

# CEM MAGAZINE

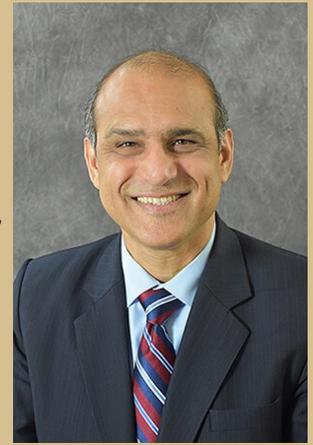


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# A message from our Division Head, Dr. Makarand (Mark) Hastak:



As we celebrate the 120th anniversary of the College of Engineering at Purdue University, all of us in the Division of Construction Engineering and Management are proud to be a part of this great institution for the past 44 years. Since CEM was established as an independent degree-granting unit within the College in 1976, our division has come a long way to be one of the leading programs in the country and the world.

Our program was founded on the principles of experiential learning. To this day, all our students go through three 12-week paid internships as part of their curriculum. This has been possible through strong support from our industry partners, including construction companies as well as owners. Over the past 44 years, we have built relations with more than 180 big and small companies that represent all sectors and segments of the construction industry, including building, infrastructure, and industrial construction. We are privileged to have such steadfast industry partners and proud of all the alumni who work at those companies.

In addition, our Industry Advisory Board, comprising 20 company executives, keeps us abreast of industry needs and contemporary subject areas that need to be covered in our ever-evolving curriculum. As a result, our curriculum is designed to balance theory and practice. Our students are trained hand-in-hand with the latest theoretical and experiential concepts that all construction engineering graduates need to know to be successful in their careers and to be good citizens. We have consistently maintained 100 percent placement of our students within three months of graduation.

In the CEM division, we place strong emphasis on diversity and inclusion, which is positively reflected in our faculty and staff hiring, as well as student recruitment. Our students come from all over the U.S. and abroad. For the past several years, about 25 percent of our student body has been comprised of women and minority students who are mentored by our alumnae-run group called Women in Construction (WinC). In the WinC initiative, our alumni and advisory board members mentor young women as they learn and train to be successful in their careers in the construction industry.

This is complemented by our faculty, who are research-active and experts in their fields. They are engaged in cutting-edge research in infrastructure engineering and management, facilities engineering, virtual and augmented reality, the cyber-physical space, construction safety, geographic information systems (GIS), building information modeling (BIM), heavy construction, underground infrastructure, disaster risk reduction, and profitability of construction companies, to name a few areas.

We recently added two new faculty members: a professor of engineering practice, who is world-renowned as an expert in underground infrastructure, and a bright young assistant professor, with expertise in smart construction, including safety and human factors in automation through the application of cyber-physical-human systems. Curriculum advances are underway to meet current and evolving needs. Infrastructure rehabilitation, facilities engineering, cyber-physical applications, and off-site construction are likely to gain more ground in the coming years in terms of capital investment and research. Our faculty and curriculum are well positioned to address these contemporary needs. In addition, we are soon going to offer an online Masters in Interdisciplinary Engineering with a concentration in Construction Engineering. This program will offer online delivery of course content to help working professionals attend the program, as well as to address the new normal due to the ongoing COVID-19 pandemic. This program will offer specialty areas that cover different sectors and knowledge domains within the construction industry, enabling professionals from diverse backgrounds to customize their learning based on their career requirements.

There is a lot happening in CEM, and I hope you'll enjoy our "Sounds Like the Future" podcast, which offers more information. We are recognized as one of the best programs for construction engineering and management in the country and around the world, and we intend to stay there in the future.

Go Boilers and Hail Purdue!

Prof. Makarand (Mark) Hastak, PhD, PE, CCP, CRIS  
Professor and The Dernlan Family Head of Construction Engineering and Management

# Announcements:



## **Dr. Makarand Hastak named the Dernlan Family Head of Construction Engineering and Management.**

The Dernlan family, Gary (CEM '81) & Susan (LA '82), has generously initiated and funded a life insurance policy designated as unrestricted support for the CEM program. This gift was used to establish the Dernlan Family Head of Construction Engineering and Management, which named Dr. Makarand Hastak, CEM Professor and Division Head, in this role.

The CEM program appreciates the gift and continued support from the Dernlan family. This is an appropriate recognition to honor the lasting impact and extensive generosity demonstrated by Gary, Susie and the extended Dernlan family in support of the history and longevity of the CEM program.



## **Brandon Fulk named the Walsh Group Director of Internships in CEM.**

Brandon Fulk has been named the Walsh Group Director of Internships in CEM. The Walsh Group has established an endowment to help support the position and our internship program.

Brandon has been the director of internships in construction and engineering management since 2010. He is an instructor in Construction and Engineering Management (CEM), a guest lecturer in civil engineering and an advisor to EPICS – Engineering Projects in Community Service - teams. He received his bachelor's degree in CEM from Purdue in 1998 and is working toward his Master of Science degree in Civil Engineering. The Walsh Group is a Chicago-based fourth-generation construction company with a long history of supporting the CEM program.



## **Dr. Bob McCullouch Served as the 2nd Beavers Heavy Construction Distinguished Fellow (2019-2020).**

The Beavers Heavy Construction Distinguished Fellow was established to support an experienced construction industry leader to bring heavy construction industry knowledge into the classroom; mentor students; support construction industry efforts to encourage members of underrepresented groups to consider construction as a profession; enhance student, faculty, and academic interaction with the construction industry; and mentor construction faculty for leadership at Purdue.

Dr. McCullouch has been associated with the Division of Construction Engineering and Management, and the School of Civil Engineering, for the past 30 years. During this time, he has primarily taught classes and performed research. He has also directed an IT development group at Purdue, 3ID. Dr. McCullouch's experience, knowledge and expertise, was an asset in this leadership role. Bob taught construction courses to bring heavy construction industry knowledge into the classroom; counseled students, and participated in and lead professional activities. Bob also attended the annual meeting of The Beavers Charitable Trust Board of Trustees to report on his activities and the status of the program. We are grateful for Bob's leadership and thank him for further enhancing the profile of this important role. Dr. McCullouch will continue to bring his leadership to the Division of Construction and Engineering Management as the Director of EPCOM.

# Welcome New Faculty

**Tom Iseley, Ph.D., P.E., Dist. M. ASCE, PWAM,  
Beavers Heavy Construction Distinguished Fellow  
Professor of Practice**



We are glad to welcome Prof. Tom Iseley as the next  
Beavers Heavy Construction Distinguished Fellow.

Dr. Iseley has over 40 years of experience in the planning, design, and construction of underground infrastructure systems. From 1982, he served on the faculty of Mississippi State University, Purdue University, Indiana University–Purdue University Indianapolis, and Louisiana Tech University. During the past 40 years, he has maintained an international leadership position in trenchless technology. In 1989, Dr. Iseley established the Trenchless Technology Center (TTC) at Louisiana Tech University. He is a founding director of the North American Society for Trenchless Technology (NASTT). Dr. Iseley was inducted in the Class of 2016 to the National Academy of Construction (NAC). In April 2015, Dr. Iseley was selected as a Distinguished Member of the American Society of Civil Engineers (ASCE) for his eminence in pipeline engineering, becoming just one of only 637 Distinguished Members ever selected by the ASCE. He was also selected as the 2016 UCTA MVP (Most Valuable Professional) by the Underground Construction Technology Association (UCTA) and Underground Construction magazine. Dr. Iseley was inducted into the 2017 NASTT Hall of Fame. He received the Centre for Advancement of Trenchless Technologies (CATT) Award of Excellence on October 9, 2019. Dr. Iseley serves as the Chair for the Utility Risk Research and Education Council of the ASCE Utility Engineering and Surveying Institute (UESI), and a member of the EXCOM for the Risk Management Division.

In 2018 Dr. Iseley was instrumental with the start-up of new company based in Indianapolis, IN, International Infrastructure Solutions, LLC (IIS) ([www.iis-tech.com](http://www.iis-tech.com)). The unique and powerful aspect about IIS is that it is owned 1/3rd by the World Trade Center (WTC)-Indianapolis ([www.wtcindy.com](http://www.wtcindy.com)). The business association which exists between IIS and the WTC-Indy provides a unique pathway to transfer technical and management solutions to the global underground infrastructure industry through the 320+ WTC franchises.

