Dear Friends of Civil and Environmental Engineering,

I am pleased to report to you that our Civil Engineering program continues to make significant improvements in rankings. In its 2019 rankings, College Factual placed us at No. 2 in the nation, lifting us six places from last year, landing us behind Georgia Tech (1) and ahead of MIT (3), on the list of the 206 programs evaluated. I attribute our place near the top of a list of excellent schools to our dedicated students, faculty, staff and alumni, who work around the clock to make our program better year after year. I’m also pleased that the ranking acknowledges the overall quality of the program, taking into account the success of students both on campus and after graduation. College Factual's metrics include the caliber of the student body, educational resources and graduation and retention rates, as well as post-graduate earnings, among others. These measures take into account the overall success of a graduate's educational and career life-cycle. Also, for the third straight year, College Factual ranked us No. 1 in the nation for civil engineering programs for veterans. The sustained ranking signifies that CEE is also dedicated to providing quality educational outcomes to veterans, active-duty military students and their families.

I invite you to read over some of our recent news through this CEE Winter 2019 Newsletter. As always, I sincerely appreciate and welcome your support of our department's academic, research and service initiatives.

Happy Holidays and an upcoming New Year 2019!

Sincerely,

Taha F. Marhaba, P.E., F.ASCE
(973) 596-2444
Achievements

College Factual Ranked NJIT's Civil Engineering Program #2 in the Nation

According to the rankings, the Civil Engineering program at NJIT now ranks #2 in the nation.

NJIT is "among your best bets if you're planning on studying Civil Engineering," states the College Factual 2019 report. Out of the 206 programs evaluated, NJIT jumped six places from last year.

For two consecutive years, NJIT's Civil Engineering program has also ranked #1 for educating veterans.

College Factual evaluates the programs on metrics such as education resources, retention rates, and graduation, as well as postgraduate starting salaries and earning potentials. 

Click here for full report.

In This Issue

Achievements

Students

NJIT AWWA Student Chapter Partners on the Catch Basin Project

The American Water Works Association student chapter joined Newark's Office of Sustainability to participate in its new Prepared Together program, which involves citizen volunteers in initiatives that make cities more resilient and ready to manage disasters. The chapter took part in the initiative's "Adopt a Catch Basin" to prevent street flooding and sewer clogs.

Every two weeks, the students clear litter and plant debris from three catch basins to ensure they are able to divert storm water effectively. To raise awareness in the community on pollution prevention and to encourage volunteering opportunities, chapter members painted the catch basins with water-related scenes.

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Advisory Board

Representing a diverse cross section of civil and environmental engineering professionals, including design consultants, construction managers, contractors and attorneys.

Joseph Stanley, P.E., P.P., '78, '85, (Chair) Mott MacDonald
Ted Cassera, P.E., '72 Bow man Consulting
Anthony Castillo, P.E., '95 '02 SESI Consulting Engineers
Jerome F. Gallagher, Jr., Esq, '80 Norris, McLaughlin, Marcus, PA
David Good, P.E., '78, '92 Mueser Rutledge Consulting Engineers
Andre Grebenstein, LEED AP '95, The Martin Group
Tony DeJohn, P.E., P.P. WSP Parsons Brinckerhoff
Due to their passion and commitment to maintain water infrastructure and keep the community clean, the members of AWWA Student Chapter were honored by the City of Newark's Office of Sustainability and Mayor Ras Baraka for their success on "Adopt A Catch Basin" clean-up project.

"As future leaders, we want to bring people together to play a role in caring for their communities," said Paula Andrea Heredia Guerrero, president of the campus AWWA chapter. Click here to see the students in action.
As he took the stage at the 2018 Commencement ceremony at the Prudential Center, Chris Antholis, at 74, was the oldest undergraduate to flip his mortarboard tassel to the left - indeed, the oldest ever in the history of the university, according to Michael Smullen, NJIT’s director of alumni relations.

