

Thursday, June 5, 2025

Thursday, June 5

1:00 - 1:50 PM

Track: Thursday

Room: Kensington DE

Presenter: Gene Dinkins, PE, PLS, Peter Strub, PE and Angela Musselwhite, PE

Presentation: SC State Board of Registration for Professional Engineers and Surveyors Update

Thursday, June 5

2:00 - 2:250

Track: Thursday

Room: Kensington DE

Presenter: Julie Barker

Presentation: SCDOT

Update from the SC Department of Transportation

Thursday, June 5

3:00 - 3:50

Track: Thursday

Room: Kensington DE

Presenter: Myra Reece

Presentation: SCDES

Update from SC Department of Environmental Services

Thursday, June 5

4:00 - 4:50

Track: Thursday

Room: Kensington DE

Presenter: Adam Jones

Presentation: Legislative Update

I will moderate a session with legislators in the area or other lobbyist.

Friday, June 6, 2025

Track 1

Friday, June 6

8:00 AM - 8:50 AM

Track: Track 1

Room: Kensington D

Presenter: Perry Green

Presentation: Stability Matters: What Can Happen When Analysis, Design, Detailing and Fabrication Differ

Industrial building structures are typically large in plan, and have heavy equipment and moving loads such that the structures must be vertically braced. This presentation will examine the modeling assumptions used in the structural analysis of vertical bracing and the often encountered inconsistency with assumptions made during the design, detailing, fabrication, and structural steel erection of the facility. Decisions made early on in the design process with regards to the vertical bracing can have a profound effect on the overall stability of the structure. The main questions that should arise are: 1) what happens when “minor” fabrication or erection decisions are not considered when applying the loads and load combinations to the individual compression members when stability is being checked, and 2) how do these same decisions affect the overall stability of the frame? Several case studies will be presented that examine the results of decisions made in the design, fabrication, and erection of vertical bracing systems that, when neglected or ignored, could lead to potential stability problems.

Friday, June 6

9:00 AM - 9:50 AM

Track: Track 1

Room: Kensington D

Presenter: Mark Lorah

Presentation: St. Thaddeus Column Retrofit.

The St. Thaddeus Church in Downtown Aiken, SC, built in the early 1800's is one of the oldest and most historic structures in the city.

Accordingly, the congregation was very concerned when a crack opened up on their front porch and one of their huge two-story front columns started leaning precariously from the structure.

Johnson Laschober & Associates (JLA) was hired to perform an evaluation of the situation and design a retrofit.

Finding and addressing the cause involved Civil and Geotechnical experts working together with the Structural team.

JLA, together with the church, hit many challenges including navigating through buried bodies in the adjacent graveyard and uncovering centuries'-old secrets.

The presentation will address the Civil/Structural/Geotechnical causes of the issue and the Structural repair/retrofit of the historic structure.

Friday, June 6

10:00 AM - 10:50 AM

Track: Track 1

Room: Kensington D

Presenter: Matt Pesce

Presentation: Commissioning for Improved Building Performance

Commissioning during design and construction ensures that building performance requirements are included in design and are carried through into construction, operations, and maintenance. This program will discuss commissioning processes, commonly identified design and construction issues that can be identified and resolved through commissioning, and the use of analytics in commissioning, retro-commissioning, and continuous commissioning. It will also discuss the use of commissioning for capital projects, central plant repair/replacement, legacy-to-new controls integrations, and new construction. The session will include examples from recent projects.

Friday, June 6

11:00 AM - 11:50 AM

Track: Track 1

Room: Kensington D

Presenter: Ryan Harvey

Presentation: Magnolia Farms-900 lot DR Horton Community Florence, SC
Planning, design, permitting and start of construction

Friday, June 6

2:00 PM -2:50 PM

Track: Track 1

Room: Kensington D

Presenter: Jonathan Sigman

Presentation: Historic Restoration of the Rome Clock Tower and Scottish Rite Terra Cotta Façade

The historic restoration of the Rome, Georgia Clock Tower and the terra cotta, marble, and brick façade of the Scottish Rite building in Savannah, Georgia presented significant engineering and construction challenges. Although the clock tower, which is a timber structure constructed atop a water tank in 1872, and the Scottish Rite building, which is a concrete structure clad with decorative terra cotta and marble elements between 1912 and 1923 are vastly different structures, the historic restoration of each structure required in-depth investigation and creative engineering solutions. The presentation discusses the investigations performed to determine each structure's existing structural system and the balancing of the need to ensure structural stability while retaining the historic composition and fabric of each structure.

