake Sequence," *Earthquake Spectra* (Accepted and in press).
- [J37] Kirkwood, P., and **Dashti, S.** (2019). "Influence of Prefabricated Vertical Drains on the Seismic Performance of Similar Neighboring Structures Founded on Liquefiable Deposits," *Geotechnique*, DOI: <https://doi.org/10.1680/jgeot.17.P.077>.
- [J36] Bullock, Z., **Dashti, S.**, Karimi, Z., Liel, A., Porter, K., Franke, K. (2019). "Probabilistic Models for the Residual and Peak Transient Tilt of Mat-Founded Structures on Liquefiable Soils," *ASCE Journal of Geotechnical and GeoEnvironmental Engineering*, 145(2).
- [J35] Bullock, Z., Karimi, S., Dashti, S., Porter, K., Liel, A., Franke, K. (2018). "A Physics-Informed Semi-Empirical Probabilistic Model for the Settlement of Shallow-Founded Structures on Liquefiable Ground," *Geotechnique*, <https://doi.org/10.1680/jgeot.17.P.174>.
- [J34] Hashash, Y. M.A., **Dashti, S.**, Musgrave, M., Gillis, K., Walker, M., Ellison, K., Basra, Y.I. (2018). "Influence of Tall Buildings on the Seismic Response of Shallow Underground Structures," *ASCE Journal of Geotechnical and GeoEnvironmental Engineering*, 144(12), [https://doi.org/10.1061/\(ASCE\)GT.1943-5606.0001963](https://doi.org/10.1061/(ASCE)GT.1943-5606.0001963) (**Selected as Editor's Choice**).
- [J33] Ramirez, J., Barrero, A., Chen, L., **Dashti, S.**, Ghofrani, A., Taiebat, M., Arduino, P. (2018). "Site Response in a Layered Liquefiable Deposit: Evaluation of Different Numerical Tools and Methodologies with Centrifuge Experimental Results," *ASCE Journal of Geotechnical and GeoEnvironmental Engineering*, 144(10), [https://doi.org/10.1061/\(ASCE\)GT.1943-5606.0001947](https://doi.org/10.1061/(ASCE)GT.1943-5606.0001947).

- [J32] Badanagki, M., Dashti, S., Kirkwood, P. (2018). "An Experimental Study of the Influence of Dense Granular Columns on the Performance of Level and Gently Sloping Liquefiable Sites," *ASCE Journal of Geotechnical and GeoEnvironmental Engineering*, 144(9), [https://doi.org/10.1061/\(ASCE\)GT.1943-5606.0001937](https://doi.org/10.1061/(ASCE)GT.1943-5606.0001937).
- [J31] Paramasivam, B., Dashti, S., Liel, A. (2018). "Influence of Prefabricated Vertical Drains on the Seismic Performance of Structures Founded on Liquefiable Soils," *ASCE Journal of Geotechnical and GeoEnvironmental Engineering*, 144(10), DOI: 10.1061/(ASCE)GT.1943-5606.0001950 (**Selected as Editor's Choice**).
- [J30] Karimi, Z., Dashti, S., Bullock, Z., Porter, K., Liel, A. (2018). "Key Predictors of Structure Settlement on Liquefiable Ground: A Numerical Parametric Study," *Soil Dynamics and Earthquake Engineering*, 113, 286-308, DOI: <https://doi.org/10.1016/j.soildyn.2018.03.001>.
- [J29] Esmailzadeh, E., Jeong, C., Dashti, S., Hushmand, A., Taciroglu, E. (2018). "Seismic response of buried reservoir structures: a comparison of numerical simulations with centrifuge experiments," *Soil Dynamics and Earthquake Engineering*, 109, 89-101, DOI <https://doi.org/10.1016/j.soildyn.2018.03.003>.
- [J28] Kirkwood, P., and Dashti, S. (2018). "A Centrifuge Study of Seismic Structure-Soil-Structure Interaction on Liquefiable Ground and the Implications for Structural Performance," *Earthquake Spectra*, 34(3), 1-22, DOI: 10.1193/052417EQS095M.
- [J27] Kirkwood, P., and Dashti, S. (2018). "Considerations for Mitigation of Earthquake-Induced Soil Liquefaction in Urban Environments," *ASCE Journal of Geotechnical and GeoEnvironmental Engineering*, 144(10), DOI: 10.1061/(ASCE)GT.1943-5606.0001936.
- [J26] Li, P., Dashti, S., Badanagki, M., Kirkwood, P. (2018). "Evaluating 2-D Numerical Simulations of Dense Granular Columns in Level and Gently Sloping Liquefiable Sites using Centrifuge Experiments," *Soil Dynamics and Earthquake Engineering*, 110, 232-243.
- [J25] Olarte, J., Dashti, S., Liel, A., Paramasivam, B. (2018). "Effects of Drainage Control on Densification as a Liquefaction Mitigation Technique," *Soil Dynamics and Earthquake Engineering*, 110, 212-231.
- [J24] Olarte, J., Dashti, S., Liel, L. (2018). "Can Ground Densification Improve Seismic Performance of Inelastic Structures on Liquefiable Soils?" *Journal of Earthquake Engineering and Structural Dynamics*, DOI: 10.1002/eqe.3012.
- [J23] Bullock, Z., Dashti, S., Liel, A., Karimi, Z., Bradley, B. (2017). "Ground Motion Prediction Equations for Arias Intensity, Cumulative Absolute Velocity, and Peak Incremental Ground Velocity for Rock Sites in Different Tectonic Environments," *Bulletin of the Seismological Society of America*, 107 (5): 2293-2309. DOI: <https://doi.org/10.1785/0120160388>
- [J22] Olarte, J., Paramasivam, B., Dashti, S., Liel, L., Zannin, J. (2017). "Centrifuge Modeling of Mitigation-Soil-Foundation-Structure Interaction on Liquefiable Ground," *Soil Dynamics and Earthquake Engineering*, 97, 304-323.
- [J21] Karimi, Z., and Dashti, S. (2017). "Ground Motion Intensity Measures to Evaluate II: the Performance of Shallow-Founded Structures on Liquefiable Ground," *Earthquake Spectra Journal*, EERI, Vol. 33, No. 1, pp. 277-298. doi: <http://dx.doi.org/10.1193/103015EQS163M>.
- [J20] Dashti, S., and Karimi, Z. (2017). "Ground Motion Intensity Measures to Evaluate I: the Liquefaction Hazard in the Vicinity of Shallow-Founded Structures," *Earthquake Spectra Journal*, EERI, Vol. 33, No. 1, pp. 241-276. doi: <http://dx.doi.org/10.1193/103015EQS162M>.
- [J19] Deniz, D., Arneson, E.E., Liel, A.B., Dashti, S., Javernick-Will, A. (2016). "Flood Loss Models for Residential Buildings Based on the 2013 Colorado Floods," *Natural Hazards Journal*, doi: 10.1007/s11069-016-2615-3.
- [J18] Arneson, E., Deniz, D., Javernick-Will, A., Liel, A., and Dashti, S. (2016). "Information Deficits and Post-Disaster Recovery," *Natural Hazards Review*, 1546-1555.
- [J17] Hushmand, A., Dashti, S., Davis, C., McCartney, J.S., Hushmand, B. (2016). "A Centrifuge Study of the Influence of Site Response, Relative Stiffness, and Kinematic Constraints on the Seismic Performance of Buried Reservoir Structures," *Soil Dynamics and Earthquake Engineering Journal*, 88, 427-438.
- [J16] Hushmand, A., Dashti, S., Davis, C., Hushmand, B., McCartney, J., Hu, J., Lee, Y. (2016). "Seismic Performance of Underground Reservoir Structures: Insight from Centrifuge Modeling on the Influence of Backfill Soil Type and Geometry," *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE 10.1061/(ASCE)GT.1943-5606.0001544 , 04016058.
- [J15] Dashti, S., Hashash, Y., Gillis, K., Musgrove, M., and Walker, M. (2016). "Development of Dynamic Centrifuge Models of Underground Structures near Tall Buildings," *Soil Dynamics and Earthquake Engineering Journal*, 86, 89-105.
- [J14] Deng, Y.H., Dashti, S., Hushmand, A., Davis, C., Hushmand, B. (2016). "Seismic Response of Underground Reservoir Structures in Sand: Evaluation of Numerical Simulations using Centrifuge Experiments," *Soil Dynamics and Earthquake Engineering Journal*, 85, 202-216.