In 2002, Mayor Shirley Franklin formed the Department of Watershed Management for the City of Atlanta. Her vision was to move Atlanta's water program past achieving requirements of the nation's most demanding consent decree to becoming "First-in-Class." Dr. Iseley had the opportunity in February 2003 to join the committee as a Senior Advisor to develop a strategy to achieve Mayor Franklin's vision. These efforts resulted in the formation of BAMI (Buried Asset Management Institute), non-profit professional organization, committed to providing training and certification for water infrastructure asset management.

Dr. Iseley holds a B.S. degree in Civil Engineering and an M.B.A. degree from the University of Alabama in Birmingham and a Ph.D. degree in Civil Engineering from Purdue University.

# Welcome New Faculty



## Assistant Professor of Construction Engineering and Management Sogand Hasanzadeh, Ph.D

We are glad to welcome Dr. Sogand Hasanzadeh as the newest member of our faculty.

Sogand Hasanzadeh received her PhD in Civil Engineering from Virginia Tech; and two Masters in Construction Engineering and Management from the University of Nebraska-Lincoln and Shahid Beheshti University, Tehran-Iran. Her interdisciplinary research focuses on advancing smart construction safety and the human factor in automation through the application of cyber-physical-human systems, wearable sensors, VR/AR/MR, simulation, and data analytics. One of her biggest strengths as a professional is the ability to collaborate with researchers from different areas including Construction Engineering and Management, psychology, computer science, social science, civil engineering, statistics, and industrial and systems engineering. Her interdisciplinary work is looking to create a shared language between civil engineering, data science, and cognitive psychology that leads to more informed engineering solutions in response to the current and future challenges in the complex construction projects.

Sogand's work has repeatedly been recognized nationally and internationally: Her doctoral research received "2019 Torgersen Research Award". This prestigious research accolade recognizes the top research performed at Virginia Tech. Sogand's journal paper was selected as the "2018 best paper" of the *ASCE Journal of Management in Engineering*; her conference paper received the "best paper" award from the Construction Research Congress (CRC 2016); and two of her journal papers were awarded as the "editorial choice paper" in the *Journal of Construction Engineering and Management* and the *Journal of Legal Affairs and Dispute Resolution in Engineering and Construction*. The *Construction Industry Institute* (CII) recognized Sogand's contribution to the industry with the "best academic research" award. Her poster was awarded as the "best poster" in the CRC 2018. In addition, her research has been featured in several construction management magazines internationally.

Sogand will be teaching a graduate level seminar course in the fall. This course brings together the experience and expertise of practitioners from the industry, as well as eminent faculty members from Purdue and other CEM programs around the world. The Seminar course is designed to lay the foundation for graduate student's future professional careers in both academia and industry.

The Division of Construction and Engineering Management is excited to have Sogand join our team and look forward to supporting her career at Purdue University.

# Welcome New Staff:



Geoff Graff joined the Division of Construction Engineering and Management as a continuing lecturer in August 2019. He teaches our CEM 201/CE 222 course. He holds an M. Arch from Washington University in St. Louis and a BA from Johns Hopkins University. Prior to joining Purdue CEM, Geoff served on the faculties of Cal Poly, San Luis Obispo, in the College of Architecture and Environmental Design, and South Dakota State University, participating in establishing a new architecture program. His professional work and design research has addressed a range of questions in architecture, design, and constructability on projects in California, Colorado, New Mexico, and South Dakota.



Diana Knecht is our newest Associate Administrative Clerk who assists our CEM faculty with their day-to-day work. A native to Lafayette, Diana attended Indiana Business College for accounting. Prior to becoming a departmental secretary at Construction Engineering and Management, she worked in bookkeeping and childcare. Diana is married with one son who is a sophomore in Construction Management Technology, Purdue University. Previously on most weeknights and Friday nights, you would find her at a football game or swim meet cheering on her son. Currently, you will find her cheering on her nephew in basketball and baseball or hanging out at home with her husband and a 2-year old Schnoodle. Her hobbies are reading and spending time with her family. She enjoys beach vacations and cruises. Diana has always believed in work ethic, being on time and being considerate of others. She has learned so much at CEM and enjoys working with her co-workers.



LeAnne is the Senior Administrative Assistant to the Head of CEM. A Lafayette native and Purdue University graduate, she has worked at the university for over 20 years. She received her BS in Psychology and went on to get an MS in Communication. When not working at Purdue, LeAnne stays busy teaching her group fitness classes at the local YMCA or working on her not-for-profit organizations. In her spare time, LeAnne is usually at the dog park or hiking with her 3 huskies. She volunteers with various animal rescues and shelters, opening her home to senior dogs in need. Any down time is spent reading, relaxing, or catching up with friends.

# Departing Staff:

Dr. Robert Patty retired in August 2019 to pursue other interests. Including working at his company, Bridging Medical Group, LLC, which is developing ways to help broken bones heal through sustained rigid fixation.

Dr. Kyu Kang took a position at IUPUI in Indianapolis Indiana starting this August 2019. Though busy settling into his new role, Kyu maintains his ties on research projects with some of the CEM faculty.

Dr. Soojin Yoon took a position at Oklahoma State University in Stillwater, OK. She is their new Assistant Professor in the Construction Engineering Technology program within the College of Engineering, Architecture, and Technology.

We wish Dr. Patty, Dr. Kang, and Dr. Yoon continued success in their future endeavors.

# Celebration of Impact and Culture: Bonnie Sondgeroth— 20 years of dedication to the Division of Construction Engineering and Management



“Thanks for the memories!” - Bonnie

1999 was a pivotal moment in time for the Division of Construction Engineering and Management (CEM) and for Bonnie Sondgeroth. November 1999, Bonnie accepted the position as the CEM Undergraduate Secretary to replace Linda Yoder who was retiring after a decade of serving students, industry, and faculty. Bonnie reflects that she was fortunate enough to work with Linda for several weeks before her last day but “had no idea as to how I would ever be able to fill Linda’s shoes”. The initial weeks of the spring 2000 semester were “nerve-racking to say the least”, but she was amazed by the overall patience and acceptance of the students.

Over the 20 years, Bonnie has witnessed more than 600 students receive their degree, and taken pictures or hosted celebrations for their graduation. Bonnie was asked to reflect upon those years:

“I have enjoyed every step of the way. The memories I have, friendships I’ve made, and the wonderful times I’ve had – I will cherish forever. There have been many changes over the years: new teammates, faculty members, department head, curriculum changes to name a few. My personal family has grown too! When I started work in CEM I had one granddaughter. Now, I have six beautiful granddaughters and seven handsome grandsons who are all the light of my life. The joy this job has brought to me is immeasurable. I truly enjoy working with the Internship Director, CEM faculty, staff, recruiters, students, alumni and families. Here’s to more amazing memories to come.”

The impact is mutual. There is no doubt that the care, home-made treats, and culture that Bonnie has modeled within CEM over the past 20 years has shaped our lives too. It is an indelible footprint that CEM alumni and our partners in industry are forever grateful. Although Bonnie has hinted towards retirement, we hope she will continue to add value to our program for a few more years.

“I have learned and grown so much from my time with all of you. I treasure the memories of the past 20 years and look forward to several more!”

~ Bonnie

# Featured CEM Faculty:

## Prof. Hubo Cai, PHD, PE

Dr. Hubo Cai was recently promoted to Full Professor of Civil and Construction Engineering the Lyles School of Civil Engineering and the Division of Construction Engineering and Management, respectfully, at Purdue University. His research focuses on infrastructure informatics at the intersection of data sensing, building information modeling, computational applications, and construction automation and robotics to help the architectural, engineering, construction (AEC) industry to build smarter, faster, cheaper, greener, and safer. He has over 16 years of experience in infrastructure engineering research and technology implementation. His research work has been funded by a combination of federal and state agencies and industrial partners.



Dr. Cai's most representative research work (funded through two grants from National Science Foundation (NSF) to is in mapping buried, underground utilities and designing human-in-the-loop cyberphysical systems to monitor excavation in real-time to protect pipes during construction by eliminating utility strikes. Utility strike refers to the unintentional hit of a utility pipe during excavation. It has been a significant problem ever since the deployment of mechanical excavators in construction. An excavator unintentionally hits a buried utility every 60 seconds in the US, causing thousands of injuries and hundreds of fatalities to workers and bystanders, and billions of dollars in damage every year. Dr. Cai identified two root causes - lack of accurate and complete utility records in 3D and lack of real-time spatial perception of the proximity between pipes and the excavator. His fundamental contribution includes the design of a GPR-GPS-GIS system and the very important point (VIP) algorithm for mapping underground pipes, a natural language processing (NLP) algorithm for processing textual data, a hybrid method to fuse data from physical sensors (GPR and GPS) and virtual sensors (NLP algorithms) to more accurately map underground pipes, and an uncertainty-aware, geospatial virtual reality (VR) system to monitor and communicate the proximity between buried pipes and the excavator to the operator in real-time.

