Kalehiwot Nega Manahiloh, Ph.D., P.E., P.C.E.
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EDUCATION

Doctor of Philosophy, Civil Engineering, July 2013
Washington State University, Pullman, WA
Specialization in Geotechnical Engineering

Dissertation: Microstructural Analysis of Unsaturated Granular Soils Using X-ray Computed Tomography (http://hdl.handle.net/2376/4949)
Advisor: Balasingam Muhunthan
Award: Outstanding Dissertation Award, 2014

Master of Science, Civil Engineering, July 2009
Addis Ababa University, Addis Ababa, Ethiopia
Specialization in Structural Engineering

Bachelor of Science, Civil Engineering, July 2004
Addis Ababa University, Addis Ababa, Ethiopia

Additional Training

National Science Foundations (NSF) and United States Universities Council on Geotechnical Education and Research (USUCGER) Early Career Geotechnical Faculty Workshop on Developing a Successful Sponsored Research Program, Case Western Reserve University, May 20-22, 2018.

Association of Drilled Shaft Contractors (ADSC) Foundation Engineering Faculty Workshop, Chattanooga, TN, June 5-10, 2016.

American Society of Civil Engineers Excellence in Civil Engineering Education (ASCE-ExCEEd) Teaching Workshop, West Point, NY., July 20 – 25, 2014.

National Science Foundation (NSF) Career Proposal Writing Workshop, University of Maryland, MD, April 7-8, 2014.

PROFESSIONAL LICENSURE

Professional Engineer (**P.E.**) Registration, Delaware, No. 19164
Professional Construction Engineer (**P.C.E.**), Ethiopian Ministry of Infrastructure, No. 1934

ACADEMIC POSITIONS HELD

Assistant Professor, University of Delaware, Newark, DE, 09/13 – present
Department of Civil and Environmental Engineering, Geotechnical Engineering Group

Student Instructor, Washington State University, Pullman, WA, 08/12 – 06/13
Department of Civil and Environmental Engineering, Geotechnical Engineering Group

Lecturer, Addis Ababa University, Addis Ababa, Ethiopia, 9/08 – 07/09
Department of Civil Engineering, Structural Engineering Group

PROFESSIONAL POSITIONS HELD

Structural and Contract Engineer, MK Building Contractors, Ethiopia, 07/06-07/09

Building works permit and supervision group leader (04/06 – 09/06), **Design and construction department head** (07/05 – 04/06), **Structural Engineer and Contract Administrator,** (09/04 – 07/05), Gondar City Municipality Office, Gondar, Ethiopia

HONORS AND AWARDS

Early Career Geotechnical Faculty Fellow, NSF/USUCGER (Spring 2018)

Foundation Engineering Faculty Fellow, ADSC, (Summer 2016)

Professional Engineer Award, College of Engineering, UD (Spring 2016)

Outstanding Dissertation Award, Civil and Environmental Engineering, WSU (2014)

ExCEEd Teaching Fellow, ASCE (2014)

NSF CAREER Proposal Workshop (2014)

Excellence in Research Award, WSU (2013)

Civil and Environmental Engineering Scholarship, WSU (2013)

Civil and Environmental Engineering Scholarship, WSU (2012)

Outstanding Teaching Assistant, College of Engineering, WSU (2012-13) (Nominated)

Outstanding Teaching Assistant, Civil and Environmental Engineering, WSU (2012-13)

Full Scholarship for M.Sc. Study, Gondar City Municipality Office (2006-09)

Full Scholarship for B.Sc. Study, Ethiopian Ministry of Education (1998-04)

Very Great Distinction, Ethiopian School Leaving Certificate Examination (1998)

MARQUIS CITATIONS

Who's Who in Science and Engineering

Who's Who in America

Who's Who in the World

PROFESSIONAL MEMBERSHIPS AND AFFILIATION

Professional Affiliations

Unsaturated Soil Group at University of Delaware (US-GUD), since 2013
Delaware valley Geo-Institute (DVGI), since 2013
American Society of Civil Engineers (ASCE), since 2009
Ethiopian Association of Civil Engineers (EACE), since 2004
American Geophysical Union (AGU), since 2011
Image-Pro Plus users group
Chi-Epsilon – The Civil Engineering Honor Society

University Affiliations

US-GUD* Founder and Chair, 2013 present.

Washington Center for X-ray and Imaging Technology (WACXIT), Washington State University, Administrator, 2009-2013.

* Group created at UD, to promote unsaturated soil research

RESEARCH INTERESTS

Fundamental research

- Experimental unsaturated soil mechanics
- Micro-geomechanics
- Nondestructive characterization of geomaterials

Applied research

- Field, laboratory, and numerical assessment of geo-structural systems
- Eco-friendly ground improvement methods structural analysis
- applications of artificial intelligence in Geotechnical systems

RESEARCH AND SCHOLARSHIP

Book Chapters

[1] **Manahiloh K.N.,** Muhunthan, B., and Likos, W.J., (2014). "Effective stress and the role of liquid fabric in unsaturated granular soils." Geomechanics from Micro to Macro: Chapter 138, eds. Kenichi Soga, Giovanna Biscontin, and Matthew Kuo, ed., *CRC Press*.

