Late May 2018 DVGI/LVASCE Dinner Meeting

SPEAKER: Andrew J. Whittle, B.Sc., Sc.D.  
Massachusetts Institute of Technology

TOPIC: Advances in the Prediction and Control of Ground Deformations

DATE: Wednesday, May 23rd, 2018

LOCATION: Holiday Inn Lansdale-Hatfield, 1750 Sumneytown Pike, Kulpsville, PA

TIME: 5:30 PM Social Hour, 6:30 PM Dinner and 7:15 PM Presentation

***Registration and Payment Online at www.dvgi.org***

There are many diverse geotechnical problems where reliable predictions of ground deformations are critical in design and only limited options are available to control these movements. This lecture will compare and contrast experiences in the application of advanced constitutive models in the prediction and control of ground movements in four distinct classes of problem: urban excavations, mechanized tunneling, seismic retrofit of waterfront structures, and long-term prediction of settlements on clay.

ABOUT THE SPEAKER:
Andrew Whittle is the Edmund K. Turner Professor in the Civil and Environmental Engineering Department at the Massachusetts Institute of Technology in Cambridge, MA. His primary research interests include, the fundamental understanding and modeling of geo-material behavior, the development of analysis methods for predicting and/or interpreting soil-structure interactions, and new concepts for monitoring and controlling underground infrastructures. He has written over 75 research papers, published four books, and presented at over 100 conferences. Current research projects include developing constitutive models describing the hydro-mechanical and hydraulic fracturing behavior of shales, validating constitutive models for pile-soil interactions using the results of physical model tests at deep water sites in the Gulf of Mexico, and integrating recent advances in computational analyses (massive 3D FE models) and in the design of low cost wireless sensors, in order to develop a capability for ‘real-time’ data interpretation and prediction in the arena of temporary earth retention structures in the urban environment.

One Professional Development Hour (PDH) will be provided for this dinner meeting.
Rapid Reconnaissance Technologies for Multiple Hazards

Sissy Nikolaou, Ph.D., P.E., D.GE, F.ASCE, Asst. Vice President & Principal, WSP

Extreme multi-hazards of earthquakes, tsunamis, hurricanes, landslides, floods, or terrorist attacks have generated unfortunate, yet valuable lessons that reveal risks to our built environment and population. These lessons often lead to modification of design codes and offer invaluable case histories that can advance empirical methodologies. Reconnaissance immediately after a disaster, observation and documentation of failures but also successes, and long term monitoring of the recovery and rebuild are inherently necessary components for engineers to advance the state of practice and benefit the society by creating safer designs. The way rapid reconnaissance is performed has evolved dramatically in the past few years due to technological advancements. This presentation highlighted the importance of post-hazard observations with selected historical examples and focus on available reconnaissance technologies for multiple hazards. The speaker shared her experience responding and leading reconnaissance teams after Hurricane Sandy and several earthquakes including the recent April 2016 Ecuador and September 2017 Mexico earthquake. The role of observations in the following key engineering aspects was discussed: (i) understanding of extreme events; (ii) studying the behavior of designs to identify flaws for improvement or successes for future replication; (iii) collecting and organizing data; (iv) disseminating data to assist in response and rescue; (v) creating case histories to assist in developing empirical design methodologies and support communities in bouncing forward after a disaster.

ABOUT THE KEYNOTE SPEAKER:
Sissy Nikolaou is Assistant Vice President and Principal of WSP with 20+ years of global engineering experience. She oversees the WSP’s geotechnical earthquake engineering practice and leads the multi-hazard resilience initiative of the firm’s Geotechnical & Tunneling Technical Excellence Center. Her consulting approach emphasizes performance-and resilience-based design, soil-structure interaction, and geo-risk assessment and mitigation. Her experience involves numerous critical infrastructure and transportation projects and high-rise structures in New York and Mexico cities. Driven by a desire to find innovative solutions that protect populations and help them emerge stronger from natural disasters, Sissy has been part of reconnaissance and studies after major natural disasters. For her contributions in earthquake engineering, Dr. Nikolaou was invited to the White House to participate in the Earthquake Resilience Summit of 2016 by President Obama and was named Technical Fellow of Earthquake Engineering of WSP in 2017. Her recognitions include the Prakash Prize for Excellence in Geotechnical Earthquake Engineering, the 2017 ACEC-NY Principal of the Year, and leadership Board positions in the Earthquake Engineering Research Institute (EERI), Applied Technology Council (ATC) and the Geo-Institute of ASCE.
In Situ Characterization of Subsurface Stiffness Using Surface Waves: Geotechnical Applications, Limitations, and Recent Developments