Friday, June 6

3:00 - 3:50 PM

Track: Track 1

Room: Kensington D

Presenter: Amy Bresnahan

Presentation: History of Dreher Shoals and Saluda Hydro

Provide the history and construction of the Dreher Shoals Dam and hydroelectric plant which has been approved as a National Historic Civil Engineering Landmark.

Friday, June 6

4:00 - 4:50 PM

Track: Track 1

Room: Kensington D

Presenter: LaDonna Trapp

Presentation: SC811 Overview and Processes

Track:

Room:

Presenter:

Presentation:

Track 2

Friday, June 6

8:00 AM - 8:50 AM

Track: Track 2

Room: Kensington E

Presenter: Jon Tirpak

Presentation: Risk is Ubiquitous!

Risk is everywhere, and our primary purpose to is to design, build, and implement solutions to serve society. This presentation will explore risk and catalogue tools to manage risk.

Classic examples of poor risk management will demonstrate the need for a Risk Management Toolbox. Examples include Failure Modes Effects Analysis, Readiness Levels (Technical, Manufacturing, Commercial), New Product/Service Development, Modeling, and Prototyping. For any Statement of Work, a Task focused on Risk Management should be inserted as standard practice. Risk management also involves a culture of collaboration.

Friday, June 6

9:00 AM - 9:50 AM

Track: Track 2

Room: Kensington E

Presenter: Jonathan Thrasher P.E.

Presentation: Can't We All Just Get Along?

I'm proposing a panel discussion related to best practices on how members of the AEC team can better interact during construction of a project. The focus would be on non-transportation projects. The panel would be composed of an architect, a general

contractor, an engineer (site-civil for example) and Special Inspector. The Moderator could also be in one of those roles allowing for an extra panelist (4 panelists plus the moderator). The questions would pertain to such topics as communications, organization, roles of the parties, etc. The panelists will use real-world examples of lessons learned.

Friday, June 6

10:00 AM - 10:50 AM

Track: Track 2

Room: Kensington E

Presenter: Jennifer Watson Speaker

Presentation: The Wellness Factor of Communication: Masterful Speaking to multiply productivity, improve team and client retention + engagement

The strategy to master your communication presented in this presentation/workshop creates clarity, articulation and enhancement of your voice through the lens of health. Implementing communication frameworks that leverage mind-body brilliance to multiply your productivity and create success among your client and team with ease.

Summary:

Leaders when polled on different areas they struggled in, communication was one of the top categories. The “avoidance” or ineffectiveness of navigating tough or complex conversations, specifically in environments where they felt a potentially negative outcome, created high-levels of stress and ultimately decreased client & team engagement, robbing productivity + performance toward health goals. Jennifer believes we can all become powerful communicators, speaking effectively in any environment and create a client and team that is also powerful communicators and “all-in” on the tasks and vision at hand. During this presentation Jennifer will create an inspiring new perspective on how to engage effective communication in any environment. She will teach wellness principles connected to communication that will improve performance and ultimately achievement of client and team communication and goals. The attendee will be armored with effective tools to intelligently and intuitively speak while creating a healthy environment where accelerated problem-solving + actions are the norm, and everyone is empowered. Finally, the leader will come to appreciate the influence of speaking, embedded in health, to bring in an aligned client and team that is onboard for the outcome they seek.

They will walk away with science-based frameworks on:

How to multiply productivity and sustain performance among your client and team during challenges and change through a communication framework that leverages mind-body brilliance.

How to speak with higher levels of intelligence + intuition through engaging mind-body that shifts a difficult environment into one that creates trust, accelerated problem-solving and client + team results.

Inspired perspective on communication, embedded in health, that brings in team members aligned with your vision creating a bullet-proof environment for your client to succeed.

