

## **LINDSEY SEBASTIAN BRYSON, PH. D., P.E.**

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### **EDUCATION**

#### **NORTHWESTERN UNIVERSITY**

December 2002

Evanston, IL

Doctor of Philosophy, Civil Engineering

Dissertation: Performance of a Stiff Excavation Support System in Soft Clay and the Response of an Adjacent Building

#### **HOWARD UNIVERSITY**

May 1992

Washington, DC

Master of Engineering, Civil Engineering

Thesis: Contaminant Migration through a Seasonally Freezing and Thawing Soil

#### **FLORIDA AGRICULTURAL AND MECHANICAL UNIVERSITY**

May 1987

Tallahassee, FL

Bachelor of Science, Civil Engineering

### **REGISTRATIONS**

- Registered Professional Engineer: Wisconsin, 31821
- Registered Professional Engineer: Illinois, 062-051411
- Registered Professional Engineer: Ohio, E-61245
- Registered Professional Engineer: Indiana, 19700163
- Registered Professional Engineer: Michigan, 43753

### **ACADEMIC EXPERIENCE**

#### **ASSOCIATE PROFESSOR**

2012 to Present

University of Kentucky, Department of Civil Engineering

#### **ASSISTANT PROFESSOR**

2006 to 2012

University of Kentucky, Department of Civil Engineering

Performed research and taught the following undergraduate and graduate-level courses:

#### **Undergraduate Courses Taught:**

CE 579 Geotechnical Engineering  
CE 120 Introduction to Civil Engineering

#### **Graduate Courses Taught:**

CE 671 Advanced Soil Mechanics  
CE 676 Groundwater and Seepage  
CE 699 Stability of Earth Slopes  
CE 779 Advanced Geotechnical Engineering

Service responsibilities include member of the CE Department Education committee, member of the Committee on Research and Policy of the Kentucky Water Resources Research Institute, Engineering faculty mentor for the Center for Academic Resources and Enrichment Services Freshman Summer Program, member of Transportation Scholarship committee, member of the CE Department Chair Performance Review committee, member of the Structural Engineering Faculty Search committee, and faculty representative for the annual Minority Engineering Day program.

**ASSISTANT PROFESSOR**

2001 to 2006

Ohio University, Department of Civil Engineering

Performed research and taught the following undergraduate and graduate-level courses:

**Undergraduate Courses Taught:**

CE 222 Strength of Materials  
CE 301 Applied Mechanics  
CE 370 Geotechnical Engineering  
CE 371 Soils Engineering Lab  
CE 471 Foundation Engineering

**Graduate Courses Taught:**

CE 572 Soil Mechanics I  
CE 573 Soil Mechanics II  
CE 575 Advanced Foundation Engineering  
CE 476/576 Soil Stabilization

Wrote course descriptions and developed syllabi for the several courses in support of the proposed new Ph.D. program in Civil Engineering. They included: CE 670 Computational Methods in Geomechanics, CE 771 Engineering Behavior of Soils, CE 774 Experimental Soil Mechanics.

Service responsibilities include served as advisor for the student Cost Estimating Team for the Ohio Contractor Association Construction Estimating Competition, member of several Department-level committees, member of the faculty search committees a Construction Engineering Management faculty and Structural Engineering faculty, and member of the College of Engineering Student Probation Committee.

**GENERAL ELECTRIC FACULTY INTERN**

2000 to 2001

Northwestern University, Department of Civil Engineering

Taught laboratory portion and delivered several lectures of CE 250 Introductory Soil Mechanics.

**RESEARCH ASSISTANT**

1999 to 2000

Northwestern University, Department of Civil Engineering

Installed instrumentation to monitor a braced excavation in soft clay. Installed instrumentation in the building adjacent to the excavation and monitored movement and subsequent damage resulting from excavation- and construction-related activities. Developed criteria to reduce excavation-related damage to buildings adjacent to deep excavations.

**TEACHING ASSISTANT**

1998 to 1999

Northwestern University, Department of Civil Engineering

Taught laboratory portion and delivered several lectures of CE 250 Introductory Soil Mechanics. Taught laboratory portion of CE 351 Engineering Properties of Soils. Delivered several lectures

of CE 352 Foundation Engineering. Assisted students and professor for CE 302 Engineering Law.

**RESEARCH ASSISTANT**

1990 to 1991

Howard University, Department of Civil Engineering

Managed the geotechnical engineering research laboratory. Supervised and coordinated the updating of all soil testing equipment. Conducted various geotechnical research experiments. Supervised several summer students.

**TEACHING ASSISTANT**

1989 to 1990

Howard University, Department of Civil Engineering

Taught laboratory portion of 302-434 Soil Mechanics. Assisted students and Class Instructor for 302-349 Analysis Methods in Civil Engineering.

**EXTERNAL GRANTS AND FUNDING**

Studying Distribution System Hydraulics and Flow Dynamics to Improve Water Utility Operational Decision Making 2011 to 2014

Investigators: Lindell Ormsbee (PI), L. Sebastian Bryson (co-PI), and Scott Yost

Sponsor: National Institute of Hometown Security

Award Amount: \$1,980,253

Assessment and Mitigation of Waterside Attacks on Dams 2010 to 2013

Investigators: L. Sebastian Bryson (PI), Michael Kalinski, Lindell Ormsbee, Braden Lusk, and Kamyar Mahboub

Sponsor: National Institute of Hometown Security

Award Amount: \$2,734,054

Geotechnical Engineering Technical Review and Modeling 2011 to 2012

Investigator: L. Sebastian Bryson (PI) and Michael Kalinski

Sponsor: Kentucky Energy and Environment Cabinet

Award Amount: \$49,463

NSF/EPSCoR: Insitu Moisture Content from Measurements of the Complex Dielectric Constant in Soils 2010 to 2011