- [J13] Karimi, Z., and **Dashti, S.** (2016). "Seismic Performance of Shallow Founded Structures on Liquefiable Ground: Validation of Numerical Simulations Using Centrifuge Experiments," *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 10.1061/(ASCE)GT.1943-5606.0001479.
- [J12] Hushmand, A., **Dashti, S.**, Davis, C., Hushmand, B., Zhang, M., Ghayoomi, M., McCartney, J., Lee, Y., Hu, J. (2016). "Seismic Performance of Underground Reservoir Structures: Insight from Centrifuge Modeling on the Influence of Structure Stiffness," *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 10.1061/(ASCE)GT.1943-5606.0001477.
- [J11] Hashash, Y., **Dashti, S.**, Romero Arduz, M.I., Ghayoomi, M. (2015). "Evaluation of 1-D Seismic Site Response Modeling of Sand using Centrifuge Experiments," *Soil Dynamics and Earthquake Engineering Journal*, 78, 19-31.
- [J10] Karimi, Z., and **Dashti, S.** (2015). "Numerical and Centrifuge Modeling of Seismic Soil-Foundation-Structure-Interaction on Liquefiable Ground," *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 142(1), 1-14.
- [J9] Gillis, K., **Dashti, S.**, Hashash, Y. (2015). "Dynamic Calibration of Tactile Sensors for Measurement of Soil Pressures in Centrifuge," *ASTM Geotechnical Testing Journal*, 38(3), 1-14.
- [J8] Ghayoomi, M., and **Dashti, S.** (2015). "Effect of Ground Motion Characteristics on Seismic Soil-Foundation-Structure Interaction," *Earthquake Spectra Journal*, Earthquake Engineering Research Institute, 31(3), 1-24.
- [J7] Bray, J.D.*, and **Dashti, S.** (2014). "Liquefaction Induced Building Movement," *Bulletin of Earthquake Engineering*, 2(3), 1129-1156.
- [J6] **Dashti, S.**, Bray, J.D.*, Reilly, J., Glaser, S., Bayen, A., Ervasti, M. (2014). "Evaluating the Reliability of Mobile Phones as Seismic Monitoring Instruments," *Earthquake Spectra Journal*, Earthquake Engineering Research Institute, 30(2), 1-22.
- [J5] Ghayoomi, M., **Dashti, S.**, and McCartney, J.S., (2013). "Performance of a Transparent, Flexible Shear Beam-Type Container in Dynamic Centrifuge Modeling of Geotechnical Systems," *Journal of Soil Dynamics and Earthquake Engineering*, 53, 230-239.
- [J4] **Dashti, S.**, and Bray, J.D.* (2013). "Numerical Simulation of Building Response on Liquefiable Sand," *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 139 (8), 1235-1249.
- [J3] Reilly, J., **Dashti, S.**, Ervasti, M., Bray, J.D.*, Glaser, S., and Bayen, A. (2013). "iShake: Using Mobile Phones as Seismologic Sensors," *Journal of IEEE Transactions on Automation Science and Engineering*, IEEE Robotics and Automation Society, 10 (2), 242.
- [J2] **Dashti, S.**, Bray, J.D.*, Pestana, J., Riemer, M.R., and Wilson, D. (2010b). "Centrifuge Testing to Evaluate and Mitigate Liquefaction-Induced Building Settlement Mechanisms," *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 136 (7), pp. 918-929.
- [J1] **Dashti, S.**, Bray, J.D.*, Pestana, J.M., Riemer, M.R. and Wilson, D. (2010a). "Mechanisms of Seismically-Induced Settlement of Buildings with Shallow Foundations on Liquefiable Soil," *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 136 (1), pp. 151-164.

Refereed Journal Articles Submitted and Under Review

- [J45] Bullock, Z., Dashti, S., Liel, A., Porter, K. (forthcoming). "A Suite of Ground Motion Prediction Equations for Cumulative Absolute Velocity in Shallow Crustal Earthquakes Including Epistemic Uncertainty," *Earthquake Spectra* (under review).
- [J44] Tiznado, J.C., **Dashti, S.**, Ledezma, C., Wham, B. (forthcoming). "Performance of Embankments on Liquefiable Soils Improved with Dense Granular Columns: Observations from Case Histories and Centrifuge Experiments," *ASCE Journal of Geotechnical and GeoEnvironmental Engineering* (under review).

Refereed Conference Proceedings Accepted or Published

- [C48] Bullock, Z., **Dashti, S.**, Liel, A., Porter, K. (2019). "A Framework for Machine Learning-Assisted Design and Execution of Numerical Parametric Studies in Evaluating the Seismic Response of Soil-Structure Systems," *Proceedings of the 12th Canadian Conf. on Earthquake Engineering*, Quebec, QC, Canada.
- [C47] Bullock, Z., **Dashti, S.**, Liel, A., Porter, K. (2019). "A Framework for the Evaluation of Liquefaction Consequences for Shallow-Founded Structures," *Proceedings of 13th International Conf. on Applications of Statistics and Probability in Civil Engineering*, Seoul, South Korea.
- [C46] Bullock, Z., **Dashti, S.**, Liel, A., Porter, K. (2019). "Generating Synthetic Borehole Data for Applications in Site-Specific and Regional Evaluation of Liquefaction Consequences," *ASCE Geo-Congress*, Philadelphia, USA.
- [C45] Bullock, Z., **Dashti, S.**, Liel, A., Porter, K. (2019). "Physics-informed and semi-empirical probabilistic models for