Magazine Articles

[1] **Manahiloh K.N.,** and Imhoff P. (2018). "Properties of Biochar-Amended Highway Soils." *GeoStrata*, Sept/Oct. 2018 Issue. In Press.

Journal Publications (* indicates published with student)

Published, In Press, Accepted, Under Review

[17] **Manahiloh K.N.,** Abera K.*, and Motalleb Nejad M. "A Refined Global Segmentation for Multi-phase Geomaterials." *Journal of Nondestructive Evaluation.* 37(54): 1-12. DOI: 10.1007/s10921-018-0508-y.

[16] Kadivar M.*, **Manahiloh K.N.** "Mechanical Behavior of Artificially Frozen Soils." *Cold Regions Science and Technology Journal*. Under Review.

[15] Motalleb Nejad, M.*, Momeni, M.S., and Manahiloh, K.N. "Reply of authors to the discussion of H. Gullu [Soil Dyn Earthq Eng 108 (2018) 203–4] on their article "Shear wave velocity and soil type micro-zonation using neural networks and geographic information system" [Soil Dyn Earthq Eng 104 (2018) 54–63]." *Soil Dynamics and Earthquake Engineering*. (https://doi.org/10.1016/j.soildyn.2018.04.013)

[14] Wells A.*, Shenton H.W., **Manahiloh K.N.,** and Wenczel G. (2018). "Dynamic load allowance provisions for box culverts with low fill depth." *Journal of Transportation infrastructure geotechnology*, 5(1): 42-58. (doi: 10.1007/s40515-017-0046-6)

[13] Kadivar M.*, **Manahiloh K.N.**, Kaliakin V., and Shenton H.W. (2018). "Numerical Investigation of Dynamic Load Amplification in Buried Culverts." *Journal of Transportation infrastructure geotechnology*, 5(1): 24-41. (doi: 10.1007/s40515-017-0045-7)

[12] Motalleb Nejad M.*, Momeni M.S., and **Manahiloh K.N.** (2018). "Shear wave velocity and soil type microzonation using Neural Networks and Geographic Information System." *Soil dynamics and earthquake engineering.* 104, 54-63. (doi: 10.1016/j.soildyn.2017.10.001)

[11] Tabarsa A., Latifi N., Meehan C.L., and **Manahiloh K.N.** (2018). "Laboratory investigation and field evaluation of loess improvement using nanoclay – A sustainable material for construction." *Journal of Construction and Building Materials.* 158, 454-463.
(doi: 10.1016/j.conbuildmat.2017.09.096)

[10] Motalleb Nejad M.*, **Manahiloh K.N.**, and Momeni M.S. (2017). "Random-effects regression model for shear wave velocity as a function of standard penetration test resistance, vertical effective stress, fines content and plasticity index." *Soil dynamics and earthquake engineering*. 103(2017): 95-104.
(doi: 10.1016/j.soildyn.2017.09.022)

[9] Rashid A.S.A., Latifi N., Meehan C.L., and **Manahiloh K.N.** (2017). "Sustainable improvement of tropical residual soil using an environmentally friendly additive." *Geotechnical and Geological Engineering.* 31(4).
(doi: 10.1007/s10706-017-0265-1)

[8] **Manahiloh K.N.,** and Meehan C.L. (2017). "Determining the Soil Water Characteristic Curve and interfacial contact angle from microstructural analysis of X-ray CT images." *ASCE Journal of Geotechnical and Geoenvironmental Engineering.* 143(8).
(doi: 10.1061/(ASCE) GT.1943-5606.0001677)

[7] Abera K.*, **Manahiloh K.N.,** and Motalleb Nejad M. (2017). "The Effectiveness of Global Thresholding Techniques in Segmenting Two-Phase Porous Media." *Journal of Construction and Building Materials.* 142:256-267.
(doi: 10.1016/j.conbuildmat.2017.03.046)

[6] **Manahiloh K.N.**, Muhunthan B., and Likos W.J. (2016). "Microstructure-based effective stress formulation for partially saturated granular soils." *ASCE International Journal of Geomechanics: Special Issues on Experimental and Computational Geomechanics for Unsaturated soils*. 16(6): 1-13.
(doi: 10.1061/(ASCE)GM.1943-5622.0000617)

[5] Motalleb Nejad M.*, and **Manahiloh K.N.** (2015). "A modified harmony search algorithm for the optimal design of earth walls reinforced with non-uniform geosynthetic layers." *Int. Journal of Geosynthetics and Ground Engineering*, 1(4): 1-15.
(doi: 10.1007/s40891-015-0039-x)