Investigator: L. Sebastian Bryson (PI)

Sponsor: National Science Foundation

Award Amount: \$5,000

Evaluation of Non-Nuclear Methods for Compaction Quality Control 2009 to 2011

Investigators: Clark Graves (PI) and L. Sebastian Bryson (co-PI)

Sponsor: Kentucky Transportation Cabinet

Award Amount: \$225,000

Analysis of Wolf Creek Dam Rehabilitation Project 2008 to 2009

Investigators: Michael Kalinski (PI), L. Sebastian Bryson, and Edward Woolery

Sponsor: Office of the President, University of Kentucky

Award Amount: \$200,000

Dynamic, Distributed Real-Time System for Geosystems Health Monitoring 2008 to 2009  
Investigators: L. Sebastian Bryson (PI)  
Sponsor: Kentucky Science and Engineering Foundation (KSEF)  
Award Amount: \$19,963

Research Experience for Undergraduates (REU) Supplement 2007 to 2008  
Investigators: L. Sebastian Bryson (PI)  
Sponsor: National Science Foundation  
Award Amount: \$12,000

Shear Strength of Clay and Silt Embankments 2007 to 2010  
Investigators: L. Sebastian Bryson (PI), Terry Masada (co-PI)  
Sponsor: Ohio Department of Transportation  
Award Amount: \$345,000

Deformation Based Design Methodology for Excavation Support Systems 2006 to 2009  
Investigators: L. Sebastian Bryson (PI)  
Sponsor: National Science Foundation  
Award Amount: \$155,000

Transport and Fate of Nanoparticles in Groundwater 2005 to 2006  
Investigators: L. Sebastian Bryson (PI), Guy Reifler (co-PI)  
Sponsor: Water Resources Research Institute  
Award Amount: \$19,899

MRPG: Geotechnical Parameters of Soil Using Electrical Sensor Technology 2003  
Investigators: L. Sebastian Bryson (PI)  
Sponsor: National Science Foundation  
Award Amount: \$18,000

GE Faculty Intern Research Initiation Faculty Coupon 2001 to 2002  
Investigators: L. Sebastian Bryson (PI)  
Sponsor: GE Foundation  
Award Amount: \$15,000

## **INTERNAL GRANTS AND FUNDING**

Purchase of Triaxial Data Acquisition Sensor and Software 2007  
Investigators: L. Sebastian Bryson (PI)  
Palmer Engineering Civil Engineering Laboratory Endowment Fund  
Award Amount: \$2,860

RoboPaver: Autonomous Robotic Concrete Paving Demonstration 2005  
Investigators: Robert Williams II (PI), L. Sebastian Bryson (co-PI), Daniel Castro (co-PI),  
Ohio University Research Committee Award  
Award Amount: \$7,000

Generalized Theory for the Behavior of Fly Ash-Modified Soils Investigators: L. Sebastian Bryson (PI) Ohio University Research Challenge Award Award Amount: \$6,000	2005
Funding to attend International Conference Investigators: L. Sebastian Bryson (PI) Stocker Faculty Enrichment Fund Award Amount: \$1,245	2005
Geotechnical Parameters of Soils Using Sensor Technology Investigators: L. Sebastian Bryson (PI) Ohio University Research Challenge Award Award Amount: \$6,000	2004
Funding to attend National Conference Investigators: L. Sebastian Bryson (PI) Stocker Faculty Enrichment Fund Award Amount: \$865	2004
Response of Foundation Systems to Severe Events Investigators: L. Sebastian Bryson (PI) Ohio University Research Challenge Award Award Amount: \$6,000	2003
Funding to attend International Conference Investigators: L. Sebastian Bryson (PI) Stocker Faculty Enrichment Fund Award Amount: \$1,500	2003
Funding to attend National Conference Investigators: L. Sebastian Bryson (PI) Stocker Faculty Enrichment Fund Award Amount: \$700	2003
Funding to attend Cone Penetrometer Testing Short Course Investigators: L. Sebastian Bryson (PI) Stocker Faculty Enrichment Fund Award Amount: \$980	2002
Purchase of Undergraduate Laboratory Equipment Investigators: L. Sebastian Bryson (PI) Ohio House Bill Funds Award Amount: \$3,300	2002

## **GRANTS AND FUNDING IN REVIEW**

Dynamic Response of Partially Saturated Earth Structures 2011  
Investigators: L. Sebastian Bryson (PI)  
Sponsor: U.S. Army Engineering Research and Development Center  
Award Amount: \$195,331

## **REFEREED JOURNAL ARTICLES**

Bryson, L.S., and Adu-Gyamfi, K.<sup>1</sup> (2012). "Prediction of Geotechnical Parameters of Flyash-Modified Soil Using Mixture Theory," *International Journal of Geomechanics*, ASCE, in preparation.

Bryson, L.S., and Zapata-Medina, D.G.<sup>1</sup> (2012). "Deformation-Based Design Approach for Excavation Support Systems," *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, in preparation.

Bryson, L.S., and Ortiz, R.<sup>2</sup> (2012). "Effects of Initial Conditions on Strength of Acrylamide Grouted Sands," *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, in preparation.

Kidd, J.B.<sup>1</sup>, Bryson, L.S., and Walton-Macaulay, C.<sup>1</sup>, (2012). "Equations for the Unsaturated Soil Elastic Shear Modulus," *Canadian Geotechnical Journal*, CGS, in preparation.

Bryson, L.S., Gomez-Gutierrez, I.C.<sup>1</sup> and Hopkins, T.C. (2012). "Shear Behavior of Compacted Weathered Shales," *Engineering Geology*, submitted.

Walton-Macaulay, C.<sup>1</sup>, Kidd, J.B.<sup>1</sup>, Bryson, L.S., Hippley, B.T., and Hardin, B.O. (2012). "Uniqueness of Shear Modulus Hyperbolic Surface Stress Paths in Unsaturated Soils," *International Journal of Geomechanics*, ASCE, submitted.