Friday, June 6

11:00 AM - 11:50 AM

Track: Track 2

Room: Kensington E

Presenter: Jeff Mulliken PhD, PE, FACEC

Presentation: Ethics for Engineers

Ethics

Friday, June 6

2:00 PM - 2:50 PM

Track: Track 2

Room: Kensington E

Presenter: Leanne Panduren

Presentation: Protect the PE

TBD

Friday, June 6

3:00 PM - 3:50 PM

Track: Track 2

Room: Kensington E

Presenter: Henry Hessing PE, F ASCE

Presentation: An Alternate Perspective on Engineering Ethics and Professional Practice

An Alternate Perspective on Engineering Ethics and Professional Practice

Dr David Barnard Steinman: Professional Engineer, Writer and Published Poet was born in New York June 11, 1886. He was a (NY) City College alumnus and earned a doctorate in civil engineering from Columbia University in 1911. Steinman, the master of long-span bridges, had grown up beneath the Brooklyn Bridge, which became a lifelong source of inspiration. From the 1920s until his passing on August 21, 1960, his firm designed more than 400 bridges, many of which are historic engineering landmarks.

The D B Steinman Company was formed in 1923

Design on the Kingston-Rhinecliff was performed by Dr. Steinman himself, but he later turned to the Mackinac Bridge in Michigan, which was his project of a lifetime. Work on the Kingston-Rhinecliff Bridge fell to his longtime associates Milton O. Elkow, Carl H. Gronquist, and Ray M. Boynton.

Steinman authored books about suspension and cantilever bridges and expressed his passion through his published poetry. For example, he penned:

Brooklyn Bridge Nightfall

“A bridge is a poem stretched across a river, a symphony of stone and steel”.

THE SONG OF THE BRIDGE

With hammer-clang on steel and rock

I sing the song of men who build

With strength defying storm and shock

I sing a hymn of dreams filled.

I lift my span above the tide

And stand where wind and wave caress.
I bear the load so men may ride
On rainbow road to happiness.
The light gleams on my strands and bars
In Glory when the sun goes down.
I lift a net to hold the stars
And wear the sunset as my crown.
David Barnard Steinman

Friday, June 6

4:00 - 4:50 PM

Track: Track 2

Room: Kensington E

Presenter: Ann Thomason

Presentation: "Engineering Resilience: Spotting and Solving Burnout Before It Spreads"
By analyzing the science behind the Working Genius framework—Wonder, Invention, Discernment, Galvanizing, Enablement, and Tenacity—we can effectively assess team health and identify potential areas of failure. Balanced representation ensures optimal collaboration and execution, while gaps in these types may lead to inefficiencies, poor decision-making, or incomplete projects. This evaluation provides a strategic approach to building cohesive and high-performing teams.

Track 3

Friday, June 6

8:00 - 8:50 AM

Track: Track 3

Room: Kensington F

Presenter: Mark Lorah

Presentation: St. Thaddeus Column

Friday, June 6

9:00 - 9:50 AM

Track: Track 3

Room: Kensington F

Presenter: Gus Simmons

Presentation: Lessons Learned from the Investment Risk Review of Over 100 U.S. Biogas Systems

Over the past five years, our team has conducted over 100 Independent Engineering (IE) reviews of proposed biogas systems in the U.S. These reviews span biogas systems connected to existing landfills and proposed anaerobic digester systems processing food waste, animal manure, and industrial waste into renewable natural gas. IE reviews cater to project participants who lack the experience or technical depth to fully assess complex engineering projects. The goal of an IE review is to provide project owners, sponsors, and investors with a comprehensive engineering assessment to identify, quantify, and mitigate

technical, operational, and financial risks. This presentation outlines the systematic and objective processes used to evaluate these risks and communicate them effectively to project participants. We will also include case studies illustrating the types of risks assessed, their impacts, and the strategies employed to mitigate or minimize these risks.

