



# *in* Gear

Fall/Winter 2024

## REVOLUTIONIZING GLOBAL NUTRITION

Rohan Shirwaiker is leading the future of food. NC State's new Bezos Center for Sustainable Proteins looks to tackle global protein demands with cutting-edge tech.

Page 18

### Also in this Issue

FROM CHEESE GIRL TO CHEESE CHAMPION	20
WE BUILT A PEANUT BUTTER AXE	04
REMEMBERING ED WOOLARD	13

# ise BY THE NUMBERS



## Degrees Offered

- B.S. in Industrial Engineering
- Accelerated Bachelor/Master in Industrial Engineering
- Master in Industrial Engineering
- Master in Industrial Engineering (Online)
- Master of Engr. Management
- Master of Engr. Management (Online)
- Master of Industrial Engineering / Master of Business Administration
- M.S. in Industrial Engineering
- Doctor of Philosophy in IE

## Operations Research

- Master in Operations Research
- M.S. in Operations Research
- Doctor of Philosophy in Operations Research

## Integrated Manufacturing Systems Engineering

- Master in Integrated Manufacturing Systems Engineering
- Master of Integrated Manufacturing Systems Engineering (Online)



## Degrees Granted (2023-2024)

- 94** Undergraduates
- 42** Masters
- 15** Ph.D.s



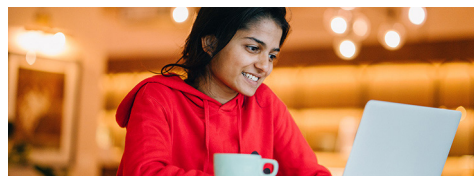
## National Rankings

- #13** Undergraduate Program
- #15** Graduate Program



## Faculty (2023-2024)

- 33** Tenured and Tenure-track
- 8** Distinguished Professors
- 3** Professors
- 13** Associate Professors
- 6** Assistant Professors
- 5** Lecturers
- 15** Emeritus
- 10** Adjunct



## Enrollments (Fall 2024)

- 364** Undergraduates
- 61** Masters
- 71** Ph.D.s

# inGear

Fall/Winter 2024

Department Head  
*Dr. Julie Swann*

Director of Graduate Programs  
*Dr. Russell King*

Director of Undergraduate Programs  
*Dr. Kanton Reynolds*

### inGear Staff

Editor and Design Director  
*Robert Lasson*

Graphic Designers  
*Lillian Avent, Anu Battula, Robert Lasson*

Contributing Writers  
*Lillian Avent, Anu Battula, Jeff Johnson, Robert Lasson, Trevor Riley, Julie Swann*

Photographers and Photo Credits  
*Lillian Avent, Tony Blevins, Jack Bolton, Neil Brittain, Damon Butler, Tracy Doaks, French West Vaughan, Candance Gingles, Paul Griffin, Tao Hong, Jeff Johnson, Angela Lanning, Abby Lampe, Robert Lasson, Patrick Murray, Stuart Nisbet, Dave Parker, Devon Person, Daniela Santibanez*

**inGear** is a publication of the Edward P. Fitts Department of Industrial and Systems Engineering. It is distributed two times a year to alumni, ISE departments, faculty, students and friends. We welcome your feedback about the magazine and invite submissions of news to [ise-socialmedia@ncsu.edu](mailto:ise-socialmedia@ncsu.edu).

To receive news updates throughout the calendar year, please subscribe to inGear online by going to [go.ncsu.edu/JoininGear](http://go.ncsu.edu/JoininGear).

NC State Engineering Foundation, Inc.  
Campus Box 7901  
NC State University  
Raleigh, NC 27695-7901  
919.515.7458  
[go.ncsu.edu/EngrFoundation](http://go.ncsu.edu/EngrFoundation)

Change of Address?  
Visit [go.ncsu.edu/UpdateMyInfo](http://go.ncsu.edu/UpdateMyInfo) or send address corrections to [alumnianddonor\\_records@ncsu.edu](mailto:alumnianddonor_records@ncsu.edu); or call 919.515.7458, toll-free: 866.316.4057.

© 2024 The Edward P. Fitts Department of Industrial and Systems Engineering produced 7,250 copies this document at a cost of \$13,140.

# FROM DEPARTMENT THE HEAD

I am thrilled to share some highlights from our extraordinary year, marked by significant achievements and historic milestones our students, faculty and alumni met.

First and foremost, ISE's Day of Giving saw a record-setting level of donations (343 gifts for \$76,123.) This incredible generosity and support from our alumni, faculty, students and friends will have a lasting impact on our department. In particular, we have prioritized spending these resources on students, faculty recruitment and retention, and enhancing the department's visibility. These funds allow us to continue our mission of excellence in education by covering moving costs for new faculty, student memberships in IISE for scholarships, food at welcome-back events and swag for prospective students.

Furthermore, I am proud to share that ISE's Rohan Shirwaiker will lead the new Bezos Center for Sustainable Protein at NC State. The Bezos Earth Fund awarded NC State \$30 million over five years to create a biomanufacturing hub for environmentally friendly, healthy, tasty, affordable dietary proteins. The center will collaborate with partners from academia and industry to conduct research, develop innovative technologies and commercialize sustainable protein solutions. It will also provide training for the emerging industry workforce and gather insights into consumer preferences regarding protein.

Moreover, I want to celebrate the remarkable achievement of ISE alum Abby Lampe, who has won the Cooper's Hill Cheese-Rolling and

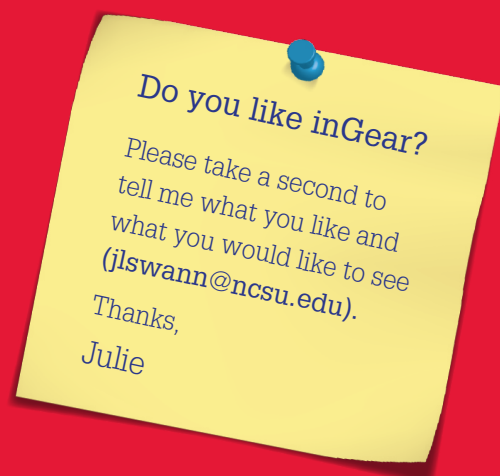


Wake race for the second consecutive time. Abby's determination and competitive spirit exemplify the qualities we strive to instill in all our students. Her success is a source of pride and inspiration for our entire university and the greater Raleigh community.

Overall, these accomplishments highlight the exceptional talent, dedication and collaborative spirit within our ISE community. As we build on this momentum, I am excited about the future and the endless possibilities. Together, we will achieve new heights and make lasting impacts on our field and beyond.

*Julie L. Swann*  
Julie Swann

**Dr. Julie Swann**  
ISE Department Head and  
A. Doug Allison Distinguished  
Professor



# 5 Questions with ... **LOUIS MARTIN-VEGA**

Louis Martin-Vega has now returned to teaching industrial and systems engineering after previously serving as the dean of NC State's College of Engineering. He originally joined NC State in 2006 after spending five years leading the engineering college at the University of South Florida. In addition to that, he held several key roles at the National Science Foundation, including acting head of the Engineering Directorate. Furthermore, he has chaired the industrial engineering department at Lehigh University and taught at FloridaTech, the University of Florida, and the University of Puerto Rico. Alongside his academic roles, he has authored over 100 publications and delivered more than 200 keynote presentations at national and international events. His awards include the Frank and Lilian Gilbreth Engineering Award, IISE's highest recognition in 2012, and election to the National Academy of Engineering in 2021.

## **What is the most important experience or understanding you gained at NC State?**

The most important understanding I gained at NC State is the value of collaboration. Leading the College of Engineering for 17 years, I witnessed how our dedicated students, faculty, and staff achieved remarkable milestones together. Their commitment transformed our college into a preeminent institution, and I cherish their support and dedication.

## **What is the most pressing issue facing human society that engineers should work harder to solve?**

Over ten years ago, the National Academy of Engineering outlined Grand Challenges in sustainability, health, security, and human happiness for the 21st century. While progress has been made, pressing issues like climate change, personalized medicine, and cybersecurity remain top concerns for the engineering community and society today.

## **What accomplishment in your career are you most proud of so far?**

I'm most proud of my 17 years as Dean of the College of Engineering at NC State. It was an honor to lead such dedicated students, faculty, and staff. Together, we achieved remarkable milestones, transforming our college into a preeminent institution. I deeply cherish their support and commitment throughout this journey.

## **If you were not in the academic field, what would you likely be doing?**

An academic career has been deeply rewarding, offering opportunities, challenges, and freedom to explore professional and personal interests. It's a field of constant learning alongside talented students and colleagues. Most importantly, it has allowed me to serve others. So, besides an academic career, I would have been engaged in some public service field.

## **What advice do you have for current ISE students?**

See your ISE degree as a platform for limitless possibilities. Embrace growth with excellence, boldness, and optimism while staying humble and persevering through challenges. Focus on addressing critical societal needs and improving both yourself and others. Above all, stay true to your values and respect everyone.





# 18

## REVOLUTIONIZING GLOBAL NUTRITION

Rohan Shirwaiker is leading the future of food. NC State's new Bezos Center for Sustainable Proteins looks to tackle global protein demands with cutting-edge tech.



# 04

## WE BUILT A PEANUT BUTTER AXE

Comedy duo Rhett & Link return to campus to get their hands on the one thing they need to chop down a tree, a peanut butter axe.



# 20

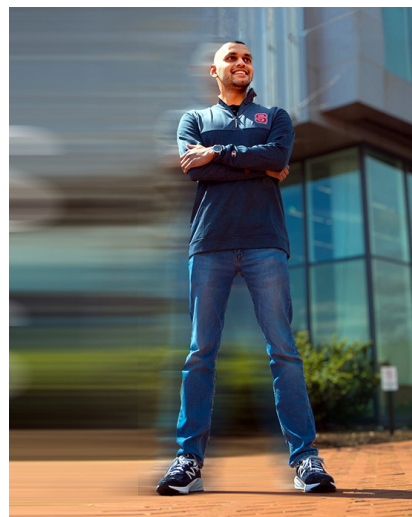
## FROM CHEESE GIRL TO CHEESE CHAMPION

ISE alum Abby Lampe used her industrial engineering skills to run, rock and roll her way to victory in the world-famous cheese race, again.

# 08

## JAHANGIR MASTERS MEM IN 10 MONTHS

JJ Jahangir managed to earn his Master of Engineering Management degree in only 10 months while working full-time. See how he did it.



# 13

## REMEMBERING ED WOOLARD

Ed Woolard's legacy: Visionary leader and philanthropist, remembered for a life of impact and excellence.



### Also in this Issue

REMEMBERING MIKE SPANO **06**

FACULTY SPOTLIGHT: LEILA HAJIBABAI **07**

FROM HUMBLE BEGINNINGS TO GLOBAL IMPACT **28**



The axe is a combination of real and powdered peanut butter mixed with epoxy resins molded around and through a steel 3D-printed structure

# WE BUILT A

# PEANUT BUTTER



# AXE!

Rhett & Link show off their axes with Satya Konala from CAMAL

Rhett McLaughlin and Link Neal, the comedic duo behind the YouTube sensation "Good Mythical Morning," returned to their alma mater, NC State University, this spring for a unique experiment. The pair, known for their offbeat humor and creative challenges, visited Fitts-Woolard Hall to test out a peanut butter axe created by the Center for Additive Manufacturing and Logistics (CAMAL), which is a center housed within the ISE Department.

