

OKLAHOMA STATE UNIVERSITY

SCHOOL OF INDUSTRIAL ENGINEERING AND MANAGEMENT

College of
Engineering, Architecture and Technology

COWBOY CONNECTIONS

SPRING 2022



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Dr. Sunderesh S. Heragu
School Head
Regents Professor and
Humphreys Chair



Dr. Farzad Yousefian
Undergraduate
Program Director
Associate Professor



Dr. Tieming Liu
Graduate Program
Director
Associate Professor

Dear members of the IEM family,

I am writing to let you know that I will be taking the Associate Dean of Academic Affairs position in the College of Engineering, Architecture and Technology at Oklahoma State University, effective July 1st.

I have served in my role as Head of the School of Industrial Engineering and Management since August 2013 for nine years and would like to take this opportunity to look back and note the several major accomplishments we have achieved together, in large part due to your enthusiasm, involvement, and participation.

- **Rankings:** We have significantly improved our rankings in the public graduate programs in industrial/manufacturing systems category from the low 30's in 2013 to the low 20's. We were ranked #22 last year. Our online MS ETM program is ranked #12 among public universities and #17 overall!
- **Enrollment and Degrees granted:** We have significantly increased enrollment in the undergraduate program from 125 in 2012 to a peak of 209 in 2019. Our numbers have since dropped to a low of 148. However, the number of degrees granted has increased from about 25 to an average of 45 in the past three years.
- **Diversity metrics:** For two years in a row, we had more women than men in our freshmen class. IEM has hired a diverse pool of faculty over the past eight years, including women and minority.
- **Floor renovation:** IEM's home has been completely refurbished and our footprint has expanded by 40%. IEM now occupies the entire third floor of Engineering North with state of the art classrooms, meeting spaces, offices, and lounges.
- **Student placement:** IEM students are sought after by a variety of industries and companies ranging from Amazon, Apple, Applied Materials, ArcBest, Boeing, ConocoPhillips, Dell, Delta, Devon Energy, Dish Network, Disney, DHL, ExxonMobil, FedEx, Home Depot, JB Hunt, Koch Industries, Microsoft, Netflix, Nordam, Southwest, Tesla, Textron Aviation, Walmart, to Webco, and many, many others.
- **Accreditation:** Our program was successfully reaccredited in 2016 and is very likely to be reaccredited again this summer.
- **Endowment:** Our endowment which was \$2 million is now at \$7 million, including estate gifts. Two new endowed chairs were created.
- **Scholarship:** Ten new scholarships were created. IEM awards approximately \$50,000 in scholarships each year.

- **Faculty Hiring:** IEM has hired 15 new faculty in the past nine years. Three of those have been promoted to Associate Professor. Two more Associate Professors were promoted to Professor.
- **Research Grants:** IEM faculty have garnered one AFOSR grant, one DoE grant, one NIH grant, two ONR grants, seven NSF grants, and an additional three NSF CAREER grants.
- **Scholarship:** IEM faculty publish in some of the best journals in the field.
- **Awards:** Our alumni, faculty, staff, and students, have won several awards internally within CEAT and OSU and externally in IISE and INFORMS.

Despite all these significant accomplishments, there is more work to do. Our graduate student population has declined and needs to be strengthened. Research expenditures need to keep pace with the other schools in CEAT. Endowments need to get closer to our \$20 million goal.

I have gotten to know many of you professionally and personally and I will always cherish that relationship.

It is amazing to see the continued commitment of our alumni towards their alma mater. You have invested your time, effort, and money to advance IEM. Your support in the renovation of IEM's home, scholarships, and endowed professorships have been instrumental in transforming the student experience.

IEM faculty work hard day in and day out, always putting our students first. Before COVID, during COVID, and post COVID, they have shown through their work how much they care about our students. For many of our faculty, it is not a job, but a cause they are pursuing - to educate the next generation of engineers and leaders.

The emeriti faculty have played a major role in the success of our school in the past, but they continue to offer their advice, wisdom, time, and talent when it is needed most. I have benefitted in my job in large part because of what you have done in the past and what you continue to do.

IEM staff is among the best I have seen in the 34 years I have spent in higher ed in four universities. Our staff works efficiently and effectively to ensure the needs of all other constituencies are met, is the invisible hand that plays a critical role largely out of the limelight, but always with a smile.

Our students remind us all why we chose this profession and make us proud each and every day, They are the leaders of tomorrow and I will be waiting to see and cheer as they accomplish big things in their lives to make the world a more peaceful and prosperous place for humankind.

In closing, let me say that I am very fortunate to have been a small part of the 100-year journey of IEM and look forward to watching IEM advance and change the world for the better for the next several generations.

Go Pokes!

