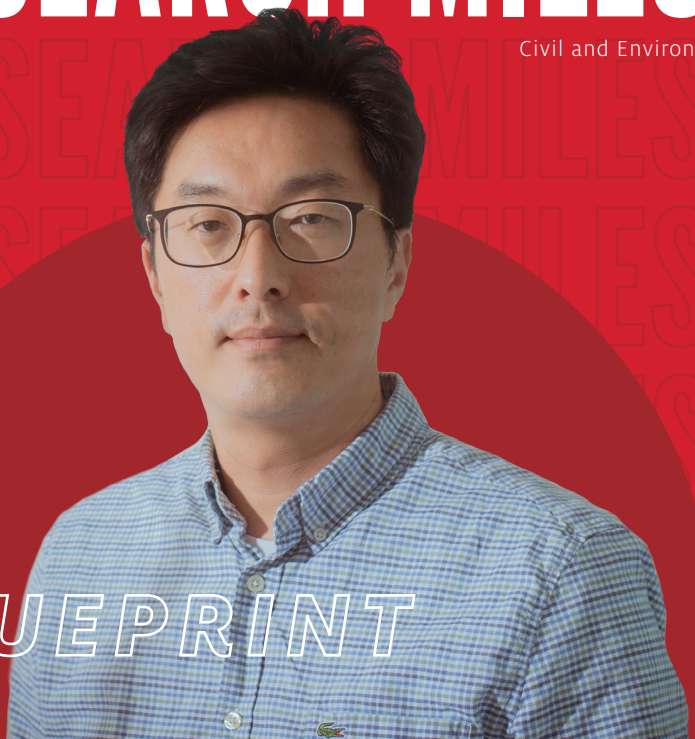
RESEARCH MILESTONES

Civil and Environmental Engineering • Spring 2021



BLUEPRINT

UNIVERSITY of HOUSTON
CULLEN COLLEGE of ENGINEERING
Department of Civil & Environmental Engineering

Letter from the Chair

Dear Colleagues,

I hope you are well. Our department is flourishing despite ongoing challenging circumstances. Our professors and students continue to conduct impactful research, bringing in numerous grant awards and accolades to our department.

I am delighted to share some of our recent highlights with you, including some exciting research breakthroughs and newly-funded projects. If you would like to learn more about how to support a project or collaborate with our department, please do not hesitate to let me know.

Warm Regards,

Roberto Ballarini, Ph.D, P.E.
Thomas and Laura Hsu Professor and Department Chair
Civil and Environmental Engineering
Cullen College of Engineering
University of Houston