- structure's average and differential settlement on liquefiable ground with extensions to regional analysis," Proceedings of the 7th International Conf. on Earthquake Geotechnical Engineering, Rome, Italy.
- [C44] Ramirez, J., Petracca, M., **Dashti, S.**, Liel, A., Camata, G. (2019). "Centrifuge study of the seismic response of embankments on liquefiable soils improved with dense granular columns," Proceedings of the 7th International Conf. on Earthquake Geotechnical Engineering, Rome, Italy.
- [C43] Tiznado, J.C., Dashti, S., Wham, B.P., Ledezma, C. (2019). "Centrifuge study of the seismic response of embankments on liquefiable soils improved with dense granular columns," Proceedings of the 7th International Conf. on Earthquake Geotechnical Engineering, Rome, Italy.
- [C42] Bowman, A., Kirkwood, P., and **Dashti, S.** (2019). "The use of surface surcharging around structures in urban settings to mitigate seismic hazards," Proceedings of the 2nd International Conf. on Natural Hazards & Infrastructure, Chania, Greece.
- [C41] Kirkwood, P., **Dashti, S.** (2018). "An experimental study on the effects of enhanced drainage for liquefaction mitigation in dense urban environments," Proceedings of the 5th Conference on Geotechnical Earthquake Engineering and Soil Dynamics, Austin, TX.
- [C40] Badanagki, M., **Dashti, S.**, Kirkwood, P. (2018). "A centrifuge study of the effects of dense granular columns on the performance of gently sloping liquefiable sites," Proceedings of the 5th Conference on Geotechnical Earthquake Engineering and Soil Dynamics, Austin, TX.
- [C39] Bullock, Z., Karimi, Z., **Dashti, S.**, Liel, A., Porter, K. (2018). "Key parameters for predicting residual tilt of shallow-founded structures due to liquefaction," Proceedings of the 5th Conference on Geotechnical Earthquake Engineering and Soil Dynamics, Austin, TX.
- [C38] Ramirez, J.C., Barrero, A.R., Chen, L., Ghofrani, A., **Dashti, S.**, Taiebat, M., Arduino, P. (2018). "Capabilities and limitations of different numerical tools in capturing seismic site performance in a layered liquefiable site," Proceedings of the 5th Conference on Geotechnical Earthquake Engineering and Soil Dynamics, Austin, TX.
- [C37] Paramasivam, B., **Dashti, S.**, Liel, A., Olarte, J. (2018). "Centrifuge modeling of mitigation-soil-structure-interaction on layered liquefiable soil deposits with a silt cap," *Proceedings of the 9th International Conference on Physical Modelling in Geotechnics*, London, UK.
- [C36] Kirkwood, P., and **Dashti, S.** (2018). "An Experimental Study on the Effects of Enhanced Drainage for Liquefaction Mitigation in Dense Urban Environments," *Proceedings of the 9th International Conference on Physical Modelling in Geotechnics*, London, UK.
- [C35] Bullock, Z., **Dashti, S.**, Liel, A. Porter, K. (2018). "Efficiency, sufficiency, and predictability of intensity measures for predicting the consequences of liquefaction on buildings," *11th National Conference on Earthquake Engineering*, EERI, Los Angeles, CA.
- [C34] Bullock, Z., Karimi, S., **Dashti, S.**, Liel, A. Porter, K. (2018). "Key Parameters for Predicting Residual Tilt of Shallow-Founded Structures Due to Liquefaction," *Proceedings of the Fifth Conf. on Geotechnical Earthquake Engineering and Soil Dynamics*, Austin, Texas.
- [C33] Hashash, Y.M.A., Musgrove, M., **Dashti, S.**, and Chang, P. (2017). "Seismic performance evaluation of underground structures – past practice and future trends," *Proceedings of the Third Conference in Performance-Based Design in Earthquake Geotechnical Engineering*, Vancouver, Canada.
- [C32] Kirkwood, P., and **Dashti, S.** (2017). "Influence of vertical prefabricated drains on the response of two adjacent structures founded on liquefiable ground," *Proceedings of the Third Conference in Performance-Based Design in Earthquake Geotechnical Engineering*, Vancouver, Canada.
- [C31] Paramasivam, B., **Dashti, S.**, Liel, A., Olarte, J. (2017b). "Effects of Drains on the Performance and Damage Potential of Shallow-Founded Structures," *Proceedings of the 3rd Performance Based Design Conference in Earthquake Geotechnical Engineering*, Vancouver, Canada.
- [C30] Karimi, Z., Bullock, Z., **Dashti, S.**, Liel, A., Porter, K. (2017c). "Influence of Soil and Structural Parameters on Liquefaction-Induced Settlement of Foundations," *Proceedings of the Third Conference in Performance-Based Design in Earthquake Geotechnical Engineering*, Vancouver, Canada.
- [C29] Karimi, Z., Bullock, Z., **Dashti, S.**, Liel, A., Porter, K. (2017b). "Seismic Settlement of Shallow-Founded Structures on Liquefiable Ground," *Proceedings of ASCE Geo-Risk*, Denver, CO.
- [C28] Deniz, Derya, Bruce Ellingwood, Abbie Liel, and **Shideh Dashti** (2017). "Flood Loss and Recovery Models for Residential Housing Stock: A Case Study of the 2013 Boulder, Colorado Floods," *ICOSAR 2017*, Vienna, Austria.

- [C27] Kayen, R., **Dashti, S.**, Franke, T.K., Oettle, N.K., Wham, B., Kokusho, T., Hazarika, H., Calderon, J.R. (2017). “Case Histories of Geotechnical Engineering Damage from the 2016 MW 6.0, MW 6.2, and MW 7.0 Kumamoto Earthquakes,” *Proceedings of 16th World Conference on Earthquake Engineering*, Santiago, Chile.
- [C26] Olarte, J.S., Liel, A.B., **Dashti, S.**, Paramasivam, B., Scheetz, R., Elfeiji, J., Valigura, J. (2017). “Structural Models for Centrifuge Testing of Liquefaction-Related Building Damage,” *Proceedings of 16th World Conference on Earthquake Engineering*, Santiago, Chile.
- [C25] Paramasivam, B., **Dashti, S.**, Liel, A.B., Olarte, J.C., Souza Junior, L.D., Gomes, L.S. (2017). “Performance of Inelastic, Shallow Founded Structures on Liquefiable Ground and the Effectiveness of Mitigation Strategies,” *Proceedings of 16th World Conference on Earthquake Engineering*, Santiago, Chile.
- [C24] Musgrave, M., Hashash, Y.M.A., **Dashti, S.**, Gillis, K., Walker, M., Ellison, K. (2017). “Centrifuge and Numerical Modeling of Shallow Underground Structures Adjacent to Tall Buildings,” *Proceedings of 16th World Conference on Earthquake Engineering*, Santiago, Chile.
- [C23] Karimi, Z., **Dashti, S.**, Bullock, Z. (2017). “Influence of Soil and Structural Properties on the Response of Shallow-Founded Structures on Layered Liquefiable Deposits,” *Proceedings of 2017 GeoFrontiers*, Orlando, Florida, USA.
- [C22] Ramirez, J.C., Badanagki, M., Rahimi, M., ElGhoraiby, M.A., Manzari, M.T., Dashti, S., Barrero, A., Taiebat, M., Ziopoulou, K., Liel, A. (2017). “Seismic Performance of a Layered Liquefiable Site: Validation of Numerical Simulations Using Centrifuge Modeling,” *Proceedings of 2017 GeoFrontiers*, Orlando, Florida, USA.
- [C21] Davis, C., Hushmand, A., **Dashti, S.** (2016). “Dynamic Increment of Pressure on Underground Rigid Wall: Comparing Analytical and Physical Models,” *Proceedings of the 2nd Huixian International Forum on Earthquake Engineering for Young Researchers*, Harbin, China.
- [C20] Hushmand, A., **Dashti, S.**, Davis, C. (2016). “A Centrifuge Study: Influence of Site Response on the Seismic Performance of Buried Reservoir Structures,” *Proceedings of the 2nd Huixian International Forum on Earthquake Engineering for Young Researchers*, Harbin, China.
- [C19] Karimi, Z., and **Dashti, S.** (2016). “Effects of Ground Motion Intensity Measures on Liquefaction Triggering and Settlement near Structures,” *Proceedings of the 1st International Conference on Natural Hazards and Infrastructure*, Chania, Greece.
- [C18] Gillis, K., **Dashti, S.**, Hashash, Y., Jones, C., Musgrove, M., Walker, M. (2015). “Seismic Performance of Shallow Underground Structures Adjacent to Tall Buildings: A Centrifuge Experimental Study,” *Proceedings of the 6th International Conference on Earthquake Geotechnical Engineering*, Christchurch, New Zealand.
- [C17] Hushmand, A., **Dashti, S.**, Davis, C., Hushmand, B., Zhang, M., Lee, Y., Hu, J. (2015). “Centrifuge Study: Influence of Base Fixity on the Seismic Response of Buried Reservoir Structures,” *Proceedings of the 6th International Conference on Earthquake Geotechnical Engineering*, Christchurch, New Zealand.
- [C16] Karimi, Z., and **Dashti, S.** (2015). “Numerical Simulation of Earthquake Induced Soil Liquefaction: Validation against Centrifuge Experimental Results,” *Proceedings of the 2015 Geo-Congress*, Geo-Institute, ASCE.
- [C15] **Dashti, S.**, Palen, L., Heris, M., Anderson, K. M., Anderson, S., Anderson, J. T. (2014). “Supporting Disaster Reconnaissance with Social Media Data: A Design-Oriented Case Study of the 2013 Colorado Floods,” *Proceedings of the 11th International Conference on Information Systems for Crisis Response and Management*, University Park, PA, USA.
- [C14] Hushmand, A., **Dashti, S.**, Zhang, M., McCartney, J. S., Ghayoomi, M., Hushmand, B., Mokarram, N., Davis, C., Yangsoo, L., Hu, J. (2014). “Seismic Soil-Structure-Interaction and Lateral Earth Pressures on Buried Reservoir Structures,” *Proceedings of the 2014 Geo-Congress*, Geo-Institute, ASCE, Oakland, CA.
- [C13] Gillis, K., **Dashti, S.**, Hashash, Y., Arduz, M. I. R., Walker, M. C. (2014). “Dynamic Centrifuge Testing of a Temporary Braced Excavation in Dry Sand,” *Proceedings of the 2014 Geo-Congress*, Geo-Institute, ASCE, Oakland, CA.
- [C12] Ghayoomi, M. and **Dashti, S.** (2014). “Effects of Ground Motion Intensity Parameters on Soil-Foundation-Structure-Interaction and Site Response,” *Proceedings of the 8th International Conference on Physical Modeling in Geotechnics*, Perth, Australia.
- [C11] Gillis, K., **Dashti, S.**, Hashash, Y., Arduz, M. I. R. (2014). “Seismic Response of a Cut-and-Cover Underground Structure in Dry Sand: Centrifuge Modeling,” *Proceedings of the 8th International Conference on Physical Modeling in Geotechnics*, Perth, Australia.
- [C10] **Dashti, S.**, Hushmand, A., Ghayoomi, M., McCartney, J. S., Zhang, M., Hushmand, B., Mokarram, N., Bastani, A., Davis, C., Yangsoo, L., Hu, J. (2013). “Centrifuge Modeling of Seismic Soil-Structure-Interaction and Lateral Earth Pressures for Large Near-Surface Underground Structures,” *Proceedings of the 18th International Conference on Soil Mechanics and Geotechnical Engineering*, Paris, France.