Sunderesh

IEM Mission, Vision, and Goals

Vision

To inspire and empower our students to become leaders in a wide variety of industries, improve the quality of life for humankind, and change the world for the better, by making societal systems diverse, effective, efficient, and sustainable.

Mission

Continuously and aggressively advance educational and research processes which will attract students who fulfill our vision.

Educational Goal

Continue to improve, monitor, and enhance the student recruitment, learning, graduation, and placement processes to produce leaders proficient in theoretical, applied, and technology relevant concepts and practices that have a global reach and global impact.

Research Goal

Engage in cutting edge research of global importance to produce innovators and next generation engineering, education, and societal leaders.

Outreach Goal

Actively engage in community projects, economic development and service for the greater good. Enhance IEM's image internally within CEAT and OSU, and externally - the world at large.

Diversity Goal

Ensure that all school activities promote a diverse, achievement driven and gifted student experience. Administer programs to recognize the diverse challenges of each identity group and improve the retention rate from admission to graduation.

The Next Five Generations

IEM has been fortunate to have had the resources and the support that have made it possible to recruit, train, and produce leaders in our society. To benefit the next five generations, we launched a \$20 million by 2020 campaign in December 2014 and have made good progress toward that goal. From \$2.4 million in Fall 2013, our endowments (including deferred gifts) have risen to \$8 million. The remaining \$12 million must be raised in the next few years. The School of Industrial Engineering and Management looks to alumni and friends, like you, who make the next steps in our innovative future possible. We appreciate every donation, big or small, that supports our school. However, we have listed below several priorities for you to make the most impact.

Study Abroad Scholarship | \$2,000 per student
Scholarships can be awarded to up to 12 students

Annual contribution to two IEM billboards | \$15,000 per year

Sponsorship of IEM networking events | \$25,000

Annual sponsorship of student travel | \$40,000
IISE conferences, INFORMS conferences, commencement lunches, IAB-student luncheons and IEM reception at annual IISE meeting

Annual sponsorship of the weekly seminar series with a naming opportunity | \$75,000

Endowing a professorship | \$500,000

Endowing a chaired professorship | \$1,000,000

Naming and endowing opportunity of IEM | \$8,500,000

If you wish to donate, please send a check payable to the “Industrial Engineering and Management Excellence Fund” at Oklahoma State University, 354 Engineering North, Stillwater, OK 74078 or make a gift online by clicking the GIVE button at ceat.okstate.edu/iem.

For more information please contact
Bryce Killingsworth – Associate Development Director

Office: 405-385-5623

Cell: 405-385-3497

Email: bkillingsworth@osugiving.com

Student Spotlight



Sam Koscelny

Undergraduate Student

Sam Koscelny is a senior from Owasso, Oklahoma, pursuing his undergrad in Industrial Engineering and Management with minors in Data Analytics and Spanish. In his free time, Sam enjoys playing guitar, exercising, camping, and traveling.

He is currently serving as the IISE President and contributed to the hosting of the 2022 IISE South Central Regional Conference at Oklahoma State University where over 100 students and professionals attended. Furthermore, he works in the Human-Systems Engineering and Applied Statistics (HSEAS) Lab and conducts human factors engineering research. With his lab group, he will present this research at the IISE Annual Conference in Seattle, Washington in May before his summer internship at Koch Industries as a Product Manager.

After graduation, Sam will study abroad in Valencia, Spain at the Universitat de València in the Fall of 2022 before beginning his master's at Clemson University in Industrial Engineering in the Spring of 2023.

“It's the possibility of having a dream come true that makes life interesting.” – Paulo Coelho, *The Alchemist*

Student Spotlight



Kylie Dowers

Undergraduate Student

Kylie Dowers is a senior in Industrial Engineering and Management from Edmond, Oklahoma. She is the daughter of Shawn and Julie Dowers. Kylie is a member of Tau Beta Pi, the Institute of Industrial Engineers, and CEAT Student Council. She also serves on the academic integrity board and as president of Alpha Pi Mu. Kylie was named a Senior of Significance by the OSU Alumni Association. In her free time, she enjoys going on walks outside and hanging out with her friends and family. After graduating in May, she will continue at Oklahoma State in the IEM graduate school program. She hopes to work in healthcare and apply human factors designs to the industry.

“Spread love everywhere you go.” – Mother Teresa



Joshua Pearce

MS ETM Student

Joshua Pearce currently serves as the Chief Information Officer for Deer Creek Public Schools, a large K-12 school district located in Edmond, Oklahoma. He has over 20 years of experience in IT in public education. He currently possesses a Bachelor’s Degree in Organizational Leadership from the University of Central Oklahoma. He will be completing his Master’s Degree in Engineering and Technology Management with a Graduate Certificate in Information Assurance in May of 2022 from Oklahoma State University, joining his wife, Dawn, and children, Alyssa and Andrew, as proud alumni of OSU.