[4] **Manahiloh K.N.**, Motalleb Nejad M.*, and Momeni M.S. (2015). "Optimization of design parameters and cost of geosynthetic-reinforced earth walls by Harmony Search Algorithm." *Int. Jour. of Geosynthetics and Ground Engineering*, 1(2):1-12.
(doi: 10.1007/s40891-015-0017-3)

[3] **Manahiloh K.N**., Muhunthan B. Kayhanian M., Gebremariam S.Y. (2012). "X-ray Computed Tomography and Nondestructive Evaluation of Clogging in Porous Concrete Field Samples." *Journal of Materials in Civil Engineering*, 24(8), 1103-1109.

[2] Wu M., Wen H., Muhunthan B., **Manahiloh K.N.** (2012). "Influence of RAP Content on the Air Void Distribution, Permeability and Modulus of the Base Layer in Recycled Asphalt Pavements." *Journal of the transportation research board*, 2267, 65-71.

[1] Roopesh M.S., **Manahiloh K.N.**, Muhunthan B., Sablani S.S. (2011). "Understanding the influence of state/phase transitions on ice recrystallization in Atlantic salmon (*Salmo salar*) during frozen storage." *Food Biophysics Journal*, 7(1), 57-71.

Archived and Peer-Reviewed Conference Papers (* indicates published with student)

Published, In Press, Accepted, Under Review

[17] Kadivar, M.*, **Manahiloh, K.N.**, and Kaliakin, V.N. (2019). "A Bounding Surface Based Constitutive Model for Unsaturated Granular Soils." *Geotechnical Frontiers 2019,* March 24-27, Philadelphia, PA. Under Review.

[16] Lamprinakos, R.*, and **Manahiloh, K.N.** (2019). "Examining the Behavior of Compacted Soil-Biochar Specimens." *Geotechnical Frontiers 2019,* March 24-27, Philadelphia, PA. Under Review.

[15] Bugher, C.*, **Manahiloh, K.N.**, Kaliakin, V.N., and Shenton, H. (2019). "3-D Finite Element Analysis of Reinforced Concrete Box Culverts Using Infinite Elements." *Geotechnical Frontiers 2019,* March 24-27, Philadelphia, PA. Under Review.

[14] Kadivar, M.*, **Manahiloh, K.N.**, and Kaliakin, V.N. (2019). "Characterizing the Unsaturated Strength Behavior of a Native Transition Soil Used as Backfill in the Construction of US 301, Section 3." *Geotechnical Frontiers 2019*, March 24-27, Philadelphia, PA. Under Review.

[13] Kadivar, M.*, **Manahiloh, K.N.**, Kaliakin, V.N., and Shenton, H. (2018). "Assessment of Dynamic Load Allowance for Buried Culverts." *IFCEE 2018,* Orlando, FL.

[12] Abera, K.*, **Manahiloh, K.N.**, and Motalleb Nejad, M.* (2018). "Global Segmentation Algorithm for Partially Saturated Granular Geomaterials." *IFCEE 2018,* Orlando, FL.

[11] Wells A.*, Shenton H., and **Manahiloh K.N.** (2017). "Investigation of Dynamic Amplification Factor for Concrete Box Culverts Through Finite Element Modeling" *Structures Congress 2017,* April 6-8. Accepted.

[10] Motalleb Nejad M.*, and **Manahiloh K.N.** (2017). "Investigating the role of soil fabric in unsaturated soils." *Proceedings of Geotechnical Frontiers 2017 conference*, pp. 595-605.

(doi: 10.1061/9780784480472.063)

[9] Motalleb Nejad M.,* **Manahiloh K.N.,** and Meehan C.L. (2017). "Applying the techniques of microstructural image processing towards measuring interface angles in unsaturated geomaterials." *Proceedings of Geotechnical Frontiers 2017 conference*, pp. 659-668. (doi: 10.1061/9780784480472.070)

[8] Jin J., Abera K.*, Imhoff P., and **Manahiloh K.N.** (2017). "Experimental investigation of the effects of biochar on the hydraulic conductivity of soils." *Proceedings of Geotechnical Frontiers 2017 conference*, pp. 549-558. (doi: 10.1061/9780784480434.060)

[7] Wells A.*, Shenton H., and **Manahiloh K.N.** (2017). "Experimental Evaluation of Dynamic Amplification Factor for Box Culverts." *2017 TRB annual meeting*, January 8-12, Washington D.C. (Link)

[6] Wells A.*, Shenton H., and **Manahiloh K.N.** (2016). "Parametric investigation of factors influencing the dynamic response of buried reinforced concrete culverts." *Geotechnical and Structural Engineering Congress*, pp. 648-659. (doi: 10.1061/9780784479742.054)

[5] **Manahiloh K.N.** and Meehan C.L. (2015). "Evolution of Interphase Contact Angle in Partially Saturated Soils Using Digital Analysis of X-ray Computed Tomography Images." *Geotechnical Special Publication*, No. 256: 2092-2101. (doi: 10.1061/9780784479087.193)

[4] **Manahiloh K.N.**, Muhunthan B., and Likos W.J. (2014). "Effective Stress and the Role of Liquid Fabric in Unsaturated Granular Soils." *Proceedings of the International Symposium on Geomechanics from Micro to Macro (IS-Cambridge 2014)*, Cambridge, UK, 863-868.

