Hoyoung Seo, Ph.D., P.E.

Assistant Professor

Department of Civil, Environmental, and Construction Engineering, Texas Tech University

CEE 162; Telephone: 806-834-5690; Email: hoyoung.seo@ttu.edu

I. EDUCATION

Ph.D.	2012	Purdue University, Civil Engineering
M.S.	2002	Seoul National University, Civil, Urban and Geosystem Eng.
B.S.	2000	Seoul National University, Civil, Urban and Geosystem Eng. (Magna cum Laude)

II. PROFESSIONAL EMPLOYMENT

Assistant Professor	2013 – present	Department of Civil, Environmental and Construction Engineering, Texas Tech University, Lubbock, TX
Senior Project Engineer	2009 – 2012	Fugro Consultant, Inc., Houston, TX
Research Assistant	2004 – 2009	School of Civil Engineering, Purdue University, West Lafayette, IN
Project Engineer	2002 – 2003	KISTEC (Korea Infrastructure Safety and Technology Corporation), Ilsan, Korea
Research Assistant	2000 – 2002	School of Civil, Urban and Geosystem Engineering, Seoul National University, Seoul, Korea

III. PROFESSIONAL QUALIFICATIONS

Licensed Professional Engineer, Texas, USA, License No. 108872

IV. HONORS AND AWARDS

- Nominee for 2017 Spencer A. Wells Faculty Award for Creativity in Teaching (University Award)
- Nominee for 2016 Hemphill-Wells New Professor Excellence in Teaching Award (University Award) representing College of Engineering
- Nominee for 2015 Texas Tech Alumni Association New Faculty Award (University Award)
- Nominee for 2015 ASCE ExCEEd New Faculty Excellence in Teaching Award
- PDCA Professors' Driven Pile Institute Fellowship (June 2015)
- ASCE Excellence in Civil Engineering Education (ExCEEd) Fellowship (July 2013)
- Fugro Graduate Fellowship Award (August 2006 to July 2007)

V. RESEARCH INTERESTS

- Deep and shallow foundations
- Analytical and numerical methods in geomechanics
- Geotechnical instrumentation and monitoring
- Development of *in situ*-test- and reliability-based design methods
- Geotechnical engineering in cold regions
- Soil-structure interactions; Granular mechanics
- Rock mechanics and rock engineering
- Development of production-oriented culvert load rating procedure

VI. RESEARCH GRANTS/CONTRACTS

Funded Research (Funding amount shown is total award with prorated amount in parenthesis)

Title: Soil Magic 2.0: Creation of a library of in-class demonstration activities to create 'aha moments' in geotechnical engineering classrooms.
Sponsor: United States Universities Council on Geotechnical Education and Research (USUCGER)
Investigators: Seo, H. (PI)
Amount: $5,000 ($5,000) **Duration:** 9/1/2017 – 8/31/2018

Title: Development of Novel Analysis Model for Foundations Subjected to Combined Torsional and Lateral Loads Due to High Wind
Sponsor: US Department of Transportation (USDOT)/South Plains Transportation Center (SPTC)
Investigators: Seo, H. (PI)
Amount: $77,678 ($77,678) **Duration:** 6/1/2017 – 5/31/2018

Title: Improving TxDOT's Culvert Load Rating Process and Software
Sponsor: Texas Department of Transportation (TxDOT)/Federal Highway Administration (FHWA)
Investigators: Lawson, W. D. (PI), Morse, S. (Co-PI), **Seo, H. (Co-PI)**, Surles, J. (Co-PI)
Amount: $300,763 ($75,190.66) **Duration:** 9/1/2016 – 8/31/2017

Title: Tangential Heave Stress Acting on Deep Foundations in Cold Regions
Sponsor: U.S. Department of Transportation (USDOT)/South Plains Transportation Center (SPTC)
Investigators: Seo, H. (PI), Lawson, W. D. (Co-PI), Jayawickrama, P. W. (Co-PI)
Amount: $60,192 ($30,096) **Duration:** 7/1/2016 – 6/30/2017

Title: Implementation of LRFD Geotechnical Design for Deep Foundations Using Texas Cone Penetrometer (TCP) Test
Sponsor: Texas Department of Transportation (TxDOT)/Federal Highway Administration (FHWA)
Investigators: Seo, H. (PI); Lawson, W. D. (Co-PI); Surles, J. (Co-PI)
Amount: $59,783 ($20,326.22) **Duration:** 06/03/2015 – 08/31/2015

Title: Load Rating TxDOT pre-1980 In-Service Culverts
Sponsor: Texas Department of Transportation (TxDOT)/Federal Highway Administration (FHWA)
Investigators: Lawson, W. D. (PI), Bae, S-W. (Co-PI), Jayawickrama, P. W. (Co-PI), Morse, S. (Co-PI), **Seo, H. (Co-PI)**, Surles, J. (Co-PI), Wood, T. A. (Co-PI)
Amount: $1,097,227.10 ($175,556.34) **Duration:** 08/01/2014 – 08/31/2016

Title: Impact of Deicing Salts on Corrosion Rates of MSE Reinforcement
Sponsor: US Department of Transportation (USDOT)/South Plains Transportation Center (SPTC)
Investigators: Jayawickrama, P. W. (PI); Bae, S-W (Co-PI); Jackson, A (Co-PI); Lawson, W. D. (Co-PI); **Seo, H. (Co-PI)**
Amount: $63,322 ($15,905.50) **Duration:** 06/01/2014 – 05/31/2016

Title: Reliability-Based Deep Foundation Design using Texas Cone Penetrometer (TCP) Test
Sponsor: Texas Department of Transportation (TxDOT)/Federal Highway Administration (FHWA)
Investigators: Lawson, W. D. (PI); Jayawickrama, P. W. (Co-PI); **Seo, H. (Co-PI)**; Surles, J. (Co-PI); Wood, T. (Co-PI)
Amount: $399,845 ($79,969) **Duration:** 09/01/2012 – 08/31/2014