The peanut butter axe, a marvel of engineering and creativity, was specifically designed for Rhett & Link as part of a challenge to chop down a tree on their property near Lillington, NC. CAMAL, a cutting-edge facility at NC State, took on the challenge of utilizing advanced 3D printing technology to craft the unusual tool.

The creation of the peanut butter axe was no small feat. CAMAL engineers began by 3D-printing an axe-shaped steel scaffold, which provided the structural integrity needed for the unusual tool. Next, a compound made from real and powdered

peanut butter mixed with epoxy resins was injected into a mold that held the steel scaffold. This process formed the final, fully functional weapon—a testament to the creative intersection of engineering and Mythical entertainment.

As Rhett & Link tested the axe in Fitts-Woolard Hall, their signature humor and infectious energy filled the room. The event not only entertained students and faculty but also showcased the innovative capabilities of NC State's engineering programs. Although the peanut butter axe may not become a go-to tool for lumberjacks, it perfectly embodied the spirit of creativity and experimentation that Rhett & Link have championed throughout their careers. Their visit highlighted the lasting connection between the duo and NC State, proving that with a bit of humor and advanced technology, even the wildest ideas can come to life.

So, "Why a peanut butter axe?" Link Neal, ever the entertainer, provided an answer that perfectly

encapsulated their approach to content creation. "If we make a video called We Chopped Down a Tree, we would get 1,000 views," Link grinned. "But if we called it We Chopped Down a Tree with a Peanut Butter Axe, we will get millions of views."

This candid response sheds light on the method behind the madness that has made Rhett & Link YouTube legends. Their knack for turning the ordinary into the extraordinary has resonated with millions of fans worldwide, and the peanut butter axe is just the latest example of their unique brand of creativity. The result? A viral-worthy weapon that's as entertaining as it is innovative. ■



The "magic" ingredients used to make the peanut butter axes





MOHAMMAD



COREY



REN-RAN

# 3 BIG QUESTIONS

This fall semester, the ISE Department welcomed three new faculty members to its ranks, Mohammad Hosseinian, Corey Kiassat and Renran Tian. Let's learn something about each in a game we call, "3 Big Questions."

## MOHAMMAD HOSSEINIAN

### 1. Why did you choose NC State?

It was an easy decision. NC State is known for its excellence, and the ISE program here is among the best in the country. More importantly, our department is a collegial environment where people genuinely respect and generously support each other. I had heard this before visiting NC State, but when I came here and met my now colleagues, I was immediately sold. Coming from the Midwest, I also have to admit that the weather and the greenery were a nice bonus.

### 2. Tell us about your research.

The broad area of my research is operations research, focusing on optimization methodologies and their applications in medical decision-making. Currently, my work is dedicated to improving cancer treatment methods. Unfortunately, many of us have experienced firsthand the significant emotional and financial burden cancer imposes on families and communities. This battle requires all hands on deck, and my research aims to make a meaningful impact.

### 3. What's a fun fact about you.

I have a hard time saying no to soccer and Persian-style kebabs.

## COREY KIASSAT

### 1. Why did you choose NC State?

I was acquainted with ISE's great reputation and its distinctive features. Developing students into transformational leaders in academia, industry, and government was something I had noticed firsthand by hearing about founders of technical enterprises within NC, reading about the scientific contributions of alumni serving as faculty members, and engaging with exceptional students at conferences.

### 2. Tell us about your research.

My passion lies in seeking innovative solutions to two critical areas: 1) enhancing the productivity and sustainability of manufacturing and healthcare systems, and 2) providing a transformative engineering education. I use Lean Six Sigma to boost productivity by focusing on factors related to human decision-makers.

### 3. What's a fun fact about you.

I have lived in four countries on two continents. Within the United States, in addition to North Carolina, I have lived in Connecticut and Michigan.

## REN-RAN TRAN

### 1. Why did you choose NC State?

I chose NC State for its top-notch ISE program, especially in human factors and human systems. The university's strong engineering reputation and collaborative atmosphere, combined with North Carolina's pleasant weather and the dynamic Research Triangle environment, make it an ideal place to advance my education and career goals. I am excited about the opportunity to engage in cutting-edge research alongside talented students and esteemed faculty.

### 2. Tell us about your research.

I aim to enhance human capabilities and improve life and work experiences through AI-enabled technologies, like automated driving and healthcare. Additionally, I work on advancing AI systems' performance, safety and usability by enabling algorithms to better understand, mimic and support human thought and behavior.

### 3. What's a fun fact about you.

My family is a huge fan of Disney World, and I have visited Walt Disney World Resorts over 10 times in the past 15 years.

# GRAND STUDENT, GRAND CHALLENGE

As someone who has lived in six countries around the world, ISE student Lexy Jane Boudreau has a unique insight into the challenges facing less fortunate countries. "This experience has been a huge part of my life," Lexy stated. Growing up in these places has made Lexy passionate about helping to solve the issues these countries face. This passion has driven Lexy to join the Grand Challenge Scholars Program (GCSP).

This multi-year research-based program aims to equip students for the challenges of our era. Built upon the National Academy of Engineering's list of grand engineering challenges, students select one of fourteen issues to research. NC State's primary goal with the GCSP is to train them as leaders in modern engineering, fostering learning, discovery, and innovation on a global scale.

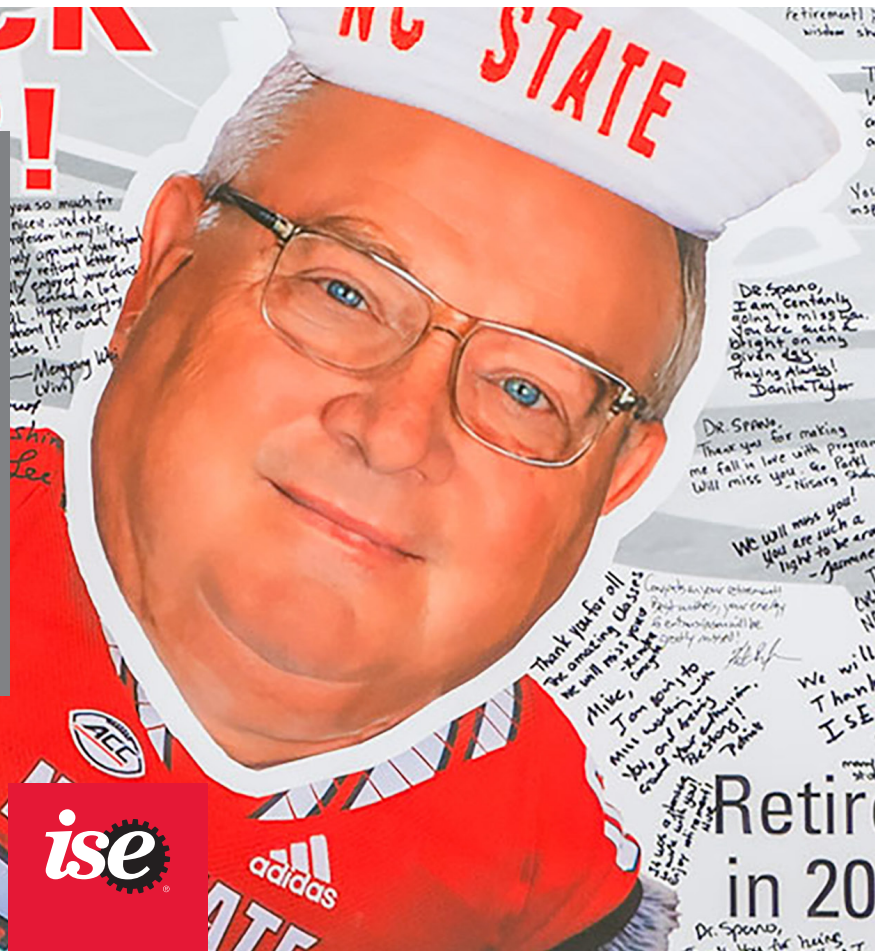
Lexy's grand challenge is restoring and improving urban infrastructure. This challenge focuses on helping communities to restore necessary infrastructure such as roads, water systems, and electricity. Infrastructure is an area that affects every aspect of a community. People need proper infrastructure to avoid unsafe living conditions that can lead to many harmful side effects. Lexy expressed, "As a Grand Challenge Scholar, I hope to work on projects that connect the community and their needs with the outcomes of engineering projects."



## WOLF PACK FOREVER!

# REMEMBERING MIKE SPANO

Last fall, The ISE Department had the honor of celebrating the retirement of professor Michael Spano after 30 years of teaching computer-integrated manufacturing and database management systems. Shortly after his retirement, he passed away after a long battle with cancer.





# ISE FACULTY SPOTLIGHT



## LEILA HAJIBABAI

From an early age, Leila Hajibabai was captivated by the worlds of mathematics, physics, and the arts. "Engineering felt like a natural path for me because it beautifully merges technical rigor with creative design," she explained. This blend of art and science drew her in, sparking a passion for using these principles to create solutions that benefit society.

Hajibabai's journey from a young student fascinated by problem-solving to a researcher at NC State is marked by her love for finding the best solutions to complex problems. "The way mathematical models can be applied to optimize complex systems, ensuring both efficiency and effectiveness, has always resonated with me," she said. This approach drives her research in operations research and humanitarian logistics, where she focuses on improving transportation systems and making communities smarter and more resilient.

But Hajibabai's work isn't just about numbers and systems and people. She has always felt a strong desire to help others, which she discovered as early as fifth grade when she helped her teachers with grading and

explaining homework problems. "My passion for mentorship and teaching began in fifth grade," she recalled. This passion continued throughout her life, leading her to an academic career. At NC State, she combines her love for research with her dedication to mentoring the next generation of engineers.

"Academia allows me to continuously learn, contribute to knowledge and share that knowledge with students, which is incredibly pleasing," Leila explained. At NC State, she found a perfect environment to grow professionally while enjoying life in Raleigh's vibrant community. The university's highly-ranked industrial and systems engineering department and the city's welcoming atmosphere made it an ideal place for her to work and live.

Hajibabai's research is more than just theoretical. She and her team work on real-world problems, such as designing transportation systems that include electric vehicles and micromobility solutions for getting goods and people where they need to go. They also tackle issues like food delivery to food-insecure populations. "My team and I develop approaches that not only balance solution quality with computational efficiency but also ensure scalability for real-time applications," she said. This work is essential for the future of sustainable and fair urban development.

Hajibabai's commitment to making a difference doesn't stop at her research. She is also dedicated to applying her expertise to benefit the community. For example, she and her students have worked on optimizing fire station locations for a local fire department, a project that reflects her broader commitment to community service. "Beyond my research, my students and I are dedicated to applying our expertise in operations research to voluntary work," she said.

Hajibabai is also passionate about mentoring students and encouraging them to think beyond traditional engineering boundaries. She pushes them to understand that when used thoughtfully, technology can solve real-world problems that matter to people and communities. "This passion for education and innovation drives my work every day," she confided.

Leila Hajibabai's story is one of passion, impact and mentorship. Through her work, she contributes to advancing knowledge and makes a tangible difference in the world around her. She inspires her students to do the same, ensuring that her legacy of thoughtful, impactful engineering will continue for generations to come. ■

# JAHANGIR MASTERS MEM IN 10 MONTHS



Embarking on the path of higher education is a significant decision, often driven by personal aspirations and the desire for professional growth. JJ Jahangir, an individual with a technical background, shared his insightful journey pursuing a Master of Engineering Management (MEM) degree here at NC State. Let's look at the factors that influenced his decision, the challenges he faced, and the valuable skills he acquired during his experience.