- [C9] **Dashti, S., Gillis, K., Ghayoomi, M.,** and Hashash, Y. (2012). “Sensing of Lateral Seismic Earth Pressures in Geotechnical Centrifuge Modeling,” *Proceedings of the 15th World Conference on Earthquake Engineering*, Lisbon, Portugal.
- [C8] **Dashti, S.,** Bray, J.D.*, Reilly, J., Glaser, S., Bayen, A. (2012). “iShake: Reliability of Phones as Seismic Sensors,” *Proceedings of the 15th World Conference on Earthquake Engineering*, Lisbon, Portugal.
- [C7] Bray, J.D.*, and **Dashti, S.** (2012). “Liquefaction-Induced Building Movements,” Invited Keynote Paper, Proceedings of the 2nd International Conference on Performance-Based Design Earthquake Geotechnical Engineering, Taormina, Italy.
- [C6] **Ghayoomi, M., Dashti, S.,** McCartney, J.S. (2012). “Effect of Boundary Conditions on the Performance of a Transparent Flexible Shear Beam-Type Container,” *Proceedings of the 2nd International Conference on Performance-Based Design Earthquake Geotechnical Engineering*, Taormina, Italy.
- [C5] **Dashti, S.,** and Bray, J.D.* (2012). “Numerical Insights into Liquefaction-Induced Building Settlement,” Proceeding of the 2012 Geo-Congress, Geo-Institute, ASCE, Oakland, CA.
- [C4] Ervasti, M., **Dashti, S.,** Reilly, J., Glaser, S., Bayen, A., Bray, J.D.* (2011). “iShake: Mobile Phones as Seismic Sensors – User Study Findings,” *Proceedings of 10th International Conference on Mobile and Ubiquitous Multimedia*, Beijing, China.
- [C3] Bray, J.D.* and **Dashti, S.** (2010). “Liquefaction-Induced Movements of Buildings with Shallow Foundations,” Invited Keynote Paper, *5th International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics*, San Diego, CA, USA.
- [C2] **Dashti, S.,** Bray, J.D.*, Pestana, J., Riemer, M.R., and Wilson, D. (2010). “Experimental Insight into Liquefaction-Induced Building Settlement.” *Proc., 9th US National and 10th Canadian Conference on Earthquake Engineering: Reaching Beyond Borders*, Toronto, Canada.
- [C1] **Dashti, S.,** Bray, J.D.*, Riemer, M.R., Wilson, D. (2008). “Centrifuge Experimentation of Building Performance on Liquefied Ground,” *Proc., 4th Decennial Geotechnical Earthquake Engineering and Soil Dynamics Conference*, Sacramento, CA, USA.

Reports

- [R7] Stewart, J.P., Lanzo, G., Aversa, S., Bozzoni, F., Chiabrande, F., **Dashti, S.,** Sarno, L.D., Durante, M.G., Foti, S., Franke, K., Galadini, F., Falcucci, E., Gori, S., Kayen, R., Mylonakis, G., Katsiveli, E., Pagliaroli, A., Giallini, S., Scasserra, G., Magistris, F.S., Sica, S., Mucciacciaro, M., Silvestri, F., D’Onofrio, A., Chiaradonna, A., Silva, F., Simonelli, A., Penna, A., Tommasi, P., Zimmaro, P. (2016). “Engineering Reconnaissance following the 2016 M 6.0 Central Italy Earthquake,” Geotechnical Extreme Event Reconnaissance (GEER) Report, September 2016, DOI:10.18118/G61S3Z.
- [R6] Robert Kayen, **Shideh Dashti,** Takaji Kokusho, Hemanta Hazarika, Kevin Franke, Nicolas Oettle, Brad Wham, Jenny Ramirez Calderon, Dallin Briggs, Samantha Guillies, Katherine Cheng, Yutaka Tanoue, Katsuji Takematsu, Daisuke Matsumoto, Takayuki Morinaga, Hideo Furuichi, Yuuta Kitano, Masanori Tajiri, Babloo Chaudhary, Kengo Nishimura, Chu Chu. (2016). “Geotechnical Aspects of the 2016 MW 6.2, MW 6.0, and MW 7.0 Kumamoto Earthquakes,” Geotechnical Extreme Event Reconnaissance (GEER) Report, July 2016, DOI:10.18118/G6JS3M.
- [R5] Gillis, K., Dashti, S., Hashash, Y., and Jones, C. (2014). “Test-1 through 6: Seismic Response of an Isolated Cut and Cover Tunnel in Dry Sand.” Network for Earthquake Engineering Simulation (NEES). Dataset. DOI: 10.4231/D3JQ0SW10, D3DZ0328H, D39882N7F, D35H7BV39.
- [R4] Keaton, J., Anderson, S., Santi, P., **Dashti, S.** (2013). “Geotechnical Effects of Intense Precipitation on August 9, 2013, on Slopes above Manitou Springs, Colorado, that were Burned in the 2012 Waldo Canyon Fire,” Geotechnical Extreme Event Reconnaissance (GEER) Report, December 2013.
- [R3] EERI Special Earthquake Report (2011). “Geotechnical Effects of the M9.0 Tohoku, Japan Earthquake of March 11, 2011,” Learning from Earthquakes EERI Newsletter, September 2011.
- [R2] **Dashti, S.,** Reilly, J., Bray, J.D./8, Bayen, A.M., Glaser, S., Mari, E. (2011). “iShake: Using Personal Devices to Deliver Rapid Semi-Quantitative Earthquake Shaking Information,” GeoEngineering Report, Department of Civil and Environmental Engineering, University of California at Berkeley, Feb 28.
- [R1] **Dashti, S.,** Bray, J.D./8, Pestana, J., Riemer, M.R., Wilson, D. (2009). “NEESR-II Project: Towards Developing an Engineering Procedure for Evaluating Building Performance on Softened Ground – Centrifuge Data Reports for Test Series SHD01-04,” reports on NEEShub available to the public.