Salehian, A.<sup>1</sup> and Bryson, L.S. (2012). "Sensitivity Analysis of Select Input Parameters for an Advanced Constitutive Model," *ACTA Geotechnica*, Springer, in review.

Bryson, L.S. and Zapata-Medina, D.G.<sup>1</sup> (2012). "Method for Estimating System Stiffness of Excavation Support Systems," *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, Vol. 138, No. 9, in print.

Bryson, L.S., Gomez-Gutierrez, I.C.<sup>1</sup> and Hopkins, T.C. (2012). "Development of a New Loss Slake Durability Index for Compacted Shales," *Engineering Geology*, Vol.139-140, 66-75.

Bryson, L.S., Jean-Louis, M.<sup>2</sup> and Gabriel, C.<sup>2</sup> (2012). "Determination of Insitu Moisture Content in soil from a Measure of Dielectric Constant," *International Journal of Geotechnical Engineering*, Vol. 6, No. 2, 251-259.

Bryson, L.S. and Kotheimer, M.J.<sup>1</sup> (2011). "Cracking in Walls of a Building Adjacent to a Deep Excavation," *Journal of Performance of Constructed Facilities*, Vol. 25, No. 6, 491-503.

Acton, P.M.<sup>1</sup>, Fox, J.F., Campbell, J.E., Jones, A.L., Rowe, H., Martin, D., and Bryson, L.S. (2011). "The Role of Soil Health in Maintaining Environmental Sustainability of Surface Coal Mining," *Environmental Science and Technology*, Vol. 45, 10265-10272.

Bryson, L.S. and Salehian, A.<sup>1</sup> (2011). "Performance of Constitutive Models in Predicting Behavior of Remolded Clay," *ACTA Geotechnica*, Vol. 6, No. 3, 143-154.

Bryson, L.S. and Zapata-Medina, D.G.<sup>1</sup> (2010). "Finite Element Analyses of Secant Pile Wall Installation," *Proceedings of the Institution of Civil Engineers, Geotechnical Engineering*, ICE, Vol. 163, No. 4, pp. 209-219.

Bryson, L.S. and Bathe, A.<sup>1</sup> (2009). "Determination of Selected Geotechnical Properties of Soil using Electrical Conductivity Testing," *Geotechnical Testing Journal*, ASTM, Vol. 32, No. 3, pp. 252-261.

Bosscher, P., Williams, II, R., Bryson, L.S., Castro-Lacouture, D. (2007). "Cable-Suspended Robotic Contour Crafting System," *Journal of Automation in Construction*, Vol. 17, No. 1, pp. 45-55.

Finno, R. J. and Bryson, L. S. (2002). "Response of Buildings Adjacent to Stiff Excavation Support Systems in Soft Clay," *Journal of Performance of Constructed Facilities*, ASCE, Vol. 16, No. 1, pp. 10-20.

Finno, R. J., Bryson, L. S., and Calvello, M. (2002) "Performance of a Stiff Excavation Support System in Soft Clay," *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, Vol. 128, No. 8. [Recipient of the Thomas A. Middlebrooks Award at the 2004 ASCE National Convention. This award is made to the author(s) of a paper in the Geotechnical and Geoenvironmental Journal, which is judged worthy of special commendation for its merit as a contribution to geotechnical engineering.]

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<sup>1</sup> Graduate Student; <sup>2</sup> Undergraduate Student

## **REFEREED SPECIAL PUBLICATION**

McHenry, M.<sup>2</sup>, and Bryson, L.S. (2012), "Exploring the Failure Mechanism of the Ajka Red Mud Waste Cell Failure using Slope Stability Analysis", *Sound Geotechnical Research to Practice*, ASCE, Geotechnical Special Publication, in review.

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<sup>1</sup> Graduate Student; <sup>2</sup> Undergraduate Student

## **REFEREED CONFERENCE ARTICLES**

Bryson, L.S., Yohe, C.L.<sup>1</sup>, and Hinkle, D. (2012), "A Case Study of a Ground Slip during Installation of an HDPE Pipe", *6<sup>th</sup> Congress on Forensic Engineering*, ASCE, San Francisco, CA, 31 October-3 November, 2012.

Curd, J.<sup>1</sup>, Bryson, L.S., and Kalinski, M. (2012), "Sonar for Protection of Maritime Structures", *United States Society on Dams 2012 Annual Meeting and Conference*, USSD, New Orleans, LA, 23-27 April, 2012.

Krumenacher, A.<sup>1</sup>, Bryson, L.S., and Kalinski, M., (2012), "Defensive Directed Energy Systems for Dam Security", *United States Society on Dams 2012 Annual Meeting and Conference*, USSD, New Orleans, LA, 23-27 April, 2012.

Bryson, L.S., Adu-Gyamfi, K.<sup>1</sup>, and Janbakhsh, L.A.<sup>1</sup> (2011), "Physicochemical Analysis of Fly Ash-Modified Soils", *International Conference on Advances in Geotechnical Engineering*, Perth, Australia, 7-9 November, 2011.

Jean-Louis, M.<sup>2</sup>, Bryson, L.S., and Gabriel, C.<sup>2</sup> (2011). "Determination of insitu moisture content from a measure of the complex dielectric constant in soils", *International Conference on Advances in Geotechnical Engineering*, Perth, Australia, 7-9 November, 2011.

Silva-Castro, J.<sup>1</sup>, Bryson, L.S. Gamber, N.K.<sup>1</sup>, and Lusk, B.T. (2011), "Numerical Modeling of Subsurface Blast", *14<sup>th</sup> Pan-American Conference on Soil Mechanics and Geotechnical Engineering (PCSMGE)*, Toronto, Ontario, Canada, 2-6 October, 2011.