[3] **Manahiloh K.N.**, and Muhunthan B. (2012). "Characterizing Liquid Phase Fabric of Unsaturated Specimens from X-Ray Computed Tomography Images." *Unsaturated Soils: Research and Applications*, C. Mancuso, C. Jommi, and F. D'Onza, eds., Springer, Berlin Heidelberg, 71-80. (doi: 10.1007/978-3-642-31116-1_10)

[2] **Manahiloh K.N.**, Jaafar R., Muhunthan B., and Likos W. (2011). "Imaging and modeling the microstructure of unsaturated soils for improved prediction of macroscale response." *NSF-CMMI Research and Innovation Conference*, Atlanta, Georgia.

[1] **Manahiloh K.N.** (2007). "Lateral force resisting systems: Layout selection, Analysis methods and connection detailing." *Proceedings of the Structural Engineering Conference*, A.A.U., Addis Ababa.

Invited Lectures

Manahiloh K.N. (2013). "X-ray CT image acquisition, pre and post processing with parallel computing cluster." Half day training to Ph.D. candidates, Washington State University, July 15.

Manahiloh K.N. (2013). "Microstructural analysis of unsaturated granular soils using X-ray Computed Tomography." *Civil and Env. Engineering*, 12 April, University of Delaware.

Manahiloh K.N. (2013). "Microstructural analysis of partially saturated granular soils using X-ray Computed Tomography." *Civil and Env. Engineering*, 5 April, University of Vermont.

Oral/Podium Presentations (* indicates presentation with student)

Kadivar, M.*, **Manahiloh, K.N.**, Kaliakin, V.N., and Shenton, H. (2018). "Assessment of Dynamic Load Allowance for Buried Culverts." *IFCEE 2018,* Orlando, FL.

Abera, K.*, **Manahiloh, K.N.**, and Motalleb Nejad, M.* (2018). "Global Segmentation Algorithm for Partially Saturated Granular Geomaterials." *IFCEE 2018,* Orlando, FL.

Manahiloh K.N. (2017). "Experimental evaluation of the engineering behavior of soil-biochar mixtures as a roadway construction material." *CAIT brown bag seminar*, April 18, 2017. University of Delaware.

Motalleb Nejad M.*, and **Manahiloh K.N.** (2017). "Investigating the role of soil fabric in unsaturated soils." *Geotechnical Frontiers 2017 conference*, March 14, 2017. Orlando, FL.

Motalleb Nejad M.*, **Manahiloh K.N.,** and Meehan C.L. (2017). "Applying the techniques of microstructural image processing towards measuring interface angles in unsaturated geomaterials." *Geotechnical Frontiers 2017 conference*, March 15, 2017. Orlando, FL.

Jin J., Abera K.*, Imhoff P., and **Manahiloh K.N.** (2017). "Experimental investigation of the effects of biochar on the hydraulic conductivity of soils." *Geotechnical Frontiers 2017 conference*, March 15, 2017. Orlando, FL.

Wells A.*, Shenton H., and **Manahiloh K.N.** (2017), "Investigation of Dynamic Amplification Factor for Concrete Box Culverts through Finite Element Modeling" *Structures Congress 2017,* April 6-8.

Wells A.*, Shenton H., and Manahiloh K.N. (2016), "Parametric Investigation of Dynamic Amplification Factor for Design of Buried Reinforced Concrete Box Culverts." *COPRI Ports Conference*, June 12-15, 2016, New Orleans, Louisiana.

Wells, A.*, Shenton, H., **Manahiloh, K. N.** (2016). "Dynamic Behavior of Reinforced Concrete Box Culverts." *Structural Engineering Institute – Philadelphia Chapter: College Night, University of Delaware*, March 24, 2016, Newark, DE.

Wells, A.*, Shenton, H., and **Manahiloh, K.N.** (2016). "Parametric Investigation of factors influencing the dynamic response of buried concrete culverts." *ASCE Geotechnical and Structural Engineering Congress*, Feb. 14-17, 2016, Phoenix, AZ.

Wells A.*, Shenton H., and **Manahiloh K.N.** (2016). "Factors influencing the dynamic behavior of concrete box culverts." *Delaware Valley Geo-Institute conference*, Feb. 09, 2016, Villanova, Pa.