## Choosing the MEM Degree at NC State

Jahangir's decision to pursue a MEM degree was fueled by a desire to complement his current expertise with new leadership skills. He said, "My goal with this degree was to enhance my management and leadership skills to complement my existing technical skills." The choice between an MBA and a MEM was a thoughtful one. Jahangir realized that the MEM program aligned better with his objectives.

NC State, with its strong reputation in STEM programs, became the natural choice for Jahangir. "There's something about the color red and the energy on and around the campus that really appeals to me," he shared. The proximity to downtown Raleigh and the university's commitment to excellence in technical education solidified his decision to become part of the Wolfpack family.

## Motivation for an Aggressive Plan

Completing the MEM degree in just two semesters is no small feat, and Jahangir's motivation for such an aggressive plan stems from his personal drive to achieve and progress. Citing Parkinson's law, he stated, "I am a big believer of Parkinson's law, which says that work will expand to fill the time allotted for its completion." This mindset, coupled with a desire to minimize study costs, propelled him to tackle the program head-on.

"Extreme! For most students, six credit hours is intense if working full time,

exclaimed Brandon McConnell, the interim MEM director. "JJ is highly disciplined, proactive in his time management, and singularly focused on getting completed. I couldn't be prouder of his efforts, and we've been fortunate to have him in the program. His success speaks for itself."

## Balancing Work and Study

Navigating the demands of a full-time job while pursuing an advanced degree is a challenging endeavor. Jahangir's strategy involved taking a break from work during the initial semester to focus solely on school. In the final semester, he reintegrated into full-time work, creating a demanding schedule where weekdays were dedicated to work, followed by evening classes. Weekends became crucial for catching up on assignments, emphasizing the importance of effective time management.

Kalene Thomas, assistant MEM director, added her perspective, "JJ's dedication and time management were crucial to successfully navigating a demanding full-time job alongside a rigorous academic program. His ability to balance work and study is commendable and showcases the kind of commitment it takes to excel in the MEM program."

## Crucial Skills and Overcoming Challenges

Jahangir emphasized the need to overcome procrastination to accomplish such a demanding schedule. "The most crucial skill for me to possess was the ability to overcome procrastination. I realized that I couldn't afford to put things off and had to remain disciplined," he noted. Additionally, Jahangir highlights the challenges of absorbing a significant amount of complex knowledge each week, as graduate-level coursework demands a substantial commitment.

Thomas underlined the importance of resilience and time management, stating, "Grad school demands not only academic prowess but also resilience and effective

time management. JJ's ability to overcome challenges and stay focused on his goals is truly commendable."

## Benefits of Earning the MEM Degree

While Jahangir has yet to experience the full benefits of his MEM degree, he expressed confidence in his skills. "I have learned new skills during the program that will undoubtedly help me in my career," he affirmed. The MEM degree has also provided networking opportunities, connecting Jahangir with industry professionals who serve as professors, guest lecturers, and peers who are tomorrow's industry leaders.

"Working professionals are generally in the program for career advancement," explained McConnell. They want to increase business and management skills while retaining a technical identity." He highlighted the program's flexibility, allowing professionals to customize their education and build skillsets that align with their career goals.

"Companies need senior leaders who are prepared to manage across various business functions, including engineering, HR, finance, compliance, etc.," emphasized Thomas about the interdisciplinary nature of the MEM program. "MEM provides an interdisciplinary education to help one prepare for these multifunctional leadership roles."

Jahangir's journey through the MEM program is a testament to the dedication, motivation, and support needed to achieve ambitious academic goals. His story reflects the importance of aligning personal aspirations with educational choices and the significance of a strong support system in overcoming challenges. As Jahangir steps into the next chapter of his career, the lessons learned, and skills acquired during his MEM journey will undoubtedly shape his future endeavors. ■

# GRADUATE STUDENT SPOTLIGHT

# DANIELA SANTIBANEZ

Daniela Santibanez's journey into engineering began in high school when her teachers noticed her talent and enthusiasm for STEM subjects. Encouraged by their support, she became interested in engineering, drawn by its problem-solving focus. "Engineering seemed to blend together my passion for using my knowledge or technical skills to create things or processes that could help people or society in some capacity," Santibanez explained.

Her decision to attend NC State was heavily influenced by a pre-college

program called CAMNIOS, which she participated in the summer before her senior year. This experience introduced her to a community of passionate learners with similar backgrounds, inspiring her to fully embrace her college aspirations and cultural heritage. "This personal experience with NC State and its campus allowed me to discover the genuine and welcoming atmosphere here," Santibanez recalled.

Once at NC State, Santibanez discovered industrial and systems engineering (ISE) through a first-year engineering info session. She was immediately attracted to ISE's flexibility, allowing her to impact various industries.

"ISE work provided an intersection between using engineering skills to pursue social good opportunities," she said. This combination of versatility and social impact made ISE a perfect fit for her values and career goals.

As Santibanez's senior year

approached, she felt there was still much more to learn. Courses like Health Systems Engineering and Humanitarian Logistics sparked her interest in continuing her education. She was mainly motivated by the possibility of developing models and processes that ensure quality care for underserved communities. "My ambitions to make a broader impact on healthcare and humanitarian equity have motivated me to pursue a master's degree in Operations Research," she explained. Through this program, she hoped to gain the technical skills needed to work in the healthcare industry, with a long-term goal of serving communities and promoting healthcare equity.

Outside of academics, Santibanez found time to engage in activities she enjoyed, such as indoor group cycling classes and attending concerts. However, one of her greatest passions was fortifying and growing STEM awareness and opportunities for underrepresented students. Through her involvement in organizations like SHPE and WMEP, she witnessed the positive impact of support and community involvement on these students. "I've learned the positive impact support and community involvement can have on these students, as well as the diverse perspectives and contributions these students can have in the engineering field," she shared.

Santibanez's journey is a testament to the power of education, community, and a commitment to social good. Her story highlights the impact of early encouragement, the importance of finding a welcoming environment, and the drive to make a difference through engineering. ■



# ISE "SEEN"

It's an exciting time to be part of ISE, and these photos prove it. Have you been seen?



CDO Magazine named alum Lisa Cook (BSIE '13) to its 40 Under 40 Data Leaders List and recognized her as one of the most accomplished and inspiring individuals in the field of data.



Alum Emily Tucker (ISE faculty, Clemson) had her article published in the NY Times. It is a great piece about why drug shortages are continuing to happen.



Alum Guha Manogharan (ISE faculty, Penn State) returned to campus present his research to the faculty and students.



ISE student Sam Hoover and teammates set an American record in the 200 medley relay with a time of 01:21.86.



ISE students from our Healthcare Systems Performance Improvement course spent the week at the HSPI conference in Atlanta, GA.



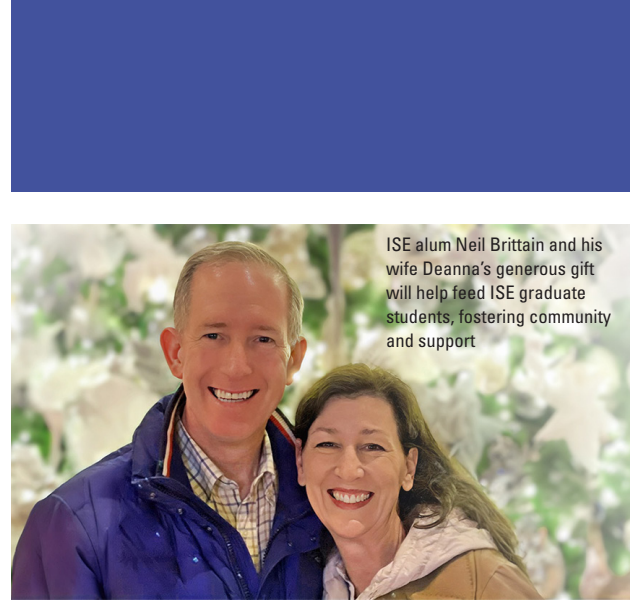
Fall 2023 ISE undergrads line up for their procession into the auditorium.



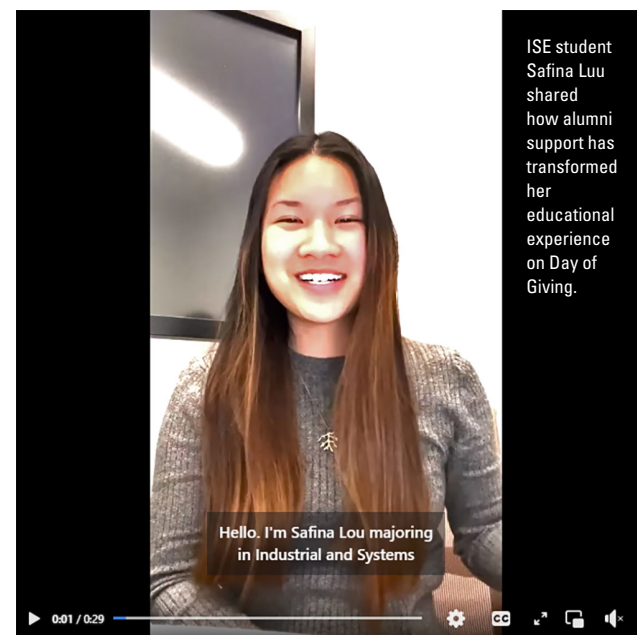
Jordan Kern, ISE assistant professor, was invited to participate in a virtual roundtable hosted by the White House's Office of Science and Technology Policy.



Department head Julie Swann was brave enough to take the Chamoy Pickle Challenge to raise funds for Day of Giving.



ISE alum Neil Brittan and his wife Deanna's generous gift will help feed ISE graduate students, fostering community and support



ISE student Safina Luu shared how alumni support has transformed her educational experience on Day of Giving.

Hello. I'm Safina Lou majoring in Industrial and Systems



ISE student Pavel "Pasha" Koprov successfully defended his dissertation and became one of ISE's newest doctors.

Securing the Future of Smart Manufacturing  
Integrating Digital Twins, Cybersecurity, and  
Advanced Communication in Industry 4.0

Under the direction of Dr. Binil S. Pillai,  
Dr. Xiaolei Fang and Dr. Yuan-Shan Li



Congratulations to Jillian Orlando for winning the MEM Word Jumble Contest and receiving a new iPad Pro.



ISE students, staff and faculty at the ISE Annual Conference held in Montreal.



Congratulations to our spring 2024 graduates.

# UNDERGRADUATE STUDENT SPOTLIGHT

# JACK BOLTON

**J**ack Bolton's journey into engineering began at an early age, influenced by his father, a civil engineer, and his own experiences overcoming accessibility challenges. Watching his father solve problems sparked a passion for engineering in Bolton. "I think problem-solving is what truly drew me to engineering," he shared.

Bolton encountered accessibility challenges daily, which led him to develop inventive ways to

overcome them. These experiences fostered his interest in engineering, where he could apply his problem-solving skills to benefit others. "Coming up with creative solutions to navigate my life is what inspired me to pursue engineering," Bolton said.

When choosing a college, Bolton was drawn to NC State University because of its strong engineering reputation. He was impressed by the opportunity to learn from top professors and gain hands-on experience through research and internships. However, what sealed his decision was his sense of community on campus. "It is truly rare to find such comradery and support at such a large school," Bolton explained.

Bolton chose to study industrial and systems engineering (ISE) because of its interdisciplinary nature. This field allowed him to explore engineering, economics and business decision-making. "I believe it will make me valuable in a variety of industries and roles," he noted.