Title: Cold Regions Engineering: Geotechnical Challenges and Solutions
Sponsor: POSCO Engineering and Construction
Investigators: Seo, H. (PI); Jayawickrama, P. W. (Co-PI); Lawson, W. D. (Co-PI)
Amount: $24,800 ($12,400) **Duration:** 09/01/2013 – 03/31/2014

Title: Design and Construction of Pipelines in Cold Regions
Sponsor: GS Engineering and Construction Research Institute
Investigators: Seo, H. (PI)
Amount: $15,000 ($15,000) **Duration:** 03/01/2013 – 10/31/2013

VII. PUBLICATIONS

Journal Articles (Peer-reviewed)

(Underline: Students and postdocs supervised as a committee chair or member, *: Corresponding author)

Published/In-press/Accepted

1. Woo, S. I., **Seo. H.**, and Kim, J. Y. (2017). "Critical-State-Based Mohr Coulomb Plasticity Model for Sands" *Computers and Geotechnics* (Accepted on 8/4/2017)
2. **Seo*, H.**, Wood, T. A., Javid, A. H., Lawson, W. D. (2017). "A system-level pavement model for load rating of bridge-class box culverts." *Journal of Bridge Engineering*, Vol. 22, Issue 10, DOI: 10.1061/(ASCE)BE.1943-5592.0001098, 04017066
3. Moghaddam, R. B., Lawson, W. D., Surles, J. G., **Seo, H.**, and Jayawickrama, P. W. (2017). "Hammer Efficiency and Correction Factors for the TxDOT Texas Cone Penetration Test" *Geotechnical and Geological Engineering*, Vol. 35, DOI:10.1007/s10706-017-0234-8, pp.2147-2162
4. **Seo*, H.**, Moghaddam, R. B., and Lawson, W. D. (2016). "Assessment of Methods for Construction of an Equivalent Top Loading Curve from O-Cell Test Data" *Soils and Foundations,* Vol. 56, Issue 5, pp. 889-903
5. Wood, T. A., Lawson, W. D., Surles, J. G., Jayawickrama, P. W., and **Seo, H.** (2016). "Improved Load Rating of Reinforced Concrete Box Culverts using Depth-Calibrated Live Load Attenuation" *Journal of Bridge Engineering*, Vol. 21, No. 12, 10.1061/(ASCE)BE.1943-5592.0000967, 04016095.
6. Kim, D., Kim, H., Shin, K. J., and **Seo*, H.** (2016). "The Effect of Concrete Deformation on Displacement of an Axially Loaded Drilled Shaft." *Marine Georesources and Geotechnology*, Vol. 34, Issue 2, DOI:10.1080/1064119X.2014.969413, pp. 116-126
7. **Seo*, H.**, Prezzi, M., and Salgado, R. (2015). "Closure to "Instrumented Static Load Test on Rock-Socketed Micropile" by Hoyoung Seo, Monica Prezzi, and Rodrigo Salgado." *Journal of Geotechnical and Geoenvironmental Engineering*, Vol. 141, No. 6, 10.1061/(ASCE)GT.1943-5606.0001264, 07015003.
8. Bica, A., Prezzi, M., **Seo*, H.**, Salgado, R., and Kim, D. (2014). "Instrumentation and Axial Load Testing of Displacement Piles" *Proceedings of the ICE - Geotechnical Engineering*, Vol. 167, No. 3, pp. 238-252
9. **Seo*, H.**, Prezzi, M., and Salgado, R. (2013). "Instrumented Static Load Test on Rock-Socketed Micropile." *Journal of Geotechnical and Geoenvironmental Engineering*, Vol. 139, No. 12, pp. 2037-2047
10. Salgado, R., **Seo, H.**, and Prezzi, M. (2013). "Variational Elastic Solution for Axially Loaded Piles in Multilayered Soil." *International Journal for Numerical and Analytical Methods in Geomechanics*, Vol. 37, No. 4, pp. 423-440
11. **Seo, H.**, Yildirim, I. Z., and Prezzi, M. (2009). "Assessment of the Axial Load Response of an H Pile Driven in Multilayered Soil." *Journal of Geotechnical and Geoenvironmental Engineering*, Vol. 135, No. 12, pp. 1789-1804 (**cited as a major reference in 2nd DeMello Lecture by Dr. Poulos in 2010**)
12. **Seo, H.**, Basu, D., Prezzi, M., and Salgado, R. (2009). "Load-Settlement Response of Rectangular and Circular Piles in Multilayered Soil." *Journal of Geotechnical and Geoenvironmental Engineering*, Vol. 135, No. 3, pp. 420-430
13. **Seo, H.**, and Prezzi, M. (2007). "Analytical Solution for a Vertically Loaded Pile in Multilayered Soil." *Geomechanics and Geoengineering: An International Journal*, Vol. 2, No. 1, pp. 51-60
14. **Seo, H.**, Han, S. S., and Lee, C. -I. (2005). "Horizontal Drilling of Hard Rocks Using Abrasive Suspension Water Jet." *Journal of Jet Flow Engineering*, Vol. 22, No. 3, pp. 13-20

Submitted/Under review

15. Lawson, W. D., Seo, H., Surles, J. G., and Morse, S. M. (2017). "Impact of Specialized Hauling Vehicles on Load-Rating Older, Bridge-Class, Reinforced Concrete Box Culverts." *Transportation Research Record*

16. Ko, J., Jeong, S., and **Seo*. H.** (2017). "Coupled Eulerian-Lagrangian Approach to Investigate the Effect of Soil Conditions on the Plugging of Open-Ended Pipe Piles" *Ocean Engineering*
17. Surles, J. G., **Seo*, H.**, Doerzbacher, J., Lawson, W. D., and Jayawickrama, P. W. (2017). "Confidence Intervals for Resistance Factors in LRFD" *Acta Geotechnica*
18. Gunerathne, S., **Seo*, H.**, Lawson, W. D., and Jayawickrama, P. W. (2017). "Analysis of Differential Settlement for Circular Storage Tank Foundations on Elastic Soil." *International Journal of Geomechanics*
19. Lawson, W. D., Terrell, E., Surles, J. G., Moghaddam, R. B., **Seo, H.**, and Jayawickrama, P. W., (2017). "Correlation of Texas Cone Penetration and Standard Penetration Test Blowcount Values" *Geotechnical and Geological Engineering*