At the Civil Engineering brunch after graduation, Antholis was surrounded by a sizeable fan club of professors and staff and about a dozen family members from all over the country: Maryland, Pennsylvania, New Jersey and California. One is a noted cardiovascular surgeon, another an HBO executive and another a prominent academic at the University of Virginia.

Read about the path that Antholis followed in the NJIT news article: Mission accomplished ...

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Congratulations to Xiaonan Shi and Likun Hua on their student competition win at the 83rd annual American Water Works conference at the Borgata in Atlantic City.

Xiaonan Shi, First Place
"Multifunctional Reactive Electrochemical Membranes(REM) for Emerging Contaminant Removal"

Likun Hua, Second Place
"Influences of Air, Oxygen, Nitrogen, and Carbon"
2018 Louis Berger Fellowship

Master student Abhishek Banyal '19, who is pursuing a degree in civil engineering with a specialization in construction management, was named the 2018 Louis Berger Graduate Fellow.

During the summer, Abhishek was assigned to an underground mass-transit project in Mumbai, India, where he saw massive excavation and tunnel-boring operations underneath a densely populated urban environment. "There's a lot of information I was given - method statements, designs, drawings, daily progress reports. You can only learn so much from books. When you're working on a project, things are usually very, very specific. There's no generalization for a lot of things. Every project is unique. Every site is unique. The only way to learn is to be in the field and see what's going on. The great privilege to be part of such a large and prestigious project is only overshadowed by the amount of insight I have gained into projects of such a scale and stature." - Abhishek states.

His real-world summer experience with the company allowed him to strengthen his skills related to construction estimating, environmental impact, shared public mobility and computer-based scheduling.

2018 CEE Annual Recognition Award Recipients

First Year Student Award: Kush Patel

Sophomore Excellence Award: Brian Barros

Junior Excellence Award: Kush Patel, Jay Meegoda

Senior Excellence Award: Brian Barros, Tom Jaworski
Joseph Barry '80 has been promoted to associate principal at design and engineering firm PS&S. Previously he spent six years with the Port Authority of New York and New Jersey as senior project controls manager for the $15 billion World Trade Center Construction Program, which included the Freedom Tower, the 9/11 Memorial and Museum and the WTC Transportation Hub.

Eric Boschen '89 was promoted to senior associate at Dewberry in Bloomfield. Boschen manages the water resources department.

James Heeren '90 was promoted to senior associate in Dewberry’s Parsippany office. Heeren is a senior environmental engineer and a professional engineer in Georgia and New Jersey.

James Anderson '86 has been named to the Rowan College of Burlington County board of trustees as one of its two gubernatorial appointees. Anderson is the director of solid waste compliance and development for Mercer Group International, a Trenton recycling company.

Mario Iannelli '93 has been promoted to senior associate in Dewberry’s Parsippany office. Iannelli is the land development department manager for the site/civil group.

Samir Saini '97 was recently named one of the world’s 100 most influential people in digital government for 2018 by Apolitical. Saini is commissioner of the New York City Department of Information Technology and Telecommunications.

Thomas Shroba '97 has been promoted to vice president of operations at New Jersey American Water.

CEE Alumni can send their news to be featured in future newsletter to: cee@njit.edu