Beyond academics, Bolton stayed active on

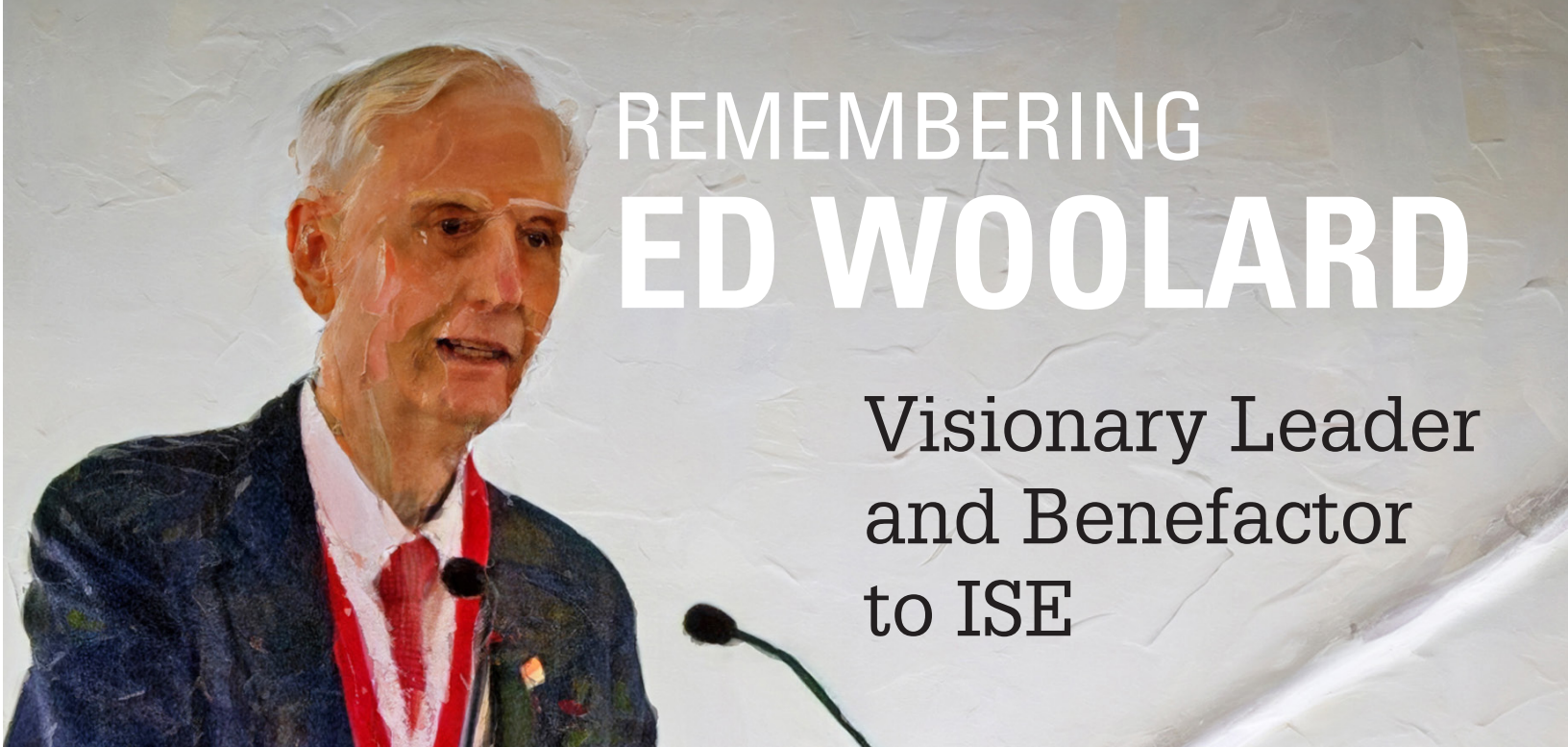
campus. He served as an officer of the Pack DisAbility Advocacy Club, where he worked to promote disability education and proactive accessibility. He also played a crucial role in organizing the Krispy Kreme Challenge, an event that raised money for the UNC Children's Hospital. "It was incredible to see how all of our hard work culminated in such an amazing event," Bolton said.

Bolton also pursued a minor in business entrepreneurship, dreaming of starting his own business. "Entrepreneurship has always fascinated me," he said. His goal is to combine his engineering skills with his passion for sports in his future career.

Bolton's time at NC State was also enriched by his participation in the Park Scholars Program and the University Honors Program. This summer, he studied abroad in London, taking courses in Engineering Economic Analysis and learning about British bands from the 1960s. "It was such an incredible experience, allowing me to explore the big city and master public transportation," Bolton shared.

Bolton is excited to dive deeper into his ISE classes and explore the many opportunities ahead. His journey from solving everyday challenges to pursuing a career in engineering reflects his determination to make a meaningful impact on the world. ■





# REMEMBERING ED WOOLARD

## Visionary Leader and Benefactor to ISE

On December 4th, 2023, the industrial engineering community mourned the loss of Edgar (Ed) Woolard Jr. (BSIE '56 and ISE Distinguished Alum '06), a luminary figure who not only shaped the corporate landscape but also left an indelible mark on NC State University, the College of Engineering and especially, the ISE Department. Woolard, 89, peacefully passed away at his home in Palm Beach Gardens, Florida, leaving a legacy of leadership, philanthropy and a profound commitment to education. Much has been and will be written about Woolard's illustrious career and accomplishments. This article will focus more on his impact on the ISE Department and his fellow alums.

### **Influence on the Department**

Woolard's association with the NC State ISE Department was instrumental, particularly in the realization of Fitts-Woolard Hall. His impact went beyond groundbreaking ceremonies; he played a pivotal role in making the building a reality through his partnership with Ed Fitts (BSIE '61 and ISE Distinguished Alum '06). Reflecting on their collaboration, Fitts shared, "Ed was one of the most ethical, honest, fair and smart individuals I've ever had the privilege of knowing," he recalled. "His character touched so many lives with his wisdom, guidance and commitment to doing what is right."

### **Getting Things Done**

Fitts further emphasized Woolard's influence on decision-making and shared

a poignant story. During a critical meeting with university officials, Woolard's logic and advocacy secured fellowship-matching funds for graduate students, illustrating his mastery in navigating challenges. "I will never forget the meeting we had with then chancellor Jim Oblinger and provost Larry Nielsen," remembered Fitts. "We presented our program to help raise the ISE Department to the next level and asked that they match the \$25k (per student) funding we were providing."

At first, there was resistance to the idea because it would open the door for other engineering programs to want the same treatment. It was at this point that Woolard stood up to address their concerns. "Larry, let me tell you something," he started. "If you get other departments to acquire a \$10 million donation, you should definitely give them the same treatment." That was the end of the conversation. The matching funds were granted for 10 fellowships. "This still gives me goosebumps," confided Fitts. "Ed Woolard was a master of logic and how to get things done."

### **Sizing People Up**

According to Deb Fitts (Ed's wife), Woolard had a keen sense of quickly sizing up people. After attending an art show in Palm Beach, Florida, with Woolard and his wife Peggy (only the second or third time the couples had spent together), the Eds went to get the car while Deb and Peggy stayed behind. On the walk, Woolard asked, "When are you going to marry that girl?" Once the Fittses

were married, Woolard asked her what last name she chose. "He was quite pleased with my traditional selection," said Fitts. "He was a great friend and a tremendous support in an otherwise awkward situation and always willing to share his experiences to deal with any potential situation."

### **A Captivating Encounter at Fitts-Woolard Hall's Groundbreaking**

Reflecting on her personal experiences, ISE department head Julie Swann recounted a memorable encounter that exemplified Woolard's engaging personality. "I met Ed Woolard at the groundbreaking for Fitts-Woolard Hall. He was incredibly gracious and humorous," she shared. "I wish that I had been able to spend more time with him. I am sure there was much more to learn from him and his experiences."

### **A Life Well-Lived**

Woolard's impact extended far beyond his professional achievements. He was a devoted family man, sharing 67 years of marriage with his high school sweetheart, Peggy Harrell Woolard. As we remember Woolard, we celebrate a well-lived life dedicated to leadership, philanthropy and pursuing excellence in industrial engineering.



# EMPOWERING STUDENTS

## Varsha Damle's OR Gift

The field of operations research is rapidly evolving, and the next generation of leaders needs to be equipped with the skills and knowledge to tackle complex challenges. Thanks to the generosity of alumna Varsha Damle, the program has received a significant gift that will enable it to provide even better educational experiences for its students. In this article, we will explore the impact of this gift and what it means for the future of operations research.

Damle (MSOR '01) is a highly accomplished professional with diverse work experience



spanning over two decades. She is vice president of Portfolio Optimization and Commercial Development at Codexis, Inc., where she leverages her commercial strategies and analytics expertise to drive business growth. Before this, she held several leadership positions at Sierra Oncology, Aimmune Therapeutics, and ZS Pharma, Inc. With a strong foundation in data analysis, incentive compensation, and commercial strategy, Damle has made a name for herself as a respected leader in the industry.

Damle's gift to the Operations Research Program at NC State is a testament to her commitment to giving back to her alma mater and supporting the next generation of professionals. According to Maria Mayorga, Director of the Operations Research Program, "This gift represents one of the first major alumni gifts to the program in recent years and highlights the benefit that alums like Varsha see from their degree as well as the success that our alums achieve in their careers." It also signifies increased engagement from alums, which bodes well for the program's future.

Mayorga emphasizes that this gift will directly impact the student experience, providing opportunities for them to attend conferences and supplement teaching assistant funds. "With

this support, we will be able to improve the student experience and reduce their financial burden," she said.

Mayorga stresses that this gift opens up new possibilities for the program, allowing it to offer a richer educational experience for its students. "One of my initiatives in my first year as director is to engage more with alums, tapping into their abundance of knowledge and resources," she explained. The program plans to organize alum events soon, providing a platform for graduates to reconnect, share their experiences and mentor current students. This increased engagement will foster a sense of community and create opportunities for collaboration between past, present and future leaders in operations research.

Damle's generous gift is a powerful reminder of the impact of alums on shaping their alma mater's future. Her contribution will empower students to reach their full potential and make a meaningful difference in their chosen professions. As the program continues to grow and thrive, it is clear that the future of operations research is bright, thanks to the dedication and support of individuals like Damle. "We are very grateful to Varsha for her support," Mayorga concluded. "Her gift will make a tangible difference in the lives of our students and contribute to the continued success of the Operations Research Program."



# From Mayberry to Marunouchi to the NC Japan Center



Stephen Sumner (BSIE '96), the Director of the NC Japan Center, embarked on a transformative journey from a rural North Carolina high school to becoming a successful industrial engineer. His story is a testament to resilience, the power of education and the impact of international experiences.

Sumner, a self-proclaimed "science and math kid" in high school, had a clear goal of becoming an engineer. Applying to only one college, he chose NC State and initially enrolled as an aerospace engineering major. However, the path took an unexpected turn. "I was accepted and came in as an aerospace engineering major, but soon realized it was not what I expected," he shared. His pivotal moment came when he had the opportunity to intern in Japan as a manufacturing engineer over the summer. The experience resonated with him, leading to a change in his major to industrial engineering (IE), where he thrived and never looked back.