In preparation/ In revision

20. Moghaddam, R. B., **Seo, H.**, Lawson, W. D., Jayawickrama, P. W., and Surles, J. G. (2017). "Resistance Factors at Serviceability Limit State for LRFD of Deep Foundations Using the Texas Cone Penetration Test"
21. Lawson, W. D., **Seo, H.**, Wood, T. A., and Surles, J. G. (2017). "Practical Lessons Learned from Load-Rating Thousands of Older Bridge-Class, Reinforced Concrete Box Culvert Structures."
22. Ko, J., **Seo. H.**, and Lee, J. K. (2017). "Undrained Capacity of Circular Footings on Two-Layered Clay under General Loading"
23. Gunerathne, S., Seo, H., Lawson, W. D., and Jayawickrama, P. W. (2017). "Elastic Analysis of Circular Plate on Multilayered Soil Using Variational Approach."
24. Moghaddam, R. B., Jayawickrama, P. W., Lawson, W. D., **Seo, H.**, and Surles, J. G. (2017). "Evaluation of Predictive Validity of the Texas Cone Penetration Foundation Design Charts"

Conference Proceedings (Peer-reviewed)

(Underline: Students and postdocs supervised as a committee chair or member, *: Corresponding author)

Published/Accepted

1. **Seo*, H.** and Kim, M. and (2017). "Soil plugging behavior of open-ended model pipe piles during impact driving." *Proc. of 7th International Conference on Geotechnique, Construction Materials and Environment (GEOMATE 2017)*, Mie, Japan
2. **Seo*, H.**, Lawson, W. D., Surles, J. G., Jayawickrama, P. W., and Moghaddam, R. B. (2017). "LRFD Resistance Factors for Design of Driven Piles using the Texas Cone Penetration (TCP) Test." *Proc. of 42nd Annual Conference on Deep Foundations*, New Orleans
3. Ko, J., Seo, H., and Jeong, S. (2017). "Plugging effect of open-ended piles in a multilayered soil." *Proceedings of the 6th International Young Geotechnical Engineers' Conference (iYGEC6)*, Seoul, Korea
4. Ko, J., Lee, J. K., and Seo, H. (2017). "Undrained Bearing Capacity of Circular Foundations on Two-layered Clay under Combined Loading." Proc. of 27th International Ocean and Polar Engineering Conference (ISOPE 2017), San Francisco
5. Wood, T. A., Surles, J. G., Mousavi, S. M., Jayawickrama, P. W., Javid, A. H., **Seo, H.**, and Lawson, W. D. (2017). "Modeling Factors Influencing Culvert Load Rating: A Parametric Analysis." Proceedings of Geotechnical Frontiers 2017, Orlando, FL, March 2017, https://doi.org/10.1061/9780784480441.026
6. Kim, S., Ko, J., Kim, S., **Seo, H.**, and Tummalapudi, M. (2017). "Investigation of small-scale CAES (compressed air energy storage) pile as a foundation system." Proceedings of Geotechnical Frontiers 2017, Orlando, FL, March 2017, https://doi.org/10.1061/9780784480472.011

7. Gunerathne, S., **Seo*, H.**, Lawson, W. D., and Jayawickrama, P. W. (2017). "Elastic Analysis of Differential Settlement for Steel Storage Tank Foundations." Proceedings of Geotechnical Frontiers 2017, Orlando, FL, March 2017, https://doi.org/10.1061/9780784480465.023
8. Kim, S., Kim, S., **Seo, H.**, and Jung, J. (2016). "Mechanical behavior of a pile used for small-scale compressed air energy storage" Proceedings of Geo-Chicago 2016: Sustainability, Energy, and the Geoenvironment, August 2016, pp. 135-143
9. Kim, M., **Seo*, H.**, Lawson, W. D., and Jayawickrama, P. W. (2016). "A Review of Tangential Heave Stress for Design of Deep Foundations in Seasonal Frost Conditions." *Proceedings of 11th International Symposium in Cold Region Development (ISCORD 2016)*, Incheon, Korea, May 2016, Paper No.: 10-2 IC-014, pp. 1-11
10. Jayawickrama, P. W., Lawson, W. D., **Seo, H.**, Wood, T. A., and Moghaddam, R. B. (2015). "Prediction of Axial Load Capacity Based on Texas Cone Penetration Test Data." *Proc. of International Conference on Geotechnical Engineering* (*ICGE 2015*), August 2015, Colombo, Sri Lanka, pp. 443-446
11. Kim, M., **Seo*, H.**, Lawson, W. D., and Jayawickrama, P. W. (2015). "Tangential Heave Stress for Design of Deep Foundations Revisited." *Proceedings of 16th International Conference on Cold Regions Engineering*, Salt Lake City, Utah, July 2015, pp. 404-415
12. Won, J-Y., Suroor, H., Jang, S., **Seo, H.** (2015). "Strain ε_{50} and Stiffness Ratio (E/s_u) for Gulf of Mexico Clays." *Proc. of 3rd International Symposium on Frontiers in Offshore Geotechnics* (*ISFOG*), Oslo, Norway, June 2015, pp. 1121-1126
13. **Seo*, H.**, Prezzi, M., and Salgado, R. (2015). "Elastic Analysis of Rock-Socketed Pile" *Proc. of International Foundations Congress and Equipment EXPO (IFCEE) 2015*, San Antonio, Texas, March 2015, pp. 973-979
14. **Seo*, H.**, Safaqah, O., and Gudavalli, S. R. (2014). "Ground Vibration levels due to impact pile driving in sands." *Proc. of GeoShanghai 2014: Tunneling and Underground Construction*, Shanghai, China, May 2014, pp. 25-34
15. **Seo*, H.**, Prezzi, M., and Salgado, R. (2014). "Instrumented Static Load Test on Micropile Socketed into Limestone." *Proc. of GeoCongress 2014: Geo-Characterization and Modeling for Sustainability*, Atlanta, Georgia, February 2014, pp. 572-581
16. Chae, K. -S., Park, J., -H., and **Seo, H.** (2013). "Foundation Design in Frozen Soils: Focusing on the Design Codes." *Proc. of 5th KGS-JGS Geotechnical Engineering Workshop*, October 2013 (in Korean)
17. Safaqah, O., Gudavalli, S. R., and **Seo*, H.** (2013), "Axial Capacity of Drilled Shafts in Oil Sands." *Proc. of the 66th Canadian Geotechnical Society Conference (GeoMontreal 2013: Geosciences for Sustainability)*, Montreal, Canada, September 2013, Paper No. 592
18. Gudavalli, S. R., Safaqah, O., and **Seo*, H.** (2013), "Effect of Soil Plugging on Axial Capacity of Open-Ended Pipe Piles in Sands." *Proc. of 18th International Conference on Soil Mechanics and Geotechnical Engineering*, Paris, France, September 2013, pp. 1487-1490
19. Chae, K-S., Tan, S-H., **Seo, H.** and Park, K. (2012), "Optimal Techniques of Foundation Design in Frozen Soils for Oil Sands Project." *Proc. of Korean Geotechnical Society Fall National Conference*, Seoul, Korea, October 2012 (in Korean).
20. **Seo*, H.**, Prezzi, M. and Salgado, R. (2011), "Elastic Analysis for Axially Loaded Piles in Multilayered Soil." *Proc. of 13th International Conference of the International Association for Computer Methods and Advances in Geomechanics (IACMAG 2011)*, Melbourne, Australia, May 2011, Vol. 2, pp. 984-990
21. **Seo*, H.**, Prezzi, M. and Salgado, R. (2008), "Settlement Analysis of Axially Loaded Piles." *Proc. of 6th Int. Conf. on Case Histories in Geotechnical Engineering*, Arlington, Virginia, August 2008, Paper No. 1.56.