Friday, June 6

10:00 - 10:50 AM

Track: Track 3

Room: Kensington F

Presenter: Michael Horton PE, CFM

Presentation: Medical District Drainage Tunnel Extension

The Charleston Medical District, home to critical healthcare facilities including MUSC Health University Medical Center, Ralph H. Johnson VA Medical Center, and Roper St. Francis Healthcare Roper Hospital, serves the Charleston area and Lowcountry. However, 27 acres surrounding Ehrhardt Street frequently experienced severe flooding due to inadequate drainage infrastructure. This recurring issue of flooded roadways compromised accessibility and posed risks for emergency medical services. Patients, visitors, students, and staff faced stalled vehicles and impassable sidewalks. To address these pressing concerns, the South Carolina Office of Resilience (SCOR) awarded \$10 million in Community Development Block Grant-Mitigation (CDBG-MIT) funding, its largest project to date. The City of Charleston contracted with us and our team to design and implement innovative stormwater solutions aimed at mitigating flooding for uninterrupted access to critical-care facilities. The project comprised three main components: extending the existing drainage tunnel system by approximately 900' to Ehrhardt Street, constructing a 54" vertical drop shaft with a vortex structure, and developing a near-surface drainage collection system. This intricate design required tunneling through the Cooper Marl formation, known for its self supporting properties, and careful coordination to avoid disrupting existing deep foundation systems of nearby structures.

Friday, June 6

11:00 - 11:50 AM

Track: Track 3

Room: Kensington F

Presenter: Jack Hobbs

Presentation: Systems Thinking Applied to Making Infrastructure Investment Decisions in a Political Environment

Public sector investment decisions are particularly difficult because they involve asking elected officials and senior

Friday, June 6
2:00 - 2:50 PM
Track: Track 3
Room: Kensington F
Presenter: Erin Parnell Queen
Presentation: Momentum 2025
Momentum 2025

Friday, June 6
3:00 - 3:50 PM
Track: Track 3
Room: Kensington F
Presenter: Cliff Selkinghaus
Presentation: Asphalt
TBD

Friday, June 6
4:00 - 4:50 PM
Track: Track 3
Room: Kensington F
Presenter: Mike Jotzke
Presentation: Reducing Slope Instability Risk Using Manufactured Turf/Earth Reinforcement Systems
This presentation provides a comprehensive analysis of Turf/Earth Reinforcement Mat Systems (TERMS) for addressing shallow-plane slope instability. It begins by distinguishing between erosion and slope failure, emphasizing the importance of soil shear strength and its role in stability. A detailed slope stability analysis focuses on soil properties and soil-water interactions to compute safety factors, highlighting the risks of shallow-plane instability. The study explores TERMS' design, components, and performance characteristics, along with practical considerations for installation. Quantified risk reduction through stability modeling demonstrates how TERMS enhance the factor of safety against slope failure. A case study illustrates the application of TERMS in real-world scenarios, such as roadside slopes and shorelines, showcasing their effectiveness. This approach offers a reliable, innovative solution to common geotechnical challenges, reinforcing steep slopes and mitigating failure risks.

Track 4

Friday, June 6
8:00 - 8:50 AM
Track: Track 6
Room: Oxford
Presenter: Ahmad Hazimeh
Presentation: Modern Concrete Technology

This presentation explores the latest advancements in concrete technology, including sustainable materials, admixture innovations, and performance-enhancing systems.

Friday, June 6

9:00 - 9:50 AM

Track: Track 4

Room: Pembroke

Presenter: Patrick Hamilton

Presentation: York County's Pennies for Progress: A look at the most successful Capital Project Sales Tax program in the state.

York County just approved a capital project sales tax (Pennies for Progress) for the 5th time. York County was the first county in the state to approve this tax in 1997. The presentation explains the law around the tax, looks at the history of York County's program, and talks in detail about the cost estimating and risk analysis process that is used to develop the cost estimates for the projects.

Friday, June 6

10:00 - 10:50 AM

Track: Track 4

Room: Pembroke

Presenter: Michael Pfaff

Presentation: Reality Capture and Digital Twins

Illustrate how Reality Capture and Digital Twins are making an impact for facility operators and engineers.

Friday, June 6

11:00 - 11:50 AM

Track: Track 4

Room: Pembroke

Presenter: Kim Wooten

Presentation: Building Decarbonization & Electrification - Evaluation, Strategies, and Technologies

This session will discuss decarbonization and electrification, when it makes sense, and approaches that work for new and existing buildings. The session will cover energy/carbon benchmarking, portfolio segmentation, end-use evaluation, piloting emerging technologies, blending energy efficiency and renewables with electrification strategies, energy & decarb analysis & life cycle costing, phasing and resource allocation, energy budgeting, and best practices. Discussion of electrical service sizing, load calculations, and case studies will be included.

