

EMSE

MISSOURI S&T | SPRING 2019

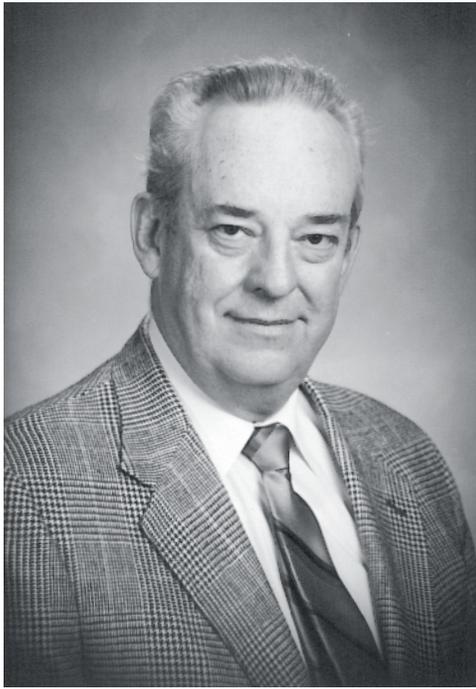
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IN MEMORY

Madison McDonald "Mack" Daily, PhD EMgt'84, professor emeritus of engineering management, died on July 22, 2018. S&T's engineering management department awarded its first Ph.D. to Daily. He joined the S&T faculty following graduation and retired in 1999. During his tenure at S&T, Daily helped set the foundation for online courses and distance learning at S&T. He championed using the most advanced technology available at the time, starting with satellites and then moving to computer and video technology. Daily also taught classes through the National Technological University, a consortium of 45 universities. Prior to joining S&T, Daily earned a bachelor's degree from the U.S. Naval Academy in 1954 and a master's degree from the Air Force Institute of Technology in 1958. He served 25 years in the Air Force before retiring as a colonel in 1979.

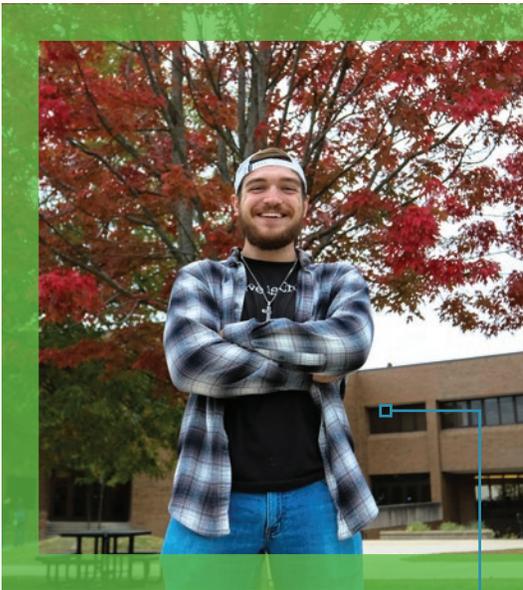
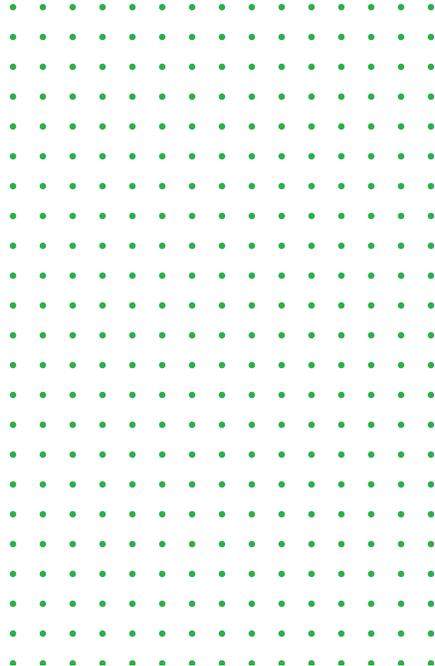
PREPARING ENGINEERS FOR BIG-PICTURE LEADERSHIP

In engineering management and systems engineering, preparing engineers for leadership is what we do. And maintaining a big-picture mindset is how we do it.

After earning our department's first Ph.D. in engineering management in 1984, **Mack Daily** served on our faculty for many years. Today his legacy lives on in the Mary and Madison M. "Mack" Daily Management of Technology Fund, which supports our department in whatever way is needed most.

