

College of Engineering

Section 0

Candidate Name: Chung R. Song
Candidate Title: Associate Professor
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When a candidate submits a CV for consideration of Promotion and Tenure, the following information is required.

Date of Original Submission: 4/22/2024

Current Version Number and Date Submitted as part of Candidate's P&T package: 1

Table of Changes Made to CV since Original Submission

<i>Version</i>	<i>Date</i>	<i>Changes (listed by subsection #)</i>
1		
2	Apr. 23, 2024	Format was slightly revised to better fit CoE requirement.

Section 1 Education and Employment History

Section 1.1 Education History: Degrees received, Institutions and Dates

Ph.D. in Civil Engineering, Louisiana State University, Baton Rouge, LA, 1999

MS in Civil Engineering, The University of Texas at Austin, TX, 1986

BS in Civil Engineering, Yonsei University, Seoul, Korea, 1984

Section 1.2 Employment History: Employer, Position, Dates

The University of Nebraska Lincoln - Lincoln, Department of Civil and Environmental Engineering, **Associate Professor**, 8/2015 – Present.

Uludag University, Uludag, Turkey, Department of Civil Engineering, **Visiting Professor**, 8/2022-12/2022

The University of Mississippi, Department of Civil Engineering, **Associate Professor**, 8/2004 – 8/2015.

Yonsei University, Seoul, Korea, Department of Civil Engineering, **Visiting Professor**, 1/2013 – 8/2013.

Louisiana State University, Department of Civil Engineering, **Professional in Residence**, 7/2002 – 7/2004.

Sambo Engineering Co. Ltd., Tunnel and Infrastructure Division, **Senior Director**, 01/2001 – 08/2002.

Louisiana State University, **Post Doctoral Research Associate**, Department of Civil Engineering, 01/2000 – 12/2000.

Louisiana State University, **Graduate Assistant**, Department of Civil Engineering, 01/1998 – 12/1999.

Sinwoo Engineering, Co. Ltd., **Senior Engineer**, Geotechnical Engineering Division, Seoul, Korea, 06/1996 – 12/1997. (part time)

Daewoo Engineering, Co. Ltd., **Senior Engineer**, Geotechnical Engineering Division, Seoul, Korea, 04/1990 – 05/1996.

Sungin Engineering, Co. Ltd., **Lead Engineer**, Geotechnical Engineering Division, Seoul, Korea, 10/1988 – 03/1990

Korean Army, 04/1986 – 10/1988

Section 2 Research Accomplishments

Summary: My research topics are focused on the evaluation of soil properties based on analytical and experimental approaches, that include molecular mechanics and all the way up to the Multiphysics based continuum mechanics exploring the detailed behavior of geomaterials. Ultimately, the research is focused on to better understand the behavior of soils and build more resilient structures and society.

Section 2.1 Publication Record

Author names should appear first in all citations. The authors will appear in the order in which they occur on the paper. Use the following subscripts to indicate UNL students for whom you serve/served as chair or co-chair of their advisory committee and UNL postdoctoral researchers who are/were under your direct supervision.

1: Undergraduate student

2: Masters student

3: Ph.D. student

4: Postdoctoral researcher

Section 2.1.1 Numbered list (in reverse chronological order) of Peer Reviewed Journal Publications in print, complete bibliographic citation including author names in order they appear on paper, full journal name, volume number, page numbers (or DOI in lieu of volume and page numbers), and % of your contribution.

1. Basil Abu-Alshar³, **Chung R. Song**, Richard L. Wood and Awangku² A. Hashim (2023), “The Equivalent Sand Particle Diameter Approach to Rationally Estimate the Erosion Behavior of Fine-Grained Riverbed Soils”, ASCE, Journal of Geotechnical and Geoenvironmental Engineering, in press, 30%
2. Binyam Bekele³, **Chung R. Song**, Seunghye Kim, and Jongwan Eun (2023), “Integrated laboratory-Scale and Numerical Modeling of Heat-Seepage Interaction in Earth Dams”, ASCE, Journal of Geotechnical and Geoenvironmental Engineering, in press, (40%)

3. **Chung R. Song**, Richard L. Wood, Binyam Bekele³, Nikolas Glennie, Alex Silvey and Mitra Nasimi³ (2023), “A Comparison of Surface Deformation Measurement Methods for Slopes”, *Appl. Sci.* **2023**, 13(6), 3417, <https://doi.org/10.3390/app13063417>, 40%
4. **Chung R. Song**, Binyam Bekele³, Brian D. Sawyer², Ahmed Al-Ostaz, Alexander Cheng and Vanadit-Ellis Wipawi (2023), “Cost-effective method for reducing local failure of floodwalls verified by centrifuge tests”, *Geomechanics and Engineering*, Vol. 33, No. 2 (2023) 155-165, 50%
5. Yusuf Alhowaidi, Jongwan Eun, Seunghee Kim, **Chung R. Song**, and Fouad Jaber (2023), “Field Monitoring and Analysis of Abutment Foundation Behavior for a Curved Integral Abutment Bridge under Thermal Loading”, *Journal of TRR*, Vol. 2677(9) 582-593
6. Jongwan Eun, Yusuf Alhowaidi³, Seunghee Kim, **Chung Song**, and Fouad Jaber (2022), “Monitoring and Analysis of Abutment Foundation Behavior for a Curved Integral Abutment Bridge under Thermal Loading,” *TRB AM-2303879*, 20%
7. Bekele³, B., **Song, C.**, Eun, J.W., and Kim, S. (2022), “Exploratory Seepage Detection in a Laboratory-Scale Earthen Dam Based on Distributed Temperature Sensing Method,” *Geotech Geol Eng*, <https://doi.org/10.1007/s10706-022-02315-2>, 30%
8. Amelian³, B., **Song, C.R.**, Kim, Y.R., Lindemann, M, and Bitar², L. (2021), “Weathering durability of biopolymerized shales and glacial tills”, *Geomechanics and Engineering*, 28(4), <https://doi.org/10.12989/gae.2022.28.4.000>, pp. 375-384, 50%
9. Bekele³, B., **Song, C.R.** and Lindemann, M. (2021), “A Case Study on the Progressive Failure Mechanism of I-180 Slope Using Numerical and Field Observations”, *ISSMGE International Journal of Geoengineering Case Histories*, 7(1), pp. 21, doi: 10.4417/IJGCH-07-01-01, 40%
10. Bekele³, B., **Song, C.R.**, Jin, G., Sawyer¹, B. and Lindemann, M. (2021), “Fast Estimation of Hydraulic Conductivity for Overconsolidated Soils Using Piezocone Test Results”, *Infrastructure*, MDPI, <https://doi.org/10.3390/infrastructures6030032>, 40%
11. **Song C.R.** and Kim Jinwon³ (2020), “Estimation of Hydraulic Conductivity of Soils Based on Biot’s Theory of Wave Propagation”, *J. of KGS*, 36(12), 7-16, <https://doi.org/10.7843/kgs.2020.36.12.7>, 60%
12. **Song C.R.**, Cheng A.H-D., Ostaz A. and, Mantena R. (2020), “Lessons Learned from Hurricane Katrina – With Emphasis on Cost Effective Retrofitting Techniques”, *J. of ENU*, <https://doi.org/10.32523/2616.7263>, 50%
13. **Chung R. Song**, Binyam Bekele³, Alex Silvey², Mark Lindemann and Lucas Ripa² (2020), “Piezocone/cone penetration test-based pile capacity analysis: calibration, evaluation, and implication of geological conditions”, *IJGE*, DOI: [10.1080/19386362.2020.1778214](https://doi.org/10.1080/19386362.2020.1778214), 50%
14. **Chung R. Song**, Binyam M. Bekele³ and Alexander Silvey² (2019), “Pore Pressure Response of Overconsolidated Soils in a Partially Drained Piezocone Penetration Test,” *J. of Engineering Mechanics*, ASCE, DOI: 10.1061/(ASCE)EM.1943-7889.0001594, 50%

15. **Chung R. Song**, Alexander H.-D. Cheng and Ahmed Al-Ostaz, David Admirral (2018), “Effect of Thickness of Planar Nozzles on Erosion Depth of Levee Soils Subjected to Plunging Water,” *International Journal of Sediment Research*, DOI: 10.1016/j.ijsrc.2018.04.010, 50%
16. Tewodros, Y, Yosef³, **Chung R. Song** and Ki-Tae Chang (2017), “Hydro-Thermal Coupled analysis for Health Monitoring of Embank Dams,” *Acta Geotechnica*, DOI: 10.1007/s11440-017-0571-z, 40%
17. **Song, C.R.**, Adhikari³ S., Al-Ostaz A. and Cheng A.H.-D. (2017), “Development of Deformation Criteria for Predictive Monitoring System for Levees,” *International Journal of Geotechnical Engineering*, DOI: 10.1080/19386362.2017.1358527, 60%
18. **C.R. Song** and T. W. Yosef³ (2017), “Seepage Monitoring of an Embankment Dam Based on Hydro-Thermal Coupled Analysis,” *J. of Engineering Materials and Technology*, 139(2), ASME DOI: 021024-1-9, 60%
19. **C.R. Song**, S. Adhikari³ and J.T. Kidd² (2016), “Self-Sealing Bentonite Strip – an Effective Method to Prevent Gap Development for Floodwalls in New Orleans,” *International Journal of Geotechnical Engineering*, DOI: 10.1080/19386362.2015.1130923, 50%
20. S. Adhikari³, **C.R. Song** and A.H.-D. Cheng (2015), “Anisotropic analysis of I-walls in New Orleans,” *Marine Georesources and Geotechnology*, DOI: 10.1080/1064119X.2013.877108, 40%
21. Sudarshan Adhikari³ and **Chung R. Song** (40%), Alexander H.-D. Cheng (2013), “Evaluation of I-wall in New Orleans with back-calculated total stress soil parameters”, *Acta Geotechnica*, DOI: 10.1007/s11440-013-0264-1 (ISSN 1861-1125, 1861-1133), 40%
22. **Chung R. Song**, Sudarshan Adhikari³, Ahmed Al-Ostaz and Alexander Cheng, (2013), “Reevaluation of the “Gap Formation” in New Orleans Levee System”, *J. of Geotechnical and Geoenvironmental Engineering*, ASCE DOI: 10.1061/(ASCE) GT.1943-5606.0001024 (ISSN 1090-0241), 50%
23. ASCE/EWRI Task Committee on Dam/Levee Breaching, (2011), “Earthen Embankment Breaching”, *J. of Hydraulic Engineering*, ASCE, 1549-1564, 5%
24. J.T. Kidd², **C.R. Song**, A. Al-Ostaz, A. H.-D. Cheng, and W. Jang³ (2011), “Erosion Control Using Modified Soils,” *Int. Journal of Erosion Control Engineering*, 4(1), 1-9, 30%
25. Won³, J.O., **Song, C.R.** Al-Ostaz A. and Cheng, A.H.D. (2011), “Evaluation of T-Wall in New Orleans Considering 3D Soil Structure Interaction,” *J. of Geotechnical and Geoenvironmental Engineering*, ASCE, 137(8), 731-742, 40%
26. Jang³, W.G., **Song, C.R.**, Kim³, J.W., Cheng, A.H.-D. and Al-Ostaz, A. (2011), “Erosion Study of New Orleans Levee Materials Subjected to Plunging Water,” *J. of Geotechnical and Geoenvironmental Engineering*, ASCE, 137(4), 398-404, 40%
27. Wu³, W., Al-Ostaz, A., Cheng, A.-H.D. Cheng and **Song, C.R.** (2011), “Computation of elastic properties of Portland cement using molecular dynamics,” *Journal of Nanomechanics and Micromechanics*, ASCE, 1(2), 10%

28. **Song, C.R.**, Kim³, J.W., Wang⁴, G. and Cheng, A.H.-D. (2011), “Reducing Erodibility of Earthen Levee Using Engineered Flood Wall Sections,” *J. of Geotechnical and Geoenvironmental Engineering*, ASCE, 137(10), 874-881, 50%
29. Wu⁴, W., Al-Ostaz, A. Cheng, A.H.-D. and **Song, C.R.** (2010), “Concrete as a Hierarchical Structural Composite Material,” *International Journal of Multiscale Computational Engineering*, 8(6), pp.585-595, 10%
30. **Song, C.R.** and Pulijala², S., (2010), “Hydraulic Conductivity Estimation Using Piezocone Results,” *J. of Geotechnical and Geoenvironmental Engineering*, ASCE, 136(3), 2010, 456-463, 60%
31. Al-Ostaz, A., Wu³, W., A.H.-D. Cheng, and **Song, C.R.** (2010), “A Molecular Dynamics and Microporomechanics Study on the Mechanical Properties of Major Constituents of Hydrated Cement,” *Journal of Composites: B*, 41, 543-549, 15%
32. **Song, C. R.** and Kim², J. W. (2008), “Estimation of Soil Permeability Using an Acoustic Technique,” *J. of Geotechnical and Geoenvironmental Engineering*, ASCE, 134(12). 1829-1832, 60%
33. Kim², J.W. and **Song, C.R.** (2008), “Laboratory Evaluation of Soil Permeability for Sand Using Biot’s Acoustic Wave Propagation Theory,” *Journal of KGS*. 24(8), 5-12, 40%
34. Voyiadjis, G.Z. and **Song, C.R.** (2005), “A Coupled Micro-Mechanical Based Model for Saturated Soils,” *Mechanics Research Communications*, 32(5), 490-503, 45%
35. **Song, C.R.** and Voyiadjis, G.Z. (2005), “Pore Pressure Response around a Penetrating Object,” *Computers and Geotechnics*, 32, 37-46, 55%
36. Voyiadjis, G.Z. and **Song, C.R.** (2003), “Determination of Hydraulic Conductivity Using Piezocone Penetration Test,” *International Journal of Geomechanics*, ASCE, 3(2), 217-224, 45%
37. Voyiadjis G.Z. and **Song, C.R.** (2002), “Multi-Scale Non Local Approach for Geomaterials,” *Mechanics Research Communications*, 29 (2-3), 121-129, 45%
38. **Song, C.R.** and Voyiadjis, G.Z. (2002), “Microstructure Consideration with Plastic Spin for Large Strain Problems in Soils,” *International Journal of Plasticity*, 18, 1271-1289, 55%
39. **Song, C.R.** (2000), “Experimental and Theoretical Consideration of Liquid Limit,” *Journal of Korean Geotechnical Society*, 16(3), pp.29-37, 100%
40. Voyiadjis, G.Z. and **Song, C.R.** (2000), “Finite Strain, Anisotropic Modified Cam Clay Model with Plastic Spin – Part II: Application,” *J. of Engineering Mechanics*, ASCE, 126(10), 1020-1026, 45%
41. Voyiadjis, G.Z. and **Song, C.R.** (2000), “Finite Strain, Anisotropic Modified Cam Clay Model with Plastic Spin – Part I: Theory,” *J. of Engineering Mechanics*, ASCE, 126(10), 1012-1019, 45%
42. **Song, C.R.**, Voyiadjis, G.Z. and Tumay, M.T. (1999), “Determination of Permeability of Soils Using Multiple Piezo-element Penetrometer,” *International Journal for Numerical and Analytical Methods in Geomechanics*, 23(13), 1609-1629, 50%

43. **Song Chung Rak** and Kim Soo Il (1992), "Effects of High Amplitude Prestraining Vibrations on Shear Modulus of Sands", J. of Korean Geotechnical Society, 8(1), 19 – 28, 70%
44. **Song Chung Rak** and Stokoe K.H.II (1991), "Dynamic Properties of Soils at High Amplitude (with emphasis on threshold strain)", J. of Korean Geotechnical Society, 7(2), 11 – 18, 70%
45. Kim Kyo Won, Kang Ki Young and **Song Chung Rak** (1991), "Causes and Measures for Un-Hardening Phenomenon of Soil Cement Mixing Wall in Organic Soil", J. of Korean Society of Engineering Geology, 1(1), 11 – 18, 30%
46. **Song Chung Rak** and Kim Soo Il (1988), "Properties of Silty Sands at High Amplitude (with emphasis on basic properties)," J. of Geotechnical Engineering, Korean Geotechnical Society, 4(3), 27-33, 60%
47. **Song Chung Rak** and Kim Soo Il (1987), "Effects of High Amplitude Prestraining on Dynamic Properties of Silty Sands," J. of Geotechnical Engineering, Korean Geotechnical Society, 3(2), 7-16, 60%

Section 2.1.2 Numbered list (in reverse chronological order) of Peer Reviewed Journal Publications accepted for publication with or without revision. Note that papers with "re-review required" or equivalent should not appear in this category. The citation should include complete bibliographic citation including author names in order they appear on paper, full journal name, date of submittal, date of acceptance, and % of your contribution. An acceptance letter written on official letterhead of the journal or of the appropriate journal letter must be included in Appendix A.