UH CEE **BY THE NUMBERS**

#64
BEST CIVIL ENGINEERING PROGRAM IN THE U.S.
**Source: US News & World Report*

TOP 100
ENGINEERING SCHOOLS IN THE NATION
**Source: US News & World Report*

22:1 UNIVERSITY-WIDE STUDENT TO FACULTY RATIO

344 UNDERGRADUATE STUDENTS

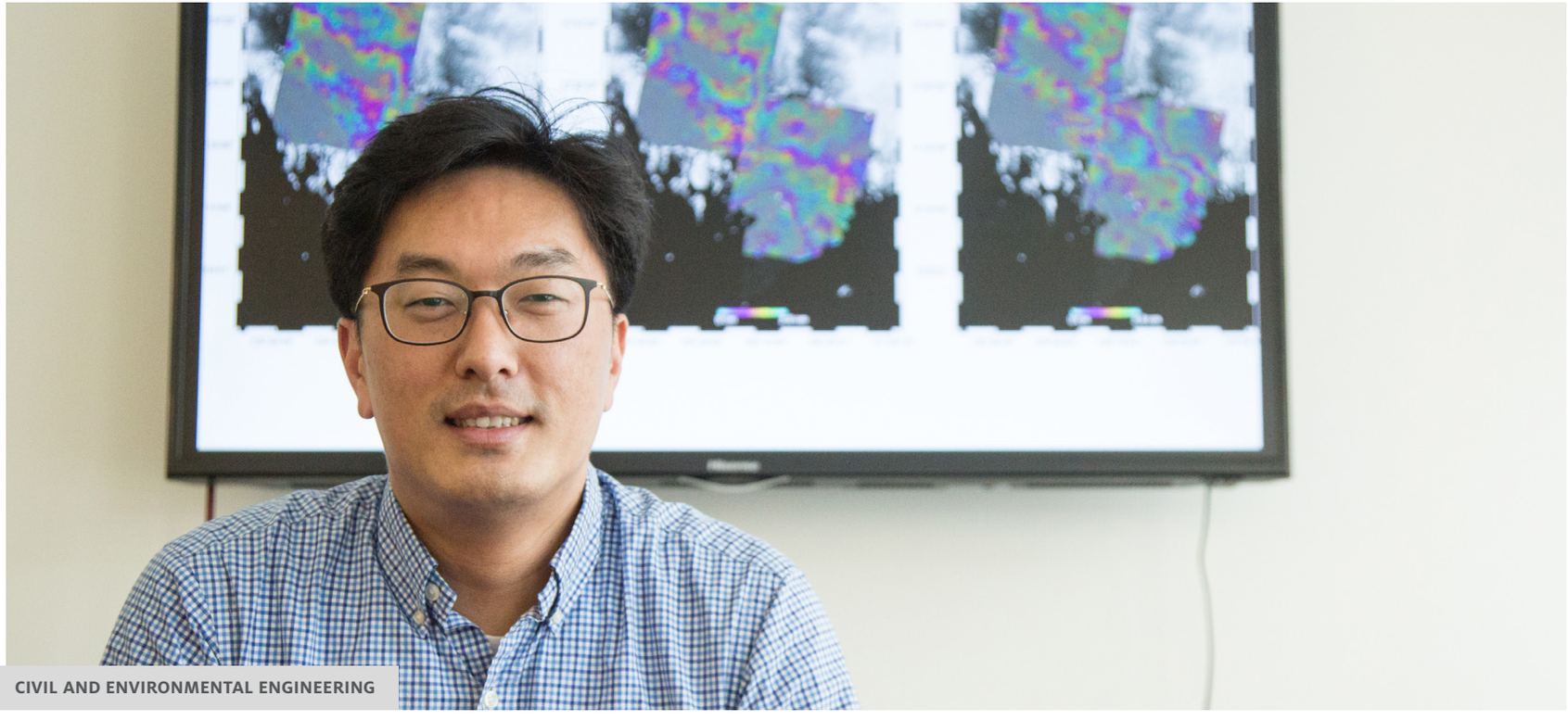
100 GRADUATE STUDENTS

444 TOTAL STUDENTS IN DEPARTMENT
**Student Totals are from Fall 2020*

35M+ IN RESEARCH EXPENDITURES AT THE CULLEN COLLEGE OF ENGINEERING

80% OF UH ENGINEERING UNDERGRADUATES ARE EMPLOYED WITHIN 1 YEAR OF GRADUATION

55 RESEARCH LABS, CENTERS, INSTITUTES & INDUSTRY CONSORTIUMS



CIVIL AND ENVIRONMENTAL ENGINEERING

LEE APPROVED FOR **NOAA GRANT TO FORECAST INUNDATION EXTENTS**

For University of Houston professor **Hyongki Lee**, living firsthand through the calamity and destruction caused by Hurricane Harvey in 2017 has shaped his research interests, and brought to the forefront how important the need for a forecast flood extent can be.

Lee, an associate professor in the Cullen College of Engineering's Civil and Environmental Engineering Department, is the principal investigator for a grant, "Forecasting Inundation Extents Using VIIRS and SAR Imagery with Streamflow Forecasts from NOAA's River Forecasting Centers/National Water Model and GEOGloWS." The three-year project, tentatively budgeted for $513,804, was selected by the National Oceanic and Atmospheric Administration in December 2020.