22. **Seo, H.**, Han, S. S., and Lee, C. -I. (2003). "Drilling of Rocks Using an Abrasive Suspension Water Jet." *Proc. of 7th Pacific Rim International Conf. on Water Jetting Technology*, Jeju, Korea, October 2003, pp. 296-304
23. Han, S.S., **Seo, H.**, and Lee, C.-I. (2002). "Development of Abrasive Suspension Jet Drilling Prototype." *Proc. of 2002 Korea-Japan Joint Seminar on Water Jet Technology*, Seoul, October 2002, pp. 27-32
24. **Seo, H.**, Han, S. S., Kim, Y. -J, and Lee, C. -I. (2002). "Drilling of Rocks Using an Abrasive Suspension Water Jet." *Proc. of Korean Geotechnical Society of Mineral and Energy Resources Engineers Spring National Conference*, Incheon, Korea, April 2002, pp.249-251 (in Korean)

Submitted/Under review

25. **Seo, H.** and Kim, M. (2017). "Soil plug behavior of open-ended pipe piles during installation." *Proc. of 42nd Annual Conference on Deep Foundations*, New Orleans (Full paper under review)
26. Li, L., **Seo, H.**, Lawson, W. D., and Jayawickrama, P. W. (2018). "Experimental investigation of tangential heave stress during ice-lens formation in silts." *Proc. of 5th GeoChina International Conference – Civil Infrastructures Confronting Severe Weathers and Climate Changes: From Failure to Sustainability*, Hangzhou, China (Abstract submitted)
27. Ko, J., Seo, H., Kim, S., and Kim, S. (2018). "Numerical analysis of a compressed air energy storage pile under pressure cycles." *Proc. of International Foundations Congress and Equipment EXPO (IFCEE) 2018* (Full paper under review)

Books/Chapters

1. Salgado, R, Prezzi, M. and **Seo, H.** (2007), "Chapter 3. Advanced Modeling Tools for the Analysis of Axially Loaded Piles." *Advances in Deep Foundations*, Y. Kikuchi (ed.), Taylor & Francis (ISBN 978-0-415-43629-8), pp. 49-67.
2. Salgado, R. (2008). Solutions Manual for the Engineering of Foundations. 1st ed., McGraw-Hill, 715 pp (Major contributor)

Technical Reports/Dissertation/Thesis (Underline: Students and postdocs supervised)

1. Lawson, W. D., **Seo, H.**, Surles, J. G., Morse, S. M., Jayawickrama, P. W., Bae, S-W., Wood, T. A., Gunerathne, S., Afolabi, B., Mousavi, M., and Javid, A. (2016). "Load Rating TxDOT pre-1980 In-Service Culverts: Model Enhancements, Procedure Improvements, and Results for 1,000 Structures." Report No. FHWA/TX-16/88-4XXIA001-R1, A Draft Final Report Submitted to Texas Department of Transportation (Research Contract No. 88-4XXIA001), Texas Tech Center for Multidisciplinary Research In Transportation, 307 pages
2. **Seo, H.**, Moghaddam, R. B., Surles, J. G., and Lawson, W. D. (2015). "Implementation of LRFD Geotechnical Design for Deep Foundations Using Texas Cone Penetrometer (TCP) Test." Report No. FHWA/TX-15-5-6788-01, A Final Report Submitted to Texas Department of Transportation (Research Contract No. 5-6788-01), Texas Tech Center for Multidisciplinary Research In Transportation, 33 pages
3. **Seo, H.**, Moghaddam, R. B., Surles, J. G., Jayawickrama, P. W., Wood, T. A., and Lawson, W. D. (2015). "Reliability Based Deep Foundation Design Using Texas Cone Penetrometer (TCP) Test: VOLUME 1, Development of Load Test Dataset" Report No. FHWA/TX-14-0-6788-1-Vol.1, A Final Report Submitted to Texas Department of Transportation (Research Contract No. 0-6788-1), Texas Tech Center for Multidisciplinary Research In Transportation
4. **Seo, H.**, Moghaddam, R. B., Surles, J. G., Jayawickrama, P. W., Wood, T. A., and Lawson, W. D. (2015). "Reliability Based Deep Foundation Design Using Texas Cone Penetrometer (TCP) Test: VOLUME 2, Resistance Factors for Driven Pile Foundations" Report No. FHWA/TX-14-0-6788-1-Vol.2, A Final Report Submitted to Texas Department of Transportation (Research Contract No. 0-6788-1), Texas Tech Center for Multidisciplinary Research In Transportation, 312 pages