Section 2.1.3 Numbered list (in reverse chronological order) of Peer Reviewed Journal Publications submitted for review but not yet accepted or accepted with "re-review required" or equivalent. Include the name of journal, author list, date submitted and % of your contribution.

1. Incheol, Kim, **Chung R. Song**, Jongwan Eun (2023), "Biopolymer Treatment for Enhancing Levee Erosion Resistance to Overtopping Water", ASCE, Journal of Geotechnical and Geoenvironmental Engineering, in review, 11/26/2023, (40%)
2. Aiman Tariq, Basil Abu-Alshar³, Babur Deliktas, Bashar³, Al-Nimri, and **Chung R. Song** (2024), "AI-Based Evaluation of Erosion Resistant Gradation of Highway Shoulder Gravels," International Journal of Geoengineering, in review, 12/15/2024, (20%)
3. Binyam Bekele, **Chung Song**, Basil Abualshar, and Alemtsehay Hunde (2024), "Real-Time Seepage Monitoring using Spatial Autocorrelation of Distributed Temperature Data from Fiber Optic Sensor," Journal of Civil Structural Health Monitoring, in review, 4/24/2024, (30%)

Section 2.1.4 Numbered List (in reverse chronological order) of Books and Book Chapters, author list, publisher, year, and % of your contribution.

Books

1. Voyiadjis, G. Z. and **Song, C.R.** (2006), *Coupled Theory of Mixtures in Geomechanics with Application*, 438p. Springer, 60%
2. **Song Chung Rak** (1996), *Fundamentals of Soil Dynamics*, Engineers Book Publishing Co. 426p, (Korean Version of Fundamentals of Soil Dynamics by Braja.M. Das) (in Korean), 100%
3. **Song, C.R.** and Voyiadjis, G. Z. (2024), *Multiphysics and Multiscale Mechanics for Geotechnical Engineering*, under the preparation, 70%

Book Chapters

1. **Song C.R.** and Kim, S.H. (2023), “Special Issue “Advance of Structural Health Monitoring in Civil Engineering”, Major Editor, *Applied Sciences*, Dec., 2023, 60%
2. Korean Society of Rock Engineering (2007), *Slope Engineering (Chapter 13)*, Construction Information Publishing, 525p., 20%
3. Degroot, D.J., Vipulandan, C., Yamamuro, J.A., Kaliakin, V.N., Lade, P.U., Zeghal, M., El-Shamy, U., Lu, N., **Song, C.R.** (2007), *ASCE Geotechnical Special Publication (GSP) 173*, CD-Rom, 10%
4. **Song, C.R.** and Voyiadjis, G.Z. (2003), “Multiscale Nonlocal Approach for Geomaterials,” *Constitutive Modeling of Geomaterials- Selected Contributions from the Frank L. DiMaggio Symposium*, CRC Press, pp.145-151, 10%
5. **Song Chung Rak** (1995), *Safety Evaluation Technique for Infra-structures*, Korea Infrastructure Safety Institute, 100%
6. **Song Chung Rak** (1995), "Case History of the Field Monitoring Results of Soft Soil", *Text Book of the Annual Lecture of Korean Geotechnical Society*, p.492 – 529, 100%

Section 2.1.5 Numbered list (in reverse chronological order) of Conference Proceedings: Peer reviewed extended abstract or peer reviewed paper. Include full conference title, author names in order they appear on paper, dates of conference, location of conference, and page numbers (or number of pages).

1. Basil Abualshar, **Chung R. Song** and Bashar Al-Nimri (2024), “Investigating Hydrodynamic Input Parameters for a Non-Conventional Flow Scenario in Sediment Transport Modeling,” EMI-ASCE, 2024

2. Bashar Al-Nimri, Basil Abualshar, **Chung R. Song** (2024), Alex Silvey and Nikolas Glennie (2024), “Evaluation of Critical Shear Strength of Soils Based on Revised CPT,” Proceedings of 5th ICITG, Springer
3. Basil Abualshar³ and **Chung R. Song** (2023), “Parametric Study to Determine Hydrodynamics Input Parameters in Flow-3D-Hydro for Gravels in Nebraska,” June 6 – 9, EMI 2023, CD-Rom, Atlanta, GA
4. Bashar Al-Nimri³ and **Chung R. Song** (2023), “ANN-Based Evaluation System for Erosion Resistant Highway Shoulder Rocks,” June 6 – 9, EMI 2023. CD-Rom, Atlanta, GA
5. B. Abualshar³ and **C.R. Song** (2022), “Evaluation of the Equivalent D_{50} to Predict the Erodibility of Fine Riverbed Soils in Nebraska,” EMI2022, Columbia University, NY, NY, CD-Rom
6. B. Bekele³ and **C.R. Song** (2022), “identification of Dam Leakage through Hydro-thermal Coupled analysis and Distributed Temperature Sensing Method,” EMI2022, Columbia University, NY, NY, CD-Rom
7. **C.R. Song** and B. Bekele³ (2020), “Numerical simulation of drained Piezocone penetration tests for saturated clayey soils to obtain strength of soils at residual-wet-drained condition,” EMI2019, CD-Rom, Caltech, CA
8. **C.R. Song** and B. Bekele³ (2019), “Behavior of Saturated Cohesionless Soils to High Speed Cone Penetration,” EMI2019, CD-Rom, Caltech, CA
9. **C.R. Song** (2018), “Field Instrumentation and Real-Time Feedback during Construction of Incheon International Airport,” UKC2018, Invited Talk
10. **C.R. Song**, A. Al-Ostaz and R. Mantena (2018), “Detailed Performance Analysis of Levees and Floodwalls in New Orleans during Hurricane Katrina,” ARMA 18-244, 52nd US Rock Mechanics-Geomechanics Symposium 2018, Seattle, WA
11. Binyam Bekele³, **Chung R. Song**, Brian D. Sawyer, Mark Lindemann and Gyunam Jin (2018), “Estimation of Hydraulic Conductivity for Overconsolidated Clays Based on PCPT Results,” EMI2018
12. K. Koocheki³ and **C. Song** (2018), “Plastic Behavior of Fused Silica in Nanoindentation Testing,” EMI2018
13. **C.R. Song**, A.H.-D. Cheng, A. Al-Ostaz and R. Mantena, (2018), “Lessons Learned from Hurricane Katrina – With Emphasis on Cost Effective Retrofitting Techniques”, The 2nd US-KGS Workshop, GeoCongress2018, Orlando, FL
14. T.Y. Yosef³, **C.R. Song**, R. K. Faller and K.A. Lechtenberg (2017), “Coupled Soil-Structure Behavior Under Impact Load,” EMI2017, Flash Drive
15. **C.R. Song**, Jongwan Eun and Seunghee Kim (2017), “Hydro-Electro-Thermo-Chemico-Mechanically Coupled Equations and Soil Behavior,” EMI2017, Flash Drive
16. **C.R. Song**, T. Y. Yosef³, M. Asadollahi Pajouh and R. Faller (2017), “Impacts Resistance of Guardrail Posts on Sloped Ground,” IRS2017 Conference, San Francisco, Flash Drive

17. **C.R. Song**, and T.Y. Yosef² (2016), "Multi-Physics Technique in Geotechnical Engineering," UKC2016 Conference
18. **Chung R. Song** (2016), "20 Year Old Real-Time Sensor and Management Systems," EMIPMC2016-CD Rom
19. **Chung R. Song**, and Tewodros Y. Yosef² (2016), "Hydro-Thermal Coupled Multiphysics Simulation for Health Monitoring of Embankment Dam," EMIPMC2016-CD Rom
20. **Chung R. Song** and Tewodros Y. Yosef² (2016), "Seepage Monitoring of an Embankment Dam Based on Hydro-Thermal Coupled Analysis," Multi-Physical Solutions for Harsh Environments: Computations and Experiments, International Symposium in honor of Professor George Z. Voyiadjis, Seoul, Korea, p21
21. Wodajo³, L., Hickey, C.J. and **Song, C.** (2015), "Application of cross-plot analysis on a levee using time lapse seismic refraction tomography and electrical resistivity tomography, The Joint Federal Agency Conference, Reno, NV, 12pp.
22. **C. R. Song** and T. Yosef² (2015), "Seepage-Heat Coupled Analysis for Estimating Phreatic Line of an Earth Dam from Temperature Profile," SAGEEP 2015, Extended Paper, CD-Rom
23. Wodajo³, L., **Song, C. R.** and Hickey, C. (2015), "Assessment of the Francis Levee Site Using Multiple Geophysical Surveys and Cross-plot Analysis," SAGEEP 2015 Conference, Austin, TX CD-Rom
24. **C.R. Song**, T.Y. Yosef², Y. Najjar and A.H.-D. Cheng (2014), "Seepage-Heat Coupled Analysis for Estimating a Phreatic Line of an Earth Dam," EMI 2015 Conference, McMaster University, Canada. CD-Rom
25. Leti Wodajo³ Craig J. Hickey, Gregory Hanson, and **Chung Song**, "Enhancement of SRT and ERT Interpretations using Time-lapse Measurements and Cross-plot Analysis." EAGE Near Surface Geoscience 2014 conference, Athens, Greece September 14-18, 2014.
26. Corey A. Hamil², Craig J. Hickey, and **Chung R. Song**, "An Investigation of Lake Okhissa Dam", Symposium on the Application of Geophysics to Engineering and Environmental Problems (SAGEEP), March 16 - 20, 2014, Boston, Massachusetts.
27. **Chung R. Song**, Ahmed Al-Ostaz and Alexander H.-D. Cheng (2013), "Expansive Clay Minerals and Hurricane Katrina," 5th Biot Conference, 2013, CD Rom
28. **Song, C.R.** and Voyiadjis, G.Z. (2013), "Analytical Observations of Micro-mechanical in Plasticity for Saturated Soils," International Symposium on Plasticity, Bamaha, CD-Rom
29. Kidd², J.T., **C.R. Song**, and A.H.-D. Cheng (2012), "Enhancing Erosion Resistance of Levee by Ground Modification," Proceedings of USSDAM 2012 Conference, New Orleans, CD-Rom
30. **C.R. Song** and J. Jackson² (2012), "Bridging Techniques for I-Wall System to Mitigate Local Failure," Proceedings of USSDAM 2012 Conference, New Orleans, CD-Rom

31. Wodajo², L., Hickey, C.J., Hanson, G. and **Song, C.R.** (2012) "Time-Lapse Seismic Tomography and Dynamic Poisson's Ratio Maps of a Small Embankment Dam with Possible Zones of Weakness" Symposium on Applications of Geophysics to Environmental and Engineering Problems, April 10-14.
32. L.T. Wodajo², C.J. Hickey, G.J. Hanson and **C.R. Song** (2011), "Time-Lapse Seismic Tomography of a Small Embankment Dam with Possible Zones of Weakness," SAGEEP 2011, Charleston, SC, CD-Room
33. **Song C.R.**, Al-Ostaz A. and Cheng A. H.-D. (2011), "Hurricane Damage on Flood Protection System and Multidisciplinary Countermeasure," ASCE-EMI 2011 Conference, North Eastern University, MA
34. Wodajo², L.T., Hickey, C.J., Hanson, G. and **Song, C.R.** (2011), "The use of seismic tomograms for the identification of internal problems with earthen dams and levees," 9th Meeting of the Mid-South Chapter of the Acoust. Soc. Am., Conway, AR, Oct 7-8.
35. Adhikari³ S., **Song C.R.**, Cheng A. H.-D. (2011), "Implementation of the anisotropic elastoplastic model in FLAC3D and its application in the numerical simulation of New Orleans levees and floodwall section," ASCE-EMI 2011 Conference, North Eastern University, MA
36. **Song C.R.**, Jang³ W., Kim³ J.W., Cheng A. H.-D. and Al-Ostaz A. (2011), "New Orleans Specific Erosion Mechanism of Levee Soils", Workshop on Dam Stability, Safety and Failure, Oxford, MS
37. Jang³ W., **Song C.R.**, Kim³ J.W., Cheng A. H.-D. and Al-Ostaz A. (2010), "Effects of Soil Parameters on Erosion Behavior of New Orleans Soils , ASCE-EMI 2010 Conference, USC, CA, CD-Rom
38. Kim³ J.W., **Song C.R.**, Wang³ G. and Cheng A.H.-D. (2010), "Erosion Control of Earthen Levees Using Energy Absorbing Surfaces," ASCE-EMI 2010 Conference, USC, CA, CD-Rom
39. Adhikari³ S, **Song C.R.**, Cheng A. H.-D. and Al-Ostaz A. (2010), "Evaluation of I-wall in New Orleans with calibrated soil parameters," ASCE-EMI 2010 Conference, USC, CA, CD-Rom
40. Won³ J., **Song C.R.**, Adhikari³ S., Cheng A. H.-D. and Al-Ostaz A. (2010), "3-D Assessment of a T-wall System in New Orleans, ASCE-EMI 2010 Conference, USC, CA, CD-Rom
41. Kidd¹ T., **Song C.R.**, Cheng A. H.-D and Jang¹ W. (2010), "Erosion Control by Ground Modification, ASCE-EMI 2010 Conference, USC, CA, CD-Rom
42. **Song C.R.**, Jang³ W., Cheng A. H.-D. and Al-Ostaz A. (2010), "Prediction of Field Erosion Depth for New Orleans Levee Soils, ASCE-EMI 2010 Conference, USC, CA, CD-Rom
43. Wang³ G., **Song, C.R.**, Kim³, J. and A. H.-D. Cheng (2009), "Numerical Study of Erosion of Loose Sand from an Overtopped Plunging Jet," Joint ASCE-ASME-SES Conference on Mechanics and Materials, June 24-27, 2009, Virginia Tech, Blacksburg, VA.
44. **Song, C.R.**, Adhikari³, S., Wu³, W.D. and Al-Ostaz, A. (2008), "Effects of Force Fields in Simulating Nano- to Subnano- level Geo-Materials," Proceedings of The first American Academy of Mechanics Conference