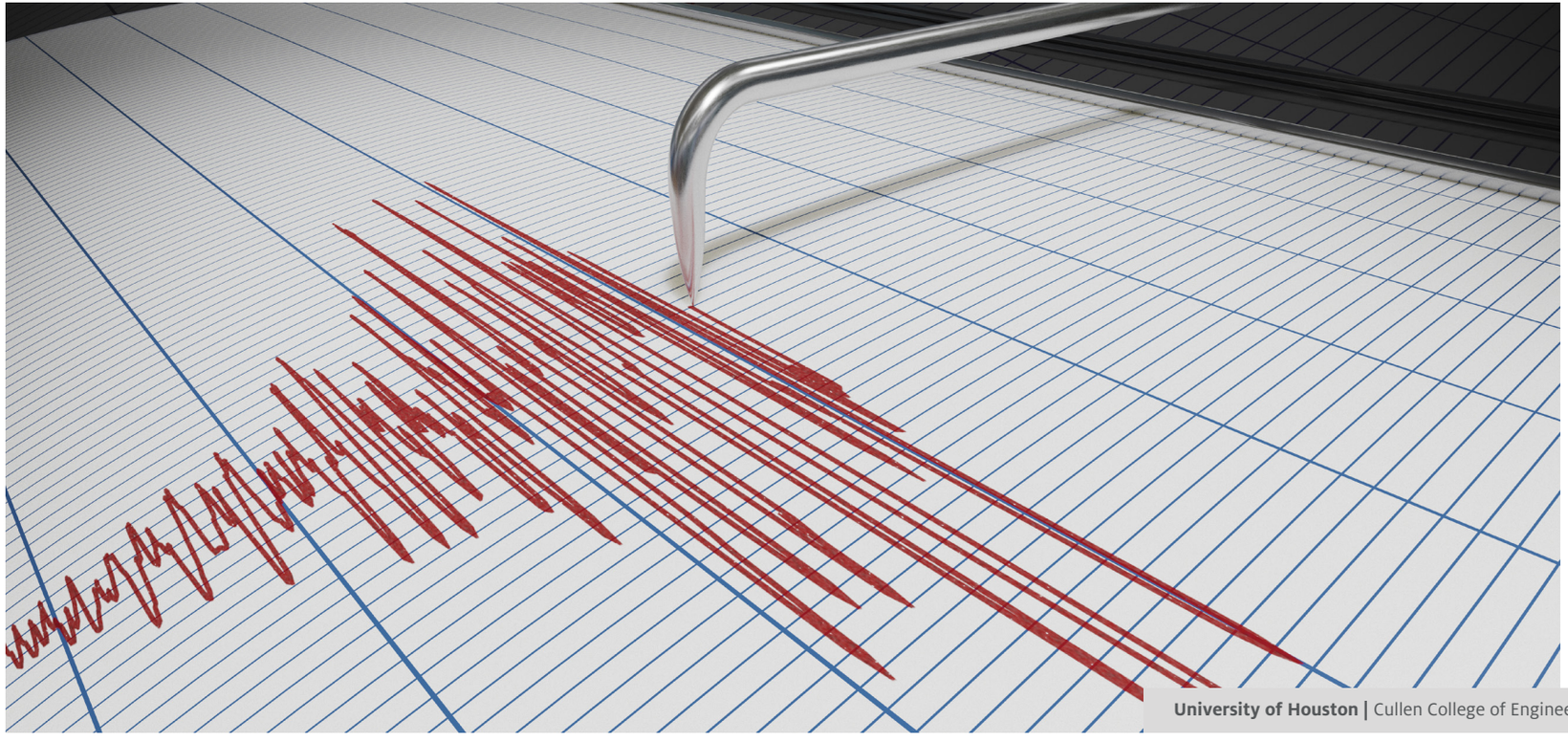
The researchers will focus on three test areas in United States – the Mississippi River Basin around New Madrid, Missouri for riverine flooding; the Red River Basin for snowmelt-induced flooding; and southeastern Texas, including the Houston metropolitan area, for pluvial (rainfall-based) flooding.