Dr. Cai's research achievements are recognized by many awards including the TRB's 2019 K.B. Woods Award in recognizing his outstanding paper published in the field of design and construction of transportation facilities, the 2019 best paper award of ASCE's Computing Division in recognizing outstanding paper published at the bi-annual ASCE International Conference on Computing in Civil Engineering, ASCE Collingwood Prize, and TRB's best poster award. Dr. Cai has authored and co-authored 52 technical peer-reviewed journal articles and additional 40+ conference proceedings and research reports. Dr. Cai is the Chair of ASCE's Data Sensing and Analysis (DSA) committee, Associate Editor and Member of the Editorial Board of ASCE's Journal of Computing in Civil Engineering. His service has been recognized by a number of ASCE's Outstanding Reviewer awards and the Ross Judson Buck Outstanding Counselor Award. Dr. Cai is a licensed Professional Engineer in Michigan.

Prior to joining Purdue University in 2009, Dr. Cai was an Applications Analyst at North Carolina Department of Transportation, Senior GIS and Database Analyst at URS Corporation, and Assistant Professor of Civil and Construction Engineering at Western Michigan University.

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**Institution:** Purdue University **Years of Experience:** 15 **Education:** Ph.D., Civil Engineering, North Carolina State University, 2004; M.S., Civil Engineering, North Carolina State University, 2002; B.S., Construction Management Engineering, Tongji University, China, 1998 **Professional Registrations:** Professional Engineer, MI, 2008 **Contact Information:** Purdue University, Hampton Hall, Room 1235, 550 Stadium Mall Drive, West Lafayette, IN 47907-2051, 765-494-5028, hubocai@purdue.edu

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# CEM Faculty Grants & Funded Research Projects

Dr. Hubo Cai:

- SCDOT: Risk-based construction inspection, 12/19/2019—12/19/2021 (24-month), \$291,360.05. This project aims to develop a risk-based inspection program for South Carolina Department of Transportation (SCDOT) to ensure the quality and long-term performance of infrastructure through a targeted and informed inspection practice with a set of computer tools. As the state DOTs nationwide are challenged with sufficient staff with necessary experience and skills, this project will develop an easy to use digital inspection system that provides inspectors all necessary information in a checklist format and real-time access to training materials. It is expected to improve the efficiency and efficacy of construction inspection at SCDOT .
- JTRP: Automate the Generation of Construction Inspection Checklists, 7/1/2019—8/31/2020, \$129,785. This project aims to automate the generation of construction inspection form at the pay item level and present the construction requirements in a straightforward checklist format. It will replace the current manual practice in gathering construction requirements from heterogenous data sources, a time-consuming and error-prone process.

Dr. Sogand Hasanzadeh:

- Thomas Glavinich ELECTRI International 2020 Early Career Award, “Examining a Latent Side-Effect of Electrical Safety Interventions among T&D Line Workers”, 6 months. The six-month Early Career Award study will utilize an immersive mixed-reality combined with wearable sensors to empirically examine the risk perception and risk-taking behavior of T&D line workers as a function of the number and type of fall and electrical safety interventions in place for their protection. In this project, Hasanzadeh will closely collaborate with American Line Builders Chapter to define conditions under which T&D line workers take more risks in the dynamic construction environment, to determine the precursors of unsafe behavior and identify at-risk workers, and indeed, to lay the foundation for improving T&D safety training.

Dr. Makarand (Mark) Hastak:

- Safety, Mobility, and Cost Benefits of Closing One Direction of Interstate in Rural Areas During Construction Work (SPR 4409), Nov 2019 – Dec 2021, Joint Transportation Research Program (JTRP), \$130,000 (M. Hastak PI and S. Labi Co-PI)
- Synthesis Study on Best Practices for Mapping and Coordinating Detours for Maintenance of Traffic Including Risk Assessment/Management for Duration of Traffic Control Activities (SPR 4405), Nov 2019 – Feb 2021, Joint Transportation Research Program (JTRP), \$83,000 (M. Hastak PI and S. Labi Co-PI)
- The Impact of Offsite Construction on the Workforce (The Workforce of 2030 Program) (CII RT 371), Sept 2019 – Aug 2021. Construction Industry Institute (CII), \$231,812 (M. Hastak, PI, Islam El-Adaway, MST Co-PI, Kim LaScola Needy, UArk Co-PI).
- Towards a Resilient Grid: An Investment Prioritization Decision Framework that Integrates the Growing Risks of Severe Weather- Induced Outages. Aug 2017-July 2020, National Science Foundation (NSF), \$468,851 (M. Hastak, PI, Roshnak Nateghi Co-PI, Wallace Tyner, Co-PI).

Dr. Bob McCullouch:

- INDOT through JTRP, Annual Research Project, \$25,000. The project performs an annual Benefit/Cost analysis of INDOT’s research program.

# Awards:

Congratulations to our CEM faculty and students who received awards in 2019!

- Hubo Cai (CEM Faculty) and Xin Xu (PhD Student) - Received 3rd place Best Paper Award at the 2019 ASCE International Conference in Civil Engineering for their paper entitled, "Modeling 3D Spatial Constraints to Support Utility Compliance Checking".
- Hubo Cai (CEM Faculty) won the K.B. Woods Award from the Transportation Research Board for his paper, "Ontology-Based Knowledge Management System for Digital Highway Construction Inspection".
- Hubo Cai, Victor Gervais and Ted Weidner (CEM Faculty) all were recognized for being Outstanding Engineering Teachers for Spring 2019.
- Bob Bowen, Brandon Fulk, and Ted Weidner (CEM Faculty) all were recognized for being Outstanding Educators from Summer & Fall 2019.
- Mayra Pena (CEM Undergraduate Student) received the HACIA Scholarship. She was 1 of 8 recipients to receive it this year.
- Sarah Hedberg (May 2019) and Evan Howser (December 2019) & (CEM Undergraduate Student) received our Outstanding Undergraduate Academic Achievement Award.
- Jared English and Mackenzie Voegerl (CEM Undergraduate Students) were both awarded scholarships from the Asphalt Pavement Association of Indiana (APAI).
- Gina Szyborski (CEM Undergraduate Student) was awarded with the The Beaver's Heavy Construction Scholarship.