Coming from the small town of Mount Airy (affectionately known as Mayberry from the Andy Griffith Show), where the student population was a minuscule fraction of NC State's, Sumner initially felt overwhelmed by the sheer number of people. Financial challenges added to the stress, as his parents declined to provide income information for FAFSA. Despite these obstacles, he found support from individuals like Bill Babcock and Phyllis Mohr, who helped

him navigate the difficulties of the first year. Reflecting on his transition, Sumner said, "A story like mine could not have happened anywhere except NC State."

Despite the teasing of industrial engineers as "Imaginary Engineers," Sumner asserts the value of the IE degree. His background in industrial engineering equipped him with skills crucial for business leadership, efficiency, optimization and understanding the intricacies of manufacturing processes.

His career path, from Intel Corp to Entegris, Inc., was a testament to the breadth of disciplines ISEs need to master. Sumner's ability to articulate complex materials science concepts in Japanese was pivotal in securing a critical patent for his company during a final appeal at the Japan Patent Office.

Sumner left his corporate career in 2019 to seek a meaningful opportunity. His experience with the Caldwell Fellows and tutoring high school students led him to a role as an academic advisor at the University of Nevada, Las Vegas. However, he accidentally discovered the open NC Japan Center's director position, which sparked a deep personal connection, prompting him to apply. Sumner expresses deep gratitude for his role as the Director of the NC Japan Center, a full circle moment central to his origin story. He hopes to inspire students to embark on adventures

that NC State made possible for him. Open to meeting students interested in opportunities in Japan, Sumner remains committed to supporting the next generation of leaders.

## NC State Welcomes Japan's Prime Minister

In April, Sumner and NC State leadership, including Chancellor Randy Woodson, greeted Prime Minister Fumio Kishida of Japan, the first foreign head of state to officially visit NC State's campus in nearly 70 years.

Kishida, his wife, Japanese ambassador Shigeo Yamada, Gov. Roy Cooper and General Consul Mio Maeda made two stops on their 90-minute visit to Centennial Campus, where they engaged with students from Raleigh's Exploris Middle School, NC State, UNC-Chapel Hill and Duke, as well as adult community learners from the Japan Center.

Kishida's visit focused on manufacturing partnerships and development, but it again showcased the work NC State has done to broaden North Carolina's economy. ■

# VOLUNTEER!

The success of our students is made possible by the contributions of our alumni volunteers. When you volunteer your time through classroom learning, semester projects, internships and co-ops, and industry tours,

you enrich the students' experience and prepare them for the future.

Volunteering through the department is an excellent way for you to help make a difference in someone's life. You can give back to your ISE community, help a department that helped you, and improve the education of future industrial engineers.

Besides, it just feels good to volunteer!

## **Volunteer in Ways You Can**

Whether you prefer having a flexible schedule or enjoy long-term programs, the ISE department has many ways you can dedicate your time.



# ONE-TIME EVENTS

1. Volunteer your time through class presentations, panels and lectures. Engage ISE students in real-world problems, solutions and hands-on exercises.
2. Dedicate a day to judge ISE Senior Design Projects. See students fresh ideas and real-world solutions during their final presentation.
3. Show students your facilities through tours. Demonstrate the principles taught in the classroom getting put into action.
4. Review student resumes and help them prep for job interviews.

# ON-GOING EVENTS

1. Become a senior design sponsor. Work with students who can analyze your proposal and provide valuable solutions during a semester-long project.

Get your questions answered and apply at

**[go.ncsu.edu/ISEvolunteer](https://go.ncsu.edu/ISEvolunteer)**



# REVOLUTIONIZING

**N**C State is already a leader in engineering and agriculture. Now, the university is bringing these fields together to help grow North Carolina's economy. Thanks to a \$30 million grant from the

the university a leader in biomanufacturing and new food technologies.

The center's challenge is the long-term issue of food security. As the global population grows, it will reach 10 billion people in

The growing population requires more protein, but resources like land and water remain limited. Traditional agriculture also has a significant environmental impact. To meet these needs, new technologies are required to complement existing animal and plant agriculture methods.

The new technologies will focus on plant-based meats like the Impossible Burger, but that's only the start. Proteins are a growing industry with huge potential. The center will also develop fermentation-made proteins. "Using fermentation, we can create enzymes, proteins and other flavors that enhance food taste and texture," explained Shirwaiker. These processes will give food important qualities that consumers value.

Finally, the center will work on producing



DR. ROHAN SHIRWAIKER

Bezos Earth Fund, NC State will create the Bezos Center for Sustainable Protein, led by ISE professor Rohan Shirwaiker and Bill Aimutis. This center will help make

the coming decades. With this increase, the demand for nutritious food will also rise, and proteins, essential for health, will become even more critical.



# GLOBAL NUTRITION

meat from animal cells without growing an entire animal. "By taking cells from chickens or cows, biotechnology can create meat that looks, tastes and has the same nutrition and safety as the meat we eat today," said Shirwaiker. Shirwaiker believes this grant will push the university to the top. "This \$30 million is going to put us at the forefront nationally and internationally," he said. The grant will help NC State develop better ways to produce alternative proteins, like plant-based products and lab-grown meat.

The new center in Fitts-Woolard Hall will bring together over 25 faculty members. These researchers will work with people in four different NC State colleges. Their goal is to improve how alternative proteins are made, train workers, and connect

with farmers, consumers, and policymakers. "This is really about expanding and strengthening our food system," Shirwaiker explained.

NC State's strong background in agriculture and biotechnology gives it an advantage. By combining these fields, the university will help lead the future of food production and boost North Carolina's economy. ■

## About Rohan Shirwaiker

Rohan Shirwaiker, Ph.D., is the James T. Ryan Professor and University Faculty Scholar at NC State's Department of Industrial and Systems Engineering. He teaches undergraduate and graduate courses on design and manufacturing. Shirwaiker's research focuses on designing and scaling the manufacturing of biological products for medical and sustainable food uses. His team develops biomanufacturing processes and platform technologies to create functional products with biomimetic features.

If you would like to know more about the Bezos Center for Sustainable Protein, go to:

[enr.ncsu.edu/bezoscenter](http://enr.ncsu.edu/bezoscenter)

# FROM CHEESE GIRL TO CHEESE CHAMPION

ISE alum Abby Lampe used her industrial engineering skills to run, rock and roll her way to victory in the world-famous cheese race, again.



Falling down a hill might not seem like the ideal way to win a race, but for ISE alum Abby Lampe, it's how she won her second Cheese Rolling Competition. Each year, hundreds of competitors gather near Gloucester, England, to participate in the cheese races. To win, participants brave a steep, 200-yard hill by rolling and chasing a double Gloucester cheese wheel. The notoriously steep and uneven hill makes it challenging to stay on your feet. However, Lampe still managed to come out on top, proving that sometimes, falling can lead to victory.

Lampe didn't initially reveal her plans to compete again. "I didn't want more pressure on me to win, like, more than I put on myself," she explained. "I told my friends and family, but I didn't want the whole community to know because if I did lose, I didn't want everyone to know." But two years after her first win in 2022, Lampe decided it was time to renew her title. "People would recognize me in Raleigh, and they're like, 'Look, she's the cheese girl.' But then I'd have to explain that I won this competition two years ago, so it was becoming outdated," Lampe shared. "I wanted to renew the title and the competition and compete again so that it would be refreshed."

To achieve this victory for a second time, Lampe utilized her experience and ISE degree. Like her first competition, Lampe applied her engineering knowledge to the competition and studied the most efficient ways to roll down the hill. "I think the most optimal for me is rolling, like completely rolling, disregarding trying to do it by foot and running down it," she said. This strategy helped her maintain momentum and speed. Another

significant component of ISE and Lampe's second victory is process improvement. When asked how she used her knowledge of the first race to secure a second win, Lampe reflected on the importance of her position on the hill. "Placement of where I was on the hill was really big," she emphasized. "I wanted to go down pretty straight but go towards a little bit to the right of the hill." When comparing it to her previous race, Lampe believes that her strategy and prior knowledge led her to success. "I think, understanding like two years ago, I basically rolled across like the

**“You only have one life, so make the most of it. Live your life to the fullest and make experiences, do things.”**

whole width of the hill because I saw it up the left, and I went all the way to the right," she remembered. "And so this time, I wanted to start on the left a little bit, but not as great as two years ago."

Aside from the difference in strategy, Lampe also got to experience the aftermath of her win differently.

"Two years ago, I was still living in Europe, so I didn't get to experience

the hype around the U.S. with the community in North Carolina and the U.S. community," she shared. "So I've been able to experience it fully this time, which is really fun." The hype around her win has given Lampe many exciting media experiences. Lampe's cheese rolling win has garnered lots of Wolfpack Pride, from being the guest of honor at the Belltower to interviews with the New York Times to t-shirts with Wolfpack Outfitters.

The question on everyone's minds: will she compete again? Yes, if the opportunity arises. "If my schedule allows it, I am happy to go back. I think it'd be fun to try to get another championship and hurl my way down the hill," she shared. "I'm still young, so that is a defining factor here."

Lampe's second victory shows that with determination, perseverance, and some help from a degree in industrial engineering, one can accomplish anything one sets their mind to, especially if cheese is involved. When asked to give advice to current and future ISE students, the answer was simple. "You only have one life, so make the most of it. Live your life to the fullest and make experiences, do things." ■



Watch the entire interview  
[go.ncsu.edu/lampeinterview2024](https://go.ncsu.edu/lampeinterview2024)



1994

The Ergonomics Center (Center), originally named the NC Ergonomics Resource Center, was founded through a partnership between NC State University and the NC Department of Labor (NCDOL) and the founding director was Mahmoud Ayoub.

1996

Anita Guehringer became the director of the Center.

1998

With the assistance of the Center, the NCDOL published an ergonomics standard.

2000

The NC labor commissioner, Harry Payne, adopted the new OSHA national ergonomics standard for North Carolina because both closely mirrored each other. The Center moved from Downtown Raleigh to O'Neill Street across from Meredith College.

2001

The NCDOL ended its relationship with the Center. At the same time, Congress repeals the national ergonomics standard and NC follows suit. This move allowed the Center to provide ergonomics services throughout the US.

2002

The name of the Center changed to the Ergonomics Center of NC and Laura Collins became the interim executive director of the Center.

2004

Tim McGlothlin became the new executive director of the Center.

2010

The Center opens a new office in Minneapolis, MN.

2011

The Center opens a new office in Tulsa, OK.

2014

The Center opens a new office in Charlotte, NC.

2020

The Center moved to Fitts-Woolard Hall on NC State's Centennial Campus and Julia Abate became the new executive director of the Center.

2022

The Center opened a new office in Colorado Springs, CO.



# FROM INNOVATION THE ERGONOMICS CENTER'S

This year marks a significant milestone for The Ergonomics Center as it celebrates its 30th anniversary. Since its inception, the Center has been a beacon of excellence in the field of ergonomics, touching lives across numerous industries and making work environments safer and more efficient. To commemorate this achievement, we spoke with former Executive Director Tim McGlothlin and current Executive Director Julia Abate to reflect on their times leading the Center.

## Tim McGlothlin (2004 - 2020)

"My work as an ergonomics consultant was an amazing experience," shared McGlothlin. "Many times when people ask me what I do for a living, I jokingly say, 'I get paid to watch other people work!'" Frankly, that's not far from the truth. McGlothlin has seen everything from creating food products like french fries and pasta to manufacturing large commercial products like aircraft, aircraft carriers, and even spacecraft to the labor required in various service activities like baristas and hospital technicians.