Selected Invited Lectures and Seminars

ETH-Zurich	Physics-Informed Semi-Empirical Probabilistic Models for Predicting Building Settlement and Tilt on Liquefiable Ground	2019
University of Cambridge, UK	Physics-Informed Semi-Empirical Probabilistic Models for Predicting Building Settlement and Tilt on Liquefiable Ground	2019
Norwegian Geotechnical Institute (NGI), Norway	Physics-Informed Semi-Empirical Probabilistic Models for Predicting Building Settlement and Tilt on Liquefiable Ground	2019
Università degli Studi di Napoli, Italy	Physics-Informed Semi-Empirical Probabilistic Models for Predicting Building Settlement and Tilt on Liquefiable Ground	2019
Scuola Universitaria Superiore Pavia & Rose School, Italy	Physics-Informed Semi-Empirical Probabilistic Models for Predicting Building Settlement and Tilt on Liquefiable Ground	2019
Imperial College London, UK	Physics-Informed Semi-Empirical Probabilistic Models for Predicting Building Settlement and Tilt on Liquefiable Ground	2019
EPFL, Switzerland	Physics-Informed Semi-Empirical Probabilistic Models for Predicting Building Settlement and Tilt on Liquefiable Ground	2019
Kenji Ishihara Colloquium Series on Earthquake Geotechnical Engineering, San Diego State University, San Diego, CA	Physics-Informed Semi-Empirical Probabilistic Models for Predicting Building Settlement and Tilt on Liquefiable Ground	2018
University of California, Los Angeles, Dept. of Civil and Environmental Eng., LA, CA	A Physics-Informed Semi-Empirical Probabilistic Model for the Settlement of Structures on Liquefiable Ground	2017
ASCE-GeoInstitute and Struct. Eng. Association of Utah, University of Utah, Salt Lake City, UT	A Physics-Informed Semi-Empirical Probabilistic Model for the Settlement of Structures on Liquefiable Ground	2017
US-New Zealand-Japan Workshop on Soil Liquefaction, Berkeley, CA	Current and Future Research Direction on Consequences of Liquefaction	2016
National Science Foundation, Washington DC	Research Directions on Seismic Response and Interaction of Infrastructure Systems.	2016
George Washington University, Department of Civil and Environmental Engineering, Washington DC	Performance of Shallow-Founded Structures on Liquefiable Sand: Evaluation and Mitigation	2016
2015 NHERI/E-Defense Meeting in Kobe, Japan	Seismic Response of Underground Structures and Liquefaction Mitigation in Dense Urban Environments	2015
2013 NEES/E-Defense Meeting in Kyoto, Japan	Seismic Response of Underground Structures in Dense Urban Environments	2013
United States Geological Survey (USGS), Golden, CO	Seismic Performance of Interacting Infrastructure Systems	2013
University of Cambridge, Department of Engineering, Cambridge, UK	Seismic Performance of Interacting Infrastructure Systems	2013
University of Chieti-Pescara, Pescara, Italy	Response of Shallow-Founded Structures on Liquefiable Sand	2012
United States Geological Survey (USGS), Menlo Park, CA	iShake: Phones as Seismic Sensors	2011

Selected Conference Presentations by Research Team

9th International Conference on Physical Modelling in Geotechnics, London, UK	An Experimental Study on the Effects of Enhanced Drainage for Liquefaction Mitigation in Dense Urban Environments	2018
5th Conference on Geotechnical Earthquake Engineering and Soil Dynamics, Austin, TX	An experimental study on the effects of enhanced drainage for liquefaction mitigation in dense urban environments	2018
5th Conference on Geotechnical Earthquake Engineering and Soil Dynamics, Austin, TX	Key parameters for predicting residual tilt of shallow-founded structures due to liquefaction	2018
5th Conference on Geotechnical Earthquake Engineering and Soil Dynamics, Austin, TX	A centrifuge study of the effects of dense granular columns on the performance of gently sloping liquefiable sites	2018
5th Conference on Geotechnical Earthquake Engineering and Soil Dynamics, Austin, TX	Capabilities and limitations of different numerical tools in capturing seismic site performance in a layered liquefiable site	2018
3 rd Conference on Performance-Based Design in Earthquake Geotechnical Engineering, Vancouver, Canada	Prediction of liquefaction induced settlements below shallow foundations (Theme lecture)	2017
3 rd Conference on Performance-Based Design in Earthquake Geotechnical Engineering, Vancouver, Canada	Effect of prefabricated vertical drains on the seismic performance of buildings	2017
3 rd Conference on Performance-Based Design in Earthquake Geotechnical Engineering, Vancouver, Canada	Influence of drains on the response of adjacent structures in urban settings	2017
16 th World Conference on Earthquake Engineering, Santiago, Chile	Response of Shallow Underground Structures next to Tall Buildings	2017
16 th World Conference on Earthquake Engineering, Santiago, Chile	Structural Models for Centrifuge Testing of Liquefaction-Related Building Damage	2017
1 st International Conference in Natural Hazards and Infrastructure, Chania, Greece	Effects of Ground Motion Intensity Measures on Liquefaction Triggering and Settlement near Structures	2016
The 2016 Geotechnical-Structural Congress, ASCE, Phoenix, Az	Seismic Soil-Foundation-Structure-Interaction on Liquefiable Ground	2016
The 2016 Geotechnical-Structural Congress, ASCE, Phoenix, Az	Performance-Based Liquefaction Assessment and Mitigation	2016
Earthquake Engineering Research Institute (EERI) Annual Meeting	Seismic Interactions between Tall Buildings and Underground Structures	2016
6th International Conference on Earthquake Geotechnical Engineering, Christchurch, New Zealand	Seismic Performance of Shallow Underground Structures Adjacent to Tall Buildings: A Centrifuge Experimental Study	2015
2015 Natural Hazards Workshop, Broomfield, CO	Building Resilience After Disaster: Boulder, Colorado After the 2013 Floods	2015
The 2015 IFCEE, Geo-Institute, ASCE, San Antonio, TX	Numerical Simulation of Earthquake Induced Soil Liquefaction: Validation against Centrifuge Experimental Results	2015
The 11th International Conference on Information Systems for Crisis Response and Management, University Park, PA.	Supporting Disaster Reconnaissance with Social Media Data: A Design-Oriented Case Study of the 2013 Colorado Floods	2014
The 8th International Conference on Physical Modeling in Geotechnics, Perth, Australia.	Seismic Response of a Cut-and-Cover Underground Structure in Dry Sand: Centrifuge Modeling	2014

The 2014 Geo-Congress, Geo-Institute, ASCE, Atlanta, GA	Seismic Response of Buried Water Reservoir Structures	2014
The 2014 Geo-Congress, Geo-Institute, ASCE, Atlanta, GA	Seismic Response of a Temporary Braced Excavations near Midrise Buildings	2014
The 18th International Conference on Soil Mechanics and Geotechnical Engineering, Paris, France	Seismic Soil Structure Interaction near Buried Water Reservoir Structures	2013
NSF Annual Meeting, University of Nevada at Reno	Seismic Response of Cut-and-Cover Box Structures in Dense Urban Environments: Centrifuge and Numerical Simulations	2013
The 15th World Conference on Earthquake Engineering, Lisbon, Portugal.	Sensing of Lateral Seismic Earth Pressures in Geotechnical Centrifuge Modeling	2012
Earthquake Engineering Research Institute (EERI) Annual Meeting, Memphis, TN	Geotechnical Lessons Learned from the 2011 Tohoku-Kanto Earthquake in Japan	2012
The 2012 Geo-Congress, Geo-Institute, ASCE, Oakland, CA	Numerical Insights into Liquefaction-Induced Building Settlement	2012
American Geophysics Union Fall Meeting, San Francisco, CA	iShake: Mobile Phones as Seismic Sensors	2010
9th US National and 10th Canadian Conference on Earthquake Engineering: Reaching Beyond Borders, Toronto, Canada	Response of Shallow Founded Structures on Liquefiable Ground	2010
4th decennial Geotechnical Earthquake Engineering and Soil Dynamics Conference organized by the EESD Committee of ASCE's Geo-Institute, Sacramento, CA	Liquefaction Induced Building Settlement	2008