# Recent Publications:

- Choi, J., Deshmukh, A., and **Hastak, M.** (2019). "Seven-Layer Classification of Infrastructure to Improve Community Resilience to Disasters," *ASCE Journal of Infrastructure Systems*, ASCE, DOI: 10.1061/(ASCE)IS.1943-555X.0000486
- Choi, J., Naderpajouh, N., Yu, D. J., and **Hastak, M.** (2019) "Capacity Building for an Infrastructure System in Case of Disaster Using the System's Associated Social and Technical Components." *Journal of Management in Engineering*, 35(4), 04019013.
- Dao, B., **Hasanzadeh, S.**, Walker, C. L., Steinkruger, D., Esmaeili, B., and Anderson, M. R. (2019). "Current Practices of Winter Maintenance Operations and Perceptions of Winter Weather Conditions." *Journal of Cold Regions Engineering*, 33(3), 04019008.
- **Hasanzadeh, S.**, and de la Garza, J. M., (2019) "Understanding Roofer's Risk Compensatory Behavior through Passive Haptics Mixed-Reality System." *International Workshop on Computing in Civil Engineering (IWCCE 2019)*, Atlanta, USA. [Invited for *JCEM Special Issue*]
- **Hasanzadeh, S.**, Dao, B., Esmaeili, B., and Dodd, M. (2019) "Role of Personality in Construction Safety: Investigating the Relationships between Personality, Attentional Failure, and Hazard Identification under Fall-Hazard Conditions." *Journal of Construction Engineering and Management*, 145 (9). 04019052.
- Hongfang Lu, Mohammadamin Azimi, **Tom Iseley**. Short-term load forecasting of urban gas using a hybrid model based on improved fruit fly optimization algorithm and support vector machine. *Journal of Energy Reports*. *Energy Reports* 5 (November 2019) 666–677.
- **Tom Iseley**, Saleh Behbahani. Supporting the International Tunneling Industry. *Trenchless International Magazine*, summer 2019.
- **Tom Iseley**, Saleh Behbahani. The Trenchless Technology Center Leading the Way through Comprehensive Validation of Emerging 3D Imaging Technology for the Inspection of Manholes and Sewer Pipelines. *Damage Prevention Professional Magazine* (dp-pro.com), summer 2019.
- Srinath Shiv Kumar, **Dulcy M Abraham**, Mingzhu Wang, Mohammad Jahanshahi, **Tom Iseley**, Jack Cheng. Deep Learning Based Automated Detection of Sewer Defects in CCTV Videos. *ASCE's Journal of Computing in Civil Engineering*. October 25, 2019.
- Mahdavi A., Naderpajouh, N., Choi, J., Ketabi, A. B., **Hastak, M.**, and Cui, Q. (2019) "Dynamics of Project Selection and Growth in Project Based Organizations." *International Journal of Construction Management*, Taylor & Francis, May 2019, 1–18, DOI: 10.1080/15623599.2019.1604307
- Walker, C. L., Gholizadeh, P., **Hasanzadeh, S.**, Anderson, M. R., and Esmaeili, B. (2019). "Developing a Department of Transportation Winter Severity Index." *Journal of Applied Meteorology and Climatology*, 58(8), 1779-1798.
- Xiao Wang, Seyed Saleh Behbahani, **Tom Iseley**, Mohammadamin Azimi., Gang Wei, Shi, Y. Vertical Tunneling in China-A Case Study of a Hydraulic Tunnel in Beihai. *Tunnelling and Underground Space Technology*. October 10, 2019 (Under Review).
- Jiwei Wen, Ziwei Qi, Seyed Saleh Behbahani, Xiangjun Pei, **Tom Iseley**. Research on the Structures and Hydraulic Performances of the Typical Direct Jet Nozzles for Water Jet Technology. *Journal of the Brazilian Society of Mechanical Sciences and Engineering*. September 22, 2019.
- **Yoon, S.**, Naderpajouh N., **Hastak, M.** (2019). "Integrated Decision Model for Selection of Alternatives in Sustainable Infrastructure Development Based on Community Dynamics," *Journal of Cleaner Production*. DOI: 10.1016/j.jclepro.2019.04.243.

# Recent Publications (Cont'd):

- Aroke, O., Esmaeilli, B., **Hasanzadeh, S.**, Dodd, M. D., Brock, R., (2020) "The Role of Work Experience on Hazard Identification: Assessing the Mediating Effect of Impaired Attention Under Fall-Hazard Conditions" *Construction Research Congress (CRC 2020), ASCE, Arizona.*
- Cai, J. and **Cai, H.** (2020). "A Robust Hybrid Approach of Vision-based Tracking and Radio-based Identification and Localization for Tracking Multiple Construction Workers in 3D." *Journal of Computing in Civil Engineering*, Accepted on 2/7/2020. DOI: [https://doi.org/10.1061/\(ASCE\)CP.1943-5487.0000901](https://doi.org/10.1061/(ASCE)CP.1943-5487.0000901). (Tier 1)
- **Hasanzadeh, S.**, and de la Garza, J. M., (2020) "Can Outcome Expectations and Risk Tolerance Motivate Risk-Taking Behavior? The Implication of Risk Compensation through Multi-Sensor Mixed-Reality System" *Construction Research Congress (CRC 2020), ASCE, Arizona. [Invited for JCEM Special Issue]*
- **Hasanzadeh, S.**, Polys, N., and de la Garza, J. M. (2020) "Presence, Mixed Reality, and Risk-Taking Behavior: A Study in Safety Interventions" *IEEE Transactions on Visualization and Computer Graphics (IEEE VR2020)*, <https://doi.org/10.1109/TVCG.2020.2973055>
- **Hasanzadeh, S.**, de la Garza, J. M., and Geller, E. S. (2020) "Latent Effect of Safety Interventions through Passive Haptics Mixed-Reality System" *Journal of Construction Engineering and Management*, [https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0001812](https://doi.org/10.1061/(ASCE)CO.1943-7862.0001812)
- **Hasanzadeh, S.**, de la Garza, J. M., and Geller, E. S. (2020) "How Sensation-Seeking Propensity Determines Individuals' Risk-Taking Behaviors: Implication of Risk Compensation in a Simulated Roofing Task" *Journal of Management in Engineering*, [https://doi.org/10.1061/\(ASCE\)ME.1943-5479.0000813](https://doi.org/10.1061/(ASCE)ME.1943-5479.0000813)
- Srinath Shiv Kumar, **Dulcy M Abraham**, Seyed Saleh Behbahani, John C Matthews, **Tom Iseley**. Comparison of Technologies for Condition Assessment of Small Diameter Ductile Iron Water Pipes. *Journal of Pipeline Systems - Engineering and Practice*. July 08, 2020.
- Liko, G., Esmaeilli, B., **Hasanzadeh, S.**, Dodd, M. D., Brock, R., (2020) "Working-Memory Load as a Factor Determining the Safety Performance of Construction Workers" *Construction Research Congress (CRC 2020), ASCE, Arizona.*
- Hongfang Lu, Mohammadamin Azimi, John C Matthews, **Tom Iseley**. A Near Real-time HDD Pullback Force Prediction Model Based on Improved Radial Basis Function Neural Networks. *Journal of Pipeline Systems - Engineering and Practice*. July 14, 2020.
- Hongfang Lu, Seyed Saleh Behbahani, Mohammadamin Azimi, John C Matthews, Shuai Han, **Tom Iseley**, Trenchless Construction Technologies for Oil and Gas Pipelines: State-of-the-Art Review. *Journal of Construction Engineering and Management*. June 2020.
- Hongfang Lu, **Tom Iseley**. The epidemic makes the sustainability of sewage pipes more urgent. *Journal of Cleaner Production*. July 2020 (Under Review).
- Hongfang Lu, **Tom Iseley**, Seyed Saleh Behbahani, Lingdi Fu. Leakage detection techniques for oil and gas pipelines: State-of-the-art. *Tunnelling and Underground Space Technology*. April 2020.
- Hongfang Lu, John C Matthews, **Tom Iseley**, How does trenchless technology make pipeline construction greener? A comprehensive carbon footprint and energy consumption analysis. *Journal of Cleaner Production*. July 2020.
- **Tom Iseley**, Saleh Behbahani. TTC Participates in Global Engineering and Management Forum. *Trenchless International Magazine*, summer 2020.

# Recent Publications (Cont'd):

- **Tom Iseley**, Mike Burkhard, Saleh Behbahani. Light Curing CIPP Promises Bright Industry Future. *Trenchless International Magazine*, winter 2020.
- **Tom Iseley**, Charles Burtron, Ron Thompson, Dan Hilyer, Saleh Behbahani. AWIA 2018 Provides Global Leadership for the Drinking Water Industry. *Trenchless International Magazine*, winter 2020.
- Xiao Wang, Hongfang Lu, Xinjiang Wei, Gang Wei, Seyed Saleh Behbahani, **Tom Iseley**. Application of artificial neural network in tunnel engineering: a systematic review. *Application of artificial neural network in tunnel engineering: a systematic review*. IEEE Access. June 2020.
- **Yoon, S., Kang, K, Hastak, M.** and Ji, R. (2020). "Development of Systematic Mitigation Strategy Utilizing Computer-based Guidelines for Reflective Cracking," *Journal of Transportation Engineering, Part B: Pavements, ASCE, 146(3), 04020034*
- Yuan, C<sup>6</sup>. and **Cai, H.** (2020). "Spatial Reasoning Mechanism to Enable Automated Adaptive Trajectory Planning in GPR Survey." *Automation in Construction*, Volume 114, DOI: <https://doi.org/10.1016/j.autcon.2020.103157>. (Tier 1).
- Zhou, H.\* , Zhao, Y.<sup>6</sup>, Shen, Q.<sup>6</sup>, Yang, L.<sup>6</sup>, and **Cai, H.** (2020). "Risk Assessment and Management via Multi-source Information Fusion for Undersea Tunnel Construction." *Automation in Construction*, Volume 111, DOI: <https://doi.org/10.1016/j.autcon.2019.103050>. (Tier 1).
- Assaad, R., El-adaway, I. H., **Hastak, M.**, and LaScola Needy, K. (2020). "Commercial and Legal Considerations of Offsite Construction Projects and their Hybrid Transactions. *Journal of Management in Engineering, ASCE (Accepted)*.
- Su, G., **Hastak, M.**, Deng, X, and Khallaf, R. (2020). "Risk sharing Strategies for IPD projects: Interactional Analysis of Participants' Decision-making," *Journal of Management in Engineering, ASCE (Accepted)*.
- **Yoon, S.**, Jeon, J., **Cai, H.**, and **Hastak, M.** (2020). "A Verification and Validation Framework for Purdue Index for Construction (Pi-C)." *Journal of Management in Engineering. Accepted on 6/12/2020*.
- **Yoon, S., Hastak, M.,** and **Weidner, T.** (2020). Total Packaged Prioritization (TPP) Mitigation Strategy for the Deferred Maintenance (DeM) of a Campus-Sized Institution. *Journal of Management in Engineering, ASCE (Accepted)*.
- Xu, X.<sup>6</sup> and **Cai, H.** (2020). "Automating utility permitting within highway right-of-way via a generic UML/OCL model and natural language processing," *Journal of Construction Engineering and Management, Accepted on 6/29/2020*.