Outstanding Achievement Award: Christopher Antholis

Masters Excellence Award: Jitendra Kewalramani

Doctoral Excellence Award: Wanyi Fu

Research

Integrated Connected Urban Corridor - New Jersey (ICUC NJ) Initiative

As part of an ongoing research and innovation CEE initiative, Dr. Joyoung Lee is leading the pilot deployment of an Integrated Connected Urban Corridor (ICUC) in Newark, NJ. The pilot project, deployment of a system that will collect traffic data and transmit it to a traffic management center, is a collaboration between NJIT and the City of Newark, with funding from the New Jersey Department of Transportation (NJDOT) through an ITS Resource Center (ITSRC) grant. The location of the ICUC pilot deployment is in downtown Newark, along a one-mile section of Raymond Boulevard connecting NJIT campus and Newark Penn Station. Along this route there are 8 signalized intersections that will be instrumented with the following equipment: 1) dedicated short range communications (DSRC) roadside unit (RSU) for vehicle-to-infrastructure (V2I); 2) urban environment sensors to detect dust, carbon monoxide, temperature, moisture, and other environmental conditions; 3) 4G/LTE and WiFi devices. In addition, NJIT will deploy connected and autonomous transport (CAT) test vehicles with DSRC on-board Unit (OBU) to conduct field pilot tests.
The proposed system will collect traffic and air quality data, including traffic signal timing, and will provide secure transmission of this data to the traffic management center, as well as to motorists, pedestrians and bicyclists in real time. The provision of this data is expected to improve mobility, safety, and efficiency of travel along the instrumented corridor. In addition, the mobility and environmental data for the corridor would be aggregated and provide traffic data analytics that can be useful in evaluating alternative traffic operation strategies.

NJIT’s Michel Boufadel Devises New Methods for Measuring Oil Spill Discharge

Research by NJIT’s Michel Boufadel on the mechanics of oil dispersion following a spill was recently highlighted by the Gulf of Mexico Research Initiative (GoMRI), a consortium that investigates the impacts of oil, dispersed oil and dispersants on the ecosystems of the Gulf of Mexico and coastal States. GoMRI aims to better elucidate the dynamics of spill events, as well as their environmental impacts and public health implications, and to develop oil and gas detection, characterization and remediation technologies in order to improve spill mitigation strategies. In a recent paper in Geophysical Research Letters, Boufadel, director of NJIT’s Center for Natural Resources, characterizes in unprecedented detail key aspects of the uncontrolled pipeline flow from the Deepwater Horizon. He suggests that the flow within the pipe could have been “churn,” whereby oil and gas tumble violently within the pipe in a manner fundamentally different from the bubbly flow commonly assumed for that release. The findings have major implications for the amount of oil discharged and the droplet size distribution. The churn flow would have produced five times the energy loss in the pipe compared to bubbly flow, and its plume would have entrained 35 percent more water than that of the bubbly flow. The resulting oil droplet size distribution of churn flow is likely smaller than that of bubbly flow. Consequently, he suggests, the oil discharge in Deepwater Horizon could have been overestimated by as much as 200 percent. To read more on Boufadel’s research from the Gulf of Mexico Research Initiative, click here for full article.
CEE student recognized for Nanotechnology research

Doctoral student Wanyi Fu, along with NJIT research advisor, Dr. Wen Zhang, and industrial advisors, Dr. Christina Carbrello from Millipore Corporation and Dr. Xiaosong Wu from Pall Corporation, recently had an article published in the journal Nanoscale: "Visualizing and quantifying the nanoscale hydrophobicity and chemical distribution of surface modified polyethersulfone (PES) membranes"

Wanyi's research provides a new perspective on novel characterization approaches for the design and quality control of polymer membrane modification and manufacturing. These new methods are important for investigations of surface contamination, fouling and material weathering processes and anti-fouling surface design, as used in sanitary coatings for contact lenses.

In recognition of her research work in Nanotechnology, Wanyi also received a travel award of $2000 from the Pan Nano committee to attend the first Pan-American Nanotechnology (PanNano) Conference in Guarujá, state of São Paulo, Brazil.

Faculty and Staff

Dedicated Teacher and Mentor retires after 35 years of outstanding service

During his 35-year career at NJIT, John Schuring won numerous awards and was designated as a Master Teacher. He developed and taught many undergraduate and graduate courses in engineering, geology, hydraulics, hydrogeology and construction materials. Professor Schuring created a sense of professionalism, community and belonging in the classroom. He set high expectations for all students and was caring and always accessible. He was a skilled leader and embedded leadership principles and professional practice into his teachings. His research included bridge scour, ground water remediation and engineering geomorphology. He and his co-investigators (including Professor Robert Dresnack) devised the Scour Evaluation Model (SEM) to assess the scour risk of a bridge to help NJDOT expend bridge construction funds more strategically.