Friday, June 6

2:00 - 2:50 PM

Track: Track 4

Room: Pembroke

Presenter: Nico Sutmoller Mr

Presentation: Sustainability and the Road to Carbon Neutrality with Low-Density Cellular Concrete (LDCC)

In an important Policy Statement, the American Society of Civil Engineers (ASCE) recognizes that sustainability is an inclusive concept that seeks to balance the three main pillars of economic, environmental, and social conditions. To achieve this ideal “Triple Bottom Line” that defines sustainability, today’s infrastructure must be durable, safe, reliable, resilient, and have a low life-cycle cost. This will require all architects, engineers, and contractors to make a concerted effort to select materials and construction practices that minimize carbon emissions. As an example, geotechnical engineers have the option of selecting numerous strong, lightweight, durable, and inexpensive alternatives to soil or fill replacement that not only meet project requirements but can also lower the overall project’s carbon footprint.

One widely accepted fill material that can contribute to the sustainability of any project is low-density cellular concrete, or LDCC. LDCC is an engineered mixture of portland cement, water, and preformed foam that results in a hardened material having an oven-dry density of 50 lb/ft³ (800 kg/m³) or less. These mixtures may incorporate aggregates and other material components including, but not limited to, supplementary cementitious materials such as fly ash and slag, and chemical admixtures. Through advanced engineered cement and foam technologies, the ingredients that make up LDCC can be selected to not only optimize performance in the field but also reduce a great deal of the adverse CO₂ impacts often associated with using LDCC.

This paper begins with a brief history of LDCC and will answer the basic engineering and construction questions of LDCC as defined by ACI 523 and how they compare with traditional flowable fills. The focus will be on applications and recent projects with LDCC densities between 25 and 35 lb/ft³ (400 and 560 kg/m³). Project histories will be discussed to showcase how they relate to the tenets of sustainable infrastructure while helping to achieve carbon neutrality in real world applications. Emerging technologies will be introduced as well as how traditional LDCC technology is advancing to meet challenging project parameters. An examination will be made of the vital role LDCC plays in the cement and concrete industries’ roadmap to carbon neutrality by 2050.

Friday, June 6

3:00 - 3:50 PM

Track: Track 4

Room: Pembroke

Presenter: Tlffany Ferrell Ms.

Presentation: Trenchless Technology

This course will discuss the options for trenchless pipe and box installation to avoid unnecessary project costs and delays.

Friday, June 6

4:00 - 4:50 PM

Track: Track 4

Room: Pembroke

Presenter: April Snyder

Presentation: A New Approach to Preventing Alkali-Silica Reaction (ASR): Alkali Sensitivity Evaluation

This presentation will discuss an innovative mechanistic approach to minimizing the risk of ASR by measuring the alkali sensitivity and threshold of a given aggregate source and the alkali contribution of a cementitious blend. The results can be used to determine the appropriate replacement level of supplementary cementitious material [SCM(s)] to prevent ASR for a particular reactive aggregate.

Track: 5

Friday, June 6

8:00 - 8:50 AM

Track: Track 5

Room: Winchester

Presenter: Aidan Deegan

Presentation: ASCE 38-22 – How the Update Fills in the Gaps in 38-02

Subsurface utility engineering is a highly efficient, nondestructive engineering process incorporating civil engineering, surface geophysics, surveying and mapping, nondestructive vacuum excavation and asset management technologies. It involves site characterization and data processing technologies allowing for the cost-effective collection, depiction and management of existing utility information.

At its core, subsurface utility engineering is about “risk management.” As a project owner or engineer of record, how much risk are you willing to take? There are certain levels of responsibility when applying subsurface utility engineering services; depending on the quality level used; the higher the quality level, the less risk assumed by the owner.

When the original ASCE 38 standard was published in 2002, we could not predict how the practice would evolve. The standard introduced the foundational principles of Subsurface Utility Engineering (SUE) and established a general framework for the utility investigation. It was intentionally vague and relatively light on prescriptive content, with the understanding that the natural evolution of the practice should reveal, rather than dictate preferred practices.