Motalleb Nejad M.*, and **Manahiloh K.N.** (2014). "Effective Stress in Unsaturated Soils: Developments and Limitations." *Seminar on Geo-Environmental Problems Involving Unsaturated Soil Behavior,* Dec 1 – 3, University of Delaware, Newark, DE.

Wells A.*, and **Manahiloh K.N.** (2014). "Incorporation of Partially Saturated Soil into Constitutive and FE Models." *Seminar on Geo-Environmental Problems Involving Unsaturated Soil Behavior,* Dec 1 – 3, University of Delaware, Newark, DE.

Manahiloh K.N. (2014). "Applications of X-ray CT in geotechnical engineering studies." *Washington Center for X-ray CT scanning and Imaging Technology (WACXIT),* May 9, Pullman.

Manahiloh K.N., Muhunthan B., and Likos W.J. (2014). "Effective Stress and the Role of Liquid Fabric in Unsaturated Granular Soils." *Proceedings of the International Symposium on Geomechanics from Micro to Macro (IS-Cambridge 2014),* Sept. 1 – 3, University of Cambridge, Cambridge, UK.

Manahiloh K.N. (2013). "Microstructural analysis of partially saturated granular soils using X-ray Computed Tomography." *Geo-transportation seminar*, 6 May, Washington State University.

Manahiloh K.N. (2012). "Digital image processes involved in CT scanning." *Washington Center for X-ray CT scanning and Imaging Technology (WACXIT),* multiple, Pullman.

Manahiloh K.N. (2011). "Principles and applications of X-ray CT scanning." *Washington Center for X-ray CT scanning and Imaging Technology (WACXIT),* multiple times, Pullman.

Manahiloh K.N. (2010). "Design of pile-supported mat foundations (Piled-raft systems)." *Advanced foundation engineering seminar*, 3 May, University of Idaho, Moscow.

Manahiloh K.N. (2010). "Evaluation of Clogging through X-ray scanning of pervious concrete field samples." *Geo-transport seminar,* 23 April, Washington State University, Pullman.

Manahiloh K.N. (2009). "Design and Cost Comparison of Reinforced Masonry and Reinforced concrete building Structures." *Department of Civil Engineering*, 16 July, AAU, Addis Ababa.

Manahiloh K.N. (2008). "A general framework on risk-informed seismic design." *Structural Engineering Students Conference,* 10-12 January, AAU, Addis Ababa.

Manahiloh K.N. (2007). "Mechanics of a scientific research paper: Write up." *Engineering Graduate Students Joint Seminar,* 18 July, AAU, Addis Ababa.

Manahiloh K.N. (2007). "Lateral force resisting systems: Layout selection, Analysis methods and connection detailing." *Structural engineering student seminar,* 11-13 July, AAU, Addis Ababa.

Manahiloh K.N., Kalayu G., Lamesgin A., Solomon A., (2004). "Foundation design for a G+6 multipurpose complex." S*enior Project Defense,* AAU, Addis Ababa.

Manahiloh K.N. (2003). "Fortran code to optimize the design of concrete gravity dam." *Civil Engineering Seminar,* 9 April, AAU, Addis Ababa.

Poster Presentations (* indicates presentation with student)

Kadivar, M.*, Wells. A. *, Bugher, C. *, **Manahiloh, K.N.**, Shenton, H.W., and Kaliakin, V.N. (2018) "Finite Element Analysis of Buried Box Culverts." *DelDOT Research Showcase*, May 09, Dover, DE.

Lamprinakos, R.*, **Manahiloh, K.N.** (2018) "Examining the behavior of compacted soil-biochar specimens." *Engineering Advisory Council Meeting*, May 03, Newark, DE.

Bugher, C. *, **Manahiloh, K.N.**, Kaliakin, V.N. and Shenton, H.W. (2018) "3-D FEM Using Infinite Elements." *Engineering Advisory Council Meeting*, May 03, Newark, DE.

Lamprinakos, R.*, **Manahiloh, K.N.** (2018) "Examining changes in the compacted behavior of soil-biochar mixtures, 8th Annual *Graduate Research Forum*, April 20, Newark, DE.

Bugher, C. *, **Manahiloh, K.N.**, Kaliakin, V.N. and Shenton, H.W. (2018) "Modeling of the load-asphalt-soil-culvert system with 3-D FEM and Infinite Elements." 8th Annual *Graduate Research Forum*, April 20, Newark, DE.

Kadivar, M.*, Wells. A. *, Bugher, C. *, **Manahiloh, K.N.**, Shenton, H.W., and Kaliakin, V.N. (2018) "2-D FEM Parametric Investigation of DAF in Buried Culverts." *ASCE Delaware valley Geotechnical Institute*, March 15, Villanova, PA.

Kadivar, M.*, **Manahiloh, K.N.**, Kaliakin, V.N., and Shenton, H.W. (2018) "Finite element analysis of buried Box Culverts." *ASCE Delaware valley Geotechnical Institute*, March 15, Villanova, PA.