Joseph Coe, Ph.D., Temple University, Philadelphia, PA

Current standards of practice for subsurface investigation can leave geotechnical engineers with an incomplete understanding of site conditions, particularly when anomalous subsurface features exist at a site. To address this issue, geotechnical engineers have increasingly repurposed geophysical methods to measure the shear wave velocity (VS) as a proxy for stiffness of near surface strata. Surface wave methods such as the Spectral Analysis of Surface Waves (SASW) and Multichannel Analysis of Surface Waves (MASW) in particular have been developed within the last few decades as the demand for rapid and accurate VS profiles has increased. Surface waves are often the strongest signals obtained from seismic geophysical testing. Their high signal to noise ratio make surface wave methods quite robust during the data acquisition stage. Surface waves methods extract the site-specific velocity-frequency dependency and utilize an inversion procedure to estimate a subsurface VS profile. However, care should be exercised with interpretation as there is an appreciable amount of uncertainty inherent in the measurements and introduced during data post-processing. The presentation initially provided a discussion regarding the historical development of surface wave methods, theoretical aspects of the methodology, and the fundamentals of data acquisition and post-processing. A series of application-based case histories was presented to demonstrate the strengths and limitations of MASW in particular. Finally, a discussion was provided of recent developments and areas of continued research for improvement of surface wave methods.

ABOUT THE KEYNOTE SPEAKER:
Dr. Joseph Coe is an Assistant Professor at Temple University. Prior to joining Temple University, he was an Assistant Professor at The Citadel in Charleston, South Carolina. He obtained his Civil Engineering Ph.D., M.S., and B.S. (with a minor in Geology) degrees from the University of California Los Angeles (UCLA). His career in geotechnical engineering spans eleven years primarily as a researcher with nondestructive and geophysical imaging systems, instrumentation and sensor technology, field experimentation and data acquisition, and laboratory scale models. His research interests predominantly relate to geophysical site characterization, nondestructive evaluation and rehabilitation of foundations, bridge scour, and urban seismic hazards, particularly as related to resiliency of infrastructure systems. His educational interests focus on improving student cognitive development and critical thinking skills within the context of geotechnical engineering coursework.
Melissa Logan Gillespie, P.E.
Geotechnical Engineer of the Year for 2018

The Philadelphia Section of the American Society of Civil Engineers (ASCE) has cited Melissa Logan Gillespie as its Geotechnical Engineer of the Year for 2018. This award was presented to Ms. Gillespie at the Section’s annual Spring Social, which was conducted on May 3.

Ms. Gillespie serves as the Geotechnical Engineering Eastern Practice Leader for TRC Engineers at its office in Mount Laurel, New Jersey. She has been with the firm for the past 17 years and manages budgets, schedule, invoicing, and engineering efforts associated with the successful operation of the firm’s East Coast Geotechnical Engineering practice. Her work encompasses all phases of projects, including site stabilization, foundations, geotechnical instrumentation monitoring systems, and design evaluations related to soil and rock slope stability, earth retaining structures and reinforced soil slopes. She has been a key team member and contributor on numerous local projects.

Ms. Gillespie received her Bachelors degree in Civil Engineering from Drexel University in 1996 and her Masters degree from the University of Texas at Austin in 1998. She has served as a board member of the Philadelphia Section’s Delaware Valley GeoInstitute for several years and has been very dedicated in her assistance with DVGI’s successful programs. She is a registered professional engineer in nine states. She and her husband live in Feasterville, Pennsylvania.
The Philadelphia Business Journal has recognized Johanna Mikitka Simon as one of this year’s 40 Under 40 honorees. The 40 Under 40 award is one of PBJ’s most popular and successful features. It aims to identify and recognize current and future leaders in various industries and in the community. The criteria are demanding and competition was stiff; more than 400 nominations were received this year. Johanna’s professional and personal achievements checked all of PBJ’s boxes, propelling her to the winner’s circle and May 10 awards event.

An innovative thinker who is not afraid to take on new and different challenges, Johanna is an accomplished geostructural project engineer with Schnabel Engineering, a leader in the planning and design of geotechnical, dam, and tunnel engineering projects across the United States and worldwide. During her 12-year tenure with the firm, she has combined creative design ideas with visible construction components to create the best solutions for ground improvement, foundations, retaining walls, and slope stabilization. Johanna actively promotes the role of women in STEM careers via the professional organizations to which she belongs and mentors young female engineers who are entering the industry. Currently she is leading Schnabel in the unification of its instrumentation and monitoring methods, including building and maintaining cloud-based automated data collection and reporting systems.