One unique opportunity was analyzing a pending storage facility for spent nuclear waste in Yuma Mountain, Nevada. Currently, spent nuclear waste is stored in several dozen small sites across the United States. This analysis concentrated on the labor required for tunneling the storage caves within Yuma Mountain and the laboratory staff labor needed to monitor the effectiveness of the waste management process. "This site was located in the Nevada desert, approximately 90 miles from Las Vegas (near the infamous Area 51)," recalled McGlothlin. "Since this was a very secure and isolated area, we had to travel round trip each day from a Vegas hotel to the Yuma Mountain site."

"The Center's highly regarded reputation in ergonomics training, consultation and research drew me in," McGlothlin shared. He emphasized the pivotal



# TO IMPACT

## JOURNEY OVER 30 YEARS

role of the Center's affiliation with NC State University, which further heightened his interest.

McGlothlin's tenure brought forth a wave of new ideas from his highly-regarded staff, from enhancing training content to maximizing the Center's connection with NC State University. This synergy paved the way for increased research opportunities, including partnerships with federal agencies such as OSHA and NIOSH.

Under his leadership, significant events unfolded, including forging partnerships with industry giants like



Tim McGlothlin

Boeing, Lockheed Martin, and SpaceX. The Center's collaboration with the Edward P. Fitts Department of ISE led to the sponsorship of the internationally recognized Ergo Cup® Competition, held annually at the Applied Ergonomics Conference.

McGlothlin's impactful contributions extended to overseeing the development of the Ergonomics Cultural Maturity Model (ECMM), a tool designed to integrate ergonomics into company cultures seamlessly. Additionally, the Center's

comprehensive Ergonomics Resource Guide Portfolio empowers engineers and designers to incorporate ergonomic principles into

their designs effectively. His journey exemplifies the breadth and depth of ergonomics applications across various industries.

### Julia Abate (2020 - Present)

Abate returned as the executive director in 2020 after McGlothlin retired. She had initially worked at the Center from 2006 - 2010 before moving on to SAS.

"What attracted you to the Center?" we asked Abate. With a warm smile, she shared, "There are several factors that have drawn me to the Center - twice now! First and foremost is the team of professionals on staff. If I didn't have the utmost respect for them, I would not be here." Abate values the diverse range of industries the Center serves, from manufacturing to pharmaceuticals. She finds fulfillment in improving lives through ergonomics, stating, "It's rewarding to feel like you can make a life a little better for someone."

Reflecting on memorable experiences, Abate shared anecdotes of team-building activities and client engagements. "Some of my favorite experiences have been team building with our staff," she said. These included a behind-the-scenes tour of the NC Zoo, painting a howling wolf and touring the NC State Dairy (which included Howling Cow Ice Cream.)

Abate emphasized the Center's commitment to giving back to the profession. Many staff members volunteer with organizations like ASSP, AIHA, NSC, NC OSHERC, IISE and the Applied Ergonomics Conference, contributing their expertise to advance the field.

Innovative ideas drive progress, and Abate has successfully implemented

new initiatives at the Center. "The team has worked hard for the past few years," she explained. "We've been updating our resources and training materials, including developing some new workshops." Furthermore, leveraging technology and academia, the Center is poised to release a progressive web app for common analysis tools, enhancing accessibility for its members.

As the Center celebrates its 30th anniversary, plans are underway for the inaugural Ergonomics Symposium in August. Abate expressed excitement about providing a platform for members and clients to network, share insights and explore cutting-edge research. "We're grateful to have the support of the ISE Department, as well as our Advisory Board members, several of whom will be presenting at the symposium," she added.

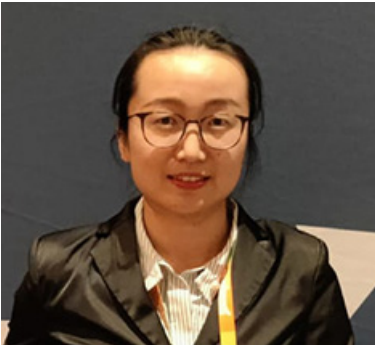


Julia Abate

Looking ahead, Abate envisions a future where the Center thrives and expands its impact. "I would love to see more long-term partnerships with our members," she remarked. Strengthening ties with academia and fostering student opportunities are also on the agenda, paving the way for the next generation of ergonomists.

As The Ergonomics Center celebrates its 30th anniversary, dedicated professionals like Abate and the team at The Ergonomics Center leading the way, the future looks promising for ergonomic innovation and excellence. ■

# AWARDS and HON



**TianTian Nie**, ISE alum, was part of an eight-person team from Walmart who received the 2023 Franz Edelman Award from INFORMS at their annual conference.



**Adolfo Escobedo**, associate professor, received a Minority Issues Forum Early Career Award from INFORMS at their annual conference.



**Linfeng Wu**, Ph.D. student, won the 2023 Student Member with Honors Award at the Human Factors and Ergonomics Society (HFES) Conference.



**Steve DeGrosso**, MEM professor of the practice, received a 2023 Fellow Award from the Project Management Institute, their highest honor.

**Audrey Westlund**, ISE senior, received a Council of Fellows Scholarship from the Institute of Industrial and Systems Engineers.



**Brandon McConnell**, ISE research assistant professor, was promoted to research associate professor by NC State University.

# ORS



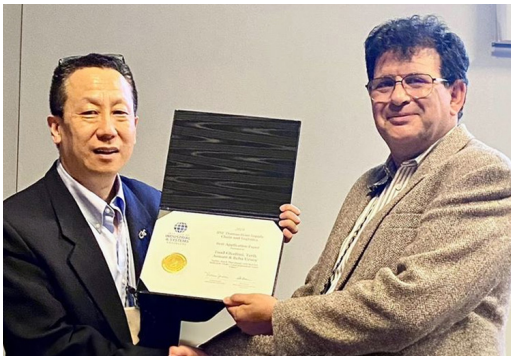
**Julie Swann**, ISE department head, received a 2023 Distinguished IEMS Alum Award from the advisory board of Northwestern University's Industrial Engineering & Management Science Department



**Xiaolei Fang**, ISE assistant professor, was promoted to associate professor by NC State University.



**Leila Hajibabai**, ISE assistant professor, was promoted to associate professor by NC State University.



**Reha Uzsoy**, C.A. Anderson Distinguished professor, received the Best Application Paper in Supply Chain and Logistics Award from the Institute of Industrial and Systems Engineers at their annual conference in Montreal.

**Kanton Reynolds**, Director of Undergraduate Programs, was selected to participate in the 2024 Fulbright-Hays Seminars Abroad Program in Colombia.



**Latha Dombro**, MEM program specialist, received an Award for Excellence from the College of Engineering. Latha created many impactful program initiatives that greatly improved the MEM Program.



**Rohan Shirwaiker**, professor, was honored with the 2024 IISE Fellow Award. This award recognizes his outstanding contributions to technical innovation and service within the IISE community.





The ISE Department welcomed its first class of Distinguished Alumni in 2006. Since then, it has inducted many of its best and brightest into its Hall of Fame. Starting in 2018, that group began including Outstanding Young Alumni award winners. This year, the department inducted four Distinguished Alumni — Mike Futch, Dr. Andrés Medaglia, Keith Nichols and Dr. Tonya Smith-Jackson — and one Outstanding Young Alumni award winner — Dr. Lauren Davis — during the University's Red and White Week Celebration.



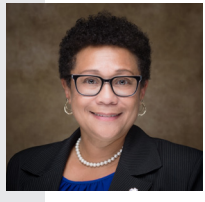
**Mike Futch** is the CEO, President and co-founder of Tompkins Robotics. He has led the firm's design, IP and growth to be North America's leading robotic sortation and order fulfillment system. Futch oversees the day-to-day operations and drives much of the new development, product roadmap, and integration with partners, solving unique problems with complimentary robotic automation. Futch received his BSIE degree from NC State in 1987. Before that, he proudly served in the US Air Force. He was a supply chain consultant from 1987 to 2016 with firms such as Deloitte, Garr and Tompkins as a manager, VP and Partner.



**Andrés Medaglia** is full professor of Industrial Engineering at Universidad de los Andes (Bogotá, Colombia) and director of the research center Centro para la Optimización y Probabilidad Aplicada (COPA). He holds a Ph.D. (2001) in Operations Research from NC State University. From 1999 to 2002 he worked as an optimization specialist developing decision support systems for SAS. In 2002, he joined the Industrial Engineering Department at Universidad de los Andes and served as Department Chair from 2014 to 2017.



**Keith Nichols** is a 32-year veteran of the home furnishing industry. He is currently the Vice President of Manufacturing for Century Furniture, responsible for the operation of Century's case goods and upholstery plants and trucking division. Before his current role, Nichols was the plant manager for the Century Chair Division for 15 years. He is a 1991 Furniture Manufacturing and Management Program graduate with a minor in Industrial Engineering. Nichols resides in Hickory with his wife, Rhonda and their three children, Battle, Maggie and Henry.



**Tonya Smith-Jackson** is Provost and Executive Vice Chancellor for Academic Affairs at North Carolina A&T State University. Before becoming Provost, she held many roles, including senior vice provost, cybersecurity center director, laboratory director, graduate program director and department chair of industrial and systems engineering. She was an industrial and systems engineering professor at Virginia Tech and directed multiple centers and labs. Smith-Jackson has worked in industry (IBM, Ericsson Mobile Communications), at community colleges, and as a Department of Defense (European Division) manager. She graduated from NC State with her master's and Ph.D.



**Lauren Davis** is a professor in the Department of Industrial and Systems Engineering at North Carolina A&T State University. Before joining NCA&T, she spent 12 years as a senior software engineer at IBM. Her work has appeared in 28 peer-reviewed journal publications, three book chapters and more than 40 refereed conference proceedings. She is a Second Harvest Food Bank of Northwest North Carolina board member. Her proudest achievement is serving as an advisor and helping launch the careers of 10 doctoral and 30 master's students. She received her Ph.D. in Industrial and Systems Engineering from NC State University in 2005.



# Shockley Wins Engineering and Humanities Award

**Z**ane Shockley, a recent graduate in Industrial and Systems Engineering (ISE), received the Senior Award for Humanities. This recognition celebrates Shockley's achievements in both engineering and humanities, especially his focus on German Studies. His dedication to learning across different fields led him to this accolade.

Expressing his gratitude, Shockley said, "Being recognized for my passions means a lot. I've always enjoyed problem-solving and learning languages." Despite facing challenges, he's proud to have earned a double degree.

His advisor, Helga Braunbeck, praised Shockley's exceptional qualities, like his curiosity and work ethic. Shockley's fluency in German notably improved after a 10-week internship in Germany. Braunbeck noted his active participation in class discussions and thorough research on sustainability in sports. "He was always prepared and eager to contribute his knowledge and ideas about the environmental problems and possible solutions we discussed in class," said Braunbeck.

Professor James Brown also commended Shockley's dedication to German studies and extracurricular involvement. "Zane has consistently and thoroughly impressed me with his intellectual curiosity, his persistence, his unimpeachable work ethic and his determination to get the very most out of his effort to learn German," said Brown.

Securing a job as a Sales Engineer at Prometheus Group, Shockley plans to use his language skills and engineering knowledge. His ambition to connect STEM and humanities shows his commitment to learning from different perspectives.

Zane Shockley's receipt of the Senior Award for Humanities represents his significant contributions to

engineering and humanities. His journey inspires others to explore different fields and strive for excellence. Shockley's commitment to innovation promises to have a lasting impact as he starts his career.