Kadivar, M. *, **Manahiloh, K.N.**, and Kaliakin, V.N. (2018) "Triaxial Testing on Unsaturated Transition Silty-Sand." *ASCE Delaware valley Geotechnical Institute*, March 15, Villanova, PA.

Bugher, C. *, **Manahiloh, K.N.**, Kaliakin, V.N. and Shenton, H.W. (2018) "3-D FEM Using Infinite Elements." *ASCE Delaware valley Geotechnical Institute*, March 15, Villanova, PA.

Lamprinakos, R.*, **Manahiloh, K.N.** (2018) "Effect of biochar on geotechnical properties of soils." *ASCE Delaware valley Geotechnical Institute*, March 15, Villanova, PA.

Lamprinakos, R.*, **Manahiloh, K.N.** (2018) "Examining the behavior of compacted soil-biochar specimens." *ASCE Delaware valley Geotechnical Institute*, March 15, Villanova, PA.

Kadivar, M.*, **Manahiloh, K.N.**, and Kaliakin, V.N. (2017) "Finite Element Analysis of buried Box Culverts." *SCE Delaware valley Geotechnical Institute (DVGI)*, March 23, Villanova, PA.

Motalleb Nejad, M.*, and **Manahiloh, K.N.** (2017). "Investigating the role of soil fabric in unsaturated soils." *ASCE Delaware valley Geotechnical Institute*, March 23, Villanova, PA.

Abera, K.A.*, Motalleb Nejad, M., and **Manahiloh, K.N.** (2017). "Thresholding-based segmentation of two-phase geomaterials." *ASCE Delaware valley Geotechnical Institute (DVGI)*, March 23, Villanova, PA.

Manahiloh K.N., and Meehan C.L. (2015). "Evolution of Interphase Contact Angle in Partially Saturated Soils Using Digital Analysis of X-ray Tomography Images." *International Foundations Congress and Equipment Exposition (IFCEE)*, March 17-21, San Antonio, Texas.

Manahiloh K.N., and Meehan C.L. (2015). "Determining the Soil Water Characteristic Curve and interfacial contact angle from microstructural analysis of X-ray CT images." *ASCE Delaware valley Geotechnical Institute (DVGI)*, March 30, Villanova, PA.

Manahiloh K.N., Meehan C.L. and Motalleb Nejad M.* (2014). "Nondestructive evaluation of Contact Angle in Partially Saturated Soils." *EAC research showcase at the Civil and Environmental Engineering*, May 21, University of Delaware, Newark, DE.

Manahiloh K.N., Jaafar R., Muhunthan B., and Likos W. (2011). "Imaging and modeling the microstructure of unsaturated soils for improved prediction of macroscale response." *NSF-CMMI Research and Innovation Conference*, Jan 4-7, Atlanta, Georgia.

Theses and Project Reports

Manahiloh K.N. and Shenton H. (2018) "Impact Factor for Buried Culverts: Field Investigation." DelDOT. Quarterly Report for the period ending on March 30.

Manahiloh K.N. and Shenton H. (2017) "Impact Factor for Buried Culverts: Field Investigation." DelDOT. Quarterly Report for the period ending on September 30.

Manahiloh K.N. and Shenton H. (2017) "Impact Factor for Buried Culverts: Field Investigation." DelDOT. Quarterly Report for the period ending on June 30.

Manahiloh K.N. and Shenton H. (2017) "Impact Factor for Buried Culverts: Field Investigation." DelDOT. Quarterly Report for the period ending on March 30.

Manahiloh K.N. and Shenton H. (2016) “Impact Factor for Buried Culverts: Field Investigation.” DelDOT. Quarterly Report for the period ending on December 30.

Manahiloh K.N. and Shenton H. (2016) “Impact Factor for Buried Culverts: Field Investigation.” DelDOT. Quarterly Report for the period ending on September 30.

Manahiloh K.N. and Shenton H. (2016) “Impact Factor for Buried Culverts: Field Investigation.” DelDOT. Quarterly Report for the period ending on June 30.

Shenton H. and **Manahiloh K.N.** (2016) “Impact Factor for Buried Culverts: Parametric Study.” DelDOT. Quarterly report for the Period ending on March 30.

Shenton H. and **Manahiloh K.N.** (2015) “Impact Factor for Buried Culverts: Parametric Study.” Delaware Department of Transportation. Quarterly report for the period ending on December 30.

Shenton H. and **Manahiloh K.N.** (2015) “Impact Factor for Buried Culverts: Parametric Study.” Delaware Department of Transportation. Quarterly report for the period ending on September 30.

Shenton H. and **Manahiloh K.N.** (2015) “Impact Factor for Buried Culverts: Parametric Study.” Delaware Department of Transportation. Quarterly report for the period ending on June 30.

