



ANNUAL REPORT 2022





BUILDING THE FUTURE

Hunter Hutton is currently a graduate student at Virginia Polytechnic Institute and State University, where he is studying structural engineering. Hunter is the student lead for a research project funded by the ACI Foundation in 2021 titled, “Development of FRP Retrofit Guidelines for Deficient Reinforced Concrete Lateral Force Resisting Systems.”

Once he graduates, Hunter plans to pursue a career in bridge engineering while also working to obtain his professional engineer license.

Hunter is the 2022-2023 recipient of the Robert F. Mast Memorial Fellowship and is one of the many students that have benefited from the ACI Foundation Scholarship and Fellowship Programs.

Your generosity allows us to continue to fund our programs to build a stronger concrete industry to meet the challenges of today and into the future.

**DONATE
TODAY!**





FROM OUR EXECUTIVE DIRECTOR

Hello to you, our cherished supporters and friends:

2022 was a transformative year for the ACI Foundation! Our connection to the ACI community increased tremendously with refreshed promotion, a return to in-person events, a restructured council, and renewed staff. The energy, enthusiasm, and effort of staff and volunteers resulted in expanded impact and recognition. We doubled the number of articles in publications, increased our social media following by nearly 200%, refreshed our branded materials, and increased our annual appeal proceeds by 60%.

A special thank you to our donors and volunteers, without whom none of this would be possible. I extend my gratitude for your guidance and support.

Our 2022 highlights are listed below. I hope you delve into our full report for more information.

- Facilitated a highly successful in-person Technology Forum, after a 2-year hiatus on in-person events.
- Published our Guide for Innovators.
- Hosted a standing-room-only innovation technical session at the fall 2022 ACI Convention.
- Funded 12 research projects and are now actively managing 29 projects.
- Awarded 25 students representing 23 schools in 2022.
- Created six new student awards for a total of 39 awards available to students in 2023.
 - 25 Fellowships
 - 14 Scholarships
- Compiled 20 years of program data. This was the first step to developing measures of long-term impact on the industry. An initial assessment of our scholarship and fellowship program shows that our student awardees have a strong connection to ACI and the industry, with 93% remaining in the industry and 67% still involved with ACI.

I am excited to see what 2023 brings. Please contact me at ann.masek@acifoundation.org with suggestions, feedback, or just to say hello!

My best to you and yours,

A handwritten signature in blue ink that reads "Ann Masek".



MISSION

To make strategic investments in ideas, research, and people to create the future of the concrete industry.

VISION

ACI Foundation envisions a future where everyone has the knowledge needed to use concrete effectively to meet the demands of a changing world.

IMPACT

ACI Foundation supports a wide range of research and educational initiatives that contribute to keeping the concrete industry at the forefront of technological advances in material composition, design, and construction. We engage with industry partners, invest in students and research, share knowledge, and provide programs to encourage innovation and new technology.

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INVESTMENT AND SUPPORT

“This award has not only been meaningful in the economic sense, but also in an emotional way, as it has nourished my confidence and belief in my capability to break barriers and go beyond my expectations. Thanks to your generosity, I'm feeling that I'm one step closer to achieving my goals.”

– Brenda Amada Cardona Cepeda, University of Illinois at Urbana-Champaign, 2022-2023 Awardee, Charles Pankow Foundation Student Fellowship



Beyond advancing concrete knowledge, research supports emerging and talented researchers who can contribute to ACI's resources and help shape our industry.

By cultivating programs focused on students, research, and technology advancement, ACI Foundation contributes to keeping the concrete industry at the forefront of material composition, design, and construction innovation.



APPRECIATION OF SPECIAL PROGRAM DONORS

ACI 123 Student Researchers

Supporting recognition of excellence in concrete research presentations at ACI conventions with monetary awards.

■ ACI 123 Poster Session Award, Pivot Engineers

1st place: Jordan Ouellet
2nd place: Sophia Bergen
3rd place: Ryan Schanta



■ ACI 123 Oral Presentation Award, Giatec Scientific Inc.

1st place: Karthik Pattaje
2nd place: Poornima Patil
3rd place: Faraj Shahrstan



ACI Personal Awards

Supporting the formal recognition at ACI of notable individuals within our industry.

- For the renamed Clyde E. Kesler Education Award
 - ▶ Neil M. Hawkins
 - ▶ David L. and Risë Lange
 - ▶ J. Francis Young
- Many thanks to a generous anonymous donor for the new Robert F. Mast Award
- For the renewed Roger H. Corbetta Concrete Constructor Award
 - ▶ American Society of Concrete Contractors
 - ▶ Baker Concrete Construction, Inc.
 - ▶ Ruttura & Sons
- For the renewed Walter P. Moore Jr. Faculty Achievement Award
 - ▶ Walter P. Moore Company

IMPACT



25 students awarded scholarships for concrete and engineering education



Six brand-new student awards created for more educational opportunities for students within the community



12 new and cutting-edge research projects were granted funds to aid in the advancement of the concrete industry



66 veterans supported through rebates for ACI certification

EDUCATION

2022-2023 Fellowship Recipients

ACI Foundation Student Fellowships are offered to high-potential students in concrete-related studies who are endorsed by an ACI member. The purpose of the Student Fellowship Program is to identify, attract, and develop outstanding professionals for productive careers in the concrete field. Learn more about ACI Foundation Fellowship and Scholarship Programs by visiting our website: <https://www.acifoundation.org/scholarships.aspx>.