The update is intended to lend the benefit of 20 years of experience and technological advancements to guide and inform the SUE professional. To put in context and better define, illustrate and explain the lessons learned over the years for consistent, professional standards of practice. The majority of the additional content provides a more robust resource to inform risk based decision making by a competent, experienced and licensed professional.

Friday, June 6

9:00 - 9:50 AM

Track: Track 5

Room: Winchester

Presenter: Jill Guthrie P.G.

Presentation: Unlocking the Power of Near-Surface Geophysics for Engineering Solutions
Engineered structures such as bridges, pavements, dams, and landfills, require a thorough understanding of the subsurface to make informed decisions. This presentation explores geophysical techniques used in engineering applications, offering real-world case studies to demonstrate their value across various sectors. Through non-invasive methods like ground-penetrating radar (GPR), seismic refraction, and electrical resistivity tomography, geophysics provides accurate, cost-effective insights into subsurface conditions, allowing engineers to optimize designs, and reduce project timelines.

The goal of this presentation is to highlight the importance of integrating geophysical techniques into engineering workflows through different projects located in South Carolina. Each example highlights how near-surface geophysical tools have successfully enhanced project outcomes, providing reliable data that informs decision-making from site selection to construction.

Friday, June 6

10:00 - 10:50 AM

Track: Track 5

Room: Winchester

Presenter: Yuse Lajiminmuhip

Presentation: Thermoplastic Systems for Protecting Infrastructure and the Environment
With aging infrastructure comes an opportunity for longer-lasting repair and rehabilitation. Alternative materials such as thermoplastics should be considered, especially in areas that face unique challenges such as microbial-induced corrosion (MIC), high leakage rates, and risk for contamination. HDPE concrete protective liners, pipes and fittings, and geosynthetics can all be utilized to help protect infrastructure and the environment.

Friday, June 6

11:00 - 11:50 AM

Track: Track 5

Room: Winchester

Presenter: Timothy Mays Ph.D., PE

Presentation: Fuller Pile Research, Applications, and Case Studies

Fuller Pile research summary. These piles are being installed under all types of buildings, bridges, and other structures. Citadel research results are presented with direct applications to design under the latest codes and standards. Value engineering and advanced analysis are also discussed. Rigid inclusion applications are also presented.

Friday, June 6

2:00 - 2:50 PM

Track: Track 5

Room: Winchester

Presenter: Barnabas Bwambale

Presentation: Evaluating the Effect of Diagenesis on Soil Liquefaction Resistance

This presentation discusses the current state-of-the-art in assessing the effect of diagenetic processes (commonly referred to as aging) on liquefaction resistance of sandy soil deposits. It includes a summary of twelve case histories indicating liquefaction of old soil deposits, a discussion of mechanisms that contribute to soil aging with time, and relationships for estimating diagenesis correction factors (KDR). Relationships based on measured shear wave velocity to estimated shear wave velocity are recommended.

Friday, June 6

3:00 - 3:50 PM

Track: Track 5

Room: Winchester

Presenter: Ralph Foster III, PE

Presentation: How DOD modifies the Fire Coded using UFC 3-600-01

The presentation will review how the UFC 3-600-01 modifies the International Building Code and the various NFPA standards adopt

Friday, June 6

4:00 - 4:50 PM

Track: Track 5

Room: Winchester

Presenter: Chris Orrell, PG PG

Presentation: Construction Dewatering Treatment and When it is Needed

“The discharge of groundwater from construction dewatering presents significant challenges, particularly when contaminants are present. In such cases, on-site treatment may be required to ensure regulatory compliance and environmental protection. This presentation explores the key aspects of groundwater assessment, treatment system design, and regulatory permitting for contaminated groundwater discharge. Topics covered include identifying contaminants and their concentrations, designing treatment solutions tailored to construction needs, and navigating permitting requirements at local, state, and federal levels. Additionally, the presentation provides critical insights for general contractors and project owners on planning for and implementing effective treatment systems to mitigate environmental risks and maintain project timelines.”