Johanna’s interest in engineering began in high school, when one of her teachers saw her potential and suggested she should consider it as a college major. The teacher sent her to an engineering workshop for girls at Widener University, which was the spark that ignited her career. With three scholarships (academic, athletic, music), she took on a double major at Drexel University and graduated in 2006 with Bachelor of Science degrees in civil engineering and architectural engineering. In her continuous quest for knowledge and to arm herself with the proper tools to excel in her field, Johanna earned a master’s degree in civil/geotechnical engineering from Drexel while working full-time at Schnabel.

In spite of being serious about her work, Johanna doesn’t quite fit the mold of the stereotypical engineer. She is one of those rare people who have a rational and analytical mind which coexists comfortably with more eclectic and artistic leanings. She is a trained soprano who has performed at Longwood Gardens, the Kimmel Center and sang in the 2015 Papal Choir for Pope Francis; a volunteer for the last 19 years at Musikfest; and a master pie-maker who celebrates Pi Day each year with a bounty of homemade pies, which she brings to the office—to her co-workers’ delight. When she isn’t working or involved with professional and cultural activities, Johanna enjoys the company of her husband and two children and is looking forward to a third in October.
ANNOUNCEMENTS

Attend the WiDF Networking Reception
Wednesday, June 27, 2018, 6 – 8 p.m.

Every child should Dream Big

Together, we can make that possible.
The acclaimed giant-screen documentary Dream Big: Engineering Our World has inspired and delighted audiences in museums around the world.

Now, ASCE with generous support from the United Engineering Foundation (UEF) has set an ambitious goal: to put a copy of the Dream Big film and educational toolkit in every public school in America.

To reach every school, we need your help!

DONATE TODAY
https://www.engineersdreambig.org/
$5 will send the school of your choice a Dream Big toolkit

Image courtesy of https://www.engineersdreambig.org/
ANNOUNCEMENTS

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Top Row (L—R): J. McKelvey, R. Crawford, R. Preuss, E. Backlund, R. Sabanas, C. Calabria,
ANNOUNCEMENTS

Upcoming GSI Webinars for 2018
(1.5 PDH/each upon completion of exam)

11:30 AM—1:00 PM (Eastern Time)

Topics, Dates and Registration at www.geosynthetic-institute.org/webinar.htm
Cost: GSI Members $200; Nonmembers $250

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HAVE DVGI PUBLISH YOUR ARTICLE, ADVERTISEMENT, OR JOB POSTING

- Do you have an interesting article on a project or individual in your organization that you would like to have published in the DVGI newsletter?
- Would you like to get the word out about a job opening, new venture, etc. to our membership via the newsletter?

Please submit your articles or news items for consideration in the next edition of the newsletter or get in touch about our reasonably-priced advertising by contacting Theresa Loux (tloux@aeroaggregates.com).

DVGI Merchandise Available for Purchase

Coffee mugs ($8) and lapel pins with the DVGI logo ($5) are available for purchase. See Russ Preuss if you are interested in purchasing either of these items.

ASCE/G-I Members:
Read past and present issues of Geo-Strata magazine online at www.asce.org
MEMBER SPOTLIGHT

James A. McKelvey, III, P.E., D.GE, F.ASCE
DVGI Past Chair, Earth Engineering Incorporated

Jay McKelvey is the Director of the Geotechnical Design Division of Earth Engineering Incorporated, headquartered in East Norriton, Pennsylvania. A 1989 graduate from Drexel University, Jay received his BS in Civil Engineering and in 1992 received his MS in Civil Engineering with focuses in geotechnical and geosynthetic engineering. Jay serves on the ASCE Technical Committees for Earth Structures and Geosynthetics, is a voting member on the ASTM committees for Soil and Rock (D18) and Geosynthetics (D35). Jay also serves on the editorial board of ASTM’s Geotechnical Testing Journal.

Jay lives in Plymouth Meeting with his fiancée Nina and has three grown children who live in Southern California. Most of his free time is devoted to playing live music with his rock band Civil Discord.

Q: What got you first interested in the geo-world?
A: My dad was a construction superintendent for heavy highway contractors. When I was just a kid my dad used to bring my brothers and I to hang out at his job sites, which I always looked forward to. The first job I remember going to was the I95 approach to the Girard Point bridge near Broad Street. My one brother and I got in a lot of trouble with our dad one day when he caught us on the top of a forty-foot-high pier cap (Pop didn’t like that I had my six-year-old brother with me). Normally we would spend the day with an equipment operator, getting him coffee and so forth, and if we were lucky, we would get a chance to operate the equipment at the end of the day.