Adu-Gyamfi, K.<sup>1</sup>, Bryson, L.S., and Janbakhsh, L.A.<sup>1</sup> (2011), "Prediction of Moisture-Density Characteristics of Compacted Fill using Mixture Theory", *14<sup>th</sup> Pan-American Conference on Soil Mechanics and Geotechnical Engineering (PCSMGE)*, Toronto, Ontario, Canada, 2-6 October, 2011.

Dennison, D.<sup>1</sup> and Bryson, L.S. (2011), "Thermal Imaging for Waterside Surveillance at Dam Sites", *Dam Safety 2011*, The Association of State Dam Safety Officials, Washington, DC, 25-29 September, 2011.

Kirkendoll, J.<sup>1</sup> and Bryson, L.S. (2011), "Optical Sensor Technology for Dam Security Using LIDAR", *Dam Safety 2011*, The Association of State Dam Safety Officials, Washington, DC, 25-29 September, 2011.

Bryson, L.S., and Walton-Macaulay, C.<sup>1</sup> (2011). "The Effects of Fouling on the Deformation and Stiffness Behavior of Railroad Ballast," *International Symposium on Deformation Characteristics of Geomaterials*, 31 August -3 September, 2011, Seoul, Korea.

Gomez-Gutierrez, I. C.<sup>1</sup>, Bryson, L.S., and Hopkins, T.C. (2011). "Correlations between durability and geotechnical properties of compacted shale", *Geo-Frontiers 2011*, Dallas, TX ,13-16 March 2011.

Bryson, L.S., Gomez-Gutierrez, I. C.<sup>1</sup>, and Hopkins, T.C. (2011). "Correlations between Geotechnical Properties and the Swell Behavior of Compacted Shales", *Geo-Frontiers 2011*, Dallas, TX ,13-16 March 2011.

Adu-Gyamfi, K.<sup>1</sup> and Bryson, L.S. (2010). "The Effects of Fly Ash on the Engineering Properties of Subgrade Soils," *6th International Congress on Environmental Geotechnics*, New Delhi, India, 8-12 November, 8 pp.



Bryson, L.S. and Zapata-Medina, D.G.<sup>1</sup> (2010). "Direct Approach for Designing an Excavation Support System to Limit Ground Movements," *Earth Retention 2010 Conference*, Bellevue, WA, 1-4 August, 8 pp.

Heiser, J.M.<sup>1</sup>, Bryson, L.S., and Weekly, M.W.<sup>1</sup>, (2010). "Structural Control and Damage Monitoring using Crack Width Measurements", *5th World Conference on Structural Control and Monitoring*, Shinjuku, Tokyo, Japan, 12-14 July 2010.

Anderkin, M.<sup>2</sup> and Bryson, L.S. (2010). "Critical State Parameters of Kentucky Clay," *GeoShanghai International Conference*, Shanghai, China, 3-5 June, 6 pp.

Bryson, L.S., Lutz, T.<sup>1</sup> and Barnes, A.<sup>1</sup> (2010). "Issues of Signal Strength of Wireless Sensors for Civil Infrastructure Monitoring," *SPIE Symposium on SPIE Smart Structures and Materials + Nondestructive Evaluation and Health Monitoring*, San Diego, USA, 7-11 March, 8 pp.

Rose, J.G. and Bryson, L.S. (2009). "Optimally Designed Hot Mix Asphalt Railway Trackbeds – Test Measurements, Trackbed Materials, Performance Evaluations, and Significant Implications," *2009 International Conference on Perpetual Pavements*, ORITE, Columbus, OH, USA, 30 September - 30 October, 2009.

Bryson, L.S., Barnes, A.<sup>1</sup> and Lutz, T.<sup>1</sup> (2009). "Deformation Obtained from Wireless Sensor Motes," *4<sup>th</sup> International Conference on Structural Health Monitoring on Intelligent Infrastructure (SHMII-4)*, Zurich, Switzerland, 22-24 July, 9 pp.

Bryson, L.S. and Rose, J. (2009). "Pressure Measurements and Structural Performance of Hot Mixed Asphalt Railway Trackbeds," *8<sup>th</sup> International Conference on the Bearing Capacity of Roads, Railways, and Airfields (BCR<sup>2</sup>A)*, Champaign, IL, USA, 29 June - 2 July, 2009, 10 pp.

Kotheimer, M.J.<sup>1</sup> and Bryson, L.S. (2009). "Damage Approximation Method for Excavation-Induced Damage to Adjacent Buildings," *International Foundations Congress and Equipment Expo (IFCEE09)*, Orlando, FL, USA, 15-19 March, 8 pp.

Bryson, L.S., Barnes, A.<sup>1</sup> and Lutz, T.<sup>1</sup> (2009). "Deformations Determined from Wireless MEMS Accelerometers," *Transportation Research Board 88th Annual Meeting*, TRB, Washington, DC, USA, 11-15 January, Paper # 09-1260.

Castro-Lacouture, D., Bryson, L.S., Maynard, C.<sup>1</sup>, Williams, II, R., Bosscher, P. (2007). "Concrete Paving Productivity Improvement Using a Multi-Task Autonomous Robot," *24<sup>th</sup> International Symposium on Automation and Robotics in Construction (ISARC2007)*, Kochi, Kerala, India, 19-21 September, 10 pp.

Bryson, L.S. and Zapata-Medina, D.G.<sup>1</sup> (2007). "Physical Modeling of Supported Excavations," *Proceedings of Geo-Denver*, Denver, CO, 18-21 February 2007.

Bryson, L.S. and Zapata-Medina, D.G.<sup>1</sup> (2007). "Wall Installation Effects of Excavation Support Systems," *Proceedings of the XIII Panamerican Conference on Soil Mechanics and Geotechnical Engineering*, Isla Margarita, Venezuela, 16-20 July 2007.