This year we're honoring Prof. Daily's memory by asking alumni to support the endowment he established. So when you get a phone call from a Missouri S&T student, we hope you'll take time to talk. We also hope you'll help us prepare engineers for big-picture leadership by giving back in memory of Mack.

give.mst.edu



DEAR ALUMNI, COLLEAGUES AND FRIENDS

In 2018, the EMSE family ran the gamut of emotions from joy as we celebrated the successes of our wonderful graduating and current students, welcomed remarkable alumni colleagues and supporters into the EMSE Academy, cheered with the Faletti family as Jim received the Award of Professional Distinction, and cried with the Daily family following the death of our much-loved colleague, Professor Mack Daily.

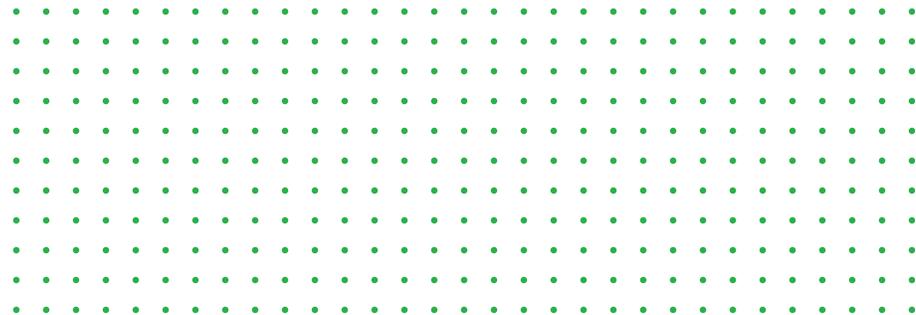
In this issue, we try to give you a sense of our year and to spotlight some amazing events that will contribute to our future. We also recognize the amazing work and contributions to the profession of engineering management, as well as to the S&T campus, from outstanding alumni, faculty, and staff that make up the EMSE family. We wish you happiness and joy in 2019 and invite you to share your stories with us for future newsletters. And, of course, we thoroughly enjoy having you visit! Whenever you are passing through or by Rolla, we would be thrilled to welcome you home and hear about your journey!

Best for 2019,

Suzie Long

Hist'84, Phys'84, MS EMgt'04, PhD EMgt'07

Chair, Engineering Management and Systems Engineering



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ACADEMY INDUCTS THREE NEW MEMBERS

Missouri's secretary of state, another EMSE alumnus and a former department chair are the newest members of the Missouri S&T Academy of Engineering Management. The three were inducted during the academy's April 2018 banquet.

John R. "Jay" Ashcroft, EMgt'96, MS EMgt'98, was elected to statewide office in November 2016 and took office in January 2017. He started his career with a defense-based engineering company in West Plains, Mo., and later taught engineering and technology courses at St. Louis Community College before earning a law degree from Saint Louis University. He then practiced law in St. Louis County before relocating to Jefferson City.

David W. May, EMgt'82, of Eureka, Mo., is president of Roeslein and Associates Inc., where he oversees more than 600 employees in offices across the U.S., United Kingdom and China. A veteran of 30-plus years in the food, beverage, container and filling industry, he's also a member of the company's ownership group and its board of directors.

Yildirim Omurtag of St. Louis spent 26 years at S&T, including several years as department chair, before joining Robert Morris University in Pennsylvania, where he served as founding dean of the School of Engineering, Mathematics and Science. The professor emeritus of engineering management and systems engineering also served on the faculty of Wichita State University, Sultan Qaboos University in Oman, University of Tennessee Space Institute, Istanbul Technical University, California State University-Sacramento School of Business, Iowa State University and the Middle East Technical University, where he was a co-founder of the first industrial engineering program in Turkey in 1968.



SERC VISITS S&T

In February 2018, EMSE hosted a site visit by two representatives of the Systems Engineering University Affiliated Research Center (SERC), of which S&T is a collaborator university.

Dinesh Verma, SERC executive director, and retired U.S. Navy Capt. William Shepherd, a former NASA astronaut and commander of the first crew on the International Space Station, visited with EMSE chair and professor **Suzanna Long**, Hist'84, Phys'84, MS EMgt'04, PhD EMgt'07, and **Cihan Dagli**, founder and director of the systems engineering graduate program and EMSE professor, as well as **Robert Marley**, provost and executive vice chancellor, and the CEC department chairs.