Muhunthan B., Likos W.J., **Manahiloh K.N.**, and Jaafar R. (2013). “Imaging and modeling the microstructure of unsaturated soils for improved prediction of macroscale response.” Final report. National Science Foundation (NSF). September 2013.

Manahiloh K.N. (2013). “Microstructural analysis of unsaturated granular soils using X-ray Computed Tomography.” *Ph.D. Dissertation,* Washington State University.

Manahiloh K.N., Muhunthan B., and Gebremariam S.Y. (2010). “Non-destructive porosity determination in porous concrete using X-ray computed tomography.” UC Davis, 45 pp.

Manahiloh K.N. and Muhunthan B. (2010). “Fiber distribution inside fiber reinforced concrete cores.” Final Report University of Illinois at Urbana-Champaign, 20 pp.

Manahiloh K.N. (2009). “Design and cost comparison of reinforced masonry and reinforced concrete structures.” *M.Sc. Thesis,* Addis Ababa University, Addis Ababa (A.A.).

Manahiloh K.N. (2008). “A general framework on risk-informed seismic design.” A semester project report submitted as part of reinforced concrete class, AAU, A.A.

Manahiloh K.N. (2007). “Mechanics of a scientific research paper: Write up.” *A semester project report submitted as part of scientific research class,* AAU, A.A.

Manahiloh K.N., Kalayu G., Lamesgin A., Solomon A., (2004). “Foundation design for a G+6 multipurpose complex: Final Report. Undergraduate project report, 120 pp, AAU, A.A.

Manahiloh K.N., Gutu B.F., and Molla M., (2003). “Fortran code optimizing the design of concrete gravity dam.” Semester project report, AAU, A.A.

TEACHING AND ADVISING

Teaching

Semester	*Course No.*	*Course Title*	*Credits*	*Enrolled*
Spring 2018	CIEG425/625	Unsaturated Soil Mechanics	3	3G/1U
Fall 2017	CIEG320	Soil Mechanics	3	77U
Spring 2017	CIEG428/628	Ground Improvement Methods	3	3G/2U
Fall 2016	CIEG320	Soil Mechanics	3	86U
Spring 2016	CIEG467/667	Unsaturated Soil Mechanics	3	10 G
Fall 2015	CIEG320	Soil Mechanics	3	99 U
Spring 2015	CIEG428/628	Ground Improvement Methods	3	9G
Fall 2014	CIEG667	Unsaturated Soil Mechanics[+]	3	7 G
Spring 2014	CIEG421/621	Foundation Engineering	3	5 U/1 G
Spring 2013	CE 435	Foundations[1]	3	65 U
Fall 2012	CE 425/525	Soil and Site Improvement[1]	3	25 U/4 G
Spring 2012	CE 317	Geotechnical Engineering[*1]	3	90 U
Fall 2008	CENG 1002	Strength of Materials[2]	3	120 U
Spring 2009	CENG 1802	Surveying[2]	3	120 U

U = Undergraduate students | G = Graduate students
[1] Taught at Washington State University (Instructor of record)
[*] Regular substitute Instructor
[2] Taught Addis Ababa University, Ethiopia
[+] New Course to the University. Course number approved!
[!] Course brought back after not being offered for 12 years

Student advising and mentoring

Name	*Program*	*University*	*Status*[*]
Class of 2021	B.Sc.	UD	F2017 – present
Class of 2017+	B.Sc.	UD	F2013 – S2017
Renee Lamprinakos	M.Sc.	UD	F2017 - present
Christy Bugher	M.Sc.	UD	F2017 - present
Mohammad Motalleb Nejad+	M.Sc.	UD	S2017-S2017

Mehdi Kadivar	Ph.D.	UD	F2016 - present
Saeedeh Naziri	Ph.D.	UD	F2015 – F2015
Andrew Wells+	M.Sc.	UD	F2014 - SU2016
Kokeb Abera+	M.Sc.	UD	F2015 - S2017
Kyle Verdi	B.Sc.	UD	F2017 - present
David Highberger	B.Sc.	UD	SP&F2016
Samantha Rozycki	B.Sc.	UD	F2016
Shannon Russel	B.Sc.	UD	F2015
Evan Ferguson	B.Sc.	UD	F2015
Meron Wobneh	B.Sc.	WSU	SU2010
Bruk Woldearegay	B.Sc.	WSU	SU2012
Will Braun	B.Sc.	WSU	SU2010
Abdelalim Zakaria	B.Sc.	WSU	SU2011