Bryson, L.S., Castro-Lacouture, D., Maynard, C.<sup>1</sup>, Williams, II, R., Bosscher, P. (2007). "Productivity Analysis of a Multi-task Autonomous Robot for Concrete Paving," *ASCE/CIB Construction Research Congress*, Michael Garvin, Francis Edum-Fotwe and Paul Chinowsky Eds., Grand Bahama Island, Bahamas, May 6-8, 8 pp.

Castro-Lacouture, D., Bryson, L.S., and Gonzalez-Joaqui, J.<sup>1</sup> (2006). "Real-Time Positioning Network for Intelligent Construction," *Proceedings of International Conference on Computing and Decision Making in Civil and Building Engineering*, Montreal, Canada, 14-16 June 2006.

Maynard, C.<sup>1</sup>, Williams, II, R., Bosscher, P., Bryson, L.S., Castro-Lacouture, D. (2006). "Autonomous Robot for Pavement Construction in Challenging Environments," *Proceedings Earth and Space 2006*, League City, TX, ASCE, 5-8 March 2006.

Bosscher, P., Williams, II, R., Bryson, L.S., Castro-Lacouture, D. (2006). "Cable-Suspended Robotic Contour Crafting System," *Proceedings of International Design Engineering Technical Conferences/ Computers and Information in Engineering Conference*, Philadelphia, PA, ASME, DECT2006-99016, 10-13 September 2006.

Bryson, L.S., Maynard, C.<sup>1</sup>, Castro-Lacouture, D., and Williams, R.L. (2005). "Fully Autonomous Robot for Paving Operations," *Proceedings of Construction Research Congress*, San Diego, CA, 5-7 April 2005.

Bryson, L.S. (2005). "Geotechnical Properties of Soil from Electrical Resistivity Measurements," *Proceedings of Geo-Frontiers*, Austin, TX, 24-26 January 2005.

Bryson, L.S. (2005). "Improving Seismic Response of Fine Grained Soils," *Proceedings of International Conference on Geotechnical Engineering for Disaster Mitigation and Rehabilitation*, Singapore, Chu, Phoon, and Yong (eds), 12-13 December 2005.

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<sup>1</sup> Graduate Student; <sup>2</sup> Undergraduate Student

## **REVIEWED TECHNICAL REPORTS**

Curd, J., Kirkendoll, J., Dennison, D., Walton-Macaulay, C., Bryson, L.S., Kalinski, M.E., and Lusk, B. (2012), "Waterside Attacks on Dams Detect and Track Technologies," *Technical Report*, submitted to the National Institute for Hometown Security, Somerset, KY, June 2012, For Official Use Only (FOUO).

Phillips, B., Ethington, Z., Kalinski, M.E., Bryson, L.S., and Lusk, B. (2011), "Existing Barrier and Less Than Lethal Technologies," *Technical Report*, submitted to the National Institute for Hometown Security, Somerset, KY, July 2011, For Official Use Only (FOUO).

Janbakhsh, L.A., Bryson, L.S., Lusk, B., and Kalinski, M.E. (2011), "Identification of Generic Dam and Spillway Configurations," *Technical Report*, submitted to the National Institute for Hometown Security, Somerset, KY, July 2011, For Official Use Only (FOUO).

Heiser, J.M., Bryson, L.S., Lusk, B., and Kalinski, M.E. (2011), "Underwater and Surface Water Blast Safety Zones for Concrete Dams," *Supplemental Report*, submitted to the National Institute for Hometown Security, Somerset, KY, July 2011, For Official Use Only (FOUO).

## **RESEARCH REPORTS**

Bryson, L. S., (2010-present), "Assessment and Mitigation of Water-Side Attacks on Dams," *Quarterly Project Report (1Q-March, 2Q-June, 3Q-September, 4Q-December)*, NIHS KCI Subcontract #04-09-UK, National Institute for Hometown Security, Somerset, KY.

Bryson, L. S., (2010), "Waterside Security R&D Advisory Task Group Meeting," *Meeting Summary Report*, NIHS KCI Subcontract #04-09-UK, National Institute for Hometown Security, Somerset, KY, October.

Bryson, L. S., (2010), "Dynamic, Distributed Real-time System for Geosystems Health Monitoring," *Post-Project Progress Report*, KSEF-1497-RDE-010, Kentucky Science and Engineering Foundation, Lexington, KY, July.

Bryson, L.S., (2009), "Deformation Based Design Methodology for Excavation Support Systems," *Final Report, NSF Report #0650911*, National Science Foundation Report, Arlington, VA, October.

Bryson, L.S., (2009), "Dynamic, Distributed Real-time System for Geosystems Health Monitoring," *Final Report, KSEF-1497-RDE-010*, Kentucky Science and Engineering Foundation, Lexington, KY, June.

Kalinski, M. E., Bryson, L.S., Woolery, E., Loehr, E., and Kiefer, J. (2007). "Assessment of Wolf Creek Dam – DRAFT Summary of Findings," Confidential Report.

Riefler, R. G. and Bryson, L. S. (2006). "Transport and Fate of Iron Nanoparticles in Groundwater," *Project No. 2005OH16B*, Water Resources Center, Annual Technical Report, FY 2005, USGS.

Bryson, L. S., (2004), "MRPG: Geotechnical Parameters of Soil Using Electrical Measurements," *Final Report, NSF Report #0343731-0031005000*, National Science Foundation Report, Arlington, VA, December.

Finno, R. J. and Bryson, L. S. (2002). "Performance of the Excavation for the Chicago and State Subway Renovation Project and Response of the Adjacent Frances Xavier Warde School," *Report No. CEE-2002-1*, Infrastructure Technology Institute of Northwestern University, Evanston, IL.