Following the meeting, members of the Mars Rover Design Team led the group on a tour of the Kummer Student Design Center. They told the group all about the team and its competitions and showcased current and past vehicles.

Established in 2008 with funding from the U.S. Department of Defense and led by Stevens Institute of Technology and the University of Southern California, SERC provides a critical mass of systems engineering researchers from various collaborators that offer broad experience, deep knowledge and diverse interests. SERC researchers have worked across a wide variety of domains and industries, and bring wide-ranging expertise to their research.

SCHUMAN, SPURLOCK NAMED ASSOCIATE TEACHING PROFESSORS

Last fall, **Joan Schuman** and **David Spurlock** were named associate teaching professors of engineering management and systems engineering.

Schuman, a member of our faculty since 2011, is an expert in engineering education, project management and cultural competency. She teaches Introduction to Project Management, Economic Decision Analysis, Advanced Financial Management, Case Studies in Project Management and Global Project Management. She holds a Ph.D. in polymer science and engineering from the University of Southern Mississippi and a bachelor of science degree in mechanical engineering from the University of Arkansas.

Spurlock, who joined our faculty in 2009, teaches Managerial Decision Making, Management for Engineers and Scientists, Managing Engineering and Technology, Advanced Personnel Management and Operations Management Science as well as several courses in project management. He holds a master's degree and a Ph.D. in organizational psychology from the University of Illinois at Urbana-Champaign, a master's degree from Pepperdine University and a bachelor of electrical engineering degree from the University of Dayton.



FACE OF THE FUTURE: MEET JAKE NOWACK

Jake Nowack has always enjoyed troubleshooting and problem-solving, so engineering was a natural choice for him. He chose S&T because he likes a challenge, and he knew his hard work would pay off in the long run.

A self-described people person, Nowack gravitated toward engineering management.

"Engineering management is more of the business side of engineering — a broader picture," says the sophomore from Jefferson City, Mo. "Engineering managers

have skills in multiple engineering areas. Plus, it is the most interactive engineering field. I want to do more than sit in a cubicle."

When Nowack isn't in class, you might find him on the basketball or volleyball

court taking action shots for the *Rollamo* yearbook. Or you may catch him in a game — he plays on S&T's club volleyball team. He's also a member of the American Society for Engineering Management and the Christian Campus Fellowship.

"I like taking photos, and do so almost everywhere I go," Nowack says, and he recently parlayed that love of the lens into a freelance photography business, [PictureThisJRN](#).

Nowack enjoys watching NASCAR, and he hopes to one day use his engineering management skills as part of a team in the racing industry.

"If I can help a team overcome challenges and help them reach small goals that eventually lead to winning a race or a championship, I will have lived my dream."



DRAWING TALENT TO S&T

One comes from D.C., a recent federal Department of Energy science and technology fellow eager to explore the nexus of engineering management, systems engineering and social science.

Her colleague hails from Iowa State University by way of Kenya, an aerospace engineer and foreign car enthusiast won over by the welcome mat extended from Missouri S&T and Rolla.

Casey Canfield and **Benjamin Kwasa** are both assistant professors who joined our department in August. While their respective paths

to S&T differ, each cites the opportunity to aggressively pursue multidisciplinary teaching and scholarship in a department where such collaboration is common.

Canfield, a Maryland native, earned a Ph.D. in engineering and public policy from Carnegie Mellon University, followed by a two-year stint in Washington as a Department of Energy science and technology policy fellow helping to oversee the awarding of solar energy research grants.

That position connected Canfield with department chair **Suzanna Long**, Hist'84, Phys'84, MS EMgt'04, PhD EMgt'07, a DOE grant recipient who mentioned the upcoming faculty vacancy back home.

"I didn't imagine that there would be a department where my research interests would fit so well," Canfield says. "A lot of my research is trying to figure out how to quantify the human part of the system, so you can integrate that into the data analysis."

In the classroom, Canfield taught Engineering Management 2110, Managing Engineering and Technology, in the fall and is teaching Engineering Management 6413, Advanced Engineering Management Science, this spring. Away from work, she's a touring bicyclist who hopes to soon explore the Katy Trail's many miles.