[+] Graduated [*] F = Fall; SP = Spring; SU = Summer

Thesis and Dissertation committee memberships

Student	***Degree***	***Program***	***University***	***Status***
Renee Lamprinakos	M.Sc.	CIEG	UD	In progress
Christy Bugher	M.Sc.	CIEG	UD	In progress
Mehdi Kadivar	Ph.D.	CIEG	UD	In progress
Saeedeh Naziri	Ph.D.	CIEG	UD	---
Kokeb Abera	M.Sc.	CIEG	UD	Graduated SP17
Mohammad Motalleb Nejad	M.Sc.	CIEG	UD	Graduated SP17
Andrew Wells	M.Sc.	CIEG	UD	Graduated SU16
Andres Nieto-Leal	Ph.D.	CIEG	UD	Graduated SP16
Majid Talebi	Ph.D.	CIEG	UD	Graduated F16
Meysam Mashayekhi	Ph.D.	CIEG	UD	Ph.D. Candidate
William Baker	Ph.D.	CIEG	UD	In progress
Maryam Alahmar	Ph.D.	CIEG	UD	S15 - S17
Ali Al Saadi	Ph.D.	CIEG	UD	In progress

SERVICE

Professional Service

Technical sessions

• PanAm2017-UNSAT conference, Houston, TX, Technical Session 25: Constitutive Modeling: Micro to Macro. Chair: **K.N. Manahiloh.**

• ASCE Geotechnical Frontiers 2017, Orlando, FL, Technical Session proposal approved: Microstructural investigation of unsaturated granular soil behavior, Chairs: **K.N. Manahiloh**, C.L. Meehan.

Technical Committee

• ASCE Geo-Institute – Computational Geotechnics Committee
• ASCE Geo-Institute – Unsaturated Soils Committee
• TRB AFP60 – Engineering Behavior of Unsaturated Soils
• TRB AFP30 – Soil and Rock Properties

Moderator

Transportation Infrastructure Forum, Delaware Center for Transportation, Nov. 13, 2013

Reviewer

• ASCE: International Journal of Geomechanics
• ASCE: Journal of Geotechnical and Geoenvironmental Engineering
• ASCE: Journal of Materials in Civil Engineering
• ASCE: Journal of Infrastructure Systems
• ASTM: Geotechnical Testing Journal
• Journal of Engineering Geology
• Journal Soil Dynamics and Earthquake Engineering
• Journal of Construction and Building Materials in Civil Engineering
• International Journal of Geosynthetics and Ground Engineering
• TRB: Engineering Behavior of Unsaturated Soils
• Proceedings of the PanAm2017-UNSAT conference
• Proceedings of the Geotechnical Frontiers 2017 conference
• Proceedings of the 2015 International Foundations Congress and Equipment Exposition.

Department, College, and University Service

- Review for the FE exam: Soil mechanics and Geotechnical Engineering, Two-hour Lectures (Sept. 19, 2017; Oct. 11, 2016; Oct. 15, 2015)
- College of Engineering: Junior Faculty Advisory Council (Fall 2017 – present)
- Academic Advisor for Class of 2021 (Fall 2017 – present)
- Departmental Chair Search Committee (Spring 2017, Summer 2017)
- Geotechnical Engineering Undergraduate Coordinator (Fall 2016 – present)
- Chi-Epsilon Delaware Chapter Faculty Advisor (Spring 2014 – present)
- Civil & Environmental Engineering Undergraduate Education Committee (Fall 2013 – present)
- EAC Research Showcase Presenter (May 21, 2014)
- Transportation Infrastructure Forum, Moderator. (Nov. 2013)
- Academic Advisor for Class of 2017 (Fall 2013 - Spring 2017)

PROFESSIONAL DEVELOPMENT

- NSF/USUCGER Early Career Geotechnical Faculty Workshop, Cleveland, OH (May 2018)
- IFCEE 2018 Conference, Orlando, FL (Spring 2018)
- PanAm2017 Unsaturated Soils Conference, Dallas, TX (Fall 2017)
- Geo-Frontiers Conference, Orlando, FL (Spring 2017)
- ADSC Foundation Engineering Faculty Workshop, Chattanooga, TN (June 5-10, 2016)
- 2nd US-GUD Seminar on Geo-Environmental issues involving unsaturated soils, Faculty advisor and organizer, University of Delaware, Newark (May 12 – 17, 2016)
- IFCEE 2015 conference, San Antonio, TX (Spring 2015)
- TRB 94rd annual meeting, Washington D.C. (January 11 – 15, 2015)
- 1st US-GUD Seminar on Geo-Environmental issues involving unsaturated soils, Faculty advisor and organizer, University of Delaware, Newark (December 1 – 3, 2014)
- National Science Foundation (NSF) Career Proposal Writing Workshop, University of Maryland, College Park (April 7-8, 2014)
- American Society of Civil Engineers (ASCE) Excellence in Civil Engineering Education (ExCEEd) Teaching Workshop, West Point, NY (July 20 – 25, 2014)
- TRB 93rd annual meeting, Washington D.C. (January 12 – 17, 2014)
- Transportation Infrastructure Forum. Newark, DE, Moderator (November 13, 2013)