# CEM Faculty Invited Lectures & Keynote Presentations:

Geoff Graff:

- “Case Studies in a critical approach to building design and construction in the USA”, 2/19/2020, Symbiosis Institute of Technology, Pune, India .
- “Architecture and Engineering: Strategies for productive multidisciplinary pedagogy and engagement”, 2/19/2020 Symbiosis Institute of Technology, Pune, India.

Makarand (Mark) Hastak:

- “Ex-Ante Infrastructure Capacity Building for improving Community Resilience to Natural Disasters” **Invited Speaker** at the University of Huddersfield, UK, June 4, 2019
- “Infrastructure Capacity Building for Resilient Cities of the Future,” **Keynote Speaker**, Chinese Academy of Engineering (CAE) Forum on Future Cities and Infrastructure, Tsinghua University, Beijing, Nov 9-10, 2019.
- “Intelligent Infrastructure Planning for Resilient Cities of the Future,” **Keynote Speaker**, at the 24th International Symposium on the Advancement of Construction Management and Real Estate (CRIOCM 2019), Nov 29-Dec 1, 2019, Chongqing, China.
- “Intelligent Planning Units (IPUs) and their Impact on the Future of Built Environment,” **Keynote Speaker**, the 2<sup>nd</sup> International Conference on Construction Futures (ICCF2020), July 7, 2020, Virtual Conference hosted by the University of Wolverhampton, UK.

Tom Iseley:

- Keynote Speaker. Validation of 3D imaging Technology in PCA. Pipeline Condition Assessment Professional. Wuhan, China. Presentation was based on the PCA technology at TTC. June 2019.
- Guest Speaker – Infrastructure and Construction-2019, Dubai Congress. Trip: Transferring Research into Practice Utilizing a Global Model. October 11-12, 2019.
- Keynote Speaker for the ASOE opening of their new facility in China. The ceremony included high level representatives from the ministry of Construction. December 2019.
- Guest Speaker - CUIRE Pipe School - Pipeline Cleaning and Inspection Technologies for Gravity Pipes. Fort Worth, TX. January 28, 2020, The Center for Underground Infrastructure Research & Education (CUIRE), at the University of Texas at Arlington, will hold its 17th Annual Pipeline and Trenchless Technology Training and Certification Schools in conjunction with UCT. This year’s program includes Advanced HDD School, Geotechnical School, Pipe School as well as half-day Pipe Lining and Renewal, and Microtunneling and Pilot Tube schools.
- Guest Speaker - CUIRE Pipe School - Pipeline Renewal Methods. Fort Worth, TX. January 28, 2020. The Center for Underground Infrastructure Research & Education (CUIRE), at the University of Texas at Arlington, will hold its 17th Annual Pipeline and Trenchless Technology Training and Certification Schools in conjunction with UCT. This year’s program includes Advanced HDD School, Geotechnical School, Pipe School as well as half-day Pipe Lining and Renewal, and Microtunneling and Pilot Tube schools.

# CEM Faculty Invited Lectures & Keynote Presentations (CONT'D):

Tom Iseley:

- Guest Speaker - Manhole Renewal and Sewer Service Laterals Rehabilitation. City of Atlanta DWM Small Business Development Program. Atlanta, GA. March 24, 2020. The City of Atlanta Department of Watershed Management Small Business Development Program is an intensive 10-week training program for small, minority and/ or female contractors in sewer rehabilitation techniques and construction management.
- Speaker - 2020 Virtual Global Leadership Forum for Construction Engineering and Management
- June 9-10, 2020. The GLF-CEM is an organization which began about 10 years ago to bring leaders from academia and industry from around the world together to share ideas on building stronger academic programs and help shape our future construction industry leaders.
- Guest Speaker - CEM 38000- Innovation in Heavy Underground Construction. September 8, 2020.
- Guest Speaker - CE691- Civil Engineering Seminar. Infrastructure Owner Driven Research Program. September 18, 2020.
- Guest Speaker - CISTT ASOCIATION- 4-Hour Short Course on: The Planning, Design, and Construction for Auger Boring (AB), Microtunneling (MT), and Pilot Tube Guided Boring (PTGB). September 30, 2020.
- Guest Speaker - BCM 497, CE 497, CE 597- Critical Thinking in Construction Engineering as it Applies to Developing & Managing Underground Space October 15, 2020.
- Moderator & Speaker - Purdue Safety Webinar Series - Safety: Intersection of the Design & Construction. November 2, 2020. This Safety Webinar will look at utilities throughout the life-cycle of a project. It will look at traditional actions by the various stakeholders (Utility Owners, Project Owners, Engineers, Surveyors, and Contractors) in providing safety for existing utilities, and how that safety can be enhanced through engagement of risk management principles during the planning, design, and construction phases of a project.
- Guest Speaker - CUIRE Pipe School - Nashville, TN. May 18, 2021. The Center for Underground Infrastructure Research & Education (CUIRE), at the University of Texas at Arlington, will hold its 18th Annual Pipeline and Trenchless Technology Training and Certification Schools in conjunction with UCT. This year's program includes Advanced HDD School, Geotechnical School, Pipe School as well as half-day Pipe Lining and Renewal, and Microtunneling and Pilot Tube schools.
- Speaker - Underground Construction Technology Conference. Critical Thinking in Construction Engineering as it Applies to Developing & Managing Underground Space. Nashville, TN. May 18-20, 2021. Underground Construction Technology International Conference & Exhibition (UCT), is the meeting place for business-professionals involved in maintaining the underground utility pipe infrastructure. Individuals representing water, sewer, gas, telecom and electric rely on UCT to learn about the latest techniques used in trenchless, open cut, new construction and pipe rehabilitation. Major academic and industry sponsors offer seminars before and during UCT. Nearly 200 exhibitors showcase equipment and technologies used to maintain the crumbling utility piping systems. The UCT education program qualifies for Professional Development Hours (PDHs) and Continuing Education Units (CEUs). Credit is granted by the University of Texas at Arlington.

# CEM Faculty Invited Lectures & Keynote Presentations (CONT'D):

Tom Iseley:

- Speaker - Underground Construction Technology Conference. TRIP: Transferring Research into Practice. Integrating Advanced PCA Technology into Comprehensive Asset Management Programs. . Fort Worth, TX. January 28-30, 2020. Underground Construction Technology International Conference & Exhibition (UCT), is the meeting place for business-professionals involved in maintaining the underground utility pipe infrastructure. Individuals representing water, sewer, gas, telecom and electric rely on UCT to learn about the latest techniques used in trenchless, open cut, new construction and pipe rehabilitation. Major academic and industry sponsors offer seminars before and during UCT. Nearly 200 exhibitors showcase equipment and technologies used to maintain the crumbling utility piping systems. The UCT education program qualifies for Professional Development Hours (PDHs) and Continuing Education Units (CEUs). Credit is granted by the University of Texas at Arlington.
- Speaker - Rapid Excavation & Tunneling Conference (RETC) - State-of-the-Practice Review: Microtunneling with PVC Pipe. Las Vegas, Nevada. June 13-16, 2021. Every two years, industry leaders and practitioners from around the world gather at the Rapid Excavation and Tunneling Conference (RETC), the authoritative program for the tunneling profession, to learn about the most recent advances and breakthroughs in this unique field. This comprehensive conference helps practicing professionals keep up with the ever changing and growing tunneling industry. Stay on top of new trends and technologies as well as innovative concepts, new equipment, materials, management, financing, and design challenges.