Q & A with Jay:

Q: What is something about yourself that would surprise us?
A: I didn’t go to high school. I began working as an auto mechanic at sixteen, which I did for eight years. I went back to school for music, but then realized that a career in music would pay less than my career as a mechanic. I then remembered my fondness for highway construction, and switched majors to civil engineering.

Q: What advice would you give students studying a geo-profession?
A: Get into the field as often as possible and learn from the contractors how projects are built. Having a sound understanding of construction will make you a very effective engineer.

Q: What is your favorite thing to do in Philadelphia?
A: Play rock-n-roll!

Q: What aspect of your job do you enjoy the most?
A: Problem solving, followed very closely by teaching.

Q: What do you like most about Earth Engineering?
A: The leadership promotes a very positive atmosphere at work, so it feels like a family, all focused in providing our clients caring, dedicated and informed service.

Q: What are some of your favorite projects that you have been involved with?
A: At the beginning of my design engineering career I was involved with landfill design and Superfund remediation design, which allowed development of my geosynthetic engineering skills. These skills provided me the opportunity to work on some awesome projects, such as the Freshkills Landfill closure in Staten Island, NY, the OII Landfill Superfund seismic design and closure design in Monterey Park, CA and the McColl Superfund Site in Fullerton, CA. Lately, the temporary shoring projects we have designed for the I95 projects in Philadelphia have been very interesting.

We will continue to feature DVGI members in upcoming issues of the Newsletter. Please feel free to contact any of the board members with any general comments or member spotlight suggestions. Board member email addresses can be found on Page 6.
EVENTS AND CONFERENCES

4th Annual Mid-Atlantic GeoWall Competition

Congratulations to all students who participated in the 4th Annual Mid-Atlantic Regional (MAR) Geo-Wall competition, held on Saturday, April 7, 2018, at the University of Delaware, Newark Campus. The competition was once again championed by members of DVGI. Four schools participated: University of Delaware, Temple University, Widener University and Lafayette College. The teams designed a scale retaining wall made from poster board facing, packaging tape, and a minimal amount of kraft paper reinforcement to hold back hundreds of pounds of backfill and a surcharge and horizontal load. On competition day, the students displayed a poster with the details of their designs, and manufactured, built, and tested their MSE walls. Points were based on the quality and content of information presented in design poster, reinforcement quantity, and construction time. The Lafayette College team won the competition!

A special thank you to all of the judges, all of the sponsors for the MAR competition, and to UD as the host school. If you have any questions or would like to get involved with the 2019 competition, please get in touch with Eric Backlund (ebacklund@kleinfelder.com).

(All images courtesy of E. Backlund and T. Loux)
EVENTS AND CONFERENCES

5th ANNUAL DVGI GOLF OUTING

You are invited to participate in the 5th Annual Delaware Valley Geo-Institute Golf Outing on June 22, 2018. Proceeds from the outing will benefit the scholarship fund. This event is an excellent opportunity for you to demonstrate your continued support for the DVGI.

Come join us to get some fresh air, network, and have a good time!

Who: ASCE and DVGI Members, Friends, Clients
All Skill Levels Welcome
Prizes for Best and Most Honest Team Scores

Where: Jeffersonville Golf Club
2400 W. Main Street
Jeffersonville, PA 19403

When: Friday, June 22, 2018
Tee times starting at 12:30 pm, Scramble Format

Cost: Golf Registration: $100/person
Cost includes Cart along with Beef and Beer Buffet following Golf

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Geo-Congress 2019

Philadelphia, Pennsylvania | March 24–27, 2019
EVENTS AND CONFERENCES

GEOTECHNICAL EARTHQUAKE ENGINEERING AND SOIL DYNAMICS V
AUSTIN, TEXAS | JUNE 10–13, 2018

INTERNATIONAL CONFERENCE ON TRANSPORTATION & DEVELOPMENT
PITTSBURGH, PENNSYLVANIA | JULY 15–18, 2018
ASCE’s Flagship Conference in Transportation & Development

DEEP FOUNDATIONS INSTITUTE
43rd Annual Conference
Hilton Anaheim | California | October 24-27, 2018

Geosynthetics Conference
Feb. 10-13, 2019 | Houston, TX USA
Marriott Marquis Houston
GeosyntheticsConference.com