Track 6

Friday, June 6

10:00 - 10:50 AM

Track: Track 6

Room: Oxford

Presenter: Abdul Fekrat

Presentation: Geotechnical Seismic Considerations: IBC / ASCE 7 and AASHTO LRFD BDS
This presentation will provide a comparative review of geotechnical seismic considerations stated in the International Building Code (IBC) and ASCE 7 and those stated in the AASHTO Bridge Design Specifications. Topics will include Site Classification, Risk Category, Seismic Design Category (SDC) and Seismic Zone. The process for selecting SDC and design spectral acceleration parameters will be explained. Additionally, a brief discussion of ground motion selection, and site response will be included.

Saturday, June 6

8:00 - 8:50 AM

Track: Saturday

Room: Kensington F

Presenter: James Wanliss

Presentation: AI and Machine Learning in Engineering Education and their Use in Natural Systems

An argument that undergraduate engineering education can benefit from a healthy introduction into the building and use of AI and machine learning.

Saturday, June 6

9:00 - 9:50 AM

Track: Saturday

Room: Kensington F

Presenter: Arjun Singh Mr.

Presentation: Engineering Tomorrow: Harnessing Artificial Intelligence (AI) for Innovation
At CHA, we are pioneering the future by integrating Artificial Intelligence (AI) across our operations to drive innovation and efficiency. Our AI initiatives span various sectors, including corporate, power and manufacturing, infrastructure, and commercial and institutional domains. To ensure responsible and effective use of AI, CHA has established comprehensive AI policies and guidelines. These guardrails focus on lawful use, privacy and data protection, bias and fairness, accountability, and ethical considerations. Our AI policy ensures that AI systems are used responsibly, protecting both our clients and our organization.

CHA is actively conducting pilot projects with internal teams to explore and validate AI applications. These projects include a dedicated AI task force that spans all sectors to identify optimal AI applications and ensure AI tools are integrated effectively. We have empowered our teams with AI tools for productivity, including generating interactive elements, comparing documents, cheat sheet and perfecting AI prompts. Additionally, our custom AI agents and AI-powered technical support tools, such as an AI chatbot, provide instant assistance and continuous learning to enhance our helpdesk experience. By harnessing AI through these pilot projects and proof of concepts, CHA is transforming the core of our business, engineering tomorrow's solutions today. A hands-on demonstration of AI usage shall be part of the overall presentation.

Saturday, June 6

10:00 - 10:50 AM

Track: Saturday

Room: Kensington F

Presenter: Homayoun Valafar

Presentation: The Future of AI and Talent Pipeline

The recruitment and talent acquisition landscape is undergoing a profound transformation with the rise of AI-driven talent pipelines.

Saturday, June 6

11:00 – 11:50 AM

Track: Saturday

Room: Oxford

Presenter: Paul Gayes

Presentation: Smart Reef Project as part of CCU (Burroughs and Chapin Center for Marine and Wetland Studies) and Florida Atlantic University's Institute for Sensing and Embedded Network Engineering's South East Atlantic (SEA) Seconet .

We have been expanding diverse environmental sensors spatially (~250 weather stations, 60 water level stations, and other water quality and wave gauges) to aid near real time public applications as well as advancing the interactively coupled ocean-wave-atmosphere-hydrology model system here. The focus is on the transition from the coastal ocean into the watershed with CCU contributing its progress in modeling the coupling of drivers of that transition to aid the Cooperative Institute for Research to Operations in Flood Modeling.

Presently we are experimenting with developing and instrumenting Smart Living Shorelines. The Parris Island Living shorelines project is partnering with a Maine-based hydrokinetic technology company testing the use of a low voltage dc current to facilitate precipitation of Calcium Carbonate from sea water to develop infrastructure for hosting sensors, and adding mass and volume to Living Shorelines and Artificial Reefs for other potential beneficial uses such a modifying waves and currents to help reducing marsh erosion in critically eroding marsh shoreline, and potentially facilitate mollusk growth for aquaculture. Global Eco Adventures is handling the public outreach and engagement with that project. We hope further develop the concept and to shift to floating living shorelines that can stay in the active wave zone in elevated water levels during storms. Such platforms can also potentially be vegetated to cycle water in eutrophic settings, facilitate aquaculture via the biorock process and bundle hydrokinetic/solar power where currents/solar radiation are strong.