45. Adhikari³, S., **Song, C.R.** and Al-Ostaz, A. (2008), "Cell Size Effects in Predicting Properties of Soils and Cement Using Quantum Mechanics and Molecular Mechanics," Proceedings of The first American Academy of Mechanics Conference
46. Kim², J.W. and **Song, C.R.** (2008), "Acoustical Estimation of Soil Permeability," Proceedings of The 3rd International Conference on Site Characterization, April 1 -3, Taipei, Taiwan, CD-Rom
47. **Song, C.R.** and Pulijala², S. (2008), "Quick Estimation of Hydraulic Conductivity," Proceedings of The 3rd International Conference on Site Characterization, April 1 -3, Taipei, Taiwan, CD-Rom
48. Kim², J.W. and **Song, C.R.** (2008), "Determination of Soil Characteristic Frequency Using Acoustic Techniques," Proceedings of GeoCongress 2008, ASCE GSP 179, pp.332-339
49. **Song, C.R.** and Jang³, W.G. (2008), "Cell Size Effects in Characterizing Dry Quartz Sand Particles," Proceedings of GeoCongress 2008, ASCE GSP 179, pp.998-1005
50. **Song, C.R.** and Wu², W.D. and Al-Ostaz, A. (2008), "Effects of Force Field in Molecular Mechanics Simulation of Geo-Materials," Proceedings of GeoCongress 2008, ASCE GSP 179, pp.1012-1019
51. **Chung R. Song**, Jin W. Kim², Alexander H.-D. Cheng, and Craig Hickey (2007), "Measurement of Biot Characteristic Frequency for Saturated Soils," *EMD 18th 2007*, ASCE, VA
52. **Song, C.R.**, Cho², H., Jung, Y-H., Cheng, A. H.-D. and Al-Ostaz, A. (2007), "Bridging Molecular, Particulate and Continuum Mechanics for Geomechanics Application," GeoDenver 2007, CD-Rom
53. **Song, C. R.** and Kim², J. W. (2007), "Determination of Soil Permeability Using an Acoustic Technique," GeoDenver 2007, CD-Rom
54. **Song, C.R.** and Pulijala², S. (2006), "Hydraulic Conductivity Interpretation Using Piezocone Results," ASCE Geotechnical Special Publication No. 149, Proceedings of GeoShanghai, pp. 32-39
55. Pal, G., Al-Ostaz, A., Mantena, R.R., Cheng, A.H-D. and **C.R. Song** (2006), "Molecular Dynamics Simulation of SWCNT - Polymer Nanocomposite and Its Constituents," 21st technical conference of the American Society of Composite materials
56. **Song, C.R.** and Al-Ostaz, A. (2005), "Implementation of Molecular Dynamics in Continuum Geo-mechanics," Proceedings of McMat 2005 Conference, June, CD-Rom
57. **Song, C.R.** and Cheng, A. H.-D. (2005), "Evaluation of Acoustic Wave Techniques for Determining Hydraulic Conductivity of Geomaterials," Proceedings of McMat 2005 Conference, June, CD-Rom

58. Srinivasan, P., Ghanshyam P., Al-Ostaz, A., Raju Mantena P., Jao E., and **Song, C. R.** (2005), "Evaluation of Nano Composite Constituent Properties Using Multiple Scale Models," McMat conference, Baton Rouge, LA, CD-Rom
59. **Song, C.R.** and Voyiadjis, G.Z. (2005), "Two different rate dependencies of saturated clayey soils," Poromechanics-Biot Centennial (1905-2005)-Abousleiman, Cheng & Ulm (eds), Taylor & Francis Group, London, pp.713-718
60. Voyiadjis, G.Z. and **Song, C.R.** (2005), "A coupled micro-mechanical model for saturated soils," Poromechanics-Biot Centennial (1905-2005)-Abousleiman, Cheng & Ulm (eds), Taylor & Francis Group, London, pp.719-724
61. **Song, C.R.** and Yeoh, Y.H. (2004), "Assessment of Dam Safety from Field Monitoring Results," GEO'2004, ASCE, Geotechnical Practice Publication No. 1, pp.86-93
62. **Song, C.R.** and Voyiadjis, G.Z. (2002), "Micro-mechanics in Soils and Shear Bands", 15th ASCE Engineering Mechanics Division Conference, Columbia Univ., New York, New York, June 2-5th, CD-Rom
63. **Song, C.R.** and Voyiadjis, G.Z. (2002), "Non Local Approach for Geomaterials," Proceedings of ASEM'02, Busan, Korea, CD-Rom publication
64. **Song, C.R.** and Voyiadjis, G.Z. (2001), "Rate dependent gradient theory for shear band analysis in clayey soils", ASME/ETCE '2001 Conference, CD-Rom
65. **Song, C.R.** and Voyiadjis, G.Z. (2001), "Pore Pressure from Penetrometer and Hydraulic Conductivity", 15th International Conference on Soil Mechanics and Geotechnical Engineering, Istanbul, Turkey, pp.279-282
66. **Song, C.R.** and Voyiadjis, G.Z. (2001), "Plastic Spin and Gradient Theory for Modeling Large Strain Behavior of Soils", Proceedings of 10th International Conference of The International Association for Computer Methods and Advances in Geomechanics, pp.597-600
67. Voyiadjis, G.Z. and **Song, C.R.** (2001), "Rate Dependency and Gradient Theory for Shear Band Analysis", Proceedings of 10th International Conference of The International Association for Computer Methods and Advances in Geomechanics, pp.601-606
68. Park, Y.J., Lee, S.C. and **C.R. Song** (2001), "Rockmass Classification Using Multiple Indicate Kriging", Proceedings of Korean Society of Civil Engineers, November, CD Rom
69. Chun, T.H., Choi, W.J., Park, J.S. and **Song, C.R.** (2001), "Facts and Fictions in Geotechnical Surveys for Subway Design," Proceedings of Korean Society of Civil Engineers, November, CD Rom
70. **Song, C.R.** (2001), "Constitutive Relations for CPT and SPT," Proceedings of Korean Geotechnical Society for Specialty Conference for Geo-modeling and Non-Linear Behavior, September, pp.125-145

71. **Song, C.R.** (2001), "Estimation of Hydraulic Conductivity Using Excess Pore Pressures During Piezocone Penetration Test," International Committee for Soil Mechanics and Geotechnical Engineering, ATC-7 Committee, Busan, Korea, September, pp.221-231
72. **Song, C.R.** (2001), "Total Geotechnical Instrumentation Based on Smart Materials," Proceedings of Korean Geotechnical Society for Specialty Conference of Geotechnical Instrumentation, October, pp. 79-88
73. **Song, C.R.**, Jun, S.K., Yeo, Y.H. and Han, Y.C. (2001), "A Case Study of a Slope Failure and Slope Stabilization," Korean Geotechnical Society National Conference, Committee of Slope Stability, Wonju, May, pp.123-133
74. Voyiadjis, G.Z. and **Song, C.R.** (2000) "Microstructural Characterization in Modeling Large Strain Behavior of Soils," Plastic and Viscoplastic Response of Materials and Metal Forming, Proceedings of Plasticity '00, Neat Press, pp. 110-112
75. **Song, C.R.** and Voyiadjis G.Z. (2000), "Effects of Incorporating Plastic Spin to Flow Characteristics in Clayey Soils," Proceedings of EM'2000, ASCE, May 21-24th, Austin Texas, CD Rom
76. Voyiadjis, G.Z., **Song, C.R.** and Tumay, M.T. (1999), "Real Time Continuous Profiling of Hydraulic Conductivity of Geo-materials Using the Piezocone Penetration Test," 5th US National Congress on Computational Mechanics, August 4-6, Boulder, CO, p.502
77. **Song, C.R.** and Voyiadjis, G.Z. (1999), "A New Method for Determining the Permeability of Soils Using the Piezocone Penetration Test," Proceedings, 13th ASCE Engineering Mechanics Div. Baltimore, June 13-16, Johns Hopkins University, Baltimore, MD, CD Rom
78. **Song Chung Rak** (1996b), "Fact and Fiction in Field Instrumentation (Part III: Pore Pressure Measurement)", Proceedings of the KGS Spring '96 National Conference, pp.221 – 234
79. **Song Chung Rak** (1996a), "Fact and Fiction in Field Instrumentation (Part II: Settlement Measurement)", Proceedings of the KGS Spring '96 National Conference, pp.205 –220
80. **Song Chung Rak** (1995), "Fact and Fiction in Field Instrumentation (Part 1: Horizontal Displacement Measurement)", Proceedings of the KGS Fall '95 National Conference, pp.III.1 - III.8
81. Han Young Chul, **Song Chung-Rak**, Yoon Dong Duk and Lee Kyung Soo (1995), "Automatic Field Monitoring and Analysis System for Soft Soils", Proceedings of the KGS Fall '95 National Conference, pp.III.9 - III.14
82. **Song Chung Rak**, Yeoh Yoo Hyeon and Kim Sung In (1995), "Evaluation of the Behavior of Dam Body by Field Monitoring Results (I. With Emphasis on Pore Pressure and Seepage Water)", Proceedings of the KGS Fall '95 National Conference, pp.III.23 – III.30

83. Yeoh Yoo Hyeon and **Song Chung Rak** (1995), "Evaluation of the Behavior of Dam Body by Field Monitoring Results (II. With Emphasis on Deformation)", Proceedings of the KGS Fall '95 National Conference, pp.III.31 - III.40
84. Yoon Dong Duk and **Song Chung Rak** (1995), "Expansion Characteristics of Bentonite Plug for Piezometer", Proceedings of the KGS Fall '95 National Conference, pp.III.41 - III.46
85. **Song Chung Rak**, Oh Da Young, Kim Soo Sam, Chun Byung Sik (1993), "Consolidation Characteristics by Field Monitoring", The 1st International Conference on Soft Soil Engineering, Guangzhou, China, pp.584 – 589
86. **Song Chung Rak** (1993), "Dynamic Properties of Municipal Land Fills Subjected to Dynamic Compaction", Proceedings of Specialty Conference on Soil Dynamics, Korean Geotechnical Society, pp.83 – 116
87. **Song Chung Rak** and Han Wan Kyun (1993), "Damage of Structures from Nearby Dynamic Compaction", Proceedings of Specialty Conference on Soil Dynamics, Korean Geotechnical Society, pp.55 – 71
88. **Song Chung Rak**, Paek Seung Hoon and Oh Da Young (1992), "Assessment of Consolidation Characteristics by Field Instrumentation", Proceedings of KGS fall '92 National Conference. pp.121 – 130
89. Han Young Chul and **Song Chung Rak** (1992), "Deposition Properties of Dredged Materials of Kun-Jang Industrial Complex", Proceedings of KGS fall '92 National Conference. pp.61 – 64
90. **Song Chung Rak**, Paek Seung Hoon and Yeoh Yoo Hyeon (1992), "Settling and Consolidation Properties of Hydraulic Fill Materials of Yeochun Industrial Complex", Proceedings of KGS fall '92 National Conference. Pp.55 – 60
91. **Song Chung Rak** and Yeoh Yoo Hyeon (1991), "Analysis of Field Settlement by Personal Computer", Proceedings of KGS fall '91 National Conference, pp.332 – 347
92. **Song Chung Rak**, Park Kwang Joon and Yoo Tae Sung (1991), "Assessment of Carsington Dam Failure", Proceedings of KGS Fall '91 National Conference, pp.87 – 102
93. **Song, C.R.**, Stokoe, K.H II, and Ni, S.H. (1989), "Use of torsional resonant column method to evaluate nonlinear dynamic properties of soil under repeated loads and anisotropic state," Proceedings of 11th IRF World Meeting, Apr. 16-21, Seoul, pp.217-220

Section 2.1.6 Numbered list (in reverse chronological order) of Conference Proceedings: Other than peer reviewed. Include full conference title, author names in order they appear on paper, dates of conference, location of conference, and page numbers (or number of pages).

1. Basil Abualshar and **Chung R. Song** (2023), “Parametric Study to Determine Hydrodynamics Input Parameters in Flow-3D-Hydro for Gravels in Nebraska,” June 6 – 9, EMI 2023, Georgia Tech. GA
2. Bashar Al-Nimri and **Chung R. Song** (2023), “ANN-Based Evaluation System for Erosion Resistant Highway Shoulder Rocks,” June 6 – 9, EMI 2023, Georgia Tech. GA
3. B. Abualshar and **C.R. Song** (2022), “Evaluation of the Equivalent D_{50} to Predict the Erodibility of Fine Riverbed Soils in Nebraska,” EMI2022, Columbia University, NY, NY
4. B. Bekele and **C.R. Song** (2022), “Identification of Dam Leakage through Hydro-thermal Coupled analysis and Distributed Temperature Sensing Method,” EMI2022, Columbia University, NY, NY
5. **C.R. Song** and B. Bekele (2020), “Numerical simulation of drained Piezocone penetration tests for saturated clayey soils to obtain strength of soils at residual-wet-drained condition,” EMI2019, CD-Rom, Caltech, CA
6. **C.R. Song**, L. Bitar² and B. Bekele³ (2020), “Reducing Soil Erosion by Biopolymers”, KGS-NA workshop, Zoom
7. **C.R. Song** and B. Bekele (2019), “Behavior of Saturated Cohesionless Soils to High Speed Cone Penetration,” EMI2019, CD-Rom, Caltech, CA
8. **C.R. Song** and B. Bekele³ (2019), “Numerical simulation of drained Piezocone penetration tests for saturated clayey soils to obtain strength of soils at residual-wet-drained condition,” EMI2019, Caltech, CA
9. **C.R. Song** and B. Bekele³ (2019), “Behavior of Saturated Cohesionless Soils to High Speed Cone Penetration,” EMI2019, Caltech, CA
10. Al-Ostaz, A., Cheng, A. H.-D., Mullen, C. and **Song, C.R.** (2009), “Aging Infrastructure: Evaluation, Repair, Improvement and Protection,” DHS Infrastructures Workshop; July 21-23, 2009 at Columbia University, New York, NY
11. Jinwon Kim² and **Chung R. Song** (2007), “Experimental Identification of Biot’s Characteristic Frequency for Loosely Packed Particulate Media,” *MAESC 2007*, MS, CD-Rom

Section 2.1.7 Numbered list (in reverse chronological order) of Conference Presentations and/or Posters. Include full conference title, author names in order they appear on presentation/poster, whether this is a presentation or poster session, dates of conference, and location of conference. Underline the name(s) of the presenter(s).

Note: the candidate should only indicate that they are the presenter if they are on the podium and help make the presentation and/or they are present during poster session to answer questions.