5. **Seo, H.**, Moghaddam, R. B., Surles, J. G., Jayawickrama, P. W., Wood, T. A., and Lawson, W. D. (2015). "Reliability Based Deep Foundation Design Using Texas Cone Penetrometer (TCP) Test: VOLUME 3, Resistance Factors for Drilled Shaft Foundations in Soil" Report No. FHWA/TX-14-0-6788-1-Vol.3, A Final Report Submitted to Texas Department of Transportation (Research Contract No. 0-6788-1), Texas Tech Center for Multidisciplinary Research In Transportation, 384 pages
6. **Seo, H.**, Moghaddam, R. B., Surles, J. G., Jayawickrama, P. W., Wood, T. A., and Lawson, W. D. (2015). "Reliability Based Deep Foundation Design Using Texas Cone Penetrometer (TCP) Test: VOLUME 4, Resistance Factors for Drilled Shaft Foundations in Intermediate Geomaterials" Report No. FHWA/TX-14-0-6788-1-Vol.4, A Final Report Submitted to Texas Department of Transportation (Research Contract No. 0-6788-1), Texas Tech Center for Multidisciplinary Research In Transportation, 270 pages
7. **Seo, H.**, Kim, M., Lawson, W. D., and Jayawickrama, P. W. (2014). "Cold Regions Engineering: Geotechnical Challenges and Solutions." A Final Report Submitted to POSCO Engineering and Construction (Research Contract No. 23C484), Texas Tech University, 124 pages
8. **Seo, H.**, Kim, M., Lawson, W. D., and Jayawickrama, P. W. (2014). "Cold Regions Engineering: Geotechnical Challenges and Solutions." A Final Report Submitted to POSCO Engineering and Construction (Research Contract No. 23C484), Texas Tech University, 132 pages (in Korean)
9. **Seo, H.** (2013). "Construction Process for Installations of Foundations in Cold Regions" A Final Report Submitted to Korea Institute of Construction Technology, Texas Tech University, 13 pages
10. **Seo, H.** (2013). "Design and Construction of Pipelines in Cold Regions" A Final Report Submitted to GS Engineering and Construction Research Institute (Research Contract No. 23C459), Texas Tech University, 156 pages
11. **Seo, H.** (2012). "Load-Settlement Response of Axially Loaded Piles" Ph.D. Dissertation, Purdue University, West Lafayette, Indiana, 280 pages
12. **Seo, H.** and Prezzi, M. (2008), "Use of Micropiles for Foundations of Transportation Structures" Final Report No. FHWA/IN/JTRP-2008/18, SPR-2931, Joint Transportation Research Program, Purdue University, 131 pages
13. **Seo, H.** (2002), "Drilling of Rocks Using an Abrasive Suspension Water Jet" M.S. Thesis, Seoul National University, Seoul, Korea, 92 pages (in Korean)

VIII. MENTORING AND ADVISING (^{T} M.S. Thesis; ^{R} M.S. Report; ^{C} M.S. Coursework)

Postdoctoral Researcher/Visiting Scholars Supervised

Name	Role	Period	Affiliation
Junyoung Ko	Post-doc	04/2016 - present	Civil, Environ., and Constr. Eng./TechMRT

Graduate Student Committees Chaired

Student	Degree	Completion Date	Major
Suranga Gunerathne	Ph.D.	In progress	Civil, Environmental, and Construction Eng.
Mintae Kim	Ph.D.	In progress	Civil, Environmental, and Construction Eng.
Liang Li	M.S.^{R}	In progress	Civil, Environmental, and Construction Eng.

Committee Member

Student	Degree	Completion Date	Major
Joe Waugh	M.S.[R]	12/2016	Civil, Environmental, and Construction Eng.
Rozbeh Moghaddam	Ph.D.	08/2016	Civil, Environmental, and Construction Eng.
Timothy A. Wood	Ph.D.	12/2015	Civil, Environmental, and Construction Eng.
Jonathan Doerzbacher	M.S.[T]	12/2015	Mathematics and Statistics
Pangil Choi	Ph.D.	08/2015	Civil, Environmental, and Construction Eng.
Krishna Dhungana	M.S.[R]	08/2015	Civil, Environmental, and Construction Eng.
Jordan Gibbs	M.S.[C]	12/2014	Civil, Environmental, and Construction Eng.