Externally Funded Research Projects

Total External Funds as PI: \$1,759,031.21; Total External Funds as Co-PI: \$2,829,852

Department of Education

Title: GAANN: Integrative Reengineering of Infrastructure for Tomorrow's Communities

Total Award: \$1,210,235

Total Award Period Covered: 10/01/2018-09/31/2021

PI: A. Liel; Co-PIs: A. Javernick-Will, S. Dashti, and others (Univ. of Colorado Boulder)

PI Time Commitment Per Year: 0 Pay

National Science Foundation (NSF)

Title: Collaborative Research: GEER Post Disaster Reconnaissance

Total Award: \$212,000 (\$47,564 CU Portion)

Total Award Period Covered: 07/01/2018-06/31/2023

PI: D. Frost (Georgia Tech); Co-PIs: S. Dashti (University of Colorado Boulder), Jonathan Stewart (University of California, Los Angeles)

Co-PI Time Commitment Per Year: 0.25 Summer Month

National Science Foundation (NSF)

Title: RAPID: Collaborative Research – RAPID – U.S./Japan Collaboration on Seismic Resilience Assessment and Solutions for Wood Building Systems

Total Award: \$187,000

Total Award Period Covered: 04/01/2018-03/31/2019

PI: M. Koliou (Texas A&M); Co-PIs: S. Dashti (University of Colorado Boulder), K. Ryan (University of Nevada, Reno)

Co-PI Time Commitment Per Year: 0.1 Summer Month

National Science Foundation (NSF)

Title: RAPID: Collaborative Research – Investigating Unanticipated Geotechnical Phenomena in Kumamoto, Japan Observed from the April 2016 Earthquake Sequence
Total Award: \$43,464 (CU Portion out of \$200,000 total)
Total Award Period Covered: 04/01/2017-03/31/2018
PIs: K. Franke (Brigham Young University), S. Dashti (University of Colorado Boulder), R. Kayen (University of California at Berkeley)
PI Time Commitment Per Year: 0.25 Summer Month

Government of Ecuador and Geotechnical Consulting Company GeoEstudios

Title: Microzonation of Tarqui, Ecuador
Total Award: \$40,005
Total Award Period Covered: 08/01/2016-Current
PI: S. Dashti (University of Colorado Boulder)
PI Time Commitment Per Year: 0.7 Summer Month

Department of Education

Title: Graduate Assistance in Areas of National Need (GAANN) Program: Engineering Community Resilience
Total Award: \$885,834
Total Award Period Covered: 09/01/2015-08/31/2018
PIs: R. Corotis, S. Dashti, A. Liel, A. Javernick-Will, K. Porter, and others (Univ. of Colorado Boulder)
PI Time Commitment Per Year: 0 Pay

National Science Foundation (NSF)

Title: CAREER: Toward a New Paradigm in Evaluating and Mitigating Urban Liquefaction
Total Award: \$500,000 + \$16,000 (REU Supplement)
Total Award Period Covered: 06/01/2015-05/31/2020
PI: Shideh Dashti (University of Colorado Boulder)
PI Time Commitment Per Year: 0.5 summer month in Years 1 through 5

National Science Foundation (NSF)

Title: Performance of Buildings on Liquefiable Soils: Evaluation and Mitigation
Total Award: \$353,492 + \$10,000 (REU Supplement)
Total Award Period Covered: 06/01/2014-05/31/2017
Location of Project: University of Colorado Boulder
PI: Shideh Dashti (University of Colorado Boulder)
Co-PI: Abbie Liel (University of Colorado Boulder)
PI Time Commitment Per Year: 0.5 summer month in Year 1, 1 summer month in Year 2 and 3
Other Collaborators: University of Cambridge, UK

National Science Foundation (NSF)

Title: RIPS Type 1—The Interdependence of Built, Social, and Information Infrastructures for Community Resilience: A Participatory Process
Total Award: \$299,219
Total Award Period Covered: 10/01/2014-09/31/2015
Location of Project: University of Colorado Boulder
PI: Abbie Liel; Co-PIs: Shideh Dashti, Leysia Palen, Bruce Goldstein, and Amy Javernick-Will (University of Colorado Boulder)
PI Time Commitment Per Year: 0.5 summer month

Network for Earthquake Engineering Simulation Research (NEESR) of NSF

Title: NEESR: Seismic Response of Shallow Underground Structures in Dense Urban Environments
Total Award: \$704,843
Total Award Period Covered: 09/01/2011-08/31/2014 (extended at no cost to 2016)
Location of Project: University of Colorado Boulder
PI: Shideh Dashti (University of Colorado Boulder)
Co-PI: Youssef Hashash (University of Illinois, Urbana Champaign)
PI Time Commitment Per Year: 1.25 summer month

Other Collaborators: Japan E-Defense, ARUP San Francisco

Los Angeles Department of Water and Power through Hushmand Associates Inc.

Title: Centrifuge Testing to Investigate the Seismic Soil-Structure-Interaction Effects near Buried Rectangular Reinforced Concrete Reservoirs

Total Award: approximately \$150,691.21 (funding to centrifuge cost center, not through OCG)

Total Award Period Covered: 09/01/2011-06/01/2015

Location of Project: University of Colorado Boulder

PI's: Shideh Dashti and John McCartney (University of Colorado Boulder)

Time Commitment Per Year: approximately 1 summer month

Internal Research Grants

University of Colorado Engineering Excellent Fund Major Award 2019

Title: Digital Image Correlation in the CU Boulder 400-g ton Centrifuge

Total Award: \$ 28,250

PI: April Bowman (Post-doctoral scholar, University of Colorado Boulder)

Co-PI: Shideh Dashti (University of Colorado Boulder)

Implementation of Multicultural Perspectives and Approaches in Research and Teaching (IMPART) Fellowship

Title: Locating Underrepresented Perspectives in Environmental Design Curriculum and Pedagogy

Total Award: \$3,815.00

Total Award Period Covered: 07/01/2014-06/31/2015

PI: Shideh Dashti (University of Colorado Boulder)

Co-PI: Tori Derr, Sheryl Koutsis, Shawhin Roudbari (University of Colorado Boulder)

University of Colorado Engineering Excellent Fund Major Award 2013

Title: Development of a Cyclic Triaxial Testing Device

Total Award: \$ 20,000

PI: Parnaz Boodagh (PhD student at the time, University of Colorado Boulder)

Co-PI: Shideh Dashti (University of Colorado Boulder)

University of Colorado Engineering Excellent Fund Major Award 2011

Title: Large Laminar Container for Earthquake Simulation

Total Award: \$ 19,000

PI: Majid Ghayoomi (Post-doctoral scholar, University of Colorado Boulder)

Co-PI: Shideh Dashti (University of Colorado Boulder)

University of Colorado Engineering Excellent Fund Minor Award 2011

Title: Realistic Earthquake Simulation with a Tilted Shake Table

Total Award: \$ 2,000

PI: Shideh Dashti (University of Colorado Boulder)

Teaching

New Course Development

Spring 2011, CVEN4838/5838: Special Topics – Geotechnical Earthquake Engineering

Created a new cross-listed advanced undergraduate and graduate level course on Geotechnical Earthquake Engineering. The purpose of this course is to familiarize students with earthquake hazards and methods for seismic analysis and design: fundamentals of engineering seismology, site response, liquefaction assessment and mitigation design, seismic slope stability, and seismic design of retaining structures. This course was later formalized as CVEN5818 for graduate students.