Ted Weidner:

- APPA Conference, Denver, CO, "APPA FPI – Moving Beyond the Big Picture", July 16, 2019. Present current research and recruit data donors for future research
- APPA Webinar, online, "Operational Guidelines for Educational Facilities", October 10, 2019. Present overall scope of new edition of a book I'm editing.
- APPA Webinar, online, "Design-Build: What Education Facility Officers Need to Know", December 12, 2019. A thumbnail presentation of the D-B process for facility officers.
- Facilities Management – Pathway to Professionalism - General Administration. University of Illinois – Chicago, educational program (5 hours) for administrative services employees, February 24, 2020. After the program (and 3 others) attendees may apply for a certificate exam – CEFP.
- Facilities Management – Pathway to Professionalism – Operations & Maintenance, University of Illinois – Chicago, educational program (5 hours) for administrative services employees, remote delivery, April 27, 2020. After the program (and 3 others) attendees may apply for a certificate exam – CEFP.

# LEADERSHIP ROLES & MEMBERSHIP IN ACADEMIC, PROFESSIONAL & SCHOLARLY SOCIETIES

Hubo Cai:

- Chair of ASCE's Data Sensing and Analysis Committee since October 2019.
- Associate editor and member of the editorial board of ASCE's journal of computing in civil engineering.

Makarand (Mark) Hastak:

- International Council for Research and Innovation in Building and Construction (CIB)
  - \* 2020-Present: Vice President
  - \* 2019-Present: Member of the Board
- Construction Industry Institute (CII)
  - \* 2019-2021: Member, CII RT 371 – *The Impact of Offsite Construction on the Workforce (The Workforce of 2030 Program)*.
  - \* 2020-Present: Academic Advisor, Downstream and Chemicals Committee (DCC)

Tom Iseley:

- International Advisory Committee (IAC) of HK PolyU Department of Land Surveying and Geo-informatics. Since 2018. The IAC members are serving on the development of specifications and certification standards for underground utility (UU) survey based on Non-destructive Testing, Surveying, Imaging and Diagnostic (NDTSID) approaches. The specifications of six UU survey methods include the Ground Penetrating Radar, Pipe Cable Locator, CCTV Inspection, Infrared Thermography, Leak noise correlation, and Flow survey. These specifications will tie to ISO 17025 and also the universal lab accreditation scheme.
- Founder - International Light Curing Technologies Association (ILCTA). Vanderbilt University, Nashville, TN. July 21, 2019. Mission of ILCTA: To improve the design, installation, and operation of the Light Curing CIPP systems through the creation of partnerships among utilities, researchers, designers, contractors, and the Light Curing CIPP industry.
- Chairman & Speaker. BAMI-I & Certification of Training in Asset Management (CTAM) Program. City of Atlanta (COA) Department of Watershed Management (DWM). September 9-12, 2019.
- Panel of Scientific Experts. 37<sup>th</sup> International No Dig – Florence. September 30-Oct 2, 2019.
- International No-Dig" is a well-known event in the trenchless sector, which brings national and international operators, professionals in the sector, the academic world and Public Administration together. It is a great opportunity for new business, where one can be updated on technological innovation in the sector.
- Founder - International Light Curing Technologies Association (ILCTA). Louisiana Tech University, TTC. October 23, 2019. Mission of ILCTA: To improve the design, installation, and operation of the Light Curing CIPP systems through the creation of partnerships among utilities, researchers, designers, contractors, and the Light Curing CIPP industry.
- Scientific Committee - 4<sup>th</sup> International Conference on TBM in Difficult Ground conference (TBM-DiG 2019). Golden, Colorado. November 13-15, 2019. TBM DiGs is an international conference series that provides a specialized technological forum discussing and exchanging knowledge related to TBM works in difficult grounds. The series covers a wide range of topics, including characterization of difficult grounds, field observations and case studies, physical and laboratory tests, numerical modelling and techniques, treatments of difficult grounds, TBM design and installation, tunnel support design, monitoring and risk management.

# LEADERSHIP ROLES & MEMBERSHIP IN ACADEMIC, PROFESSIONAL & SCHOLARLY SOCIETIES (CONT'D)

Tom Iseley (cont'd):

- Founder, Director & Speaker. TTC/ASCE UESI Utility Investigation School. Colorado School of Mines, Golden, Colorado. December 16-19, 2019. This short course will give practitioners the knowledge and tools to provide competent utility investigations in accordance with accepted national standards (ASCE 38-02) and to defend against claims through this knowledge and its documentation. This school is a 40-hour course for those professionals stamping ASCE 38-compliant utility mapping deliverables and their direct reports such as lead CAD and field staff. Approximately 100 persons have already attended this class.
- Founder and Chairman - BAMI-I Board of Directors (BOD) & General Membership Meeting. Arlington, TX. January 28, 2020. The Buried Asset Management Institute – International (BAMI-I) is a non-profit corporation whose main purpose is to educate and assist those who have an interest in applying best buried asset management practices to extend the life and efficiency of their assets. Although BAMI-I has been mainly focused on water and wastewater systems, the principles of asset management apply to all different types of buried assets including for instance gas distribution pipes, electric cables.
- Founder - International Light Curing Technologies Association (ILCTA) IUPUI, IN. February 20, 2020. Mission of ILCTA: To improve the design, installation, and operation of the Light Curing CIPP systems through the creation of partnerships among utilities, researchers, designers, contractors, and the Light Curing CIPP industry.
- Program Co-Coordinator & Speaker. BAMI-I & Certification of Training in Asset Management (CTAM) Program. The Trenchless Technology Seminar 'SSES and Buried Asset Management'. The Midwest Society for Trenchless Technology (MSTT), ASCE Kansas City Section and APWA Metro Kansas City Chapter. Kansas City, MO. March 11, 2020.
- Program Co-Coordinator & Speaker. Trenchless Technology center (TTC). The Trenchless Technology Seminar 'SSES and Buried Asset Management'. The Trenchless Technology Seminar 'SSES and Buried Asset Management'. The Midwest Society for Trenchless Technology (MSTT), ASCE Kansas City Section and APWA Metro Kansas City Chapter. Kansas City, MO. March 11, 2020.
- International Steering Committee - NoDig India Show 2020. December 1-5, 2020. Indian Society for Trenchless Technology (IndSTT) the apex organization to promote trenchless technology in India, is honored to host the No-Dig India Show 2020 – Digital Conference & Exhibition on Trenchless Technology Applications in the Post Covid World from 1st to 5th December 2020. Aim of this event is to provide an online platform to construction industry stakeholders for networking with trenchless solution providers for idea exchange, problem solving, & knowledge gain in sub-surface construction in the post COVID world.
- Founder, Director & Speaker. TTC Auger Boring School. Ruston, Louisiana. December 7-11, 2020. This 5-day school has been developed to provide students with the knowledge and background needed to understand the important components of Auger Boring (AB) operations required to produce successful projects. In addition to the classroom lectures, practical sessions will be held where participants will be offered hands-on experience with the AB equipment. The school will be instructed by the foremost experts in the country. The course covers all aspects of a project from design to construction, with a special focus on safety.
- Polish and foreign. NO-DIG POLAND is participated by scientists, engineers, designers, executive companies and producers of materials and devices used in trenchless technologies.

# LEADERSHIP ROLES & MEMBERSHIP IN ACADEMIC, PROFESSIONAL & SCHOLARLY SOCIETIES (CONT'D)

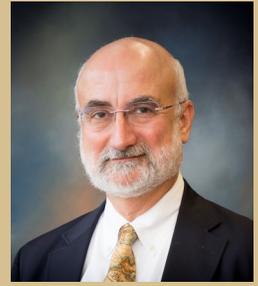
Tom Iseley (cont'd):

- Scientific Committee - 9<sup>th</sup> Conference Trenchless Technology NO-DIG POLAND 2021. April 21-23, 2021. NO-DIG POLAND has for years been supported by Polish Foundation of Trenchless Technology, which is the member of the International Society for Trenchless Technology associating members from over 30 most advanced countries in the development of trenchless technologies. The conference has been organized every 2 years since 2005. Each edition has gathered expert lecturers, both Polish and foreign. NO-DIG POLAND is participated by scientists, engineers, designers, executive companies and producers of materials and devices used in trenchless technologies.
- Founder and Chairman - BAMI-I Board of Directors (BOD) & General Membership Meeting. Nashville, TN. May 18, 2021. The Buried Asset Management Institute – International (BAMI-I) is a non-profit corporation whose main purpose is to educate and assist those who have an interest in applying best buried asset management practices to extend the life and efficiency of their assets. Although BAMI-I has been mainly focused on water and wastewater systems, the principles of asset management apply to all different types of buried assets including for instance gas distribution pipes, electric cables.
- Conference Technical Committee - No-Dig Down Under. Sydney, Australia. October 5-8, 2021. No-Dig Down Under is the southern hemisphere's only large-scale conference and exhibition dedicated to trenchless technology. In 2021, it is set to be held at the International Convention Centre Sydney from 5-8 October. Organized in partnership with the Australasian Society for Trenchless Technology (ASTT), No-Dig Down Under has grown over the years to become the second largest no-dig technology event in the world, and is now considered a 'must-attend' for all industry professionals.