ENGINEERING SOCIETIES RECOGNIZE **HSU FOR DISTINGUISHED ACHIEVEMENT**

A professor in the Cullen College of Engineering's Department of Civil and Environmental Engineering has been recognized by two international organizations for his contributions and research.

Dr. Thomas T.C. Hsu, the Moores Professor of Civil Engineering, received the 2020 Distinguished Achievement Award from the Society of Earthquake Engineering of the Republic of China, Taiwan, and the Structural Engineering Society of the Republic of China, Taiwan.

In a statement for the achievement, officials from the organizations identified his nearly 60 years of research in mechanical performance of reinforced concrete structures as a key component for the honor.



CIVIL AND ENVIRONMENTAL ENGINEERING

HU EARNS **NASA FUNDING AWARD**

Xie Hu, a 2020 hire as an assistant professor in the Cullen College of Engineering's Civil and Environmental Engineering Department and at the National Center for Airborne Laser Mapping, has received a $375,000 grant for her research proposal from NASA.

"Four-Dimensional Landslide Quantification in the Western U.S. Using Remote Sensing Big Data" was one of 38 proposals selected for funding as part of NASA's Research Opportunities in Space and Earth Science aimed at new and early career investigators. Hu's proposal was selected from a pool of 238 applicants, which had an acceptance rate of 15.9 percent.

Her research focuses on radar and ground motion, as well as geohazards. This specific proposal concerns landslides. She plans to use her expertise along with radar data and observations to track landslides, even slowly occurring ones that might not be immediately apparent to the human eye.

CEE DOCTORAL STUDENT RECEIVES

AMERICAN WATER WORKS ASSOCIATION SCHOLARSHIP

For Cullen College of Engineering doctoral student **Cynthia V. Castro**, growing up on the Gulf Coast and seeing how devastating the storms can be has fueled her educational pursuits, and also led her to earning a scholarship from the Texas Section of the American Water Works Association for the 2020-21 academic year.

Castro, who's working with **Dr. Hanadi S. Rifai** – the John and Rebecca Moores Professor of Civil and Environmental Engineering – was also chosen for the scholarship in 2019-20. Castro received her B.S. in Civil Engineering from Texas A&M in 2011 and her Masters in Civil Engineering from the University of Texas in 2016, but decided to attend UH after working for a private firm.

Castro described her work as focusing on the intersection of society and Earth sciences, particularly issues of flooding and environmental contamination. Her current research involves investigating regional flood mitigation scenarios and their impacts from catastrophic storm events throughout regional watersheds, including societal and economic factors.

University of Houston | Cullen College of Engineering

CEE ADDS 3 NEW ASSISTANT PROFESSORS FOR FALL 2020 SEMESTER

The civil and environmental engineering department at the Cullen College of Engineering added three new assistant professors to its faculty for the Fall of 2020 – **Vedhus Hoskere**, **Xie Hu** and **Dimitrios Kalliontzis**.

Hoskere will start the Structures and Artificial Intelligence Lab (SAIL) at the college. His research investigates development of an automated inspection framework for buildings and viaducts using drones and deep learning methods.

Hu will be working at the National Center for Airborne Laser Mapping, which she described as a well-known geosensing institution and a draw when applying for a position. Hu uses radar imagery, taken from satellites or aircrafts, to measure the ground motion within millimeter accuracy.

Kalliontzis' research combines computational modeling techniques with laboratory testing to better understand how critical structures behave under extreme loading conditions.

The University of Houston
Cullen College of Engineering

The University of Houston Cullen College of Engineering addresses key challenges in energy, healthcare, infrastructure and the environment by conducting cutting-edge research and graduating hundreds of world-class engineers each year. With research expenditures topping $35 million and increasing each year, we continue to follow our tradition of excellence in spearheading research that has a real, direct impact in the Houston region and beyond.

UNIVERSITY of HOUSTON | ENGINEERING

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Research MILESTONES