IX. TEACHING

Courses taught at Texas Tech University as Instructor of Record

Course No.	Level	Title	Note
CE 3321	Under.	Introduction to Geotechnical Eng.	
CE 4321	Under.	Geotechnical Engineering Design	
CE 5331-015	Grad.	Deep Foundations Engineering	**New graduate course developed**
CE 5321	Grad.	Advanced Soil Engineering	**New course format and material**
CE 5323	Grad.	Advanced Foundation Eng. I	**New course format and material**

Non-Credit Instruction at Texas Tech University

Course No.	Level	Title	Note
CE 4101	Under.	FE Exam Review	Guest lecture for FE exam review of Geotech. Eng. (S 2014, F 2014, F 2015, S 2016, F 2017)
CE 4330	Under.	Design of Engineering Systems	Subject matter expert for geotechnical and foundations eng. (F 2016)

Teaching Assistant at Purdue University

Course No.	Level	Title	Note
CE 383	Under.	Geotechnical Engineering	Nominee for Nellie Munson T. A. Award

Teaching Evaluations

Semester	Course No.	Course Level	Enrollment[(a)]	Course Objective Rating[(b)]	Lecturer Rating[(c)]	Subject Rating[(d)]
2013 Spring	CE 3321	Under.	45 (34)	NA	3.94	3.91
2013 Fall	CE 3321	Under.	40 (34)	NA	4.82	4.68
2014 Spring	CE 5331-015	Grad.	13 (13)	NA	4.46	4.31
2014 Fall	CE 3321	Under.	49 (42)	4.88	4.90	4.86
2015 Spring	CE 5321	Grad.	9 (8)	4.75	4.75	4.50
2015 Fall	CE 3321	Under.	49 (43)	4.93	4.93	4.93
2016 Spring	CE 5323	Grad.	11 (8)	4.88	5.00	4.75
2016 Fall	CE 3321	Under.	49 (41)	4.88	4.83	4.83
2017 Spring	CE 5331-015	Grad.	18 (18)	4.94	4.94	4.94

(a) Values in parentheses represent a total number of responses to course evaluation.

(b) Course objective rating: The course objectives were specified and followed by the instructor.

(c) Lecturer rating: Overall, the instructor was an effective teacher.

(d) Subject rating: Overall, this course was a valuable learning experience.
(e) Rating scale (5:Strongly Agree, 4: Agree, 3: Neutral, 2: Disagree, 1: Strongly Disagree)

Instructor for Professional Short Courses

- GEO 101 – Basic Geotechnical Engineering for Roadways, Texas Department of Transportation, Houston, TX, January 5-9, 2015 (24 PDH), Observer

X. PROFESSIONAL SERVICES AND ACTIVITIES

Scholarly Article Reviewer

- Journal of Geotechnical and Geoenvironmental Engineering, ASCE
- International Journal of Geomechanics, ASCE
- International Journal for Numerical and Analytical Methods in Geomechanics, John Wiley & Sons
- Geotechnical and Geological Engineering: An International Journal, Springer
- KSCE Journal of Civil Engineering, Springer
- Journal of Materials in Civil Engineering, ASCE
- Journal of Architectural Engineering, ASCE
- Journal of Applied Mathematics, Hindawi
- Journal of Zhejiang University - Science A: Applied Physics & Engineering, Springer
- Transportation Research Record: Journal of the Transportation Research Board, Transportation Research Board of the National Sciences
- Conference, IFCEE 2015, San Antonio, Texas, U.S.A.
- Conference, GeoCongress 2014, Atlanta, Georgia, U.S.A.
- Conference, GeoShanghai 2014, Shanghai, China
- Conference, GeoCongress 2008, New Orleans, Louisiana, U.S.A.

Grant Evaluation Panel

- Louisiana Experimental Program to Stimulate Competitive Research (LA EPSCoR), The National Science Foundation and Louisiana Board of Regents, 2013
- Southern Plains Transportation Center (SPTC) – Research, Education, and Outreach Support, 2016

Synergistic Activities

- Leading role in establishing Memorandum of Understanding (MOU) between Texas Tech University and POSCO E&C on Foundations for Wind Turbines and Cold Regions Geotechnology

Outreach Activities

- Instructor, T-STEM Center, Transportation Engineering and Project-Based Learning, Professional Development Workshops for K12 Teachers, Lubbock, TX, July 2, 2014
- Faculty Advisor, EXPLORE ENGINEERING, Summer Camp for high school juniors and seniors to explore each engineering discipline and participate in hands-on activities; TechFLT introduced Transportation Engineering discipline by building and programming autonomous cars using Lego® Mindstorm®, July 28, 2016 and November 1, 2016
- Faculty Advisor, Annual Ranch Day, Family-friendly event hosted by National Ranching Heritage Center; TechFLT runs the ‘Ranch Science’ station and promote transportation engineering discipline by performing many activities related to the discipline, April 9, 2016 and April 15, 2017

Service to Student Organizations

- Faculty advisor for student organization, Tech Future Leaders in Transportation (TechFLT), 2015-present
- Co-faculty advisor for American Rock Mechanics Association (ARMA) student chapter of Texas Tech University, 2016-present

Department Service

- Curriculum Committee, Department of Civil, Environmental and Construction Engineering, Texas Tech University, 2014-present
- Ad-hoc Committee, Civil Engineering Curriculum Comparison Committee, Department of Civil, Environmental and Construction Engineering, Texas Tech University, 9/1/2016 – 1/5/2017
- Geotechnical Faculty Search Committee, Department of Civil, Environmental and Construction Engineering, Texas Tech University, September 2015 – July 2016
- Ad-hoc Committee, Higher Education Committee, Department of Civil, Environmental and Construction Engineering, Texas Tech University, 2/24/2015 – 4/1/2015

College/University Service

- Graduate Faculty, Texas Tech University, 2013-prsent
- Dean's Representative for Ph.D. Dissertation Defense

Student	Year	Major
Kyungyul Jun	2017	Department of Hospitality and Retail Management
Cong Pu	2016	Department of Computer Science
Chunchao Liang	2016	Department of Computer Science
Saehya Ann	2015	Department of Hospitality and Retail Management
Li Luo	2015	Department of Mathematics and Statistics
Taeghyun Kang	2014	Department of Computer Science
Scott E. Smith	2014	Department of Mathematics and Statistics
Yiqing "Jerry" Wei	2013	Department of Civil and Environmental Engineering