Courses Taught

CVEN3718: Geotechnical Engineering II – Introduction to Soil Mechanics and Laboratory Testing

Number of students: 12; Term: Fall 2019;

Course Evaluations (out of 6.0): course overall = 6; instructor overall = 6; instructor respect/professional treatment = 6; intellectual challenge = 5; how much learned = 5.71.

CVEN5818: Geotechnical Earthquake Engineering

Number of students: 7; Term: Fall 2019

Course Evaluations (out of 6.0): course overall = 5.8; instructor overall = 5.8; instructor respect/professional treatment = 5.8; intellectual challenge = 5; how much learned = 5.6.

CVEN4828/5828: Foundation Engineering

Number of students: 13; Term: Fall 2017;

Course Evaluations (out of 6.0): course overall = 5.5; instructor overall = 5.9; instructor respect/professional treatment = 5.9; intellectual challenge = 4.5; how much learned = 5.2.

CVEN3708: Geotechnical Engineering I – Introduction to Geotechnical Engineering

Number of students: 48; Term: Fall 2017;

Course Evaluations (out of 6.0): course overall = 4.6; instructor overall = 5.1; instructor respect/professional treatment = 5.9; intellectual challenge = 4.6; how much learned = 5.0.

CVEN5818: Geotechnical Earthquake Engineering

Number of students: 13; Term: Spring 2017;

Course Evaluations (out of 6.0): course overall = 5.8; instructor overall = 6.0; instructor respect/professional treatment = 6.0; intellectual challenge = 5.3; how much learned = 5.5.

CVEN4899: Civil Engineering Senior Project (Co-Taught with 3 Other Faculty)

Number of students: 53; Term: Spring 2017;

Course Evaluations (out of 6.0): course overall = 4.6; instructor overall = 5.1; instructor respect/professional treatment = 5.8; intellectual challenge = 5.5; how much learned = 5.2.

CVEN4828/5828: Foundation Engineering

Number of students: 16; Term: Fall 2016;

Course Evaluations (out of 6.0): course overall = 5.9; instructor overall = 5.9; instructor respect/professional treatment = 6.0; intellectual challenge = 5.2; how much learned = 5.9.

CVEN5818: Geotechnical Earthquake Engineering

Number of students: 9; Term: Spring 2016;

Course Evaluations (out of 6.0): course overall = 5.9; instructor overall = 6.0; instructor respect/professional treatment = 6.0; intellectual challenge = 5.0; how much learned = 5.9.

CVEN3718: Geotechnical Engineering II – Introduction to Soil Mechanics and Laboratory Testing

Number of students: 39; Term: Spring 2016;

Course Evaluations (out of 6.0): course overall = 5.4; instructor overall = 5.6; instructor respect/professional treatment = 5.9; intellectual challenge = 4.8; how much learned = 5.5.

CVEN4899: Civil Engineering Senior Project (Co-Taught with 3 Other Faculty)

Number of students: 47; Term: Fall 2015;

Course Evaluations (out of 6.0): course overall = 4.6; instructor overall = 5.0; instructor respect/professional treatment = 5.9; intellectual challenge = 5.1; how much learned = 4.4.

CVEN3708: Geotechnical Engineering I – Introduction to Geotechnical Engineering

Number of students: 23; Term: Spring 2015;

Course Evaluations (out of 6.0): course overall = 5.3; instructor overall = 5.7; instructor respect/professional treatment = 5.8; intellectual challenge = 4.5; how much learned = 5.1.

CVEN5818: Geotechnical Earthquake Engineering

Number of students: 7; Term: Spring 2015;

Course Evaluations (out of 6.0): course overall = 5.9; instructor overall = 6.0; instructor respect/professional treatment = 6.0; intellectual challenge = 5.3; how much learned = 5.7.

CVEN3708: Geotechnical Engineering I – Introduction to Geotechnical Engineering

Number of students: 60; Term: Fall 2014;

Course Evaluations (out of 6.0): course overall = 4.8; instructor overall = 5.5; instructor respect/professional treatment = 6.0; intellectual challenge = 4.3; how much learned = 5.0.

CVEN3708: Geotechnical Engineering I – Introduction to Geotechnical Engineering

Number of students: 34; Term: Spring 2014;

Course Evaluations (out of 6.0): course overall = 5.4; instructor overall = 5.9; instructor respect/professional treatment = 6.0; intellectual challenge = 4.4; how much learned = 5.3.

CVEN5818: Geotechnical Earthquake Engineering

Number of students: 13; Term: Spring 2014;

Course Evaluations (out of 6.0): course overall = 5.6; instructor overall = 5.8; instructor respect/professional treatment = 6.0; intellectual challenge = 5.0; how much learned = 5.3.

CVEN3708: Geotechnical Engineering I – Introduction to Geotechnical Engineering

Number of students: 38; Term: Fall 2013;

Course Evaluations (out of 6.0): course overall = 5.3; instructor overall = 5.6; instructor respect/professional treatment = 6.0; intellectual challenge = 4.7; how much learned = 5.3.

CVEN3718: Geotechnical Engineering II – Introduction to Soil Mechanics and Laboratory Testing

Number of students: 72; Term: Spring 2013;

Course Evaluations (out of 6.0): course overall = 5.4; instructor overall = 5.8; instructor respect/professional treatment = 6.0; intellectual challenge = 4.3; how much learned = 5.2.

CVEN5818: Geotechnical Earthquake Engineering

Number of students: 10; Term: Spring 2013;

Course Evaluations (out of 6.0): course overall = 5.6; instructor overall = 6.0; instructor respect/professional treatment = 6.0; intellectual challenge = 5.4; how much learned = 5.5.

CVEN3718: Geotechnical Engineering II – Introduction to Soil Mechanics and Laboratory Testing

Number of students: 31; Term: Fall 2012;

Course Evaluations (out of 6.0): course overall = 5.4; instructor overall = 5.7; instructor respect/professional treatment = 5.9; intellectual challenge = 4.7; how much learned = 5.3.

CVEN4838/5838: Geotechnical Earthquake Engineering

Number of students: 15; Term: Spring 2012

Course Evaluations (out of 6.0): course overall = 4.8; instructor overall = 5.0; instructor respect/professional treatment = 5.7; intellectual challenge = 5.0; how much learned = 5.2.

CVEN4838/5838: Geotechnical Earthquake Engineering

Number of students: 18; Term: Spring 2011

Course Evaluations (out of 6.0): course overall = 5.3; instructor overall = 5.5; instructor respect/professional treatment = 5.9; intellectual challenge = 5.1; how much learned = 5.4.

Student Advising

¹ MS thesis option

² MS report option

Current Post-Doctoral Scholar (Research Associate) Advisor

April Bowman

“Centrifuge Modeling of Soil-Struc.-Inter. on Liquef. Silty Sands”

2018-2020

Current PhD Student Committee Chair

Lianne Brito

“Influence of interlayering on liquefaction consequences”

Expected 2024

Hailey-Rae Rose	“Pipeline performance under extreme demands of earthquakes”	Expected 2024
Yu-Wei Hwang	“Numerical Modeling of Liquef. Mitigation in Urban Settings”	Expected 2022
Zachary Bullock	“Perf. Based Eval. of Liquef. Effects on Buildings”	Expected 2020
Juan Carlos Tiznado	“Perf. Based Design of Gravel Columns in Embankments”	Expected 2020

Current MS Student Committee Chair or Co-Chair

Erin Alexandra Nebel ¹	“Visualization of sand ejecta in the geotechnical centrifuge”	Expected 2020
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Past Doctoral Student Committee Chair