Bryson, L. S., (1991), "Settlement Calculation Method for Bridge Pier Footings in Sand," *Final Report, Research Project No. 16FY90*, Federal Highway Administration, Turner-Fairbank Highway Research Center, McLean, VA.

## **TEXTBOOKS REVIEWED**

- Maxfield, B. (2009). *Engineering With Mathcad*, Butterworth-Heinemann/Elsevier, Inc., Burlington, MA, USA, pp. 494.
- Budhu, M. (2008). *Foundations and Earth Retaining Structures*, John Wiley and Sons, Inc., Hoboken, NJ, USA, pp. 483.
- Salgado, R. (2008). *The Engineering of Foundations*, McGraw Hill Companies, Inc., New York, NY, USA, pp. 882.
- Budhu, M. (2007). *Soil Mechanics and Foundations Engineering, 2<sup>nd</sup> Edition*, John Wiley and Sons, Inc., Hoboken, NJ, USA, pp. 634.

## **JOURNALS REVIEWED**

- Reviewer for the ASCE Journal of Geotechnical and Geoenvironmental Engineering
- Reviewer for the ASCE Journal for Performance of Constructed Facilities
- Reviewer for the ASTM Geotechnical Testing Journal
- Reviewer for the Engineering Geology Journal

## **INVITED PRESENTATIONS**

### **Technical Presentations**

- “Water-Side Security for Dams,” Technical Presentation, Dams Sector Waterside Security R&D Workshop, Vicksburg, MS, 31 January-1 February 2012.
- “Assessment and Mitigation of Water-Side Attacks on Dams,” Project Review Presentation, DHS/NISH Project Review Conference, Washington, DC, 7-9 December 2010.
- “Assessment and Mitigation of Water-Side Attacks on Dams,” Project Introduction Presentation, Waterside Security R&D Advisory Task Group Meeting, Lexington, KY, October 2010.
- “Assessment and Mitigation of Water-Side Attacks on Dams,” Project Status Presentation, Dams Sector Joint GCC/SCC Meeting, Alexandria, VA, 11-13 May 2010.
- “Assessment and Mitigation of Water-Side Attacks on Dams,” Project Review Presentation, DHS/NISH Project Review Conference, Washington, DC, 11-13 May 2010.
- “Advanced Sensors for Civil Structures,” Session Chair, SPIE Symposium on SPIE Smart Structures and Materials + Nondestructive Evaluation and Health Monitoring, San Diego, USA, 7-11 March 2010.
- “Dynamic, Distributed Real-Time System for Geosystems Health Monitoring,” 4<sup>th</sup> Kentucky Innovation and Enterprise Conference, Poster Session, Lexington, KY, 17 April 2008
- “RoboPaver - Fully Autonomous Robot for Paving Operations”, *Ohio Transportation Engineering Conference*, Columbus, OH, 25-28 October 2005
- “Foundation Systems Response to Blast Loading”, *NAVFAC Geotechnical Engineering Conference and Workshop*, Port Hueneme, CA, 24 – 26 February 2004.
- “Research Capabilities at Ohio University”, *Fourth USUCGER National Workshop*, Atlanta, GA, 1-3 October 2003.

Non-Technical Presentations

- “Profiles in Courage: The African American Experience at Ohio University”, *Affirming Diversity at Ohio University*, Ohio University, Athens, OH, 14 February 2005
- “New Faculty Introduction”, *Civil Engineering Advisory Board Meeting*, Ohio University, Athens, OH, 24 April 2002.

GRADUATE STUDENT SUPERVISIONMS Students - University of Kentucky

- Performance of Advanced Constitutive Models in Predicting Behavior of an Earthen Embankment, Ricky Teachey (M.S. Thesis, 2012)
- New Method for Obtaining Durability of Shales, Jordan Kirkendoll (M.S. Thesis, 2012)
- Guidance for Water Quality Sensor Placement for Security of Water Distribution Systems, Amanda Lothes (M.S. Thesis, 2012)
- Constitutive Mechanical Relationships for Compacted Unsaturated Soils, Brock Kidd (M.S. Thesis, 2011)
- Calibration Techniques for Predictive Geotechnical Relationships for a Coaxial Impedance Soil Sensor, Derrick Dennison, (M.S. Thesis, 2011)
- Investigation of Non-Nuclear Devices for Soil Moisture-Density Determination, Christian Wilder (M.S. Thesis, 2011)
- Identification of Generic Dam and Spillway Configurations, Lyndsie Janbakhsh (M.S. Report, 2011)
- Underwater and Surface Water Blast Response of Concrete Dams, Julie Heiser (M.S. Thesis, 2011)
- Evaluation and Modification of the Testing Procedures for the Electrical Density Gauge, Bryan Scott Embry (M.S. Thesis, 2011)
- Investigation of Humboldt Geogauge for Quality Control of Compacted Subgrades, Jonathan Huff (M.S. Thesis, 2010)
- Development of a Generalized Soil Calibration Model for the Moisture Density Indicator, Christopher Jones (M.S. Thesis, 2010)
- Geotechnical Behavior of Soils from Field Measurements, April Barnes (M.S. Report – Not Completed, 2010)
- Wireless Sensor Technology Used for Geotechnical Instrumentation, Tom Lutz (M.S. Report – Not Completed, 2010)
- Comparison of Measured Mechanical Behavior of Kentucky Clay with Predictions by Advanced Soil Models, Ali Salehian (M.S. Report, 2009)
- Structural Health Monitoring Damage Criteria Using Wireless Technology, Matthew, W. Weekley (M.S. Report, 2009)
- Stiffness Degradation of Railroad Ballast due to Clay Fouling, Kyle Guenther (M.S. Report, 2008)
- Semi-Empirical Method for Designing Excavation Support Systems Based on Deformation Control, David Zapata (M.S. Thesis, 2007)