FOUNDATIONS

# FROM HUMBLE BEGINNINGS TO GLOBAL IMPACT



ISE alum Rick Wicker (BSIE '75) has made a significant contribution to supporting international experiences for current students. His journey from humble beginnings in North Carolina to a global career has inspired him to create the Global Studies Endowment, aiming to provide life-changing opportunities for ISE students.

Wicker's path to success began with little exposure to the world beyond his home state. However, his career with a major consumer goods corporation opened doors to international opportunities that transformed his professional and personal life. "I was selected to be the operations representative on a corporate cross-functional team to travel the world and investigate new product and marketing ideas for the U.S. market," he recalled. One of his key experiences was an eight-month assignment in Turkey, which deeply influenced his worldview.

Living and working abroad taught Wicker invaluable lessons and skills. "The opportunity to live and work in a country outside of the USA, and to have a career traveling and working with people from all over the globe, was extraordinary," he said. These experiences broadened his perspective and enhanced his ability

to navigate diverse cultures and business environments.

Understanding the profound impact of such experiences, Wicker established the Global Studies Endowment for ISE students. "By establishing a Global Studies Endowment, our undergraduate students can begin to get assistance to create an international experience as part of their academic career," he explained. "We operate today in a world economy and a global supply chain. ISE students are in an ideal position to be leaders in this economy through these programs."

Wanda Urbanska, ISE director of development, highlighted how Wicker's gift aligns with the department's goals. "Rick expressed gratitude for his ISE education here and a desire to 'give back' to current students," she said. "His desire to support overseas experiences aligned with Julie Swann's (ISE department head) goal of providing 50% of our undergraduate students with a foreign experience."

The Global Studies Endowment will provide crucial financial support for student internships and travel experiences abroad. Urbanska added, "Foreign study and experience is a stretch opportunity for so many of our

students, an experience that may alter the course of their careers and lives."

Wicker hopes his gift will inspire others to consider their own legacy. "Look at your career and life and find your passion. All gifts invested in the ISE department and its future will fulfill a need to transform and grow this department in engineering," he advised.

He also offered advice to current ISE students, encouraging them to seek diverse experiences. "In addition to the obvious—embracing your studies and interacting with other ISE students and professors—make a point of getting to know other students on campus in completely different majors and studies," he suggested. "Reach out to those students who are from different cultures and/or countries and understand their perspectives on life."

Reflecting on Wicker's contribution, Urbanska remarked, "Rick Wicker is just a remarkable, generous, and thoughtful person. Julie Swann, Kanton Reynolds (ISE undergrad director) and I are made better by knowing him." Through this endowment, Wicker's legacy will continue to shape the lives of ISE students for years to come, helping them to become leaders in an interconnected world. ■



# AUTEN GIFT ENHANCES NC STATE ENGINEERING SPACES



Long-time NC State supporters George and Grace Auten have made a major donation to name a three-part study space in Fitts-Woolard Hall. Their gift highlights a deep, decades-long connection to the university and aims to inspire others to give back.

George R. Auten Jr., a U.S. Air Force veteran and NC State ISE graduate spoke about the personal importance of their gift. “NC State has been central to our family’s life,” he said. “Grace and I are both graduates, and our three sons also attended State. Even while moving around the world with the Air Force, we stayed connected to the university. Giving back is just the right thing to do.”

Naming a space is also a means of permanently honoring our most engaged alumni. This modern building houses the Edward P. Fitts Department of Industrial and Systems Engineering (ISE) and the Department of Civil, Construction, and Environmental

Engineering. The Dean’s suite of offices and the NC State Engineering Foundation are also located here.

Wanda Urbanska, ISE’s director of philanthropy, recalls meeting George at his Atriax offices, which were in a historic building. She describes him as kind and community-oriented, much like the character George Bailey from the classic film “It’s a Wonderful Life.” His company, Atriax Group, has since moved to a larger facility in Hickory.

Urbanska stressed the impact of such gifts. “Naming a space is a key contribution to the college’s financial health. ISE students frequently use this space.”

The Autens hope their donation will encourage others to contribute. “Talk to a development officer,” George advised. “They can help you find the best way to give, without pressure.”

For prospective donors, Urbanska suggests focusing on what matters most to them.

“George’s background in the building industry made naming a space particularly meaningful.”

Swann added that donations are crucial for the department and the university, especially with changes in funding models. “Donors can work with Wanda Urbanska and university leaders to target their gifts based on personal interests.”

George’s advice to current students is to “play the long game” and immerse themselves in university life. With the growing demand for resources, Swann highlighted the importance of support like the Autens as the College of Engineering anticipates a 40 percent increase in students. Their gift helps ensure future students access top-notch facilities at Fitts-Woolard Hall. ■

# DONOR LIST

The Edward P. Fitts Department of Industrial and Systems Engineering at NC State is grateful to our donors for their generous support. This list represents donations between **January and June of 2021**. While we make every effort to be accurate and thorough, it is possible to accidentally omit or misspell a name. Please contact 919.515.7237 with any additions or corrections.

## CORPORATE GIFTS

Bank of America Charitable Gift Fund  
 Century Furniture Company  
 Commonwealth Charitable Fund  
 The Community Foundation of Greater Greensboro, Inc.  
 Fidelity Charitable Gift Fund  
 Herbalife Nutrition  
 Hickory Chair Company  
 Hitachi Energy  
 Intel Foundation  
 Java Master International, LLC  
 MSP Insights LLC  
 Pfizer Foundation  
 Renaissance Charitable Foundation, Inc.  
 Tindall Corporation  
 Triangle Blvd  
 Vanguard Charitable Endowment Program  
 Vanguard Charitable

## ALUMNI, FACULTY, STAFF, STUDENTS AND FRIENDS

Julia Abate	William Caffrey	Daniel Dymek	Ola Lars Harrysson
Sadaf Adam	Gregory Caison	Melvin Early	Robert Hawkins
Zachary Adams	Krista Caison	Mary Early	Connie Hawkins
Amy Adams	John Casabonne	Donald Ebinger	Mark Hawkins
James Adams	Mitchell Chalker	Bernard Edwards	Lynn Hawkins
Michael Addertion	John Champion	Cynthia Elderkin	Hugh Hill
Patrice Addertion	Terese Chase	Steven Elderkin	Willie Hill
Muralidharan Alagarraj	Scott Chase	Adolfo Escobedo	Ann Hill
John Andrews	Kristine Cheetham	Ricky Fisher	James Hill
Marian Andrews	Natalie Cherbaka	Scherel Fisher	Jeffrey Hill
Denise Ard	Everett Clocker	Elizabeth Fleming	Heather Holt
James Ard	Jamone Clocker	Claire Flierl	Tao Hong
Maria Ashbaugh	Dillon Coleman	Wilda French	Kaitlyn Horky
Bradley Ashbaugh	Tama Coleman	Brian French	Richard Horton
George Auten	Scott Coleman	Mary Geary	Janice Horton
Grace Auten	Rochelle Cook	Mac Gilbert	Kimberly Hoyle
Caroline Baldauff	Richard Coppins	Leslie Gilbert	Jeffrey Hoyle
John Bartelme	Matthew Corgan	Candance Gingles	Jackson Hudson
Terry Bartelme	Amber Corgan	Angel Gomez	Christopher Hultgren
Deborah Beeker	Carol Cottrell	Ronald Goolsby	Tawnya Hultgren
William Beeker	Royal Daniel	Ann Goolsby	David Irwin
Richard Bernhard	Holly Daniel	Allen Greenwood	Addie Jackson
Melinda Billings	Sridhar Dasu	Jane Greenwood	Jonathan Jacocks
Steven Billings	Douglas Davis	Paul Griffin	Ann Jacocks
Tony Blevins	Anne Davis	Steven Grobman	Harvey Jenkins
Larry Bowman	DeMisha Dawson	Ashlyn Grobman	Sheila Jenkins
Beth Bowman	Wesley Dawson	Jiao Gu	Yayun Jin
Robert Boyette	Morgan DiCarlo	James Hackney	Robert Johnson
Mary Charles Boyette	Jill Dickens	Constance Hackney	Rebecca Johnson
Richard Brittain	David Dickens	Jack Halasz	Jeffrey Johnson
Deanna Brittain	Tracy Doaks	Jennifer Hallman	Karen Johnson
Evelyn Brown	Cheryl Doninger	Matthew Halsted	Jeffrey Joines
Damon Butler	Gary Downey	Kathryn Hanson	Sharon Joines



Elva Jones	Susan McCray	Jerry Pipes	William Simmons	Bonnie Walston
Linda Jurjans	Ellen McDaniel	Cynthia Pipes	Elizabeth Simmons	Curtis Walston
Rohinton Karanjia	Leon McGinnis	Jennifer Pippin	Wallace Sizemore	Hong Wan
Scott Kegler	Marcia McGinnis	Herbert Pippin	Sherron Sizemore	Pu Wang
Michelle Kegler	Joseph McKinney	Lundy Pressley	Julie Skipper	Hanwen Wang
Hyo Kim	Timothy McMahan	Alicia Pressley	Lee Skipper	Amelia Watson
Russell King	Caroline McMahan	Jeffrey Pugh	Mikayla Slomski	Baron Weaver
Patricia Kinney	Catherine McSwain	Robin Pugh	Stephen Smith	Jerry Webb
Laura Lampe	Jessica Mele	Lingjiao Qi	Joanne Smith	Jane Webb
Justin Lancaster	Carroll Merrell	Gregory Raber	Randall Spencer	Maxwell Webber
Needham Langston	Barbara Merrell	Martha Raber	Carol Spencer	Chuang Wei
MaryLou Langston	Stuart Miller	Bhakti Rane	Kenneth Stevens	Ed Weisiger
Dwain Lanier	Phillip Mintz	William Rankin	Julia Stevens	Steven Welton
Gayle Lanier	Tammy Montgomery	Diane Rankin	Nathan Strickler	Karen Welton
Angela Lanning	Patrick Murray	Cheryl Raugh	Eugene Strupe	David White
Nathan Lanning	Kimberly Murray	Ron Raugh	Bea Strupe	Megan White
Robert Lasson	Robert Murray	Arthur Raymond	Sriram Subramaniam	Fredrick Wicker
Thomas Laundon	Joseph Myers	Kathie Raymond	Ellen Subramaniam	Cynthia Williams-Sigmon
Carol Laundon	Peter Nelson	Yongfu Ren	Heyman Sullivan	Craig Wilson
Joshua Layne	Stephen Newsome	Phillip Renfrow	Anna Sullivan	Suzanne Wilson
Lacey Layne	Kristine Newsome	Shannon Renfrow	Stephen Sumner	James Wilson
Thomas Lee	Stuart Nisbet	Victoria Rhoney	Julie Swann	Margaret Wilson
Julie Lee	Suzy Nisbet	Michael Rhoney	Zhuo Tan	Jeffrey Windland
Larry Lee	Sheila Oliva	Meredith Rhoney	George Tan	Timothy Winstead
Barbara Lee	Roberto Oliva	Ibrahim Richani	June Taylor	Marsha Winstead
Robert Leonard	William Pace	Kevin Ridings	Danita Taylor	Marybeth Winstead
Tanya Leonard	Carolyn Pace	Stephen Roberts	Robert Tesh	Lelon Winstead
Ruoting Li	Thomas Paisley	Linda Roberts	Kathy Tesh	Stephen Worth
Yi Liao	Constance Paisley	Roderick Robinson	Lawrence Thomas	Amy Worth
Paisan Limratanamongkol	Mark Panarusky	Mary Robinson	Susan Thomas	Shuohao Wu
Benjamin Lobo	Thomas Parker	Robert Rose	Alec Thomas	Samuel Wurst
Jennifer Lobo	David Parker	Michelle Rose	John Tinga	Kathleen Wynegar
Jiranut Loetamonphong	Christina Parker	Hal Routh	Nancy Tinga	Thomas Wynegar
Olivia Lowe	Edward Parnell	Donna Routh	Abdolhossein Tohidi	Tracy Y
Mary Louise Lowe	Cookie Parnell	Richard Roycroft	Shivendra Lohit Toleti	Kanishka Yadav
Otto Lowe	Anita Parrish	Jennifer Roycroft	Clarence Trexler	Masahiro Yamakawa
Roderick Ma	Jason Parrish	Gibson Russell	Juli Trexler	Barbara Yopp
John Mackie	Laura Paschall	Tiffany Sargent	Wen-Ta Tseng	Robert Young
Susan Mackie	Jesse Paschall	Bharath Sarvasetty	Andrea Tseng	Xiping Zhang
Anagha Malur	Deepal Patel	Kelly Schlenker	Christine Tye-Coleman	Jianlei Zhang
Achut Malur	Rorik Patel	Brian Schlenker	Victor Unda Vila	
Emed Martin	Michael Patrick	Karl Schuchard	Wanda Urbanska	
Louis Martin- Vega	Regina Patrick	Gauravkumar Shah	Mark Van Malssen	
Robert Marx	Melinda Patterson	Paul Sheaffer	Karen Vance	
Charlene Marx	Jennifer Paul	Riddhiman Sherlekar	Todd Vance	
Spencer Matthews	Devon Person	Boyce Sherrill	Brian Vanover	
Heather Matthews	Thomas Phillips	Laurie Sherrill	David Verchick	
Scott Matthews	Joyce Phillips	Rohan Shirwaiker	Julie Verchick	
Richard McCall	Catherine Phillips	Laulak Siddique	Curt Verchick	
Amy McCall	Teri Phipps	Yvonne Siddique	John Vodicka	
Brandon McConnell	Louis Pikula	William Sigmon	Sheree Vodicka	
Gary McCray	Janet Pikula	Devon Simmonds	James Walden	