1. Basil Abualshar³, **Chung R. Song** and Bashar Al-Nimri³ (2024), “Investigating Hydrodynamic Input Parameters for a Non-Conventional Flow Scenario in Sediment Transport Modeling,” EMI, 2024
2. **Chung R. Song** and Bashar Al-Nimri³, (2024), Alex Silvey and Nikolas Glennie (2024), “Evaluation of Critical Shear Strength of Soils Based on Revised CPT,” 5th ICITG, 2024
3. **Chung R. Song** and Bashar Al-Nimri³ (2024), “Seasonally Fluctuating Strength of Soils in Mid-Western USA and CPT based Quantification Method,” EMI, 2024
4. Basil Abualshar³ and **Chung R. Song** (2023), “Parametric Study to Determine Hydrodynamics Input Parameters in Flow-3D-Hydro for Gravels in Nebraska,” June 6 – 9, EMI 2023, Flash Drive, Georgia Tech. GA
5. Bashar Al-Nimri³ and **Chung R. Song** (2023), “ANN-Based Evaluation System for Erosion Resistant Highway Shoulder Rocks,” June 6 – 9, EMI 2023, Flash Drive, Georgia Tech. GA
6. B. Abualshar³ and **C.R. Song** (2022), “Evaluation of the Equivalent D₅₀ to Predict the Erodibility of Fine Riverbed Soils in Nebraska,” EMI2022, Flash Drive, Columbia University, NY, NY
7. B. Bekele³ and **C.R. Song** (2022), “Identification of Dam Leakage through Hydro-thermal Coupled analysis and Distributed Temperature Sensing Method,” EMI2022, Flash Drive, Columbia University, NY, NY
8. **C.R. Song** and B. Bekele³ (2020), “Numerical simulation of drained Piezocone penetration tests for saturated clayey soils to obtain strength of soils at residual-wet-drained condition,” EMI2019, CD-Rom, Caltech, CA
9. **C.R. Song** and B. Bekele³ (2019), “Behavior of Saturated Cohesionless Soils to High Speed Cone Penetration,” EMI2019, CD-Rom, Caltech, CA
10. **C.R. Song** and B. Bekele³ (2019), “Numerical simulation of drained Piezocone penetration tests for saturated clayey soils to obtain strength of soils at residual-wet-drained condition,” EMI2019, CD-Rom, Caltech, CA
11. **C.R. Song** and B. Bekele³ (2019), “Behavior of Saturated Cohesionless Soils to High Speed Cone Penetration,” EMI2019, CD-Rom, Caltech, CA
12. **Song, C.R.**, Yosef², T.Y., R. Faller and K. Lechtenberg (2017), “Numerical Evaluation of Soil-Pile Interaction During Crash,” 2017 TRB, Computational Mechanics Simulation Forum
13. Nathan² T.M. and **Song C.R.** (2014), "Liquefaction Susceptibility of Soils in Desoto, Tate, and Tunica County, Mississippi", MAESC 2014

14. **C.R. Song**, A. Al-Ostaz and A.H.-D. Cheng, "Protection of Flood Protection System Using Multidisciplinary Countermeasures," 2012 ASCE-MS Section Conference, Biloxi, MS
15. **Song, Chung Rak** (2011), "Nano... in Civil Engineering," Civil Engineering, 59(9). 18-29 (invited article to Korean Civil Engineers Society)
16. Kidd² T., Hosey M., **Chung R. Song**, Ahmed Al-Ostaz and A.H.-D. Cheng (2011), "Design of Bentonite apron to mitigate the gap development for levees in New Orleans during flooding season," MAESC, Memphis, 2011
17. Adhikari³, S., **Song, C.R.**, Cheng, A.H.-D. and Al-Ostaz, A. (2011), "Incorporation of the anisotropic elastoplastic model in FLAC3D and its application in the numerical simulation of New Orleans Levees and Floodwall section," MAESC, Memphis, 2011
18. **Song C.R.**, Cheng A. H.-D and Al-Ostaz A. (2011) Hurricane Damage on Flood Protection System and Multidisciplinary Countermeasure." MAESC, Memphis, 2011
19. L.T. Wodajo², C.J. Hickey, **C.R. Song** and D. Wren (2011), "Use of Seismic Surveys for the Preliminary Investigation of Earthen Dams," MAESC, Memphis, 2011
20. Jinwon, Kim³ and **Chung R. Song** (2011), "Estimation of soil properties based on seismoelectric conversion," MAESC 2011, Memphis, TN
21. Won³, J. and **Song C.R.** (2009), "Three-Dimensional Analysis of T-type Floodwall in New Orleans," Mid-South Area Engineering Sciences Conference, Memphis, TN, May 5, 2009
22. Adhikari³, S. and **Song C.R.** (2009), "2-D Numerical Simulation of I-Wall for Retrofitting Design of Flood Protection Systems in New Orleans," Mid-South Area Engineering Sciences Conference, Memphis, TN, May 5, 2009
23. Jang³ W. and **Song C.R.** (2009), "Development of Erosion Resistant Levee Retrofitting Material," Mid-South Area Engineering Sciences Conference, Memphis, TN, May 5, 2009
24. Al-Ostaz, A., Cheng, A. H.-D., Mullen, C. and **Song, C.R.** (2009), "Aging Infrastructure: Evaluation, Repair, Improvement and Protection," DHS Infrastructures Workshop; July 21-23, 2009 at Columbia University, New York, NY
25. Adhikari³, S., **Song, C.R.**, Cheng, A.H.-D. and Al-Ostaz, A. (2009), "Evaluation of the Structural Cap for the integrated and the resilient flood wall system of New Orleans," Mississippi Branch American Society of Civil Engineers Conference, Vicksburg, MS
26. Jang³, W., **Song, C.R.**, Cheng, A.H.-D. and Al-Ostaz, A. (2009), "Developing Erosion Resistant Levee Materials and Estimation of Final Erosion Depth," Mississippi Branch American Society of Civil Engineers Conference, Vicksburg, MS
27. Won³, J., **Song, C.R.**, Cheng, A.H.-D. and Al-Ostaz, A. (2009), "Evaluation of the safety of T-type flood wall in New Orleans using three-dimensional numerical analysis," Mississippi Branch American Society of Civil Engineers Conference, Vicksburg, MS
28. Adhikari³, S., **Song, C.R.**, Cheng, A.H.-D. and Al-Ostaz, A. (2009), "Evaluation of structural cap for the integrated flood wall system of New Orleans," Stabilization of Buildings Workshop in ERDC organized by DHS

29. Adhikari³, S., **Song, C.R.**, Cheng, A.H.-D. and Al-Ostaz, A. (2009), “Evaluation of I-wall in New Orleans with calibrated soil parameters,” Stabilization of Buildings Workshop in ERDC organized by DHS
30. **Song, Chung Rak** (2009), “Hurricane Katrina – Geotechnical Aspects of Failure Mechanisms, Geotechnical Engineering Magazine by Korean Geotechnical Society (Invited Manuscript), May. 2009
31. **Song Chung Rak** (2008), “Pure Blood and Fused Blood in Geotechnical Engineering,” Geotechnical Engineering Magazine by Korean Geotechnical Society (Invited Article), Aug. 2008
32. Duddu², L., Hickey, C.J., and **Song, C.R.**, “Seismic refraction tomography of a small earthen dam,” Mid-south Area Engineering and Science Conference Oxford, MS , May, 2007.
33. Jinwon Kim² and **Chung R. Song** (2007), “Experimental Identification of Biot’s Characteristic Frequency for Loosely Packed Particulate Media,” *MAESC 2007*, MS, CD-Rom

Section 2.1.8 Numbered list (in reverse chronological order) of Invited talks or Keynote Speeches. Indicate title of presentation, location, sponsor, and date.

1. **Song, C.R.** (2022), “Construction of an Artificial Island, Ground Improvement and Sensors”, Civil Engineering Chamber of Commerce, City of Uludag, Uludag, Turkey, Dec. 8, **Invited Talk**
2. **Song, C.R.** (2021), “Coupled Mechanics in Geotechnical Engineering”, GI-KGS joint workshop, Charlotte, NC, **Invited Talk**.
3. **Song, C.R.** (2021), “Strength reduction of soils in Mid-Western states and slope stability”. U.S.-Korea Geotechnical Workshop, Omaha, Nebraska, **Invited Talk**
4. **Song, C.R.** (2019), “Multiphysics and multiscale approach in Geotechnical Engineering,” U.S.-Korea Geotechnical Workshop, Athens, Georgia, **Invited Talk**
5. **Song, C.R.**, Woods, R. and Wittich, C. (2018), “Identification of slope movement based on surface LiDAR and surface imagery technique,” 53rd Annual Shallow Exploration Drillers Clinic, La Vista, Nebraska, **Invited Talk**
6. Seunghye Kim, **Chung R. Song** and Jongwan Eun (2017), “Hydro-thermo-chemico-kinetico-elasto-plastic coupled relations for soils,” EMI2017, **Keynote speech** for Multiphysics and Multiscale Modeling of Engineering Materials, June 6, 2017
7. **Chung R. Song** and Tewodros Y. Yosef² (2016), “Seepage Monitoring of an Embankment Dam Based on Hydro-Thermal Coupled Analysis,” Multi-Physical Solutions for Harsh Environments: **Invited Talk**, Computations and Experiments, International Symposium in honor of Professor George Z. Voyiadjis, Mar. 22, Seoul, Korea

8. **Chung R. Song**, Alexander, H.-D. Cheng and Ahmed Al-Ostaz (2013), “Lessons Learned from Hurricane Katrina and Retrofitting Efforts Afterward,” 2013 KGS Conference, **Keynote speech**
9. **Chung R. Song** (2013), “Lessons Learned from Hurricane Katrina and Retrofitting Efforts Afterward,” Korea Institute of Construction Technology, **Invited Talk**
10. **Chung R. Song** (2013), “Nanomechanics based multi-scale mechanics to mitigate high speed penetration objects,” Korea Institute of Construction Technology, **Invited Talk**
11. **C.R. Song** (2013), “Erosion Evaluation of Levee Soils,” GS Construction, Seoul Korea, **Invited Talk**
12. **C.R. Song** (2013), “Multi-scale Mechanics in Civil Engineering,” Hanyang University, Seoul Korea, **Invited Talk**
13. **C.R. Song** (2013), “Multi-scale Mechanics in Civil Engineering,” Korea Railway Research Institute, University, Seoul Korea, **Invited Talk**
14. Cheng A. H.-D., **Song C.R.** and Al-Ostaz, A. (2012), “Structural, Material, and Geotechnical Solutions to Levee and Floodwall Construction”, 2012 Dams Sector Research and Development Workshop, USACE, Vicksburg, MS, **Invited Talk**
15. **C.R. Song** (2011), "Design of Intelligent Levee Monitoring System," Advanced ICT for Flood and River Management, June 17, Seoul, Korea, **Invited Talk**
16. **Chung R. Song** (2010), "Facts and Fictions in Instrumentation for Civil Engineering," North Mississippi ASCE Meeting, Dec. 2010, **Invited Talk**
17. **Chung R. Song**, Alexander, H.-D. Cheng and Ahmed Al-Ostaz (2009), “Lessons Learned from Hurricane Katrina and Retrofitting Efforts Afterward,” ASCE North Mississippi Section, **Invited Talk**
18. **Chung R. Song** (2005), “Geotechnical Engineering for Difficult Ground Conditions,” ASCE North MS Conference, **Invited Talk**
19. **Chung R. Song** (2001), “Micro-Geotechnical Engineering,” Jungang University, Seoul, Korea, **Invited Talk**
20. **Chung R. Song** (1996), “Field Instrumentation,” Korea Geotechnical Society, Seoul, Korea, **Invited Talk**
21. **Chung R. Song** (1996), “Soft Soil Engineering,” Yonsei University, Seoul, Korea, **Invited Talk**
22. **Chung R. Song** (1996), “Field Instrumentation,” Yonsei University, Seoul, Korea, **Invited Talk**
23. **Chung R. Song** (1995), “Field Instrumentation,” Jungang University, Seoul, Korea, **Invited Talk**
24. **Chung R. Song** (1993), “Soft Soil Engineering,” Korea Geotechnical Society, Seoul, Korea, **Invited Talk**

Section 2.1.9 Numbered list (in reverse chronological order) of Other Publications

Poster Sessions

1. Basil Abualshar³, Bashar Al-Nimri³ and **Chung R. Song** (2023), “UNLETB and Erosion Resistance of Highway Shoulder Gravels,” Feb. 10, Poster, GeoOmaha2023, NE
2. Basil Abualshar³ and **Chung R. Song** (2022), “Erosion Analysis of Riverbed Soils in Nebraska,” Student Presentation and Poster, GeoOmaha2022, NE
3. Binyam M. Bekele³ and **Chung R. Song** (2022), “Detection of dam leakage using fiber optic sensing technique,” Student Presentation and Poster, GeoOmaha2022, NE
4. Binyam Bekele³ and **Chung Song** (2019), “Pore Pressure Response of Overconsolidated Soils in a Partially Drained Piezocone Penetration Test,” Student Presentation and Poster, GeoOmaha2019, NE
5. **Chung R. Song**, Gyunam Jin, Binyam³, M. Bekele, Brian² D. Sawyer and Mark Lindemann (2018), “Fast Estimation of Hydraulic Conductivity for Overconsolidated Soils Using Piezocone Results,” Student Presentation and Poster Presentation, GeoOmaha2018, NE
6. Brian² Sawyer and **Chung Song** (2018), “Distributed Fiber Optics for Landslide Monitoring,” Student Presentation and Presentation, GeoOmaha2018, NE
7. **Chung R. Song** and Hossein² Bahmyari (2018), “Slope Stabilization and Remediation in Overconsolidated Soils in Nebraska,” Student Presentation, GeoOmaha2018, NE
8. S. Adhikari² and **Chung Song** (2009), “Two dimensional numerical simulation of I-wall for retrofitting design of flood protection systems in New Orleans,” 2009 DHS University Network Summit Annual Student Poster Competition, Washington D.C.
9. W. Jang² and **Chung Song** (2009), “Development of Erosion Resistant Levee Retrofitting Material,” 2009 DHS University Network Summit Annual Student Poster Competition, Washington D.C.

Section 2.2 Research Funding Record

In Appendix B, include a copy of the project summary page from NUGrant and a copy of the award notification with SAP WBS Account Number (if funded). These documents should be in the same order as listed in Sections 2.2.1, 2.2.2 and 2.2.3.

Note 1: When calculating the percent attributable to the candidate, there are three potential scenarios as listed below:

1. *If this is a subgrant to a larger grant that is housed at an institution other than UNL, indicate whether the candidate is a PI or Co-PI on the larger grant (as listed on the proposal or in the sponsoring agencies' files). Indicate the amount of the subgrant to UNL and the percent of the total amount of the grant attributable to the candidate.*
2. *If this grant includes subgrants to other universities/research entities indicate the total amount of the grant, the amount of the subgrant to each university, the co-PI at each university/research entity, and the*

percent of the total amount of the grant attributable to the candidate.

3. *If neither case 1 nor case 2 applies, list the percent of the total amount attributable to the candidate. The percent attributable to the candidate should follow the information in NUGrant. If it does not, the candidate should provide an explanation.*

Note 2: When indicating the candidate’s role on the project (PI, Co-PI, researcher, etc), please use information from the sponsoring agency. For example, a candidate should only list themselves as the PI of a grant if the sponsoring agency recognizes the candidate as the PI.

Note 3: If the grant is run through the National Strategic Research Institute (NSRI), please also indicate the total amount of the contract, the amount of NSRI overhead charges, and the amount of funding sent to UNL

Note 4: If there are questions related to any of the above concepts (e.g. percent attributable, total amount of contract) please work with your unit committee and unit head to obtain written guidance on how to proceed.

Section 2.2.1 Numbered list (in reverse chronological order) of Internally Funded Research Grants. Include the title of the project, funding agency, dates of project, PI and Co-PI’s, sponsor amount, UNL Cost share amount, total amount, amount attributable to you (as listed in NUGrant), SAP WBS Account Number.

For each project provide a short, one paragraph description of the project.

Please provide a summary table at the beginning of this section, similar to following:

<i>Project Title</i>	<i>Sponsor</i>	<i>Role (PI or Co-PI)</i>	<i>Dates</i>	<i>Total Amount (do not include UNL cost share)</i>	<i>% Attributed to Candidate (do not include UNL cost share)</i>
<i>None</i>					

a. University of Nebraska
None

b. University of Mississippi

“Construction of design chart for determination of hydraulic conductivity using pore pressure response of soils” – Complete, PI, UM, \$7,416, Jan. 2005 – Dec. 2005.

Project Description: This research extends the work of Voyiadjis and Song (2010) for easy application to real world geotechnical design. Extensive numerical analysis and

easy-to-use simplified equations obtained from this study enabled engineers to determine the hydraulic conductivity of soils “on-the-fly” using Piezocone Penetration Tests.