MS Students – Ohio University

- Geotechnical Properties of Soils Using Electrical Measurements, Abhijit Bathe (M.S. Thesis, 2005)

- Response of Shallow Foundations to Blast Loading, Nathaniel Gamber (M.S. Thesis, 2004)
- Damage Approximation to Buildings Adjacent to Deep Excavations, Mike Kotheimer (M.S. Thesis, 2003)

#### Ph.D. Students

- Prediction of Strength and Small-Strain Stiffness of Partially Saturated Compacted Clay, Corrie Walton Macaulay (Ph.D., 2012)
- Development of a Constitutive Model for Weathered Compacted Shale, Isabel Gomez Gutierrez (Ph.D., 2012)
- Generalized Prediction Model for Engineering Behavior of Fly Ash-Modified Soils, Kwame Adu-Gyamfi, Ohio University (Ph.D., 2006)

### **SERVED ON COMMITTEE**

#### M.S. Students

- Erin Morris, Mining Engineering, University of Kentucky, August 2012
- Alexander Krumenacher, Civil Engineering, University of Kentucky, May 2012
- Lizabeth Likins, Civil Engineering, University of Kentucky, May 2012
- Joseph Goodin, Civil Engineering, University of Kentucky, May 2012
- Raghava Bhamidipati, Civil Engineering, University of Kentucky, May 2012
- Samuel Gallagher, Civil Engineering, University of Kentucky, December 2011
- Benjamin Webster, Civil Engineering, University of Kentucky, May 2011
- Zachery Ethington, Civil Engineering, University of Kentucky, May 2011
- Bryan Phillips, Civil Engineering, University of Kentucky, December 2010
- Dharmendra Kumar, Mining Engineering, University of Kentucky, August 2010
- Aaron Wallace, Civil Engineering, University of Kentucky, May 2009
- Lauren Little, Civil Engineering, University of Kentucky, May 2008
- Joshua Kopp, Civil Engineering, University of Kentucky, May 2007
- Justin Anderson, Civil Engineering, University of Kentucky, May 2007
- Regan Welch, Civil Engineering, Ohio University, August 2006
- Christopher Maynard, Mechanical Engineering, Ohio University, August 2005

#### Ph.D. Students

- Matthew Crawford, Department of Earth and Environmental Sciences, University of Kentucky, 2010-2013
- R. Clark Graves, Department of Civil Engineering, University of Kentucky, 2009-2012
- Alfred Susilo, Department of Civil Engineering, University of Kentucky, 2010-2012
- Ali Salehian, Department of Civil Engineering, University of Kentucky, 2009-2012
- Jhon Silva Castro, Department of Mining Engineering, University of Kentucky, 2009-2012
- Dazhang Gu, School of Electrical Engineering and Computer Science, Ohio University, December 2005

## **UNDERGRADUATE STUDENT SUPERVISION**

### **Supported Research**

- Using Electrical Methods to Quantify the Effectiveness of a Grout Curtain, Jacquez Leandre (AMSTEMM Undergraduate Researcher, 2012)
- Effects of Initial Conditions on Strength of Acrylamide Grouted Sands, Ryan Ortiz (AMSTEMM Undergraduate Researcher, 2011-2012)
- Unsaturated Soil Mechanics, Nishel'le Clayton (LSAMP REU Researcher, 2010-2012)
- Determination of Insitu Moisture Content from Measurements of the Complex Dielectric Constant in Soils, Melinda Jean-Louis (LSAMP REU Researcher, 2010)
- Trident Moisture Meter: A Study on Linear Soil Model Generation and the Effect of Soil Compaction on the Models, Chrispin Gabriel (LSAMP REU Researcher, 2009)
- Dynamic Distributed Real-Time System for Geosystems Health Monitoring, Emiko Toritsemotse (LSAMP REU Researcher, 2008)
- Critical State Soil Parameters for Kentucky Clay, Melanie Anderkin (NSF REU Researcher, 2008)
- Wireless Sensors for Geo-Structural Health Monitoring, April Barnes and Tom Lutz, Ohio University (Stocker Undergraduate Researchers, 2006)
- Extruded Modular Construction using Cable Operated Robotics, Mallory Starr, Ohio University (Stocker Undergraduate Researcher, 2006)
- Instrumentation for Measuring Electrical Properties of Soil, Benjamin McDonald, University of Akron (Glenn-Stokes Undergraduate Researcher, 2004)
- Interface Friction Between Sand and Geofoam, Kirk Hawley, Ohio University (Stocker Undergraduate Researcher, 2003)

### **CE 395 Independent Study**

- Performance of Empirical Methods for Estimating Underwater Explosion Parameters, Kirk Jenkins (CE 395 Independent Study, 2012)
- Stability Analysis of the L-575 Levee Failure on the Missouri River, J. Cole Hatfield (CE 395 Independent Study, 2012)
- Deformation-Based Design Approach for Excavation Support Systems, Barry Bishop (CE 395 Independent Study, 2011)
- Forensic Analysis of the Ajka Red Mud Dike Failure, Mike McHenry (CE 395 Independent Study, 2011)
- Correlations between Index Properties and Unconfined Compressive Strengths of Compacted Soils, Andrew Parr (CE 395 Independent Study, 2010)
- The Effects of Ballast Fouling, Sheree Gabbard (CE 395 Independent Study, 2009)
- Wireless Instrumentation of Geotechnical and Structural Laboratory Experiments, Alex Pulido (CE 395 Independent Study, 2009)
- Shear Strength of Fly Ash-Modified Soils using the Direct Shear Device, Jared Barcalow, Ohio University (Undergraduate Researcher, 2005)

- Instrumentation for Electrical Impedance Measurements in Soils, Seana McNeil, Ohio University (Undergraduate Researcher, 2005)
- Autonomous Robot for Road Paving, Christopher Maynard, Ohio University (Undergraduate Researcher, 2004)