Read about Professor Schuring's career and personal milestones during his tenure with the Department of Civil and Environmental Engineering, which began in September, 1982.

Best wishes to retirees

John Schuring and Robert Dresnack!
Family, faculty, students and friends gathered to honor Professors Emeritus John Schuring and Robert Dresnack and wish them well on their respective retirements.

Professor Dresnack and Schuring were presented plaques recognizing their new titles as Professors Emeritus.

Meet our new faculty members

It is with pleasure that we welcome Dr. Branislav Dimitrijevic as tenure-track Assistant Professor of Transportation. Dr. Dimitrijevic holds a Ph.D. in Transportation (2018), from NJIT, and MS in Transportation (2001) from NJIT, and a BS in Transportation (1999) from the University of Belgrade, Serbia. He has been a senior research scientist in CEE since 2014, following 11 years as a member of the transportation research staff. He specializes in transportation systems analysis, transportation planning, network optimization, multimodal freight transportation and intelligent transportation systems (ITS).

He took part in the development and deployment of the Transportation Economic and Land Use System (TELUS), a multi-year federal research program, and was one of the designers of a land-use modeling software to project the spatial distribution of jobs and households in order to better determine regional travel patterns. The software has been used at both research institutions and metropolitan planning organizations around the country.

Recently, Dr. Dimitrijevic has led several projects for the ITS Resource Center, a transportation technology innovation program funded by the New Jersey Department of Transportation. They include the development and advancement of technologies for real-time traveler information systems, traffic-responsive and adaptive traffic signal systems, and the use of drones for remote traffic surveillance and connected vehicle applications. He is currently working with the City of Newark to demonstrate advanced traffic detection and data analytics utilizing GPS, wireless and mobile...
communications, and connectivity between transportation infrastructure, vehicles and travelers to provide 'personalized' traffic and travel information in real time. Dr. Dimitrijevic has coauthored four papers in peer-reviewed journals, 14 papers in conference proceedings, and 25 peer-reviewed research reports and a book chapter. As an adjunct instructor at NJIT, Dr. Dimitrijevic has taught two undergraduate courses (CE 350 and CE 450), and six graduate courses (TRAN 603, TRAN 650, TRAN 610, TRAN 625, TRAN 602, and TRAN 705). He also has experience teaching online courses, including TRAN 603 and TRAN 650.

Meet our new faculty members

It is with great pleasure that we welcome Mr. Eduardo Castro, P.E. as Senior University Lecturer in Mechanics and Structures. Mr. Castro obtained his BSCE from the Universidad de Los Andes (Colombia) in 1983 and MSCE from Columbia University in 1988. He has more than 30 years of experience in the management and performance of structural design services for new buildings as well as renovations and rehabilitation of educational, cultural, institutional, commercial and government structures. He was responsible for the technical aspects as well as the management of major projects like the $2.1 billion renovation of the United Nations Headquarters in New York and the design of the new Secret Service Headquarters building in Washington, D.C. Mr. Castro has extensive experience in a wide variety of major conventional and protective design projects including the $137 million United States Federal Courthouse in Buffalo, NY and the $170 million research facility for Mount Sinai Hospital in New York City. Before joining NJIT, Mr. Castro was a principal at Thornton Tomasetti in New York City. He was also a Visiting Associate Professor of Structures for 15 years at Pratt Institute, where he taught Statics, Strength of Materials, Steel Design, Concrete Design and Timber Design. He is a licensed Professional Engineer in NY.

Meet our new staff member
It is with pleasure that we welcome Diana Ochoa as an Administrative Coordinator. Diana attended St. Peters University, where she obtained a Bachelors in Business Management in 2007. She built her professional career with Thomson Reuters where she held the positions of Client Associate and Relationship Manager between 2008 and 2018. As a relationship manager, she acted as the liaison between clients and Thomson Reuter’s technical services, which included project management and troubleshooting operations. Diana managed the clients’ business objectives to ensure that the quality and service exceeded expectations.