Section 2.2.2 Numbered list (in reverse chronological order) of Externally Funded Research Grants. Include the title of the project, funding agency, dates of project, PI and Co-PI’s, sponsor amount, UNL Cost share amount, total amount, amount attributable to you, SAP WBS Account Number.

For each project provide a short, one paragraph description of the project.

a. University of Nebraska

Summary: Total Amount: \$11,751,106 Chung Song’s Total Contribution: \$2,067,174

<i>Grant Title</i>	<i>Sponsor</i>	<i>Role (PI or Co-PI)</i>	<i>Dates</i>	<i>Total Amount (do not include UNL cost share)</i>	<i>% Attributed to Faculty (do not include UNL cost share)</i>
Crash Testing of Various Bridge Guardrails, Transitions, and Other Highway Safety Features - Phase III (additional)	Hawaii DOT	Senior Researcher	7/7/2024	201,151	5
Evaluation of Critical Shear Strength of Soils in Nebraska Based on Revised CPT	NDOT	PI	7/1/2023	158,705	70
Application of Cementitious Materials and Fiber Reinforcement to Enhance Lime Stabilization for Nebraska Shale Soils	NDOT	Co-PI	7/1/2022	142,129	15
Enhancing Erosion Resistance of Rock Shoulder by Considering Hydrodynamics (Award letter missing)	MATC	PI	10/1/2021	97,353	80
Erosion Resistant Rock Shoulder	NDOT	PI	7/1/2021	142,907	82
Erosion Resistant Rock Shoulder-Ext	NDOT	PI	7/12/2023	5,060	100
Application of Steel Sheet-Piles for the Abutment of Water-	NDOT	Co-PI	7/1/2021	155,304	15

Crossing Bridges in Nebraska					
Crash Testing of Various Bridge Guardrails, Transitions, and Other Highway Safety Features - Phase III	Hawaii DOT	Senior Researcher	12/13/2021	2,369,485	4
Assessing Performance of Geosynthetic Reinforced Pavement with a Large-Scale Track Wheel Test and Nondestructive Testing Tools (Award letter missing)	MATC	Co-PI	10/1/2020	135,000	10
Crashworthy Foundations for Soil-Embedded Roadside Safety Hardware (Award letter missing)	MATC	Co-PI	9/1/2020	122,152	20
Crash Testing of Various Bridge Guardrails and Transitions, Phase II	Hawaii DOT	Senior Researcher	1/7/2020	2,100,000	16
Evaluation of Light Pole Foundation Embedment	AkDOT	Co-PI	6/8/2020	248,261	17
High-Mast Tower Foundation	NDOT	Co-PI	7/1/2019	47,196	25
Biopolymerized slope/subgrade stabilization and advanced field monitoring	NDOT	PI	7/1/2019	124,386	74
Data-Driven Prioritization and Empirical Predictions for Bridge Scour in Nebraska	NDOT SPR-P1(20) M104	Co-PI	7/1/2019	115,662	20
31-in. Midwest Guardrail System (MGS) and Curb Combination Guidelines for MASH TL-3	DOT-FHWA	Senior Researcher	7/3/2019	600,000 (Sum of 2 phases = 2 letters)	5
NYSDOT-MASH-1: MASH 2016 Safety Hardware Evaluations-	NYDOT	Senior Researcher	3/12/2019	3,228,715	20

Phase I System C1 and C3				(Sum of 3 phases =3 letters)	
Design Optimization and Monitoring of Joint-less Integral and Semi-integral Abutment Bridges in Nebraska	NDOT	Co-PI	7/1/2017	142,312	10
Design Optimization and Monitoring of Joint-less Integral and Semi-integral Abutment Bridges in Nebraska-Ext	NDOT	Co-PI	7/1/2018	25,375	20
Crash Testing of Various Bridge Guardrails and Transitions	Hawaii DOT	Senior Researcher	10/22/2020	709,563	8
NSF BD Spokes: Medium: Midwest: Smart big data pipelines for Aging Rural Bridge Transportation Infrastructure (SMARTI)	NSF	Senior Person	9/13/2018	476,933 (Sum of 3 phases)	7
CPT Based Pile Design	NDOT	PI	7/1/2017	105,846	70
Application of LiDAR for South Dakota DOT	SDDOT	Co-PI	9/1/2016	74,999	7
Piezocone Penetration Testing Device	NDOT	PI	7/1/2016	89,882	100
Nebraska Specific Slope Design Manual	NDOT	PI	7/1/2016	121,118	80
Nebraska Specific Slope Design Manual-Ext	NDOT	PI	5/1/2018	11,612	100

Short, one paragraph description of the project

1. “Crash Testing of Various Bridge Guardrails, Transitions, and Other Highway Safety Features - Phase III (additional)”, Ron Faller and 8 co-PI and senior persons, Senior person, Hawaii DOT, Amount Attributable to Chung Song 5%, Ending Date: Jul. 7, 2024
2. “Evaluation of Critical Shear Strength of Soils in Nebraska Based on Revised CPT”, Chung R. Song, Jongwan Eun and Seunghee Kim, Total Amount \$158,705, Amount Attributed to Chung Song, 70%, July 1, 2023 to May 31, 2025

Project Description: Shear strength of soils in Nebraska shows substantial strength decrease during wet seasons. And there is no rational scientific way to evaluate this critical strength. This research aimed to evaluate this critical strength of soils from tests conducted during dry seasons.

3. “Application of Cementitious Materials and Fiber Reinforcement to Enhance Lime Stabilization for Nebraska Shale Soils”, Jongwan Eun, Seunghee Kim and Chung R. Song, Total Amount \$141,509, Amount Attributable to Chung Song 15%, July 1, 2021 to May 31, 2023

Project Description: This study evaluates the effectiveness of fiber reinforcement in the lime stabilization for Nebraska Shale soils. The fiber is expected to bring extra tensile strength and bending resistance providing improved strength and deformation performance.

4. “Enhancing Erosion Resistance of Rock Shoulder by Considering Hydrodynamics”, Chung Song, Richard Wood, MATC, \$97,353, Amount Attributable to Chung Song 80%, Oct.1, 2021 to Feb. 2023

Project Description: The effects of hydrodynamics characteristics of aggregates on are not clearly researched even in modern days. This study conducted hydrodynamics parameter research, large scale experimental research and derived an AI(Artificial Intelligence) based method to obtain hydrodynamic parameters conveniently.

5. “Erosion Resistant Rock Shoulder”, Chung Song and Richard Wood, NDOT, \$142,907, Amount Attributable to Chung Song 80%, July, 1, 2021 to May 31, 2023

Project Description: Erosion resistance of highway shoulder gravels was studied with hydrodynamics based numerical analyses and UNLETB-based experimental results. From the result, the erosion characteristics of those gravels were quantified. In addition, erosion resistance gradations were identified for field applications.

6. “Application of Steel Sheet-Piles for the Abutment of Water-Crossing Bridges in Nebraska” Seunghee Kim, Jongwan Eun, Chungwook Sim, and Chung Song, NDOT, Total Amount \$154,314, Amount Attributable to Chung Song 15%, July, 1, 2021 to May 31st, 2023

Project Description: The possibility of utilizing steel sheet piles was evaluated through theoretical, numerical, and experimental research. These multipronged research results well agreed with each other, demonstrating the possibility of utilizing the sheet piles as foundation members for bridge abutment.

7. Assessing Performance of Geosynthetic Reinforced Pavement with a Large-scale Track Wheel Test and Nondestructive Testing Tools”. Jongwan Eun, Chung Song and

Seunghee Kim, NTC, Total Amount \$270,000 (UNL\$135,000), Amount Attributable to Chung Song 10%, Oct. 1, 2020 to Feb. 26, 2022

Project Description: Performance of geosynthetic reinforced pavement was evaluated with the reciprocal loading wheel system. The test and theoretical results agreed well, presenting the possibility of utilizing geosynthetics for reinforcing pavement

8. Evaluation of Light Pole Foundation Embedment”, Joshua Steelman and 6 co-PIs, \$248,261, AkDOT, Amount Attributable to Chung Song 17%, Sept. 1, 2020 to Feb. 28, 2022

Project Description: Crash worthiness of light pole foundations under the authority of AkDOT was tested and evaluated. The rational embedment depth and specification of light poles were recommended.

9. “Crashworthy Foundations for Soil-Embedded Roadside Safety Hardware”, Joshua Steelman and 6 co-PI’s, \$122,152.23, Amount Attributable to Chung Song 16%, Oct. 1, 2020 to Feb. 28, 2022

Project Description: Foundation hardware embedded in soils was tested for crashworthiness.

10. “Spokes: Medium:Midwest: Smart Big Data Pipeline for Aging Rural Bridge Transportation Infrastructure (SMARTI)”, Chungwook Sim and 10 senior persons, \$123,849, Amount Attributable to Chung Song 7%, Sept. 1, 2020 to Aug. 31, 2021

Project Description: Big data-based approach was applied to assess rural bridges.

11. “Crash Testing of Various Bridge Guardrails and Transitions, Phase II”, Ron Faller and 8 co-PI and senior persons, Senior person, Hawaii DOT, Total Amount \$2,100,000, Amount Attributable to Chung Song 16%, Jan. 2, 2020 to Dec. 31, 2021

Project Description: Crash worthiness of various bridge guardrails and transitions was tested and evaluated.

12. “Biopolymerized slope/subgrade stabilization and advanced field monitoring”, Chung R. Song (PI), Yong-Rak Kim, Richard L. Wood and Jongwan Eun, NDOT, Total Amount \$123,386, Amount Attributable to Chung Song 74%, Jul. 1, 2019 - 12/31/2020

Project Description: Several different biopolymers such as Xanthan were applied to soils in the lab and in the field. Some polymers such as Xanthan showed very low strength degradation while some other biopolymers showed unacceptably high strength degradation.

13. “Data-Driven Prioritization and Empirical Predictions for Bridge Scour in Nebraska”, Richard L. Wood, Christine E. Wittich, June Guo and Chung R. Song (co-PI), NDOT,

Total Amount \$115,662, Amount Attributable to Chung Song 20%, Jul. 1, 2019 - 12/31/2020

Project Description: Bridge scour was measured by UAV for four rivers in Lincoln area. The erosion characteristics were analyzed, and empirical erosion prediction methods were derived.

14. “High-Mast Tower Foundation”, Chungwook Sim, Chung R. Song (co-PI), Brandon Kreiling, and Jay Puckett, NDOT, Total Amount \$47,149, Amount Attributable to Chung Song 25%, Jul. 1, 2019 - Dec. 3, 2020

Project Description: High-Mast tower foundations were analyzed for lateral load, based numerical analysis and LPILE, and design guide for lateral piles was provided.

15. “31-in. Midwest Guardrail System (MGS) and Curb Combination Guidelines for MASH TL-3”, Scott Rosenbaugh and 8 Co-PI’s, DOT-FHWA, Total Amount \$600,000, Amount Attributable to Chung Song 5%, Jul. 3, 2019 - Jun. 2, 2022

Project Description: MSG and CCG for MASH TL-3 were crash tested and results were reported.

16. “NYSDOT-MASH-1: MASH 2016 Safety Hardware Evaluations-Phase I System C1 and C3”, Karla Lechtenberg and 6 others, NY DOT, Total Amount \$3,228,715, Amount Attributable to Chung Song 20%, Mar. 12, 2019 – Aug. 31, 2020

Project Description: Roadside safety hardware for NY city was crash tested.

17. “Nebraska Specific Slope Design Manual – Extension”, Chung R. Song (PI), Yong-Rak Kim, Total Amount \$11,612.70, Amount Attributable to Chung Song 100%, Jul. 1, 2017 - 12/31/2018

Project Description: Nebraska soils have a unique geological history – Eastern part has fluvial soils, West of Lincoln has marine deposits, while Mid-West and Far-West has mostly young fluvial deposits. Therefore, various slope design methods were proposed in this research.

18. “Design Optimization and Monitoring of Joint-less Integral and Semi-integral Abutment Bridges in Nebraska” – Starting from Jul. 1, 2018, Chungwook Sim(PI), Jongwan Eun(Co-PI), Seunghee Kim(Co-PI) and Chung Song(PI), NDOT, Total Amount \$142,312, Amount Attributable to Chung Song 10%, Jul. 2017 – Dec. 2019

Project Description: Design optimization of joint-less (full) integral bridge and semi-integral bridge was analyzed and compared.

19. “Crash Testing of Various Bridge Guardrails and Transitions”, Ronald Faller (PI) and 12 co-PI’s, Hawaii DOT, Total Amount \$709,563, Amount Attributable to Chung Song \$8%, 1.5 years. Oct. 22, 2020 – Apr. 24, 2020

Project Description: Various bridge guardrails and transitions were tested and analyzed for Hawaii DOT.

20. “NSF BD Spokes: Medium: Midwest: Smart big data pipelines for Aging Rural Bridge Transportation Infrastructure (SMARTI)”, NSF, 09/01-2018-08/31/2020, Chungwook Sim (PI), 9 other co-PI’s and senior persons, Requested Amount \$353,084, Attributable to Chung Song 7%, Sept. 13, 2018 - Aug. 31, 2020

Project Description: The behavior of aging rural bridges was analyzed by big data.

21. “CPT Based Pile Design” – Starting from Jul. 1, 2017, Chung R. Song (PI) and Seunghee Kim (co-PI), NDOR, Cost Share \$0, Total Amount \$104,425, Amount Attributed to C. R. Song 70%, Jul. 2017 - Dec. 2018.

Project Description: CPT testing mechanism is similar to the mechanism of pile load test. This study develops a technique to estimate the bearing capacity of piles from CPT data which NDOR has accumulated for last several years, expecting that more accurate and easy prediction of pile bearing capacity is possible. The verification of the CPT based technique was conducted based on the comparison with NDOR’s PDA data.

22. “Application of LiDAR for South Dakota DOT”, South Dakota DOT, Richard Wood (PI), Yong-Rak Kim (co-PI) and Chung R. Song (co-PI), Cost Share \$0, Total Amount \$74,999, Amount Attributed to C. R. Song 7%, Sept. 2016 – Dec. 2017.

Project Description: LiDAR increases cost- and time-efficiency by producing a point cloud, a set of three-dimensional vertices in spaces, that can detect infrastructure damage and features with an accuracy as low as sub-inch levels. This study identified applications of interest including (1) preliminary site surveys for road design; (2) vertical clearance surveys of structures (bridges and tunnels); and (3) roadway geometry and safety analysis. Dr. Song’s work in this research is the prediction of slope stability based on the topography and deformation data obtained from LiDAR.

23. “Piezocone Penetration Testing Device”, NDOR, C.R. Song (PI), Cost Share \$0, Total Amount \$89,882, Amount Attributed to C.R. Song 100%, Jul. 2016 – Dec. 2017.

Project Description: Infusing Song and Pulijala (2008)’ analytical method into the current Piezocone Penetration Testing system of NDOR made it possible to obtain real-time estimation of hydraulic conductivity of soils. Ultimately, the current NDOR’s piezocone system, the efficiency of the piezocone penetration testing device will be significantly improved with no or very little additional cost.

24. “Nebraska Specific Slope Design Manual”, NDOR, C.R. Song (PI), Yong Rak Kim (co-PI), Cost Share \$0, Total Amount \$121,118, Amount Attributed to C.R. Song 80%, Jul. 2016 – Dec. 2017.