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Robert F. Mast
Memorial Fellowship
Hunter Hutton



S.P. Shah
Fellowship
Luca Montanari



Tribute to the
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2022-2023 Scholarship Recipients

Funded through generous donations, ACI Foundation helps offset college costs by offering a wide variety of college graduate and undergraduate scholarships and fellowships. Recipients are awarded a \$5,000 educational stipend for tuition, residence, books, and materials. In the 2022-2023 cycle, nine students were awarded \$45,000.



ACI Foundation Scholarship
Gabriel Johnson



ACI Foundation Scholarship
Mahesh Acharya



Bertold E. Weinberg
Scholarship
Nuzhat Kabir



Katharine & Bryant Mather
Scholarship
Marwa Ibrahim



Master Builders Solutions
Concrete Materials Scholarship
Rubaiya Rumman



Nick Bada – ACI Ontario
Chapter Graduate Scholarship
Brandon Boles



Schwing America Scholarship
Andrew LeBoeuf



Stewart C. Watson
Memorial Scholarship
Adel Al Ekkawi



W. Gene Corley
Memorial Scholarship
Cristian Rodrigo Tolava Torrico

RESEARCH

Research is a critical component to advancing our industry. ACI Foundation, through its Concrete Research Council, seeks to make the greatest impact possible. Beyond advancing concrete knowledge, research also supports emerging, talented researchers who can help shape our industry.

2022 Funded Research Projects

- ▶ **Alternative Supplementary Cementitious Materials from Local Agricultural Products**
PI: Lisa Burris, The Ohio State University
- ▶ **Damage Classification of Reinforced Concrete Structures for Fire: Rebar Temperature**
PI: Negar Elhami-Khorasani, University at Buffalo
Co-PI: Ravi Ranade, University at Buffalo
Co-PI: Anthony Tessari, University at Buffalo
- ▶ **Development of a Phase Change Material-Based Heat-Absorbing Surface Covering for Concrete Pavements/Bridge Decks**
PI: Jung Heum Yeon, Texas State University
Co-PI: Togay Ozbakkaloglu, Texas State University
- ▶ **Evaluation of Early-Strength Development in Tension-Driven High Strength Concrete Formulations**
PI: Matthew Gombeda, Illinois Institute of Technology
Co-PI: Nishant Garg, University of Illinois at Urbana-Champaign
- ▶ **Fatigue Behavior of FRP Bars Embedded in Concrete**
PI: Christian Carloni, Case Western Reserve University
- ▶ **How Much Consolidation Energy is Really Required to Create Concrete Specimens?**
PI: Dimitri Feys, Curators of the University of Missouri on behalf of Missouri University of Science and Technology
Co-PI: Kyle Riding, University of Florida
- ▶ **Maximum Reinforcing Ratio for Reinforced UHPC Beams: Towards Slender Elements**
PI: Yi Shao, University of California, Berkeley
Co-PI: Claudia Ostertag, University of California, Berkeley
- ▶ **Multiscale Reinforcement of Hybrid Steel Fiber Reinforced Concrete**
PI: Xijun Shi, Texas State University
Co-PI: Zachary Grasley, Texas A&M University
- ▶ **Reliable Measurement and Speciation of Sulfur in Concrete Aggregates**
PI: April Synder, RJ Lee Group
Co-PI: Michael Deible, RJ Lee Group
- ▶ **Shear Behavior of Ultra-High Performance Concrete (UHPC) Considering Axial Load Effects**
PI: Dimitrios Kalliontzis, University of Houston

Learn more about the completed research projects funded through the support of our donors:



TECHNOLOGY & KNOWLEDGE SHARING

2022 Technology Forum Highlights

The ACI Foundation's Concrete Innovation Council (CIC) facilitated a highly successful in-person Technology Forum. The sold-out event provided attendees with the opportunity to connect with representatives from material suppliers, architecture and engineering firms, contractors, academics, top-level executives, and regulatory agencies.

The 2022 Technology Forum included three technology showcases, 12 presentations, and a debate. Technology showcases highlighted: A Carbon Negative Method for Producing Portland Cement & SCMs, Concrete Sensors to Measure Curing, and Machine Learning Methods for Producing Low-Carbon Concrete.

Key points of the new fiber-reinforced polymer (FRP) bar code were introduced. Legal issues in concrete construction were discussed and progress for Integration of Alternative Cements into Building Codes was summarized.

ACI Foundation's 2023 Forum will be held in Portland, OR, from August 29-31, 2023.



ACI Foundation's Concrete Innovation Council identifies technologies and innovations which provide needed solutions for the concrete industry and helps implement their use when appropriate. To support ACI's expanding focus on technology and innovation, the CIC collaborates with the concrete community and ACI's Director of Concrete Technology to examine and support innovative solutions for industry-wide challenges.

A SPECIAL THANK YOU

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