Ted Weidner:

- ISO/TC 267/WG5, Convenor, 5/2018 – present, development of an international standard for “Facility Management – Influencing behaviors for improved outcomes and user experience”.
- APPA Informatics Work Group, Member, 1/2019 – present, development of the metadata for higher education facilities management purposes.
- APPA P2P Credentialing Prep Course, Developer & Instructor, 12/2019 – present, developed an on-site, 4-session, program to prepare working professionals to take and pass the APPA CEFP credentialing exam.

# Faculty Highlight:



## Design Build with Dr. Ted Weidner:

The course Design-Build Project Delivery Method (CEM 45600) is being offered for a 4<sup>th</sup> time, Spring 2020. It is one of three technical elective courses offered in CEM. The course was first offered in 2016 when five students enrolled. It has grown in popularity; the course maxes-out at 30 students.

In addition to learning about a different project delivery method, students receive certification credit from DBIA (Design-Build Institute of America). DBIA topic areas include: Design-Build Principles, Contracts & Risks, and Post-Award Execution. If the student scores 80% or better on each exam (3), he/she can apply to become a DBIA Associate member which has the potential to increase their value to future employers. Several students have indicated that interviewers were impressed they had this knowledge already.

The course is a combination of lectures, exercises and case studies. The instructor uses the DBIA annual student competitions to expose students to the process and to challenge them to think about construction projects from a different perspective. Included in the case studies is a response to a request for qualifications (RFQ) and then response to a request for proposal (RFP). These two steps include simulated Prequalification, Preproposal, and Technical Review Meetings where students interact with the Owner or Owner's Representative for the case study project. For many of the students, this is their first exposure to what it's like on the front-line with a client. While the students in a team may not have all the required qualifications appearing in a case study they learn what is expected to present material to a client. The instructor tries to bring experts in the area of the case study problem so students learn about a project from a different perspective than they may have seen in their internships.

The case studies include full design-build project delivery as well as 'bridging' versions of design-build that are often seen in public sector projects. So far, the case studies include: a university dining center, a dormitory, and college theater project. In some cases, teams must select among several construction sites and provide a rationale, in the submittal, of why they selected the site. While there may not be one correct answer, the process of examination and articulation of the solution is a major learning outcome.

# Meet our Organizations:

## CEMOAA:

At the April 2019 Internship Banquet, the division was pleased to recognize Ms. Peggy Newquist with the Construction Engineering and Management Outstanding Alumni Award for her career achievements and her support of CEM over the years. Peggy has been particularly supportive of women that consider construction engineering as a career with the creation of WinC, Women in Construction, at Purdue and with her outside involvement with NAWIC (National Association of Women in Construction). In addition to her support and encouragement of women in construction Peggy has been a long-standing member of the CEM Industrial Advisory Board providing leadership and support for CEM.

The Division of Construction Engineering and Management was proud to recognize Peggy for her contributions to the division and society. She is an exemplar of what Purdue CEM graduates aspire to be.

## WinC:

The Women in Construction (WinC) mentoring program was started in 2013 in response to the small number of female students enrolling in and staying in CEM. The program brings together CEM Alumnae and female students over the course of their summer internship. The mentors are external to the student's sponsor company to ensure they have an outside perspective as they navigate their summer assignments. Many student-mentor pairs have stayed together over the three years forming lasting relationships. And most of our students have graduated from mentee to mentor and continued to support CEM. We believe the WinC program has been one of the reasons our women students now make up over 20% of the program.

## Beta Tau:

Beta Tau is the Honors Fraternity for Construction Engineering and Management, they currently have 21 active members. They are dedicated to helping grow their members' skills through community service and networking. In the future, they plan to continue working with Lafayette Transitional Housing Center (LTHC), providing any sort of construction or maintenance that is needed to help give back to the community. In 2018-2019, they helped reroute a gutter system that was on the verge of causing flooding in the basement of one of their houses. The 2020 spring semester, they are in contact with LTHC to identify a new project where they could help LTHC. In addition, Beta Tau members are continuously working on getting the spring CEM banquet all set up for the first Tuesday in April. Throughout 2019, Beta Tau hosted or participated in several activities on campus. Including hosting an Ice Cream Social, End of Semester Cookout, and their annual Beta Tau Banquet on April 2nd in which Luke Marklin, CEM Alumni and CEO of Bellhops, was our invited speaker.

## CEF:

Over the last year, Construction Engineers of the Future (CEF) participated in social activities, intramurals and began planning for the next semester. CEF currently has 22 students on roster. In the next semester CEF hopes to preform a service project for the local community, tour a local construction site and participate in a club group building exercise that utilizes their skills of the construction industry as well as teamwork.

# Distinguished Speakers:

These distinguished speakers offered an invited lecture for our students, faculty and staff during 2019-2020 academic semesters.

- **Anil Sawhney**, Director of the Infrastructure Sector, RICS
- **Tharaparan Gajendran**, Associate Professor, School of Architecture and Built Environment, University of Newcastle, Australia
- **James J. Adrian**, Professor of Civil Engineering and Construction, Bradley University; President, Adrian International LLC
- **Wayne A. Crew**, General Secretary, National Academy of Construction
- **Pingbo Tang**, Associate Professor, Del E. Webb School of Construction, School of Sustainable Engineering and the Built Environment, Ira A. Fulton Schools of Engineering, Arizona State University
- **Lucio Soibelman**, Viterbi Dean's Professor and Department Chair, Astani Department of Civil and Environmental Engineering, University of South California
- **Luis Henrique Martinez**, Principal Consultant, Pert-Cpm LLC
- **Jesús M. de la Garza**, Vecellio Professor of Construction Engineering and Management, Virginia Tech, Department of Civil and Environmental Engineering and Myers-Lawson School of Construction.
- **Dr. Jiansong Zhang**
- **Ntalie S. Parks**, Utility & Railroad Coordinator, American Structurepoint INC.
- **Robin Kemper**, President, ASCE
- **Loannis Brilakis**
- **Nan Li**, Department of Construction Management, Tsinghua University, China
- **Eddy Rojas**, Dean, School of Engineering, University of Dayton
- **Ashwini Jain**, Data Analyst, formerly at Superior Construction
- **William John O'Brien**, Associate Chair of Architectural Engineering Dept. of Civil, Architectural, and Environmental Engineering, The University of Texas at Austin
- **Mike Miller**, Manager of Underground Engineering and Construction from Citizen's Energy Group
- **Sogand Hasanzadeh**
- **Yangming Shi**
- **Neda Mohammadi**
- **Paul Giroux**
- **Kyu Kang**, IUPUI
- **Sayanti Mukherjee**, University of Buffalo
- **Luh-Maan Chang**, National Taiwan University
- **Keith Molenaar**, University of Colorado Boulder
- **Jinha Jung**, Professor, Geometrics, Purdue University
- **Brian Acton**, BMWC Corp
- **Anne Willson Bigane**, Bigane Paving
- **Peggy Newquist**, Constructing Opportunity
- **Gerald Lyles**, Lyles Diversified Inc.
- **Marl Howell**, Maxim
- **Robert Nussmeier**, Kiewit
- **Alan Dale**, Bowen
- **Lacy Wargel**, Bowen
- **Jared Redelman**, Bowen
- **Tom Shelby**, Kiewit
- **Steve Nutt**, Bowen
- **Al Oak**, Cripe
- **Vince Drnevich**, Professor Emeritus of Civil Engineering, Purdue University
- **Peter Quinn**, Colliers International
- **Chris Traylor**, Traylor Brothers
- **Thad Pirtle**, Traylor Brothers
- **Doug Bowen**, Bowen
- **Mark Cvetkovich**, Bowen

# Featured CEM Alumni:

## Peggy Newquist



Peggy Newquist is currently a principal/owner of Constructing Opportunity, LLC a consulting firm focused on talent development and leadership coaching within the A/E/C industries. She is also an adjunct faculty member of the Corporate, Community and Continuing Education department of Moraine Valley Community College.