Project Description: Slope failure in Nebraska is concentrated in east and northeast regions. Therefore, a Nebraska specific slope design standard/manual based on the detailed consideration of local geological and geotechnical conditions was developed. This result of this study has a potential to provide a Nebraska specific slope design, maintenance, and retrofitting standard/manual so that Nebraska’s slopes are safer and more economic to maintain.

b. University of Mississippi

Total Amount: \$3,253,649

Chung Song’s Total Contribution: \$1,668,258

Grant Title	Sponsor	Role (PI or Co-PI)	Dates	Total Amount (do not include UNL cost share)	% Attributed to Faculty (do not include UNL cost share)
Development of a Traffic Noise Barrier Using Active Noise Reduction Technique	EnE Corp	PI	7/1/2013	153,644	100
Developing a Technique for Real Time Dam Safety Evaluation and Field Feed-Back	Rural Research Institute	PI	7/1/2013	28,000	100
Earthquake and Piping Hazard Assessment for DeSoto” Tunica, Coahoma and Tate County, Mississippi	MEMA/MMRI	PI	4/1/2011	39,893	100
Nano-Enhanced and Bio-Inspired Composite Materials for Mitigation and Protection of TIH railcars and	DHS/SE RRI	Co-PI	5/1/2010	1,001,970	20

Stationary Tanks against High Power Impact					
Structural, Material, and Geotechnical Solutions to Levee and Floodwall Construction and Retrofitting	DHS/SE RRI	PI	11/1/2007	1,959,537	60
Real time estimation of soil permeability using Piezocone Penetration Test	Korea Land and Housing Corp/Bytech Korea	PI	11/1/2004	50,000	100
Estimation of hydraulic conductivity using acoustic techniques	Bytech Korea	PI	7/8/2004	20,605	100

1. “Development of a Traffic Noise Barrier Using Active Noise Reduction Technique” – Complete, PI, EnE Construction Co. Ltd. \$153,644, Amount Attributable to Chung Song 100%, Jul. 2013 – Jun. 2016.

Project Description: Active noise cancellation technique is used to control construction noise which includes traffic noise, tunnel blasting noise and industrial fan noise. Analytical time delay techniques as well as DSP based transfer functions are developed. Active noise cancellation technique showed minimum 5dB noise reduction for Fan noise and traffic noise, but it did not show noise reduction for tunnel blasting noise.

2. “Developing a Technique for Real Time Dam Safety Evaluation and Field Feed-Back” – Complete, PI, Rural Research Institute of Korea Rural Community Corporation, \$28,000, Amount Attributable to Chung Song 100%, Jul. 2013 – Nov. 2013.

Project Description: Small agricultural dams are typically neglected in dam maintenance program. This research investigated the viable but economic options for maintenance and safety evaluation of agricultural dams in Korea. In addition, a master plan for the dam instrumentation system is designed.

3. “Earthquake and Piping Hazard Assessment for DeSoto” Tunica, Coahoma and Tate County, Mississippi – Complete, PI, MEMA/MMRI, \$39,893, Amount Attributable to Chung Song 100%, Apr. 2011 – Apr. 2014.

Project Description: Four named counties in North West Mississippi are close to New Madrid Fault. It also has a history of continuous minor tremor. This report evaluated the liquefaction potential of sandy soils in these four counties based on recorded earth quake data and CPT data. For areas susceptible to liquefaction, proper ground improvement technique is designed.

4. “Nano-Enhanced and Bio-Inspired Composite Materials for Mitigation and Protection of TIH railcars and Stationary Tanks against High Power Impact” – Complete, Co-PI, DHS/SERRI, \$1,001,970.00, Amount Attributable to Chung Song 20%, May, 2010 to May, 2012.

Project Description: Due to the emerging IED (Improvised Explosion Device), nation’s railcars are in need of additional protection. By increasing the thickness of the steel plate, the weight of railcars becomes too heavy and leaves little room for pay load. This study addressed how to protect railcars using new composite-based materials. This research found the solution through extensive numerical analysis, multi-scale analysis and experiment.

5. “Structural, Material, and Geotechnical Solutions to Levee and Floodwall Construction and Retrofitting” - Complete, PI, DHS/SERRI, \$1,959,537.00, Amount Attributable to Chung Song 60%, Nov. 2007 – Dec. 2010.

Project Description: The levees and floodwalls in New Orleans failed by Hurricane Katrina. This research investigated the triggering mechanism of the failure so that effective but economic retrofitting solutions are found. Throughout extensive numerical analysis and tests, several different triggering mechanisms are found, and readily applicable retrofitting techniques are designed.

6. “Real time estimation of soil permeability using Piezocone Penetration Test” – Complete, PI, Korea Land and Housing Corp/Baytech Korea, \$50,000, Amount Attributable to Chung Song 100%, Nov. 2004 to Dec. 2007.

Project Description: Based on the partially drained concept for field soils, the pore pressure response from the Piezocone Penetration Test is the function of the permeability of soils as well as other parameters. Back-calculation from the measured pore pressure response of soils, therefore, will present the permeability of the soils. This study conducted the finite strain numerical analysis and derived simplified equations to predict the permeability of soils from Piezocone Penetration Test.

7. “Estimation of hydraulic conductivity using acoustic techniques” - Complete, PI, Baytech Korea, \$20,605, Amount Attributable to Chung Song 100%, Jul. 2004 – Jun. 2005.

Project Description: Acoustic wave agitates solid grains in soils, which induces relative motion between solid grains and water for the case of saturated soils. This relative motion

causes low level dynamic flow in soils. The characteristic of this dynamic flow varies depending on the agitation frequency. This research used Biot's equation of dynamic motion and found the permeability of soils using the characteristic frequency.

Section 2.2.3 Numbered list (in reverse chronological order) of External Research Grants that have been submitted through the University of Nebraska-Lincoln Office of Sponsored Programs. Include the title of the project, funding agency, dates of project, PI and Co-PI's, sponsor amount, UNL Cost share amount, total amount, amount attributable to you, and date of submission.

Section 2.2.4 Numbered list (in reverse chronological order) of External Research Grants that have been submitted through other institutions. Include the title of the project, where the proposal was submitted (e.g. university x, consulting company y), funding agency, dates of project, PI and Co-PI's, sponsor amount, UNL Cost share amount, total amount, amount attributable to you, and date of submission.

Section 2.2.5 Numbered list (in reverse chronological order) of External Research Grants Submitted through the University of Nebraska Lincoln Office of Sponsored Programs but not Funded. Include the title of the project, funding agency, dates of project, PI and Co-PI's, sponsor amount, UNL Cost share amount, total amount, amount attributable to you, and date of submission.

1. "Seasonal Bank Erosion – NDOT", NDOT, Co-PI, \$148,788, Amount Attributable to Song 17%, July 1, 2024 – 5/28/2026
2. "Value generation from dredged materials by applying noble compaction and calcination methods", ERDC, PI, \$351,882, PI, Amount Attributable to Song 53%, Submission was not successful due to the internet issue, Aug. 24, 2023
3. "Critical Shear Strength of Soils in Nebraska", NDOT, PI, \$150,657, Amount Attributable to Song 70%, July 1, 2021 – May 31, 2023
4. "BRITE Synthesis: Bridging Distributed Temperature Sensing Method and Hydro-Thermal Coupled Mechanism for Water Retention Structures", NSF, PI, \$262,419, amount Attributable to Song 90 %, Jan. 1, 2020 – Dec. 31, 2023
5. "Geotechnical Asset Management for Slopes", WisDOT, PI, \$149,464, Amount Attributable to Song 60%, Oct. 1, 2020 – Sept. 30, 2022
6. "Ground Truth Research for the Hydro-thermal Coupled Approach for Evaluating Integrity of Levees and Earthen Dams", NSF, PI, \$209,619, Amount Attributable to Song 70%, Sept. 1, 2020 - Aug.31,2022
7. "Ground Truth Research for the Hydro-Thermal Coupled Approach for Evaluating Integrity of Levees and Earthen Dams", NSF, PI, \$210,248, Amount Attributable to Song 70%, Sept. 1, 2020 - Aug. 31st, 2022

8. "Evaluation of Concrete Pavement Buckling in Wisconsin", WisDOT, co-PI, \$199,998, Amount Attributable to Song 20%, Oct. 1, 2019-Sept. 30, 2021
 9. "Pilot Project: Verification of measuring technique for critical strength of problematic soils with innovative penetration and injection device", Research Council: Faculty Seed Grants, PI, \$8,740, Amount Attributable to Song 100%, Jan. 2019 – Dec. 2020
 10. "Verification of Hydro-Thermo-Mechanically coupled analysis in diagnosing integrity of levees and earthen dams from temperature profile", Layman award, PI, \$9,800, Amount Attributable to Song 100%, Jan. 1, 2017 – Apr. 20, 2017
 11. "Estimation of Methane Emissions Based on Cone Penetration Test (CPT) with Membrane Interface Probe (MIP) and Hydraulic Profiling Tool (HPT)", Jongwan Eun (PI), Chung R. Song (co-PI) and Tian Zhang (co-PI), Amount Attributable to Song 15%, EREF, \$141,250, (pre-proposal)
 12. "Acquisition of Multipurpose High-Speed Digital Image Correlation Vision System for Shock Wave Research on Structures and Materials in Multiscale", Nebraska EPSCoR-MRI, D. Linzell (PI), C. Sim, Y.R. Kim, C. R. Song, C. Tuan, R. Feng and M. Negahban, Total Amount \$306,700, Amount Attributable to Song 10%.
 13. "Procurement of Self-Boring Pressuremeter", Nebraska EPSCoR-MRI, C.R. Song (PI), R. Faller and Y.R. Kim, Total Amount \$157,792, Amount Attributable to Song 30%.
 14. "Development of Active Noise Cancellation Technique to Control Traffic Noise", Chung R. Song (PI, 70%) and Erica Ryherd (co-PI), NDOR, \$128,835, Amount Attributable to Song 100%.
 15. "Ground Truth Research for the Hydro-thermo-mechanically Coupled Approach for Evaluating Integrity of Levees and Earthen Dams from Full Depth Temperature Profile", NSF, \$248,245, Chung R. Song (PI, 48%), Jongwan Eun (co-PI, 26%) and Seunghee Kim (co-PI, 26%), Amount Attributable to Song 60%.
 16. "Monitoring Lateral Earth Pressure and Movements of Cut Retaining Walls," WHRP WisDOT, Jongwan Eun (PI), Chung Song (Co-PI), Chungwook Sim (Co-PI) Sponsor Amount \$150,000, Amount Attributable to Chung Song (25%), 10/1/2017-03/31/2019
 17. "Mechanically Stabilized Earth (MSE) Wall Backfill Water Infiltration," WHRP WisDOT, Jongwan Eun (PI), Chung Song (Co-PI), Amount \$149,988, Total Amount \$149,988, Amount Attributable to Chung Song 40%, 10/1/2017-03/31/2019
 18. "Acquisition of Multipurpose High-Speed Digital Image Correlation Vision System for Shock Wave Research on Structures and Materials in Multiscale", Nebraska EPSCoR-MRI, D. Linzell (PI), C. Sim, Y.R. Kim, C. R. Song, C. Tuan, R. Feng and M. Negahban, , Total Amount \$306,700 , Amount Attributable to Song 10%.
- Section 2.2.6 Numbered list (in reverse chronological order) of External Research Grants Submitted through other entities but not Funded. Include the title of the project, where the proposal was submitted (e.g. university x, consulting company y),

funding agency, dates of project, PI and Co-PI's, sponsor amount, UNL Cost share amount, total amount, amount attributable to you, and date of submission.

None

Section 2.3 Other (Non-Research) Funding Record

This section describes funding that does not directly apply to scholarly research, such as equipment used for teaching, travel grants, etc.

Note 1: When calculating the percent attributable to the candidate, there are three potential scenarios as listed below:

- 1. If this is a subgrant to a larger grant that is housed at an institution other than UNL, indicate whether the candidate is a PI or Co-PI on the larger grant (as listed on the proposal or in the sponsoring agencies' files). Indicate the amount of the subgrant to UNL and the percent of the total amount of the grant attributable to the candidate.*
- 2. If this grant includes subgrants to other universities/research entities indicate the total amount of the grant, the amount of the subgrant to each university, the co-PI at each university/research entity, and the percent of the total amount of the grant attributable to the candidate.*
- 3. If neither case 1 nor case 2 applies, list the percent of the total amount attributable to the candidate. The percent attributable to the candidate should follow the information in NUGrant. If it does not, the candidate should provide an explanation.*

Note 2: When indicating the candidate's role on the project (PI, Co-PI, researcher, etc), please use information from the sponsoring agency. For example, a candidate should only list themselves as the PI of a grant if the sponsoring agency recognizes the candidate as the PI.

Note 3: If the grant is run through the National Strategic Research Institute (NSRI), please also indicate the total amount of the contract, the amount of NSRI overhead charges, and the amount of funding sent to UNL

Note 4: If there are questions related to any of the above concepts (e.g. percent attributable, total amount of contract) please work with your unit committee and unit head to obtain written guidance on how to proceed.

Section 2.3.1 Numbered list (in reverse chronological order) of Internally Funded Non-Research Grants. Include the title of the project, funding agency, dates of project, PI and Co-PI's, sponsor amount, UNL Cost share amount, total amount, amount attributable to you (as listed in NUGrant), SAP WBS Account Number.

None

Section 2.3.2 Numbered list (in reverse chronological order) of Externally Funded Non-Research Grants. Include the title of the project, funding agency, dates of project, PI and Co-PI's, sponsor amount, UNL Cost share amount, total amount, amount attributable to the candidate, SAP WBS Account Number.

None

Section 2.3.3 Numbered list (in reverse chronological order) of External Non-Research Grants that have been submitted through the University of Nebraska-Lincoln Office of Sponsored Programs. Include the title of the project, funding agency, dates of project, PI and Co-PI's, sponsor amount, UNL Cost share amount, total amount, amount attributable to you, and date of submission.

None

Section 2.3.4 Numbered list (in reverse chronological order) of External Non-Research Grants that have been submitted through other institutions. Include the title of the project, where the proposal was submitted (e.g. university x, consulting company y), funding agency, dates of project, PI and Co-PI's, sponsor amount, UNL Cost share amount, total amount, amount attributable to you, and date of submission.

None

Section 2.3.5 Numbered list (in reverse chronological order) of External Non-Research Grants Submitted through the University of Nebraska Lincoln Office of Sponsored Programs but not Funded. Include the title of the project, funding agency, dates of project, PI and Co-PI's, sponsor amount, UNL Cost share amount, total amount, amount attributable to you, and date of submission.

None

Section 2.3.6 Numbered list (in reverse chronological order) of External Non-Research Grants Submitted through other entities but not Funded. Include the title of the project, where the proposal was submitted (e.g. university x, consulting company y), funding agency, dates of project, PI and Co-PI's, sponsor amount, UNL Cost share amount, total amount, amount attributable to you, and date of submission.

None

Section 2.4 Research Patents and Awards

Section 2.4.1 Numbered list of Patents, including title, list of all inventors, date of publication and patent number

None

Section 2.4.2 Numbered list of all National and International Research Awards and Recognition

1. Outstanding Service Award, Uludag University, Uludag, Turkey, 2022
2. Outstanding Alumni Award, Yonsei University, 2010

(Note: This is an award presented to only a single person in Geotechnical Engineering, awarded in 50th Anniversary of Department of Civil Engineering in Yonsei University in Korea - a prestigious school in South Korea.)

Section 2.4.3 Numbered list of all Regional and Local Research Awards and Recognition

1. Outstanding Faculty Member of the Year 2010.

This is an award to one faculty per year in School of Engineering, University of Mississippi who excelled in both research and teaching.

