

## Innovation Day at the ACI Concrete Convention in Philadelphia

The ACI Foundation and ACI Committee 135, Machine Learning-Informed Construction and Design, announced “Innovation Day: AI Odyssey,” a special topic day dedicated to exploring the revolutionary applications of artificial intelligence (AI) in concrete construction. This event will take place on November 5, 2024, at the ACI Concrete Convention in Philadelphia, PA, USA, and promises to provide unparalleled insights into AI’s role from molecular to structural levels.

“AI is truly revolutionizing how we approach concrete science and design, and this event is crucial for industry professionals, engineers, and researchers to understand and harness the potential of AI/ML [machine learning],” said Stephanie Paal, ACI Committee 135 Chair. “This day of learning and collaboration will undoubtedly accelerate our progress toward smarter, more innovative concrete solutions.”

The event details include:

### Innovation Day: AI Odyssey Session, Part 1

Scheduled from 8:30 to 10:30 a.m., “Building Smarter: Leveraging AI to Engineer Concrete Innovations (Part 1)” will showcase state-of-the-art ML applications for modeling cement and concrete properties. Industry professionals and researchers will demonstrate AI’s game-changing role in concrete science, including applications in three-dimensional (3-D) concrete printing, concrete mixture optimization, crack detection, and understanding composition-property linkages. This session is essential for civil engineers, materials scientists, and researchers looking to implement various ML techniques toward efficient concrete design.

### Innovation Day: AI Odyssey Lunch with Keynote



Otani

Sponsored by Chryso and GCP (Saint Gobain Construction Chemicals), the AI Odyssey Lunch will be held 11:30 a.m. to 1:30 p.m. and will feature the keynote presentation “The AI Revolution in Structural Engineering” by Robert K. Otani.

Otani is the Chief Technology Officer at Thornton Tomasetti, a multidisciplinary engineering and applied science firm. He founded CORE studio, which focuses on digital design, application development, AI, and R&D. With extensive structural design experience involving projects totaling over 3 billion USD, Otani has led numerous software applications and the first ML-powered structural engineering application, Asterisk.

### Innovation Day: AI Odyssey Session, Part 2

From 1:30 to 3:30 p.m., “Building Smarter: Leveraging AI to Engineer Concrete Innovations (Part 2)” will continue the exploration of ML applications in concrete science. Attendees will gain further insights into AI’s role in 3-D concrete printing, concrete mixture optimization, crack detection, and understanding composition-property linkages. This session is essential for industry professionals aiming to stay at the forefront of concrete design innovation.

Tickets for the event are 45 USD and can be purchased when registering for the ACI Concrete Convention – Fall 2024. Visit [www.concrete.org/events/conventions](http://www.concrete.org/events/conventions) to register for the ACI Concrete Convention and Innovation Day event.

## ACI Foundation Welcomes New Volunteers to the Concrete Innovation Council

The ACI Foundation welcomed two new members to its Concrete Innovation Council. Alvaro Ruiz Empananza and Erik Josephson bring a wealth of expertise and dedication that will help drive the Foundation’s concrete innovation initiatives forward.



Ruiz Empananza

**Alvaro Ruiz Empananza** serves as the Director of Engineering and Business Development at the University of Miami, Coral Gables, FL, USA. He previously held positions as a Business Development Manager and Technical Advisor in Infrastructure at the University of Miami and worked for over 3 years at Mafic USA, LLC, on innovative projects.

Ruiz Empananza received his BS in civil engineering with honors from the University of the



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Basque Country, Spain, in 2014. During his final semester, he participated in a Student Exchange program at the University of Applied Sciences FH Münster, Münster, Germany, where his bachelor's thesis on the design of a reinforced concrete (RC) pedestrian bridge was awarded the best thesis in the Department of Civil Engineering.

He pursued his master's degree at FH Münster in Germany, focusing on the design of concrete structures such as RC docks, RC retention walls, and prestressed concrete bridges. His master's research also covered material science topics such as the effect of recycled aggregates on concrete and concrete durability. For his final semester, he was selected to work on his master's thesis at Florida State University, Tallahassee, FL. Ruiz Empananza received his PhD from the University of Miami in 2020, where his research centered on the bond properties between glass fiber-reinforced polymer (GFRP) reinforcing bars and concrete. He also contributed to a research group working on an innovative concrete mixture using seawater and contaminated aggregates under the "Seacon" project, which required noncorrosive FRP reinforcement due to the high levels of chloride and other chemicals in the mixture.

His academic achievements are numerous, including the ACI Presidents' Fellowship from the ACI Foundation in 2019. Outside academia, he worked as a structural engineer for 2 years with Die Roxeler in Münster, Germany, and gained hands-on experience as a mason during his undergraduate studies. He is actively involved in professional organizations such as American Society of Civil Engineers (ASCE) and Engineers Without Borders.



Josephson

**Erik Josephson** is a Senior Technical Sales Representative at Heidelberg Materials. With extensive experience as a Quality Assurance Specialist, Josephson has a proven track record in the mining and metals industry. His expertise includes ACI codes, inspection, quality management, quality assurance, and aggregates. He received his AAS in computer/information technology

administration and management from Clark College, Vancouver, WA, USA.

Before his current role, Josephson served as a Senior Quality Control Supervisor at Cadman Inc. and was part of the Resource Pool at Georgia-Pacific LLC. His commitment to quality assurance and management has been evident throughout his career. He is also a member of several ACI Committees, including 130, Sustainability of Concrete; 132, Responsibility in Concrete Construction; 230, Soil Cement;

and 232, Fly Ash and Bottom Ash in Concrete.

## ACI Foundation 2024 Annual Appeal

During October, the ACI Foundation's annual fundraising appeal letter will be distributed. By contributing to the ACI Foundation, you can help the brightest students in the concrete industry reach their career goals with scholarships, move ACI technical committees forward, and advance research or innovation projects that will continue building the future of our industry.

Join the ACI Board of Direction and ACI Foundation Trustees in donating this year, it truly makes a difference in so many lives and industry advancements. One hundred percent of mission-directed donations go to the beneficiaries—students, research, and technology.

To give a gift online, visit [www.acifoundation.org](http://www.acifoundation.org) or contact Kari Martin, ACI Foundation Fundraising Manager, at +1.248.848.3757 or [kari.martin@acifoundation.org](mailto:kari.martin@acifoundation.org).

## Plan Your Legacy

Have you thought about the advancement of the concrete industry in the years to come? The ACI Foundation programs focus on building the future of the concrete industry and rely on organizations and individuals like you who want to pay it forward and give back to the industry that you helped advance and for which you have a passion.

- A gift to the ACI Foundation is an opportunity to invest in the next generation of leaders, new technical knowledge, and innovation.
- A gift to the ACI Foundation as part of your financial plan, whether through your estate, will, donor-advised fund, cash, stocks, bonds, insurance, or other retirement assets, will carry your technical legacy into the future of the concrete industry.

It's never too early to plan your legacy. To start the conversation, contact Kari Martin, ACI Foundation Fundraising Manager, at +1.248.848.3757 or [kari.martin@acifoundation.org](mailto:kari.martin@acifoundation.org).

## Tribute Donations

Honor the memory of someone who made a significant impact in your life with a tribute donation to the ACI Foundation. Your gift will preserve their legacy while also making a positive impact on the industry. A tribute donation lays the groundwork for a bright future while honoring the past. Donate online at [www.acifoundation.org/giving](http://www.acifoundation.org/giving).