# ADVISORY BOARD 2024

Board Chair's Notes - October 2024



If you are reading this, you may know the relevance of the strong ISE education you obtained at NC State. The program seeks to give students the vital skills to positively contribute to their place of work and society in general. Being more productive while reducing costs and waste has been the hallmarks of our discipline. Using the breadth of our skill set has enabled us to be flexible in meeting the changing challenges of our organizations, the markets and our planet.

An additional hallmark of NC State ISE graduates is the enthusiasm they bring to support the program. I am fortunate to serve on the advisory board with a group of truly amazing folks who spend their time helping the department in many ways. I encourage you to look at the bios of these board members to see the depth, breadth and diversity that this group brings to the department.

I would also like to call out the students in the ISE Ambassador Program. These students help recruit new students to the ISE Program and provide student-level feedback to the faculty and Dr. Swann. As the department seeks to increase awareness of the ISE program so that incoming students can meet our growth objectives, these ambassadors are a vital cog in making it happen. As an advisory board member, we thank them for their time and enthusiasm.

Also, we are blessed with ISE alums who volunteer to help the program. The types of volunteering vary from judging senior design projects to career mentoring, mock interviews, resume reviews, lecturing, research support, facilitating plant tours and providing internship opportunities. The students and faculty much appreciate the engagement of alums in these volunteering efforts. I encourage active engagement with the department and students to ensure NC State ISE remains one of the top ISE schools in the country.

I encourage all alums to send ideas to Dr. Swann on improving the program. She takes this feedback seriously! Finally, I welcome our new advisory board members and thank our departing members, Juli Trexler and Stuart Nisbet.

The ISE Department receives valuable input from its advisory board. The board maintains and fosters relationships with students, faculty, the Dean of the College of Engineering, the community and alumni. The advisory board meets each semester.

## Jeffrey Johnson

BSIE, NC State 1978  
ISE Distinguished Alumni 2017  
Owner of JWWJ Energy



**Sheila Benny**  
BSIE, NC State 1990  
ISE Distinguished Alumni 2021  
President at Oprtricity Corporation



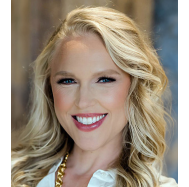
**Tony Blevins**  
BSIE, NC State 1989  
ISE Distinguished Alumni 2018  
VP of Procurement at Apple, Inc.



**Neil Brittain**  
BSIE, NC State 1994  
Senior Director, Human Resources at Gilead Sciences



**Damon Butler**  
BSIE, NC State 2002  
President at Triangle Blvd  
President at Intelligency



**Lisa Cook**  
BSIE, NC State 2013  
Enterprise Data Management Executive



**Tracy Doaks**  
BSIE, NC State 1995  
ISE Distinguished Alumni 2016  
President and CEO of MCNC



**Candance Gingles**  
BSIE, NC State 1987  
Director of Quality Engineering at Pfizer



**Paul Griffin**  
Ph.D. IE, Texas A&M  
Director of the Substance Use and Addiction Consortium



**Tao Hong**  
Ph.D., NC State 2010  
ISE Outstanding Young Alumni 2022  
Distinguished Professor, UNCC



**Angela Lanning**  
BSIE, NC State 1992  
COO, Premier's Informatics and Technology Services Group



**Tim McMahon**  
BSIE, NC State 1986  
Managing Director, Accenture



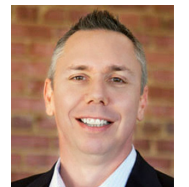
**Tammy Montgomery**  
MIMSE, NC State 2011  
Specialist Master, Deloitte



**Patrick Murray**  
BSIE, NC State 1988  
Director, Global Consumer Sales Development, Intel Corporation (Retired)



**Keith Nichols**  
BSFMM, NC State 1991  
ISE Distinguished Alumni 2023  
VP, Century Furniture



**David Parker**  
MSM, NC State 1996  
Co-founder and CEO of Dexios  
Co-founder and CEO of ServeMore



**Devon Person**  
BSIE, NC State 2010  
ISE Outstanding Young Alumni 2021  
VP of Supply Chain at Hanesbrand



**Rich Rosselle**  
MBA, NC State 2013  
ISG Global Supply Chain Strategy Director at Lenovo



**Natalia Summerville**  
Ph.D., NC State 2012  
Data Science Director, Memorial Sloan Kettering Cancer Center



**Anita Vila-Parrish**  
Ph.D., NC State 2010  
ISE Outstanding Young Alumni 2022  
Sr. Manager of Product at Amazon Pharmacy

**Jeff Johnson**, BSIE 1978

# ALUMMS UNITE!

In 2015, the ISE Department started a private, alumni-only LinkedIn group to give ISE, OR, IMSE, EO, FFM and MEM students, alums, faculty and staff a place to communicate and keep up with what is going on with the programs.

Over the years, it has grown to almost 1500 members who are:

- Networking with each other
- Posting job opportunities for their fellow alums
- Sharing work and personal success stories
- Asking work and school-related questions
- Asking for and sharing career advice

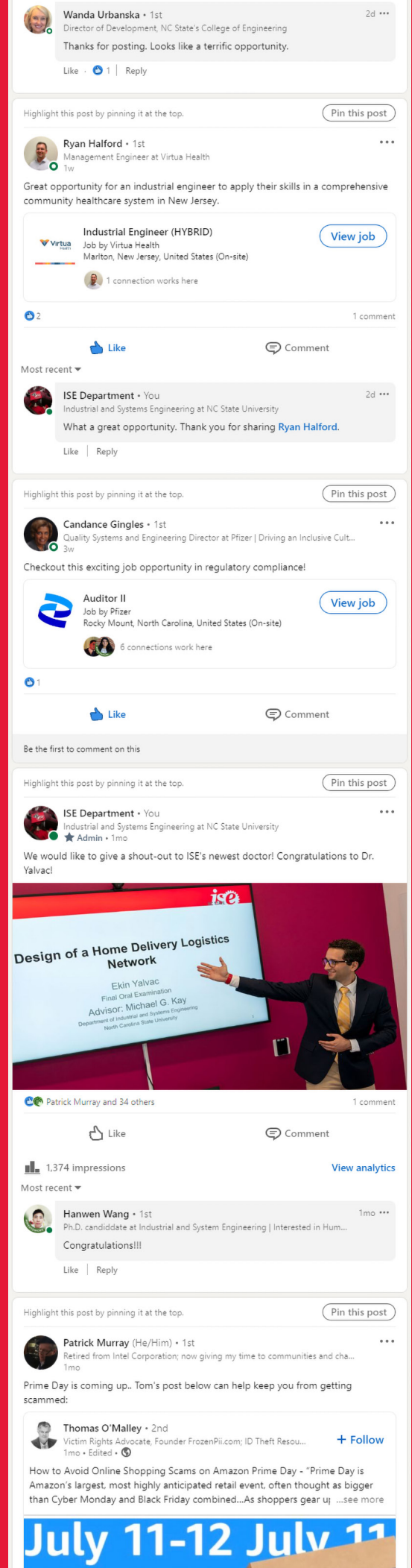
## ARE YOU A MEMBER?

If you are an alum, student, faculty member or staff member who has yet to join the group and would like to take advantage of the benefits that the group provides, visit <https://www.linkedin.com/groups/8285397/> and click on the **JOIN** button. Once we quickly verify each request, you are ready to start.



## ARE YOU A FRIEND OR PARTNER OF THE PROGRAMS?

First, thanks for your support. Second, we would love to have you as a member of our ISE LinkedIn page, <https://www.linkedin.com/school/9403353/>. Click the **FOLLOW** button in the upper right-hand corner, and you are in. No approval is needed.



July 11-12 July 11



North Carolina State University  
Campus Box 7906  
Raleigh, NC 27695-7906  
[www.ise.ncsu.edu](http://www.ise.ncsu.edu)



[facebook.com/NCStateISE](https://facebook.com/NCStateISE)



[@ncstateise](https://instagram.com/ncstateise)



[@NCStateISE](https://twitter.com/NCStateISE)



[go.ncsu.edu/ISELinkedIn](https://go.ncsu.edu/ISELinkedIn)



[youtube.com/ncstateise](https://youtube.com/ncstateise)

NONPROFIT ORG.  
U.S. POSTAGE

**PAID**

RALEIGH, NC  
PERMIT NO. 2353



The student team meets with you to discuss the scope and details of your project



The students work in your facility to gather data and assess the situation



They present their solutions to key personnel within your organization

## Is your company missing a golden opportunity?

Savvy companies are always looking to do more with less and maximize opportunities. Whether that is cutting costs, streamlining processes or ramping up production to meet demand, many of these innovative companies turn to invest in a senior design project to solve these challenges.

The NC State Industrial and Systems Engineering (ISE) Senior Design Program is an opportunity to complete a short-term project — perhaps a project sitting on the shelf or something that needs skills that are not available inside your organization. Sponsoring a senior design project is nothing but beneficial to your company.

This program is only possible because of your sponsorship. While there is a nominal cost to participate in senior design, it is minuscule compared to the cost benefits you receive from the project while also having access to our best students and faculty members. So, why are you waiting?

**Let's get started!**

[go.ncsu.edu/ISESeniorDesign](https://go.ncsu.edu/ISESeniorDesign)