Section 2.5 Other Research Accomplishments

Research Reports to Sponsors

a. University of Nebraska

1. “Application of Cementitious Materials and Fiber Reinforcement to Enhance Lime Stabilization for Nebraska Shale Soils”, NDOT, Jongwan Eun, Seunghee Kim and Chung R. Song, May 31, 2023

Project Description: This study evaluates the effectiveness of fiber reinforcement in the lime stabilization for Nebraska Shale soils. The fiber is expected to bring extra tensile strength and bending resistance providing improved strength and deformation performance.

2. “Enhancing Erosion Resistance of Rock Shoulder by Considering Hydrodynamics”, Chung Song, Richard Wood, MATC, Feb. 2023

Project Description: The effects of hydrodynamics characteristics of aggregates on are not clearly researched even in modern days. This study conducted hydrodynamics parameter research, large scale experimental research and derived an AI(Artificial Intelligence) based method to obtain hydrodynamic parameters conveniently.

3. “Erosion Resistant Rock Shoulder”, Chung Song and Richard Wood, NDOT, 2023

Project Description: Erosion resistance of highway shoulder gravels was studied based on hydrodynamics based numerical analyses and UNLETB-based experimental results. From the result, the erosion characteristics of those gravels were quantified. In addition, erosion resistance gradations were identified.

“Application of Steel Sheet-Piles for the Abutment of Water-Crossing Bridges in Nebraska” Seunghye Kim, Jongwan Eun, Chungwook Sim, and Chung Song, NDOT, 2023

Project Description: The possibility of utilizing steel sheet piles was evaluated through theoretical, numerical, and experimental research. These three results well agreed with each other demonstrating the possibility of utilizing the sheet piles as stand alone foundation members for bridge abutment.

4. “Assessing Performance of Geosynthetic Reinforced Pavement with a Large-Scale Track Wheel Test and Nondestructive Testing Tools”, Jongwan Eun, Chung Song and Seunghye Kim, NTC, 2022

Project Description: Performance of geosynthetic reinforced pavement was evaluated with the reciprocal loading wheel system. The test and theoretical results agreed well, presenting the possibility of utilizing geosynthetics for reinforcing pavement.

5. “Evaluation of Light Pole Foundation Embedment”, Joshua Steelman and 6 co-PI’s, AkDOT, 2022

Project Description: Crash worthiness of light pole foundations under the authority of AkDOT was tested and evaluated. The rational embedded depth and specification of light poles were recommended.

6. “Crash Testing of Various Bridge Guardrails and Transitions, Phase II”, Ron Faller and 8 co-PI and senior persons, Hawaii DOT, 2021

Project Description: Crash worthiness of various bridge guardrails and transitions was tested and evaluated.

7. “Data-Driven Prioritization and Empirical Predictions for Bridge Scour in Nebraska”, Richard L. Wood, Christine E. Wittich, June Guo and Chung R. Song, NDOT, 2020

Project Description: Bridge scour magnitude and characteristics in Nebraska were evaluated and empirical predictions were provided based on UAV based erosion data and Hydrodynamics based numerical analysis-based results.

8. “High-Mast Tower Foundation”, Chungwook Sim, Chung R. Song (co-PI), Brandon Kreiling, and Jay Puckett, NDOT, 2020

Project Description: The behavior of high-mast tower foundations in Nebraska was evaluated based on lateral pile (LPILE) analyses, and optimal embedment depth was recommended for different conditions.

9. “Biopolymerized Slope and Subgrade Stabilization and Advanced Field Monitoring”, Chung R. Song, Layal Bitar, Richard Wood, Yong Rak Kim, Jongwan Eun, Binyam Bekele, and Basil Abualshar, NDOT, 2021

Project Description: Several different biopolymers such as Xanthan was applied to soils in the lab and in the field. Some polymers such as Xanthan showed very low strength degradation while some other biopolymers showed unacceptably high strength degradation.

10. “Design Optimization and Monitoring of Joint-less Integral and Semi-integral Abutment Bridges in Nebraska”, Chungwook Sim, Jongwan Eun, Seunghee Kim and Chung Song, NDOT, 2019

Project Description: A jointless semi-integral abutment bridge was instrumented with sensors and the behavior was monitored. Measured results and analytical result showed rational agreement, and showed a safe and elastic behavior of the bridge.

11. “CPT Based Pile Design” Chung R. Song, S. Kim, B. Bekele, A. Silvey and Z. Zhang, NDOT, 2019

Project Description: CPT based pile design method was evaluated based on test results of NDOT. A statistically accurate model was developed for Nebraska conditions based on the comparison of CPT based result and L-Pile based result. The method obtained in this study showed the highest reliability in predicting the friction resistance and tip resistance of driven piles and augured piles.

12. “Applications of LiDAR for SDDOT”, Yijun Liao, Mohammad E. Mohammadi, Daniel, P. Watson, Richard, L. Wood, Chung R. Song and Yong-Rak Kim, South Dakota Department of Transportation, Pierre, SD, 2019

Project Description: Application of LiDAR to detect the movement of bridges and roadside slopes for SDDOT was evaluated. Multiple tools and methods of utilizing UAV based measurement detection methods were evaluated with the field data, and the best fit method was recommended to SDDOT.

13. “Piezocone Penetration Testing Device”, Chung R. Song, Bekele B., Sawyer B., NDOR, 2017

Project Description: Soil properties of Nebraska soils at failure sites were tested based on CPT(Piezocone) tests. Many sites showed matching strength of soils based on CPT based results and triaxial cell-based results. However, those strength at the failure site showed

much lower than the measured one at the design stage, leading to a need to evaluate the reduced strength at the design stage.

14. “Nebraska Specific Slope Design Manual”, C.R. Song, Yong Rak Kim, NDOR, 2017

Project Description: Nebraska soils has a unique geological history – Eastern part has fluvial soils, West of Lincoln has marine deposits, while Mid-West and Far-West has mostly young fluvial deposits. Therefore, various slope design method was proposed in this research

15. “Active noise cancellation system to reduce tunnel blasting noise”, Chung R. Song and Sean Rogers, ENE Construction Ltd. Seoul, Korea, 2016

Project Description: Active noise cancellation is a modern tool to control the noise at low cost without utilizing thick insulation materials. This study tried to control the noise in tunnel construction sites based on active noise cancellation method. The research found that the logics for active noise cancellation method is easy to develop, however, generation of the anti-wave was almost impossible because the dominant frequency of the blasting was close to 1 to 2 Hz.

b. University of Mississippi

1. “Earthquake and Piping Hazard Assessment for Desoto, Tunica, and Tate County, Mississippi”, Chung R. Song and Nathan Mikell (2013), MMRI, Nov. 14, 2013
2. “Developing a Technique for Real Time Dam Safety Evaluation and Field Feed-Back”, Chung R. Song (2013), Korea Rural Research Institute, Nov. 30, 2013.
3. “Structural, Material, and Geotechnical Solutions to Levee and Floodwall Construction and Retrofitting”, Chung R. Song, Ahmed Al-Ostaz, Alexander H.-D. Cheng and Raju P. Mantena (2012), DHS/SERRI
4. “Nano-Enhanced and Bio-Inspired Composite Materials for Mitigation and Protection of TIH Railcars and Stationary Tanks against High Power Impact”, Ahmed Al-Ostaz, Alexander Cheng, Chung R. Song, and A.M Rajendran (2012), DHS/SERRI
5. “Real Time Estimation of Soil Permeability Using Piezocone Penetration Test”, Chung R. Song and Won G. Jang (2008), Korea Land and Housing Corp
6. “Estimation of Hydraulic Conductivity Using Acoustic Techniques”, Chung R. Song and Jin W. Kim (2006), Baytech Korea

7. “Nanotechnology: Modeling of Polymer-Carbon Nanotube Composite at Multiple Spatial and Time Scales”, Al-Ostaz, A., Cheng, A.H-D., Mantena, P.R. and Song, C.R. (2006), Mississippi Space Grant Consortium
8. “Construction of Design Charts for Determination of Hydraulic Conductivity Using Pore Pressure Response of Soils”, Chung R. Song and Sreeka Pulijala (2004), The University of Mississippi

Section 3 Teaching Accomplishments (other than classroom instruction)

For Sections 3.1 through 3.6, only provide information for which the home university (e.g. UNL, other) officially recognizes your role.

Summary: My teaching philosophy is trigger the motivation of learning in students so that they can learn new knowledge by themselves.

Section 3.1 Postdoctoral Researchers

Section 3.1.1 Numbered list (in reverse chronological order) of Postdoctoral researchers supervised. Include designated co-supervisors (if any), affiliation (e.g. UNL or other institution), % funding that you provided to the researchers, and the start and end dates of their appointments. Information on their current employment is also encouraged.

a. University of Nebraska

1. Binyam Bekele (2022), 100%, June. 1, 2022, Worked less than a week as a post doc and left for his permanent job, Bar Eng. Co, Orlando, Florida
2. Incheol Kim (2022), 90%, Co-supervised with Dr. Jongwan Eun (Dec. 2021 to Apr. 2022), 90%, UNL, Current affiliation: University of Nevada, Desert Research Institute (DRI)

b. University of Mississippi

1. Jinoh Won (2010-2012), Co-supervised with Dr. Alex Cheng, 100%, Samsung Engineering and Construction.
2. Ge Wang (2008-2010), Co-supervised with Dr. Ahmed Al-Ostaz, 50%
3. Weidong Wu (2010-2011), Co-supervised with Dr. Ahmed Al-Ostaz, Tennessee Tech. University, 20%

Section 3.1.2 Numbered list (in reverse chronological order) of Postdoctoral researchers currently in progress under your supervision. Include designated co-supervisors (if any), affiliation (e.g. UNL or other institution), % funding that you provide to the researchers, and the start and expected end dates of their appointments.

None

Section 3.2 PhD Students

Section 3.2.1 Numbered list (in reverse chronological order) of PhD students whom you have supervised as chair or co-chair of their doctoral committees. Include designated co-supervisors (if any), affiliation (e.g. UNL or other institution), dissertation title, % funding that you provided to the student, and graduation date. Information on their current employment is also encouraged.

a. University of Nebraska

1. Binyam Bekele, Department of Civil Engineering, University of Nebraska-Lincoln, Doctoral Committee Chair, 100% Funded, Defended Ph. D. dissertation, Spring, 2022
2. Tewodros, Y. Yosef, Department of Civil Engineering, University of Nebraska-Lincoln, Partially Funded, Ph.D. Advisor switched to Dr. Seunghee Kim, as of Spring, 2020. Defended Ph. D. dissertation, Fall, 2021.

b. University of Mississippi

1. Leti Wodajo, Ph.D. candidate, Department of Civil Engineering, University of Mississippi, external committee member, Summer, 2019, National Center for Acoustics, Oxford, Mississippi
2. Sudarshan Adhikari, Department of Civil Engineering, The University of Mississippi, Doctoral Committee Chair, Funded, Dec. 2012
3. Jinwon Kim, Department of Civil Engineering, The University of Mississippi, Doctoral Committee Chair, Funded, Summer. 2010
4. Wongil Jang, Department of Civil Engineering, The University of Mississippi, Doctoral Committee Chair, Funded, Summer 2010

Section 3.2.2 Numbered list (in reverse chronological order) of PhD students currently in progress whom you are supervising as chair or co-chair of their doctoral committees. Include designated co-supervisors (if any), affiliation (e.g. UNL or other institution), % funding that you provide to the student, and expected graduation date.

1. Basil Abu-Alshar, Department of Civil Engineering, University of Nebraska-Lincoln, Doctoral Committee Chair, 100% Funded, Expected to defend Spring, 2025.
2. Bashar Al-Nimri, Department of Civil Engineering, University of Nebraska-Lincoln, Doctoral Committee Chair, 100% Funded, Expected to defend Spring, 2027.

Section 3.3 MS Students

Section 3.3.1 Numbered list (in reverse chronological order) of MS students (thesis option) whom you have supervised as chair or co-chair of their thesis committees. Include designated co-supervisors (if any), affiliation (e.g. UNL or other institution), thesis title, % funding that you provided to the student, and graduation date. Information on their current employment is also encouraged.

a. University of Nebraska

1. Layal Bitar, Department of Civil Engineering, University of Nebraska Lincoln-Lincoln, *Master's Committee Chair*, Funded, Summer, 2019, Employment: USACE.
2. Alex Silvey, Department of Civil Engineering, University of Nebraska Lincoln-Lincoln, *Master's Committee Chair*, Funded, Spring, 2018, Employment: NDOT.
3. Kianoosh Koocheki, Department of Civil Engineering, University of Nebraska Lincoln-Lincoln, *Master's Committee Chair*, Funded, Spring, 2018, Employment: McMaster University.
4. Hossein Bahmiyari, Department of Civil Engineering, University of Nebraska -Lincoln, *Doctoral Committee Chair*, Funded, Spring, 2019, Employment: Kiewit, (could not finish the study with a reason.)

b. University of Mississippi

1. Hamil C. Department of Civil Engineering, University of Mississippi, *Master's co-advisor*, Summer 2015.
2. Jackson, J., Department of Civil Engineering, University of Mississippi, *Master's Committee chair*, May 2013
3. Binyam, T., Department of Civil Engineering, University of Mississippi, *Master's co-advisor*, Aug. 2012
4. Jared, C., Department of Civil Engineering, University of Mississippi, *Master's co-advisor chair*, Aug. 2012
5. Kidd, J. (Cooper Tire), Department of Civil Engineering, University of Mississippi, *Master's Committee chair*, May, 2012.
6. Wodajo, B., Department of Civil Engineering, University of Mississippi, *Master's co-advisor*, May 2011.
7. Duddu L., Department of Civil Engineering, University of Mississippi, *Master's co-advisor*, Aug. 2007.
8. Kim, J., Department of Civil Engineering, University of Mississippi, *Master's Committee chair*, Dec. 2006.
9. Cho H., Department of Civil Engineering, University of Mississippi, *Master's Committee chair*, Dec. 2006.

10. Pulijala, S., Department of Civil Engineering, University of Mississippi, *Master's Committee chair*, May 2006.

11. Biplab, B (MACTEC), Department of Civil Engineering, University of Mississippi, *Master's co-advisor*, May 2006.

Section 3.3.2 Numbered list (in reverse chronological order) of MS students (thesis option) currently in progress whom you are supervising as chair or co-chair of their thesis committees. Include designated co-supervisors (if any), affiliation (e.g. UNL or other institution), % funding that you provide to the student, and expected graduation date.

None

Section 3.3.3 Total number of non thesis option graduate students advised

4

1. Caleb Craven, Department of Civil and Environmental Engineering, University of Nebraska -Lincoln, *Master's Committee Chair*, Self-Funded, 2021
2. Joshua Hilsgen, Department of Civil Engineering, University of Nebraska -Lincoln, *Master's Committee Chair*, Self-Funded, Completed, Spring, 2018.
3. Levi Brown, Department of Civil Engineering, University of Nebraska -Lincoln, *Master's Committee Chair*, Self-Funded, Completed, Spring, 2018.
4. Gustavo Nunez, Department of Civil Engineering, University of Nebraska -Lincoln, *Master's Committee Chair*, Fulbright-Funded, Completed, Spring, 2017.