## **SPECIAL SERVICES PERFORMED FOR UNIVERSITY**

### **University of Kentucky**

- Serve as a member of the Committee on Research and Policy of the Kentucky Water Resources Research Institute (April 2007 – August 2013)
- Served as a member of the CE Department Chair Performance Review committee (March 2009)
- University of Kentucky Center for Academic Resources and Enrichment Services (CARES), Freshman Summer Program (FSP) Science and Engineering Shadowing (Summers 2008-2012)
- Served as a faculty representative for the annual Minority Engineering Day program (February 2007, 2009, 2010, 2012)

### **Ohio University**

- Engineering 4 You – Introduction to Engineering for High School Juniors and Seniors, developed and coordinated Civil Engineering module (23 February 2006)
- Featured in the Russ College of Engineering and Technology recruitment video (Summer 2005)
- Taught Mathematics for the Advanced Mathematics for the Minority-Males in Engineering and Technology and the Women in Engineering and Technology programs (Summers 2003-2005)
- Established an educational partnership between the Naval Facilities Service Center in Port Hueneme, CA and Ohio University (2003)
- Served as the College of Engineering representative for potential football and basketball recruits (2002-2005)

## **EXTERNAL COMMITTEES**

- ASCE Geo-Institute, Diversity and Inclusion Committee, Committee Chair, 2012-present
- Kentucky Transportation Cabinet Civil Engineering Scholarship Program Committee, Co-Chair/Co-University Advisor, 2007-present
- Committee on Research and Policy of the Kentucky Water Resources Institute, member, 2007-present
- Conference Advisory Committee, *International Conference on New Developments in Geoenvironmental and Geotechnical Engineering*, Incheon, Republic of Korea, 9-11 November 2006,
- ASCE Geo-Institute, Earth Retaining Structures Technical Committee, member, 2006-present
- United States Universities Council on Geotechnical Education and Research - Research Committee, member, 2003-present
- Ohio Transportation Engineering Conference Program Committee, member, 2003-2005



## **WORKSHOPS AND PANELS**

- Symposium on Performance Modeling of Low-Level Radioactive Waste Disposal Facilities, University of Kentucky, Lexington, KY, 22 February 2012, Symposium co-Chair
- NSF Innovations in Engineering Education, Curriculum, and Infrastructure (IEECI) Review Panel, 2009
- Railroad Engineering Education Symposium (REES 2008), University of Illinois, Urbana-Champaign, 9-11 June 2008
- NSF Civil and Mechanical Systems Review Panel (Geotechnical and Geotechnical Systems), 2003, 2004, 2005
- NSF Major Research Instrumentation Review Panel (CMS proposals), 2004
- NEES Centrifuge Research and Training Workshop, University of California, Davis, 18-20 November 2004)
- Fourth United States Universities Council on Geotechnical Education and Research National Workshop, Atlanta, GA, 1-3 October 2003
- Workshop for the Advancement and Retention of Underrepresented and Minority Engineering Educators, NSF, Arlington, VA, 21-24 September 2003
- Symposium on Construction Processes in Geotechnical Engineering, City University, London, England, 10-11 April 2003

## **ACADEMIC HONORS AND AWARDS**

- National Academic Advising Association (NACADA) Faculty Certificate of Merit for Outstanding Advising Award, 2012
- Ken Freedman Outstanding Advisor Award, University of Kentucky, 2012
- Wethington Award, University of Kentucky, 2011
- Nominated for the 2010 University of Kentucky Alumni Association Great Teacher Award, University of Kentucky, 2010
- Inducted into Omicron Delta Kappa, National Leadership Honor Society, 2007
- Thomas A. Middlebrooks Award, American Society of Civil Engineers, 2004
- Geotechnical Student Fellowship, American Society of Civil Engineers, Illinois Section, 2000
- Dwight D. Eisenhower Research Fellowship, Federal Highway Administration, 1990
- US Representative for NATO Conference on Flow Through Porous Media, 1989
- ASCE Outstanding Student Member, Florida A and M University Student Chapter, 1987
- ASCE Student Chapter President, Florida A and M University Student Chapter, 1986 and 1987
- Co-Founder of the National Society of Black Engineers, Florida A and M University Chapter, 1986

## **PROFESSIONAL AFFILIATIONS**

- American Society of Civil Engineers
- Canadian Geotechnical Society
- International Society of Soil Mechanics and Foundation Engineering

- British Geotechnical Association
- ADSC: The International Association of Foundation Drilling
- The Association of State Dam Safety Officials
- The US Society on Dams

## **INDUSTRY EXPERIENCE**

**CONSULTING ENGINEER** 08/02 to 10/02  
Facilities Planning and Construction  
Ohio University  
Athens, OH

**GEO TECHNICAL/GEOENVIRONMENTAL ENGINEER** 01/92 to 09/98  
CH2M HILL, Inc.  
Milwaukee, WI

**RESEARCH ENGINEER** 08/90 to 01/92  
Federal Highway Administration  
Turner-Fairbank Highway Research Center  
McLean, VA

**RESEARCH ENGINEER** 08/89 to 08/90  
Los Alamos National Laboratory  
Los Alamos, NM

**MATERIAL LABORATORY TECHNICIAN** 04/88 to 08/88  
Geo-Hydro Engineers, Inc.  
Marietta, GA

**HIGHWAY ENGINEER** 04/85 to 05/87  
Florida Department of Transportation  
Bureau of Roadway Design  
Tallahassee, FL

## **CERTIFICATIONS**

- 29 CFR 1910.146, Authorized Entrant and Attendant for Permit-Required Confined Spaces
- 29 CFR 1910.120, 40-Hour Initial Health and Safety Training and 8-Hour Annual Refresher Course
- Standard First Aid and Adult CPR Training