Kwasa grew up in east Africa, but spent the past decade in the Midwest, earning three degrees while in Ames, Iowa: a bachelor's degree in aerospace engineering, a master's degree in systems engineering and a Ph.D. in aerospace engineering. He spent another

“Most people are oblivious to junk yards, but they’re my biggest blessing.”

year as an Iowa State postdoctoral researcher in aerospace engineering before heading south at the start of this academic year.

Kwasa’s introduction to engineering came in high school, helping mechanics at a local airfield repair plane engines. That job led his father to promptly designate him as the family’s auto mechanic. His DIY approach also helped him cover college and grad school living expenses as a part-time mechanic specializing in high-end Audis, BMWs, Mercedes and Porsches.

A car collection that grew to 10 in Iowa has been downsized to seven in Rolla, Kwasa says (or perhaps six by the time you read this). The inveterate tinkerer no longer fixes cars for pay now, just for fun. He is a deep thinker who finds meaning, and value, in others’ discards.

“Most people are oblivious to junk yards, but they’re my biggest blessing,” says Kwasa, who taught Engineering Management 5414, Introduction to Operations Research, in the fall. “It’s looking around and saying to yourself, ‘Well, let’s see what I can do differently.’ There’s not just one way to do something. It’s the joy and the fun in discovery.” This spring, he is teaching Engineering Management 6412, Mathematical Programming.



HOGAN HONORED AT HOMECOMING

Karen (Strothcamp) Hogan, EMgt’02, was one of nine Miner alumni and faculty to be honored during Homecoming ceremonies in October.

Hogan, of Overland Park, Kan., received the Distinguished Young Alumni Award. The award is granted to university graduates under 40 years of age who have reached a high level of achievement early in their career and demonstrated leadership ability and substantial indications of a commitment to the service of others.

Hogan is a division manager at Turner Construction Co.



FALETTI RECEIVES AWARD OF PROFESSIONAL DISTINCTION

Jim Faletti of Chicago, retired president and founder of Strategic Insights Ltd., was one of four alumni and friends of S&T honored with an Award of Professional Distinction at spring 2018 commencement.

Faletti, EMgt’71, MS EMgt’79, founded the company in 1994, as well as HR Insights Ltd. in 2002, after previously holding senior management positions at several large corporations.



WILLIAMS' LOVE OF STEM, HIP HOP FEATURED ON 'GREAT BIG STORY'

Dajae Williams, EMgt'17, holds a day job at NASA's Jet Propulsion Lab in Pasadena, Calif. In the world of viral videos, though, she's best known as the creative force and lead singer behind a hip-hop video highlighting the quadratic formula.

The manufacturing engineer's prowess both in the classroom and behind the mike caught the attention of Great Big Story, a social video and "cinematic storytelling" website owned by CNN.

Narrated by actress Gillian Jacobs, the video describes Williams' efforts to use her passion for hip hop to encourage other minorities to pursue STEM degrees.

"I witness every day how much music influences people," she said in a 2018 interview. "I see music as a great platform to display the benefits of being an engineer or scientist."

The St. Louis native came to S&T on a full-ride basketball scholarship. But when she was offered an internship with Anheuser-Busch, she made the tough decision to forgo college sports for that job opportunity.

After the internship, she transferred to St. Louis Community College for a year to cut costs, but she focused on returning to S&T, convinced that the career outlook for Rolla graduates made it worthwhile.

The former president of the S&T chapter of the National Society of Black Engineers subsequently landed internships with Dot Foods, John Deere, Toyota, Apple and NASA. She was one of four graduating seniors selected to speak at her December 2017 commencement.

Watch "The NASA Engineer Making STEM Sing" at rol.la/DajaeCNN.

ASEM HONORS

EMSE had a great showing at the American Society for Engineering Management (ASEM) 2018 International Annual Conference, held in October 2018 at the University of Idaho.

Our department received the 2018 Founders Award for Best Graduate Program. Associate professor **Steve Corns** accepted the award.

EMSE also received the 2018 ASEM Founders Award for Best Student Chapter. **Benjamin Kwasa**, EMSE assistant professor, accepted the award.