Alumni

Dr. Janitha Hewa Batagoda ’18

We asked Civil Engineering Dr. Janitha Hewa Batagoda to describe his experience at NJIT and to discuss his plans after graduation. Janitha graduated in May 2018 with a Ph.D. in Civil Engineering. Janitha’s area of research is Geotechnical Engineering. According to Wikipedia, “Geotechnical Engineering is the branch of civil engineering concerned with the engineering behavior of earth materials.”

What led you to study at NJIT?
I was working for Hyundai as a design engineer, which involved geotechnical work. It sparked my interest to learn more about this area of engineering. While looking for researchers with experience in both geotechnical and environmental engineering, I came across Dr. Jay Meegoda, the director of the Geotechnical Testing Laboratory in the Department of Civil Engineering at NJIT. I looked at other programs, but Dr. Meegoda’s interested me the most and I started the Ph.D. program in Geotechnical Engineering at NJIT.

Describe your doctoral dissertation.
My doctoral dissertation was on developing an in-situ remediation method to extract and clean the sediments in the heavily contaminated Passaic River. The investigation used ultrasound and ozone nano-bubbles to oxidize and remove a variety of contaminants in the Passaic River sediments. Using ultrasound, we expected to break the adsorption bonds between soil and the contaminants. The desorbed contaminants would then react with ozone nano-bubbles and dissolved ozone and become mobile or less harmful. These contaminants would be removed and filtered from the effluent water.

What impact has your research work had in civil and environmental engineering?
The study identified the use of ultrasound and how it can impact gas bubbles and dissolved gases in water. There is a possibility for this technology to be a field implementation. The study explored the possibility of using ozone nano-bubbles to prepare drinking water. The environmental engineers who want to achieve high ozone concentrations in water for their applications can use the ozone nano-bubbles to increase the solubility of ozone in water.

What are your plans for the future?
I’ve been hired by Oweis Engineering Inc, an engineering consulting firm, as a geotechnical engineer.

Has your research been published?
Four papers were published in collaboration with Dr. Meegoda. There are three pending publications. One of the papers was presented at the Geo-Chicago conference,
one presented at the International Conference on Soil Mechanics and Geotechnical Engineering in South Korea and the third one will be presented at the Environmental & Water Resources Institute conference in Minneapolis Minnesota. The journal paper was published in the Institution of Civil Engineers journal of environmental engineering and science. Another paper was recently submitted to the Journal of Environmental Engineering and Science. List of publications

2018 CEE Distinguished Alumni Awards

Distinguished Alumni Award:
Matt Riegel PE, DGE 99'

Matt Riegel is currently an associate vice president for HNTB and its Manager of Geotechnical and Foundation Design Services. Throughout his career, Matt has led the successful growth of the New Jersey Geotechnical and Foundation Services practice with a group that started with two engineers and is 19 engineers strong today. His group has been involved with many bridges in the region and throughout the country, such as: the Kosciusko Bridge Replacement, the Mario M. Cuomo (formally the Tappan Zee) Bridge, the Gordie Howe International Crossing, and the Goethals Bridge. He also serves as an adjunct professor for the CEE department for both graduate and undergraduate geotechnical engineering courses.

Distinguished Young Alumni:
Kristina Ippolito 13'

Kristina Ippolito graduated in 2013 with a degree in Civil Engineering with a track record of hands-on learning experiences working on large infrastructure projects. As an undergraduate, she was part of the steel bridge team and was a member of the concrete canoe team. Kristina is currently a project engineer for Judlau Contracting, Inc., the civil engineering firm that built the South Ferry subway station in Lower Manhattan. For her contribution towards building the 21st century transportation infrastructure Kristina has been featured in the exhibit "Modern Day Rosie's: Women Can Build." click her for article