Technical Committee

- Technical Committee Member, G-I Deep Foundations Committee, American Society of Civil Engineers (ASCE), 2017 – present
- Conference Organization Officer, Member of Scientific Committee for 11th International Symposium on Cold Regions Development, 2015 - 2016
- Friend, Standing Committee on Culverts and Hydraulic Structures (AFF70), Transportation Research Board of the National Academies of Sciences, Engineering, and Medicine, 2014 – present
- Friend, Standing Committee on Foundations of Bridges and Other Structures (AFS30), Transportation Research Board of the National Academies of Sciences, Engineering, and Medicine, 2014 – present
- Friend, Standing Committee on Seasonal Climatic Effects on Transportation Infrastructure (AFP50), Transportation Research Board of the National Academies of Sciences, Engineering, and Medicine, 2014 – present
- Friend, Standing Committee on Geotechnical Instrumentation and Modeling (AFS 20), Transportation Research Board of the National Academies of Sciences, Engineering, and Medicine, 2014 – present

Service to Public/Community

- Secretary, Texas Tech Korean Faculty Association (TTKFA), 2014-2015

Professional Affiliations

- Member of Transportation Research Board (TRB)
- Member of American Society of Civil Engineers (ASCE)
- Member of Deep Foundation Institute (DFI)
- Member of International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE)
- Member of Korean-American Scientists and Engineers Association (KSEA)
- Member of the United States Universities Council on Geotechnical Education and Research (USUCGER)

XI. INDUSTRY EXPERIENCE

Selected Consulting Projects (at Fugro Consultants, Inc.)

- Kearl Oil Sands Project Phases 1 and 2 FEED and Detailed Design, Fort McMurray, Canada: 1) Analysis of shallow and deep foundation considering frost effects for various mining structures and refinery facility and 2) Finite element analysis using PLAXIS to check stability of sheet piling with high surcharge on the backfill side
- Kearl Initial Development Piling QA/QC, Fort McMurray, Canada: 1) Development of pile driving criteria for 10,000+ piles consisting of 406-, 508-, 610-, 762-, and 914-mm-diameter open-ended steel pipe piles in glacial sandy soils and 2) On-site supervision of piling including PDA and static load tests
- Kearl Expansion Project Pile Load Test Program, Fort McMurray, Canada: Interpretation of results from 1) Static compressive, tensile, and lateral load tests on 406-, 508-, 610- and 762-mm-diameter open-ended steel pipe piles and 2) O-cell tests on 750- and 1200-mm-diameter drilled shafts installed in oil sands.
- Chayvo OPF Expansion Project, Sakhalin Island, Russia: Dynamic analysis of piles for machine foundation
- Odoptu Technical Retrofit Project, Sakhalin Island, Russia: Development of pile driving criteria for 610-mm-diameter open-ended steel pipe piles in discontinuous permafrost regions

XII. PROFESSIONAL PRESENTATIONS

Conference and Symposium

(Underline: Students and postdocs supervised, *: Corresponding author)

- Ko, J., Lee, J. K. (Presenter), and Seo, H. (2017). "Undrained Bearing Capacity of Circular Foundations on Two-layered Clay under Combined Loading." Proc. of 27th International Ocean and Polar Engineering Conference (ISOPE 2017), San Francisco
- Wood, T. A. (Presenter), Surles, J. G., Mousavi, S. M., Jayawickrama, P. W., Javid, A. H., **Seo, H.**, and Lawson, W. D. (2017). "Modeling Factors Influencing Culvert Load Rating: A Parametric Analysis." Proceedings of Geotechnical Frontiers 2017, Orlando, FL, March 2017 **(Presented by a former TTU student)**
- Kim, S. (Presenter), Ko, J., Kim, S. (Presenter), **Seo, H.**, and Tummalapudi, M. (2017). "Investigation of small-scale CAES (compressed air energy storage) pile as a foundation system." Proceedings of Geotechnical Frontiers 2017, Orlando, FL, March 2017
- Gunerathne, S. (Presenter), **Seo*, H.**, Lawson, W. D., and Jayawickrama, P. W. (2017). "Elastic Analysis of Differential Settlement for Steel Storage Tank Foundations." Proceedings of Geotechnical Frontiers 2017, Orlando, FL, March 2017 **(Presented by Dr. Seo's doctoral student)**
- **Seo, H. (Presenter)**, Wood, T. A., Javid, A. H., and Lawson, W. D. (2017). "A Simplified Pavement Model for Improved Production Culvert Load Rating." *Transportation Research Board 96th Annual Meeting*, Washington D.C., January 9, 2017
- Lawson, W. D. (Presenter), **Seo, H.**, Wood, T. A., and Surles, J. G. (2016). "Practical Lessons Learned from Load-Rating Thousands of Older Bridge-Class, Reinforced Concrete Box Culvert Structures." *Transportation Research Board 96th Annual Meeting*, Washington D.C., January 9, 2017
- Kim, S. (Presenter), Kim, S., **Seo, H.**, and Jung, J. (2016). "Mechanical behavior of a pile used for small-scale compressed air energy storage" Proceedings of Geo-Chicago 2016: Sustainability, Energy, and the Geoenvironment, August 16, 2016, pp. 135-143