Also during the conference, incoming ASEM president **Suzanna Long**, Hist'84, Phys'84, MS EMgt'04, PhD EMgt'07, delivered her inaugural address. Her term runs through 2019.

LONG NAMED TO IISE LEADERSHIP

Suzanna Long, Hist'84, Phys'84, MS EMgt'04, PhD EMgt'07, chair and professor of engineering management and systems engineering, was elected to serve a three-year term as technical vice president for the Institute for Industrial and Systems Engineers (IISE).

The Technical Operations Board develops policy and provides strategic direction for the effective operation of IISE's societies and divisions.

Founded in 1948, IISE is the world's largest professional society dedicated solely to the support of the industrial engineering profession and individuals involved with improving quality and productivity.

Long previously held several offices for IISE sub-societies. Her term as technical vice president began in April 2018.

CUDNEY HONORED BY IISE, ASQ

Beth Cudney, PhD EMgt'06, was named a Fellow of the Institute for Industrial and Systems Engineers (IISE).

The Fellow award is the highest classification of membership in IISE and is given in recognition of outstanding leaders of the profession who have made significant nationally recognized contributions to industrial engineering. Since 1950, over 500 members have received the honor.

Earlier this year, Cudney received the Philip B. Crosby Medal from the American Society for Quality (ASQ). Cudney, who was named an ASQ Fellow in 2013, received the medal as co-author of *Design for Six Sigma: A Practical Approach Through Innovation* with industry leader Tina Agustiady.

The presentation cited a "distinguished book contributing significantly to the extension of philosophy and application of the principles, methods, or techniques of quality management."

RECENT GRAD FINDS SUCCESS AT MICROSOFT



Photo courtesy of Ron Jenkins

The chance to play college basketball in his home state was undoubtedly part of the draw of Rolla for **Zach Ellis**, EMgt'16. The robust career opportunities that await so many S&T graduates made his choice a slam dunk.

"During the recruiting process, Coach **Jim Glash** sold me on attending Missouri S&T when we discussed how graduates (often receive) multiple job offers and have great success in their respective fields," says Ellis, an all-state and all-district hoops selection at Whitfield School in St. Louis.

"During a campus visit, Dr. **Stephen Raper** (EMgt'85, MS EMgt'87, PhD EMgt'89) helped me realize that engineering management would be a perfect fit, challenging me academically while helping me showcase my strengths."

Now a consultant at Microsoft in Dallas, Ellis is part of a cross-functional team that provides continuous service

improvements for everything from service strategies to operations.

"The curriculum for engineering management was a perfect fit for these opportunities," he says. "When reflecting on what I learned from the internships, on-campus activities and the education I received, I see that Missouri S&T put me in the perfect position to graduate and succeed!"

In addition to being a student-athlete, Ellis was involved with the Student Activity Advisory Council, the American Society for Engineering Management, the National Society of Leadership and Success, the National Society of Black Engineers, and community service projects.

Before graduating from Missouri S&T, Ellis completed internships as a project manager at The Boeing Co. in Seattle and Express Scripts in St. Louis. He also earned his Lean Six Sigma Green Belt designation.

"Missouri S&T put me in the perfect position to graduate and succeed!"



BIG DATA, BETTER SYSTEMS

In any system, collecting and understanding data is vital for operating efficiently and effectively. Missouri S&T's **Ruwen Qin** is helping engineering managers in a variety of industries obtain data and use it to design and improve complex systems. From using augmented reality for employee training to protecting workers in dangerous conditions, big data can improve industries and our lives.

"The descriptive data analytics of a system allows us to efficiently develop an understanding of the system and discover new knowledge about it," says Qin, an associate professor of engineering management and systems engineering. Qin says that by using predictive analytics, researchers can present the system and predict the system's output in concise mathematical language. Then, they can use prescriptive analytics to determine the best system design or the optimal way of operating the system.

One example of her work is in inspecting and preserving existing transportation infrastructure. For state departments of transportation, it's one of their most costly operations. Qin is leading a team at Missouri S&T to analyze the inspection data collected by remote-controlled robotics to help with labor-intensive, time-consuming, and risky tasks, allowing engineers to focus on decision-making processes.