Prior to founding her company, Peggy held the position of Construction Planning Lead for The Federal Reserve Bank of Chicago. She has the distinction of being the first woman engineer hired by Walsh Construction Company and the first woman project manager to be hired by Matocha Associates.

Before joining the Federal Reserve Bank in September 2014 Peggy had a 20+ year career with McDonald's Corporation. She began in 1992 as a Construction Project Manager and was promoted over the years eventually becoming the Sr. Director, Worldwide Training, Construction and Strategic Sourcing. While at McDonald's Peggy is most proud of creating the Development Leadership Program, which was designed to accelerate the careers of high potential development staff through a year long program of workshops and business case assignments. She is a 2011 graduate of the prestigious LAMP (Leadership at McDonald's Program) program. Peggy is the recipient of the McDonald's Women's Leadership Award and the Directors Award of Excellence.

Peggy is a graduate of Purdue University with a degree in Construction Engineering and Management. She also holds a master's degree in Construction Engineering from the Illinois Institute of Technology.

Peggy has been a member of NAWIC (National Association of Women in Construction) for more than 25 years and was awarded their Woman of the Year award in 1998. She is the current NAWIC national Professional Education and Development Chair and serves as a Secretary for the NAWIC Education Foundation. She sits on the Purdue University Construction Engineering and Management Industry Advisory Board and leads a mentoring program for women students in the Purdue construction engineering program.

Peggy's speaking engagements on Gender Diversity, Negotiation and Building Professional Alliances have included: Purdue University Construction Council, CFMA Annual Convention, NAWIC Midwest Regional Forum and NAWIC Annual Conference. Her work has also been published in Commercial Construction and Renovation magazine, Chicagoland AGC Blueprint and the NAWIC Image.

Currently, through her company Constructing Opportunity, she leads workshops which enhance the leadership skills of construction professionals. Her workshops combine the core principals of each topic such as Communicating Effectively with industry data such as "a recent study found over \$3.1 billion in rework in the construction industry can be attributed to miscommunication and poor data" to ensure a meaningful learning experience. Her company also facilitates two women in construction events each year to help the next generation of women succeed in the construction industry. Peggy was recently recognized with the Construction Engineering and Management Outstanding Alumni Award for 2019.

In her "spare time" she serves on the CEM Advisory Board and manage the CEM WinC mentoring program!

# Class of 2020

## Undergraduate Students:

- Aaron Bovaird
- Alexander Brand
- Johnathon Bratland
- Jared Cannato
- Jake Grossnickle
- Sean Herrera, Mortenson
- Cason Jones
- Collin Kinkead
- Charles Kirk
- Karaim Koueider, Bechtel Corp
- Andrew Lepore
- Andrew Lietmann
- Dominic Lombardo, Barton Malow
- Karim Makhaly, Graduate School
- Mark Mital, DPR
- Abner Perez
- Anthony Polinski
- Nicholas Radermacher, GE Johnson
- Turner Ryan, Holder Construction
- Justus Schumann, Exxon Mobil
- Brook Sehring, Amtrak
- Jacob Seyfried
- John Sullivan, ExxonMobil
- Brennan Thieneman
- Amy Watts, F.A. Wilhelm
- Chaole Zhao

# Corporate Sponsorship Program:

**Our Corporate Sponsors program supports:**

The student experience:

- Community service projects
- Senior design projects
- Internship program
- Development of new courses
- Technology upgrades
- Visiting lecturers and guest speakers

Faculty recruitment and retention:

- Faculty development
- Funding for national and international conference travel and participation

Student recruitment efforts:

- Participation in campus events
- Marketing

**\*Currently CEM has 11 Corporate Sponsors:**

Platinum Level:

- Barton Malow
- BMW Constructors
- Mortenson Construction
- Charles Pankow Builders

Gold Level:

- Bechtel
- ExxonMobil
- The Hagerman Group
- Bigane Paving
- Traylor Bros.

Black Level:

- O'Brien Engineering
- Shambaugh & Son

For more information on how the CEM students can benefit from your company's participation: <https://engineering.purdue.edu/CEM/giving/corporate-sponsors>

\*As of November 2020

# 2019 Events:

## CEM Advisory Board Meetings:

Spring 2019

Fall 2019



## Beta Tau Banquest:

Spring 2019



CEM Alumni



CEM 2019 Graduating Class

# 2019 Events:

WinC Kickoff Meeting:



NAWIC:



CEM Female Alumni Meet & Greet:



CEM Callout—Pizza Meet & Greet:

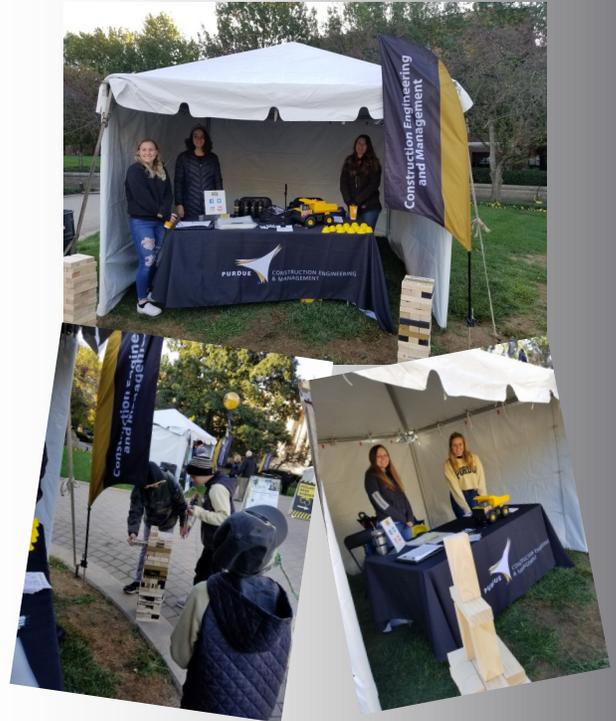


# 2019 Events:

Experience Purdue:



Homecoming:



Purdue Day of Giving:



# 2019 Events:

Beta Tau Lafayette Traditional Housing Project:



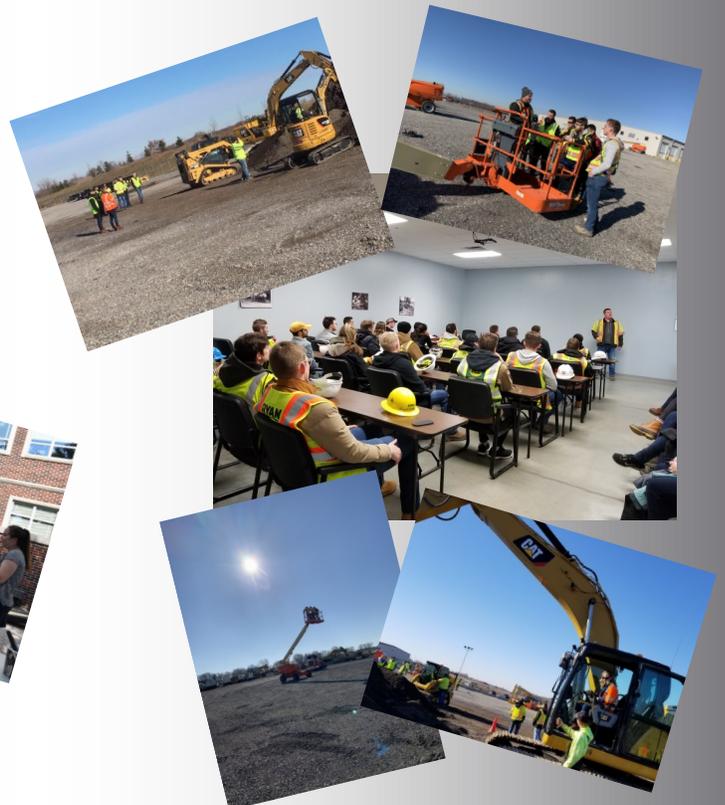
Wea Ridge Middle School Activity:



Beta Tau Ice Cream Social:



CEM Students Visit McAllister Machinery:



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