- Kim, M., **Seo, H. (Presenter)**, Lawson, W. D., and Jayawickrama, P. W. (2016). "A Review of Tangential Heave Stress for Design of Deep Foundations in Seasonal Frost Conditions." *11th International Symposium in Cold Region Development (ISCORD 2016)*, Incheon, Korea, May 2016
- Jayawickrama, P. W. (Presenter), Lawson, W. D., **Seo, H.**, Wood, T. A., and Moghaddam, R. B. (2015). "Prediction of Axial Load Capacity Based on Texas Cone Penetration Test Data." *International Conference on Geotechnical Engineering* (*ICGE 2015*), Colombo, Sri Lanka, August 2015
- Kim, M. (Presenter), **Seo, H.**, Lawson, W. D., and Jayawickrama, P. W. (2015). "Tangential Heave Stress for Design of Deep Foundations Revisited." *16th International Conference on Cold Regions Engineering*, Salt Lake City, Utah, July 2015 **(Presented by Dr. Seo's doctoral student)**
- Won, J-Y. (Presenter), Suroor, H., Jang, S., **Seo, H.** (2015). "Strain ε_{50} and Stiffness Ratio (E/s_u) for Gulf of Mexico Clays." *3rd International Symposium on Frontiers in Offshore Geotechnics* (*ISFOG*), Oslo, Norway, June 2015
- Lawson, W. D. (Presenter), Terrell, E., Moghaddam, R., Wood, T. A., **Seo, H.**, Jayawickrama, P., and Surles, J. G. (2015). "Correlation of Texas Cone Penetration and Standard Penetration Test N-Values" *International Foundations Congress and Equipment EXPO*, San Antonio, Texas, March 2015
- **Seo, H. (Presenter)**, Prezzi, M., and Salgado, R. (2015). "Elastic Analysis for Behavior of Rock-Socketed Pile" *International Foundations Congress and Equipment EXPO*, San Antonio, Texas, March 2015
- **Seo, H. (Presenter)**, Prezzi, M., and Salgado, R. (2014). "Instrumented Static Load Test on Micropile Socketed into Limestone." *GeoCongress 2014: Geo-Characterization and Modeling for Sustainability*, Atlanta, Georgia, February 2014
- Chae, K. -S. (Presenter), Park, J., -H., and **Seo, H.** (2013). "Foundation Design in Frozen Soils: Focusing on the Design Codes." *5th KGS-JGS Geotechnical Engineering Workshop*, October 2013
- Chae, K-S. (Presenter), Tan, S-H., **Seo, H.** and Park, K. (2012), "Optimal Techniques of Foundation Design in Frozen Soils for Oil Sands Project." *Korean Geotechnical Society Fall National Conference*, Seoul, Korea, October 2012
- **Seo, H.**, Prezzi, M. and Salgado, R. (Presenter) (2011), "Elastic Analysis for Axially Loaded Piles in Multilayered Soil." *13th International Conference of the International Association for Computer Methods and Advances in Geomechanics (IACMAG 2011)*, Melbourne, Australia, May 2011
- **Seo, H.**, Prezzi, M. and Salgado, R. (Presenter) (2008), "Settlement Analysis of Axially Loaded Piles." *6th International Conference on Case Histories in Geotechnical Engineering*, Arlington, Virginia, August 2008
- **Seo, H. (Presenter)**, Han, S. S., and Lee, C. -I. (2003). "Drilling of Rocks Using an Abrasive Suspension Water Jet." *7th Pacific Rim International Conf. on Water Jetting Technology*, Jeju, Korea, October 2003
- Han, S.S. (Presenter), **Seo, H.**, and Lee, C.-I. (2002). "Development of Abrasive Suspension Jet Drilling Prototype." *2002 Korea-Japan Joint Seminar on Water Jet Technology*, Seoul, October 2002
- **Seo, H. (Presenter)**, Han, S. S., Kim, Y. -J, and Lee, C. -I. (2002). "Drilling of Rocks Using an Abrasive Suspension Water Jet." *Korean Geotechnical Society of Mineral and Energy Resources Engineers Spring National Conference*, Incheon, Korea, April 2002

Invited Seminar and Lecture

- Invited graduate seminar: "Application of Variational Methods to Foundation Engineering." Korea University, Seoul, Korea, June 15, 2016

- Invited speaker: "Reliability Analysis of Deep Foundation Design using Texas Cone Penetrometer (TCP) Test." Geo-San Antonio 2016: Geotechnical Advances in the Transportation Sector, San Antonio, Texas, March 18, 2016 (**Invited by ASCE Geo-Institute San Antonio Chapter; Travel costs provided by ASCE**)
- Guest lecture: "Piling QC/QA." Incheon National University, Songdo, Korea, March 18, 2014
- Invited seminar: "Geotechnical Issues in Cold Regions Engineering." POSCO Engineering and Construction, Songdo, Korea, June 20, 2013
- Invited seminar: "Geotechnical Issues in Cold Regions Engineering." GS Engineering and Construction, Seoul, Korea, June 19, 2013
- Invited seminar: "Advances in Design of Deep Foundations." Korea Institute of Construction Technology, Ilsan, Korea, June 18, 2013
- Invited seminar: "Geotechnical Issues in Cold Regions Engineering." Korea Institute of Construction Technology, Ilsan, Korea, June 18, 2013
- Guest lecture: "Advances in Design of Deep Foundations." Hongik University, Seoul, Korea, June 17, 2013
- Invited seminar: "Load-Settlement Response of Axially Loaded Piles." Texas Tech University, Lubbock, Texas, May 1, 2012
- Guest lecture: "Introduction to Design of Deep Foundations." Texas Tech University, Lubbock, Texas, May 1, 2012
- Internal seminar: "Load-Settlement Response of Axially Loaded Piles." Fugro Consultants, Inc., Houston, March, 2011

XIII. PROFESSIONAL DEVELOPMENT ACTIVITIES

- *Professor's Driven Pile Institute (PDPI)*, PDCA (The Pile Driving Contractor's Association), Utah State University, Logan, UT, June 22 – 26, 2015
- *NSF Day at Texas*, National Science Foundation, Texas Tech University, Lubbock, TX, May 20, 2015
- *Tenure Academy*, Teaching, Learning & Professional Development Center, Texas Tech University, Lubbock, TX, November 20, 2014
- *Unconventional Production Technologies and Environmental Consortium (UpTec) Workshop*, Texas Tech University, Lubbock, TX, May 16, 2014
- *NSF/DOE Visit*, Whitacre College of Engineering of Texas Tech University, Washington D.C., January 30-31, 2014
- *ExCEEd Teaching Workshop*, ASCE, Florida Gulf Coast University, Fort Myers, FL, July 21 – 26, 2013
- *Instrumentation and Monitoring Boot Camp*, ASCE , Atlanta, GA, March 29 – 30, 2012
- *Short Course on Computational Geotechnics & Dynamics*, PLAXIS, Polytechnic Institute of NYU, Brooklyn, NY, January 11 – 14, 2011