As part of the INSPIRE University Transportation Center, the team will develop the robotic platform and train engineers to operate the devices and gather image data for the inspection and maintenance of transportation infrastructure. The project aims to develop algorithms for processing camera-based bridge inspection data and discovering patterns of bridge issues. It creates tools for training users on visually analyzing the processed image data and recognizing patterns for inspection. Qin is also working on a way to use data to keep

transportation workers safe in real-time working conditions. The smart assistance system would monitor workers such as drivers and operators of hazardous materials transportation, assess their risk exposure and awareness levels and assist them in real-time for safety enhancement. A sensor subsystem would first collect data on transportation workers, and then statistical-based methods would be created for processing the data for estimating risk exposure and workers' awareness levels.

Qin says data analytics helps engineers save time and improve safety among other benefits.

"The research impacts people in their everyday lives in various ways, such as improved life quality, convenience, safety, and cost savings, to name a few," she says. "The impacts are generated from our analytics efforts to better understand, describe, model, design and operate engineered systems."



GIBSONS DONATE \$1M FOR S&T ARENA RENOVATION

A \$1 million renovation of Missouri S&T's basketball arena marks the latest gift from an EMSE alumni couple who met 45 years ago in Rolla.

Kristie (Capps) Gibson and **John Gibson**, both EMgt'74, were also major donors to the Miner Dome indoor facility dedicated in 2010 and the artificial turf installed at Allgood-Bailey Stadium and nearby intramural fields four years later.

"Basketball was an important part of my life," says John. "My athletic experience was a major contributor to the formation of my personality and values."

The Gale Bullman Building is home to Missouri S&T's NCAA Division II men's and women's basketball teams, as well as the S&T women's volleyball team. It's also the site of many other events, including commencement and concerts.

Renovations will include new flooring, practice and game goal systems, a public address system and improved acoustics.

The Gibsons began their careers in Baytown, Texas, where both worked for Exxon Co. USA as refinery engineers.

They subsequently joined Bartlesville, Okla.-based Phillips Petroleum Co., where John spent 18 years in a number of leadership positions in natural gas, natural gas liquids and exploration and production. Kristie worked for Phillips as a process engineer designing natural gas plants, then as a gas buyer and manager of the natural gas supply division, until retiring to focus on raising their daughter, Katie.

John was executive vice president of Houston-based Koch Energy before he joined ONEOK in 2000 as president of energy. He eventually was named chairman, president, and CEO of ONEOK and ONEOK Partners and served in that capacity until his retirement in 2014.

DIETZ ASSUMES CORP COMMAND

Lt. Col. **Christian Dietz**, MS EMgt'05, assumed command in July 2018 of the U.S. Army Corps of Engineers Walla Walla District.

Dietz most recently served as the executive officer to the operations director, assistant chief of staff for Installation Management at the Pentagon in Washington, D.C. Over the years, he has served in many locations, including Germany, been deployed to Iraq, at Camp Hovey, South Korea, and in 2016 he was assigned to the U.S. Military Training Mission in Riyadh, Saudi Arabia, as an advisor to the Royal Saudi Land Forces and the King Abdulaziz Military Academy.

In his new position, Dietz is responsible for planning, engineering, design, construction, operation and maintenance of hundreds of projects to support navigation, hydropower, flood risk reduction, environmental stewardship and recreation. He administers regulatory programs, supports national disaster recovery and response operations, and maintains eight federal dams across the Columbia and Snake River basins.

BUSCH TO REPRESENT STAFF

Theresa Busch, administrative assistant in engineering management and systems engineering, was elected to serve on Missouri S&T's Staff Council in August. Busch will serve as a representative of S&T's secretarial and clerical staff for a two-year term.

Staff Council represents and promotes the best interests of S&T staff, helps to build a positive working relationship with the campus community and works to provide effective communication between staff and administration.

The group holds special events to celebrate staff, presents annual awards for staff excellence, and administers an employee scholarship program for S&T staff members who are enrolled at the university.



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GRADUATION DOESN'T MEAN GOODBYE

It's easy to stay in touch with your department. Just say hello when a student representative calls during phonathon, or drop us a note at emgt@mst.edu. Tell us what you're doing with your degree in engineering management or systems engineering so we can feature your accomplishments among our alumni achievement stories.

With your support, there's no limit to what we can achieve.



Caleb Fricano, EMgt'18, is an assistant superintendent at Paric, a full-service construction firm.