Section 3.3.4 Total number of graduate student independent research projects supervised

0

Section 3.4 Undergraduate Students

Section 3.4.1 Numbered list (in reverse chronological order) of undergraduate students supervised in independent research study. Include full name, year, semester and credit hours.

a. University of Nebraska

1. Mark O'Brien, Department of Civil and Environmental Engineering, University of Nebraska Lincoln-Lincoln, Senior, student worker, Spring and Fall, 2022, No credit hours
2. Lucas Ripa, Department of Civil Engineering, University of Nebraska Lincoln-Lincoln, Senior, student worker, Spring and Fall, 2019, No credit hours
3. Christopher Bianchini, Department of Civil Engineering, University of Nebraska Lincoln-Lincoln, Senior, student worker, Spring, 2019, No credit hours
4. Eden, Lu, Department of Civil Engineering, University of Nebraska Lincoln-Lincoln, Senior, student worker, Spring and Fall, 2016

5. Brian Sawyer, Department of Civil Engineering, University of Nebraska Lincoln-Lincoln, Junior, student worker, on-going from Fall, 2016

b. University of Mississippi

1. V. William, The University of Mississippi, 2015, No credit hours
2. G. Bell, The University of Mississippi, BSCE 2013, No credit hours
3. H. Prater, The University of Mississippi, BSCE 2013, No credit hours
4. S. Burdine, The University of Mississippi, BSCE 2012, No credit hours
5. M. Nathan, The University of Mississippi, BSCE 2012, No credit hours
6. J. Kidd, The University of Mississippi, BSCE 2010, No credit hours
7. R. Williams, The University of Mississippi, BSCE 2005, No credit hours
8. A. Singh, The University of Mississippi, BSCE 2005, No credit hours

Section 3.4.2 Average number of undergraduate students advised per year

- a. University of Nebraska
3
- b. University of Mississippi
40

Section 3.5 Visiting Scholars and Students

Section 3.5.1 Numbered list (in reverse chronological order) of visiting scholars and students whom you have supervised during their official visit to UNL. Include the scholar/student's name, title (e.g. visiting PhD student, visiting professor), home affiliation, and dates of visit to UNL.

No visiting scholars yet.

1 visiting student (Gustavo Nunez) from Argentina finished his MS degree 2017 and went back to his country.

Section 3.6 Graduate Student Committee Membership

Section 3.6.1 Numbered list (in reverse chronological order) of UNL PhD students for whom you have served as a doctoral committee member. Include graduation date.

Yusuf Allowadi, Spring, 2024

Sina Mousavi, Fall, 2023

Jingtao Zhang, Fall, 2020

Ramin, Spring, 2023

Section 3.6.2 Numbered list (in reverse chronological order) of UNL Masters thesis-option students for whom you have served as a masters committee member. Include graduation date.

None

Section 3.6.3 Numbered list (in reverse chronological order) of other PhD students at other universities for whom you have served as an external PhD reviewer. Include the student's home university and graduation date.

None

Section 3.6.4 Numbered list (in reverse chronological order) of other students at other universities for whom you have served as a graduate committee member. Include the student's home university and graduation date.

Wodajo, L., Department of Civil Engineering, University of Mississippi, May 2019 (Ph. D.)

Section 3.7 Teaching Awards and Recognition

Section 3.7.1 Numbered list of International and National Teaching Awards and Recognition

1. Outstanding visiting professor, Uludag University (Turkey), 2022

Section 3.7.2 Numbered list of Regional, Local and University Teaching Awards and Recognition

1. Olson & Associate Faculty Teaching Excellence Award. (Apr. 25, 2019), University of Nebraska

2. Outstanding Faculty of the Year Award, 2010, University of Mississippi

Note: This is an award presented to a single faculty member per year in School of Engineering, University of Mississippi who excelled both in research and teaching.

3. School of Engineering Teaching Award, 2009, University of Mississippi

Note: This is an award presented to a faculty member per year in Department of Civil Engineering, University of Mississippi who excelled in teaching.

Section 3.8 Other Teaching Accomplishments

1. Overall student evaluation: Approximately 4.0 out of 5.0.

Section 4 Service Accomplishments

Section 4.1 Professional Service

Section 4.1.1 Numbered list (in reverse chronological order) of Journal Editorships or Associate Editorships including dates of service

1. Editorial board, International Journal of Geoengineering (from June, 2023-)

2. Editor, Applied Mechanics, (June, 2022 to May, 2023)

Section 4.1.2 Numbered list (in reverse chronological order) of Journals for which you have reviewed papers including number completed for that journal each year (e.g. 5 reviews in 2017).

1. Acta Geotechnica
2 reviews in 2014
2. Applied Clay Science
1 review in 2008
3. Applied Science
7 reviews in 2022
4. ASTM
3 reviews in 2016
5. Canadian Geotechnical Journal
1 review in 2012
6. Computers and Geotechnics
1 review in 2015
7. Fuel
1 review in 2017
8. Geomechanics and Engineering
3 reviews in 2023
1 review in 2020
1 review in 2015
9. International Journal of Geo-Engineering
1 review in 2023
10. Interaction and Multiscale Mechanics
1 review in 2016
1 review in 2017
11. International Journal of Damage Mechanics
1 review in 2010
1 review in 2011
12. International Journal of Geotechnical Engineering
1 review in 2020

- 2 reviews in 2021
- 13. International Journal of Numerical and Analytical Methods in Geomechanics
 - 1 review in 2006
 - 1 review in 2011
- 14. Journal of the Acoustical Society of America
 - 2 reviews in 2009
- 15. Journal of American Society of Mechanical Engineering
 - 2 reviews in 2012
 - 1 review in 2021
- 16. Journal of Engineering Mechanics Division, ASCE
 - 2 reviews in 2008
 - 1 review in 2009
 - 1 review in 2010
 - 2 reviews in 2011
 - 1 review in 2013
 - 2 reviews in 2019
 - 1 review in 2021
- 17. Journal of Geotechnical and Geoenvironmental Engineering, ASCE
 - 1 review in 2005
 - 3 reviews in 2007
 - 2 reviews in 2008
 - 2 reviews in 2009
 - 7 reviews in 2010
 - 2 reviews in 2012
 - 3 reviews in 2013
- 18. Ocean Dynamics
 - 1 review in 2015
- 19. Ocean Engineering
 - 1 review in 2015
- 20. EMI Conference (2007 – current), ASCE
 - More than 100 abstract reviews
- 21. EMI2015 Student Competition Paper

More than 50 reviews

22. AAM (American Academy of Mechanics) 2008 Conference

More than 50 reviews

23. GeoCongress 2007 Conference, ASCE

10 reviews

24. GeoCongress 2008 Conference, ASCE

10 reviews

25. GeoShanghai Conference, ASCE

10 reviews

26. IFCEE2015(International Foundation Congress and Equipment Expo, 2015)

1 review in 2008

1 review in 2009

27. Water

1 review in 2019

1 review in 2020

Section 4.1.3 Numbered list (in reverse chronological order) of Leadership Positions in International and National Organizations

1. Leading Member of ASCE EMI MIMB committee (2009-Present)
2. Chair, MIMB(Modeling Inelasticity and Multiscale Behavior) committee, EMI, ASCE (2017-2019)
3. Vice Chair, MIMB(Modeling Inelasticity and Multiscale Behavior) committee, EMI, ASCE (2015 to 2017)
4. Offered the first “Tunneling” class in Addis Ababa University, Ethiopia as a service (Summer, 2012)
5. ASCE BOK3 committee (2017-2018)
6. President of US based Korean Geotechnical Society (2017 to2019)

Note: Korean Geotechnical Society (KGS) is a professional society for Geotechnical scholars and engineers in Korea with a number of members larger than five thousand. KGS has about the same long history as Geo-Institute (GI) and collaborated with similar organizations in other countries such as GI in US and NGI in Norway. As a first president of US Office of KGS, Dr. Song sought for promoting the scholarly collaboration between US and Korea.

Section 4.1.4 Numbered list (in reverse chronological order) of Leadership Positions in Regional and Local Organizations

Section 4.1.5 Numbered list (in reverse chronological order) memberships in Professional Organizations

1. KGS-NA, 2017-
2. ASCE BOK(Body of Knowledge)TC Corresponding Member, 2017-2018
3. American Society of Mechanical Engineering, Geomechanics Committee 2009-present
4. Chi Epsilon, Member, 2006-present.
5. United States Universities Council on Geotechnical Education and Research (USUCGER), 2005-present
6. Engineering Mechanics Institute, Member, 2004-present
7. GI(Geo-Institute), 1997-present
8. American Society of Civil Engineers, Member, 1997-present.
9. Korean Geotechnical Society, 1986-present

Section 4.1.6 Numbered list (in reverse chronological order) of National and International Service Awards

1. Outstanding Service Award, Korean Geotechnical Society, 2021

Note: This is an award presented to a person who significantly contributed the academics and services in Geotechnical discipline.

Section 4.1.7 Numbered list (in reverse chronological order) of Regional and Local Service Awards

Section 4.1.8 Numbered list (in reverse chronological order) of Research Review panels and dates of service

1. Louisiana EPSCoR (Jan, 2011)
2. Louisiana EPSCoR (Jan. 25, 2011)
3. NSF (Apr. 3, 2009)
4. Oak Ridge National Lab REP Award (Mar. 27, 2009)
5. Mountain-Plains Consortium (MPC) (Nov. 23, 2015, May. 25, 2017)
6. Petroleum Research Fund New Directions Proposal (Mar. 22, 2017)

Section 4.2 University Service

Section 4.2.1 Numbered list of leadership positions on university wide committees. Include committee name, dates, and title.

Section 4.2.2 Numbered list of membership positions on university wide committees. Include committee name, dates, and title.

1. Faculty Senate (Fall, 2020 - 2021), UNL
2. Honorary Degree Committee (2016 to 2018), UNL
3. SACS Evaluation Committee (2009-2015), University of Mississippi
4. Faculty Senate (2006 – 2007), University of Mississippi
5. Buildings, Grounds and Renovations (2013-2016), University of Mississippi
6. Academic Freedom and Faculty Responsibility (2013-2015), University of Mississippi
7. Sabbatical Leave Review (2014-2015), University of Mississippi

Section 4.3 College Service

Section 4.3.1 Numbered List of leadership positions on college wide committees. Include committee name, dates, and title.

Section 4.3.2 Numbered list of membership positions on college wide committees. Include committee name, dates, and title.

1. Instructional Space Committee (2019), College of Engineering
2. Award Committee (2018-2019), University of Nebraska
3. Strategic Planning Committee (2013-2015), University of Mississippi

Section 4.4 Unit Service

Section 4.4.1 Numbered list of leadership positions on unit committees. Include committee name, dates, and title.

1. Planning Committee (Spring, 2021) – Chair. Worked with team members to arrange/plan to accommodate various needs for the department.
2. Chair of Instructional Space and Support Committee (UNL, Departmental, 2016-2019). Worked with team members to facilitate the acquirement of equipment.
3. Preparing 2-year reciprocating Geotech./Material graduate curriculum in University of Nebraska Lincoln. Organized sustainable two-year, reciprocating, teaching plan.
4. Chair of New Faculty Search Committee, Sept. 2015-May, 2016, University of Nebraska Lincoln. Chaired the faculty hiring committee to hire three new faculty members.
5. Represented the department in Engineering Advisory Board meeting, many times. University of Mississippi.
6. Founded and Served the Korean Association in Oxford from 2006 to 2007 as a president to promote a better Korean – American relationships in Oxford, MS
7. Served the Korean Students Association in University of Mississippi as a faculty advisor from 2005 to 2006
8. School of Engineering web committee, University of Mississippi
9. Chi Epsilon (κϵ) Faculty Advisor (from 2006), University of Mississippi
10. Leading Civil Engineering Juniors and Seniors to enrich their college life both academically and socially. The Olemiss chapter was awarded the “Outstanding Chapter” by the national Chi Epsilon headquarter at 2006-2007 term. University of Mississippi
11. Engineering Core Course Committee Member (Engineering Computing), University of Mississippi
12. Faculty search committee for Geological Engineering Department: served in 1 faculty search committee, University of Mississippi
13. Faculty Search Committee for Civil Engineering: served in 2 faculty search committees. University of Mississippi

14. Represented the School of Engineering in two Science Fairs, University of Mississippi
15. Attended ExCEED (Excellence in Civil Engineering Education) workshop and conveyed the information in Civil Engineering seminar class, University of Mississippi
16. Served as a faculty advisor for ASCE concrete canoe competition at University of Louisiana, Lafayette, LA (Apr. 7, 2005 to Apr. 9, 2005), University of Mississippi
17. Invited external speakers for graduate seminar (Ms. Griffith Brownlee, Ms. Jody Dendurent from Mirafi Co. Mr. Noah Vromanm from ERDC, Dr. Azzad Hossain from NCCHE, Mr. Brad Ormon from Burs Cooley and Dennis Co. Mr. Michael Marasa from Hayward Baker Co., Mr. Michael Wright from MDOT, Mr. Bill Rigby from BE&K Inc.), University of Mississippi

Section 4.4.2 Numbered list of membership positions on unit committees. Include committee name, dates, and title.

1. Member of Communication and Outreach Committee (Fall, 2023 -)
2. Member of Instructional Space and Support Committee (UNL, Departmental, 2019)
3. Graduate Committee (2017-2019), CIVE Department, member

Section 4.5 Other Service Accomplishments

Conference Sessions Chaired

1. ***Multiphysics and Multiscale Modeling of Engineering Materials***, 2 sessions in EMI2023 (with Drs. Yong-Rak Kim and Huiming Yin), Georgia Tech, Georgia
2. ***Multiphysics and Multiscale Modeling of Engineering Materials***, 2 sessions in EMI2021 (with Drs. Yong-Rak Kim and Huiming Yin), Columbia Univ, NY
3. ***Multiphysics and Multiscale Modeling of Engineering Materials***, 2 sessions in EMI2019 (with Drs. Yong-Rak Kim and Huiming Yin), Caltech, CA
4. ***Multiphysics and Multiscale Modeling of Engineering Materials***, 2 sessions in EMI2018 (with Drs. Yong-Rak Kim and Huiming Yin), MIT, MA
5. ***Multiphysics and Multiscale Modeling of Engineering Materials***, 2 sessions in EMI2017 (with Drs. Yong-Rak Kim and Huiming Yin), UC San Diego, CA
6. ***Geotechnical Engineering – The Nexus***, UKC2016, Aug. 10-13, Dallas TX
7. ***Multiphysics and Multiscale Modeling of Engineering Materials***, 2 sessions in EMIPMC 2016 (with Drs. Yong-Rak Kim and Ahmed Al-Ostaz), Vanderbilt, TN. 2016
8. ***Civil Engineering*** I, II and III Sessions in 2013 MAESC Conference, Oxford, MS
9. ***Disaster/Safety Issues Session*** in MAESC2009, Memphis, Tennessee, May, 2009
10. ***Behavior of Geomaterials in Nano to Micro Scale Session*** in 2008 First AAM Conference, American Academy of Mechanics, New Orleans, LA, Jun. 2008

11. ***Multi-Scale Modeling and Simulation of Nano Structured Materials, 3 sessions*** in 2008
First AAM Conference, American Academy of Mechanics, New Orleans, LA, Jun. 2008
12. ***Micromechanics of Granular Media Session in*** 2008 ASCE Annual Conference
(GeoCongress), New Orleans, LA, Mar. 2008
13. ***Nanomechanics in Geotechnical Engineerin Session in*** 2007 ASCE Annual
Conference (GeoDenver), Denver, Colorado, Feb, 2007

Section 5 Other Accomplishments

Section 5.1 Professional Development (add additional sections below as desired)

1. APEC (International PE in Asian Pacific Economy Community which includes US and Canada) Engineer, 2002-

Appendix A: Letters of Acceptance for Peer Reviewed Journal Articles

Waiting for acceptance letters for three manuscripts submitted.

Appendix B: Research Awards

None.

Appendix B: Copies of the Project Summary Page from NUGrant