Mahir Badanagki	“Centrifuge modeling of dense granular columns in liquef. soils”	2019
Jenny Ramirez	“Numerical Modeling of Liquefaction, Mitigation, and Structures”	2019
Balaji Paramasivam	“Effects of Drains on Building Perf. on Liquef. Ground”	2018
Juan Carlos Olarte	“Effects of Densification on Building Perf on Liquef. Ground”	2017
Ashkaan Hushmand	“Seismic Performance of Buried Reservoir Structures”	2016
Zana Karimi	“Liquef. Induced Building Settlement and Tilt”	2016
Kenneth Gillis	“Seismic Resp. of Underground Struc in Dense Urban Env.”	2015

Past MS Student Committee Chair

Devon McLay ¹	“Physical and Num. Modeling of Seismic Perf. of Buried Struc.”	2013
Kenneth Gillis ¹	“Tactile Sens. Calib and Data Anal. for Geotech Cent. Modeling”	2013
Christina Jones ¹	“Seismic Perf. of Temp. Excavations in Dense Urban Env.”	2015
Cyrus Hoda ²	“Influence of Liquefaction Remediation Strategies on Buildings”	2015
David Provost ¹	“Influence of Irregular Cyclic Loading on Nevada Sand”	2020

Post-Doctoral Scholars and Research Associates (Advisor or Co-Advisor)

Dr. Majid Ghayoomi	Post-doctoral Scholar	2011-2012
Dr. Min Zhang	Research Associate and Centrifuge Engineer	2012-2015
Dr. Derya Deniz	Post-doctoral Scholar (Co-advised with A. Liel)	2014-2015
Dr. Zana Karimi	Post-doctoral Scholar	2016-2017
Dr. Peter Kirkwood	Post-doctoral Scholar	2016-2018

Graduate Committee Participation (other than the primary advisor)

Dustin Cook, PhD Comprehensive Exam, Structural Engineering, 2019
Cory Ihnotic, MS Report Defense, Structural Engineering, 2019
Robert Chase, PhD Defense, Structural Engineering, 2018
Egbal Elmagre, PhD Defense, Geotechnical Engineering, UC Denver, 2018
Jungang Liu, PhD Defense, Geotechnical Engineering, UC Denver, 2018
Joon Soo Park, MS, Geotechnical Engineering, 2018
Gregory James Maris, MS, Geotechnical Engineering, 2018
Jakub Valigura, PhD Comprehensive Exam, Structural Engineering, 2017
Robert Chase, PhD Comprehensive Exam, Structural Engineering, 2017
Michael Musgrove, PhD Comprehensive Exam, Geotechnical Engineering, Univ. of Illinois at Urbana Champaign, 2016
Matthew Rankins, MS, Architectural Engineering, 2016
Carson Ellis Brown, MS, Architectural Engineering, 2016
Mohammad Amin Hariri Ardebili, PhD Candidate, Structural Engineering, 2015
Charles Coccia, PhD Candidate, Geotechnical Engineering, 2015
Meera Raghunandan, PhD, Structural Engineering, 2013
Karim Farokhnia, PhD, Structural Engineering, 2013
Holly Bonstrom, PhD, Structural Engineering, 2013
Jared Debock, PhD, Structural Engineering, 2013
Thamer Al Yacoub, PhD, Geotechnical Engineering, 2011
Sarah Joy Welsh-Huggins, MS, Structural Engineering, 2015
Cletus Blum, MS, Geotechnical Engineering, 2015
Hannah Iezzoni, MS, Geotechnical Engineering, 2014
Russell Dutta, MS, Geotechnical Engineering, 2014
Daniel Jewoong Hahn, MS, Structural Engineering, 2014
Alexander Vega, MS, Geotechnical Engineering, 2012

Takis Vlasakakis, MS, Geotechnical Engineering, 2012
Jack Thorpe, MS, Structural Engineering, 2012
Derek Bauer, MS, Structural Engineering, 2012

Undergraduate Student Research Advising

Ms. Joelle Westcott, Summer 2018-Current
Mr. Joshua MDuffie, the SMART Program, Summer 2018
Ms. Daniarely Loma Jasso, Summer 2017
Ms. Isabel McLeod, Summer 2017
Ms. Nicole Souder, Fall 2016
Ms. Samantha Guillies, Fall 2016-Spring 2017
Ms. Lianne Brito, the SMART Program, Summer 2016
Mr. Matthew Paul Egeler, Fall 2015-Spring 2016
Mr. Luciano De Oliveira Souza Junior, Fall 2015-Summer 2016
Mr. Leonardo Soligo Gomes, Fall 2015-Summer 2016
Ms. Rebecca Scheetz, August 2014-Spring 2016
Ms. Anisha Lamsal, September 2014-2015
Ms. Devon Marsh, September 2014-2015
Mr. Tiago De Oliveira Almeida, Summer 2014
Ms. Jalila Elfejj, the Summer Multicultural Access to Research Training (SMART) Program, 2014
Mr. Frias Miguel, the SMART Program, Summer 2013
Mr. Christian G. Hernandez Negron, the SMART Program, Summer 2012

Service Activities

Professional Development

- Associate Editor: ASCE Journal of *Geotechnical and GeoEnvironmental Engineering*.
- Elected as the board member of the United States Universities Council on Geotechnical Education and Research (USUCGER), <http://www.usucger.org/>.
- Committee member of the *International Society of Soil Mechanics and Geotechnical Engineering* (ISSMGE TC 104), ASCE Geo-Institute.

Conference Session Organizing

- Session chair on soil liquefaction at the 11NCEE conference in Los Angeles, CA, 2018.
- Session chair on liquefaction triggering, consequences, and mitigation at the GEESD-IV Conf. in Austin, Texas, 2018.
- Co-organizer of session on underground and retaining structures at the PBDIII Conf. in Vancouver, Canada, 2017.
- Organizer and chair of session on soil liquefaction at GeoRisk, ASCE 2017 Conference in Denver, Co.
- Co-organizer and co-chair of session on soil liquefaction at the 1st International Conference on Natural Hazards and Infrastructure, Chania, Greece, 2016.
- Organizer and chair of one panel session in 2016 Geo- and Structural-Congress, ASCE, Phoenix, AZ.
- Session organizer and co-chair of the 2012 Geo-Congress, Oakland, *Roles and Influence of Physical Modeling on State of the Art and Practice in Geotechnical Earthquake Engineering*.

National and International Committee Participation

- American Society of Civil Engineers (ASCE)
- International Society of Soil Mechanics and Geotechnical Engineering (ISSMGE TC 104 committee member and one of two U.S. representative), ASCE Geo-Institute
- Earthquake Engineering and Soil Dynamics Committee of ASCE
- Earthquake Engineering Research Institute (EERI)
- Co-leader of GeoEngineering Extreme Event Reconnaissance (GEER) since 2018, also participating in 5 reconnaissance efforts since 2011

Departmental Committee Participation

- Curriculum Committee (2019-Current)
- Co-Director of Center for Infrastructure, Energy, and Space Testing, CIEST (2015-Current)

- ABET representation for Civil Engineering (2018-current)
- Laboratory Facilities Committee (2017 – 2018)
- Graduate Committee (2013 – 2017)
- Awards Committee (2012)
- Environmental Engineering and Geotechnical Engineering Faculty Search Committees (2013 -2018)

Journal Article Peer-Review Activities

- ASCE Journal of Geotechnical and GeoEnvironmental Engineering
- Geotechnique
- Royal Society
- EERI Journal of Earthquake Spectra
- Canadian Geotechnical Journal
- Journal of Earthquake Engineering
- Geotechnical Testing Journal
- Soils and Foundations
- Soil Dynamics and Earthquake Engineering
- Journal of Geotechnical and Geological Engineering
- Acta Geotechnica

Proposal Reviewer and Panelist

- NSF's Graduate Research Fellowship Program (GRFP) panel
- NSF's Network for Earthquake Engineering Simulation (NEES)
- NSF's Geotechnical Engineering and Geomechanics (GEGM) unsolicited proposal panel
- NSF's Engineering for Natural Hazards (ENH) unsolicited proposal panel
- US Geological Survey (USGS) Earthquake Engineering (EE) panel