“Any sufficiently advanced technology is indistinguishable from magic.” – Arthur C. Clarke

Student Spotlight



Kushal Shah

Master's Student

Kushal Shah is a graduate student in Industrial Engineering and Business Analytics and Data Science at Oklahoma State University. He is currently working as a Data Science Intern at Tesla. He previously served as a president of APICS OSU chapter and is a member of IISE, INFORMS and Alpha Pi Mu. He is from Gujarat, India and he completed his Bachelor's degree in India. After his graduation in Spring, he will be joining Walmart as a Senior Data Scientist in Sunnyvale, California.

“The way I see it, if you want the rainbow, you gotta put up with the rain.” – Dolly Parton



Jianxin Xie

Doctoral Student

Jianxin Xie was born in Xinyu, a small but quaint town in China. She received her B.S. degree from Southeast University, China, and her M.S. degree from Florida State University, USA. She is currently pursuing a Ph.D. with the School of Industrial Engineering and Management, Oklahoma State University. Her current research interests lie in advanced data analytics, data mining, and physical-statistical modeling with healthcare applications. Aside from her research and course work duties, she also serves as Vice President/Treasurer for the INFORMS student chapter. In her free time, she enjoys playing piano, K-pop dance, photography, board game, and of course, watching Netflix.

Upon completion of her PhD, she plans to find her future career in academia. She has always liked the idea of being a university professor, since she will be not only able to devote herself into developing algorithms that can potentially advance the industry, but also cultivate new generations of researchers and engineers. Another big plan is to have a dog and a cat.

“Don't let others define you. You define yourself.” – Ginni Rometty

Student Spotlight



Niloufar Daemi

Doctoral Student

Niloufar Daemi is a PhD student from Iran who joined OSU in Fall 2018. She was the president of the INFORMS student chapter at OSU in 2020. Before coming to OSU, Niloufar earned her Bachelor's and Master's degree in Industrial Engineering in Iran and after working as an industrial engineer for two years, her passion to learn led her to travel to the United States to start her PhD.

Currently, Niloufar is an intern working with Operations Research team at BNSF Railway company in Fort Worth, TX. She plans to graduate in Fall 2022 and work as an Operation Research analyst where she can propose and lead optimization projects.

In her free time, Niloufar loves reading novels and is especially fascinated by the magical realism genre. She is also passionate about traveling while exploring different cultures.

“However difficult life may seem, there is always something you can do and succeed at.” – Stephen Hawking

New Students

We look forward to getting to know all of you and helping you on your way to becoming successful industrial engineers!

BS IEM

Salwa Alfuraih
Jeremy Cook
Alex Leon-Uscanga
Banner Penwell
Makayla Reed
Noah Ropp
Steven Ryckley
Lindsay Sanford
Seth Thibodeau
Zoe Ward

MS IEM

Ayokinle Adu
Haripriya Hosur
Varun Joshi
Bala Jithender Kakumanu
Lakshmi Ganesh Kancharla
Thanmai Nalajala
Siddhesh Pathak
Aditya Rane
Emmanuel Yanyue

MS ETM

Abrha Amare
Jared Archuleta
Vedant Bhadane
Cash Billups
Felicia Long
Jeffrey Pollard

PhD IEM

Parisa Vaghfi Mohebbi
Ziyang Zhang

Graduates

We would like to congratulate the following IEM students for their hard work and dedication in completing their degrees in Summer and Fall 2021.

BS IEM

Abduallah Alajmi
Ghazy Alatteer
Abdalah Alkdeefy
Dalal Almusbahi
Ali Ashkanani
Moraad Bilbeisi
Bailey Bretz
Christopher Collin Browning
Amrit Chugani
Kaiser Cleburn
Austin Douglass
Matthew Edgeller
Jackson Fife
Margaret Goodin
Maryam Husain
Manas Kakade
Nicholas Loy
Madison Ohman
Kaylyn Wells
Abbie Winchester

ETM Certificate

Brooks Dow

MS ETM

Brandon Alexander
Patrick Alland

Courtney Baukal
Portel Bellamy
Dejanae Berry
Matthew Curran
Bolton Ferda
Jonathan Girod
Mark Ivey
Nicholas Jayjock
Katey Luster
Justin Pascoe
Eric Poythress
Cecilia Margarita Prado
John Mark Price
Vignesh Raghuraman
Stephanie Shaulis Garrett
Brenda Shumate
Bennett Stuppy
Kathryn Szmegalski

MS IEM

Elizabeth Bunting
Lei Qiao
Jayesh Yevale

PhD IEM

Harshal Kaushik
Mohammad Javad Naderi
Hao Pan

Industrial Advisory Board

Hello OSU IEM Family!

The Industry Advisory Board (IAB) is dedicated to supporting IEM through participation in the accreditation process, helping our curriculum meet the current needs and trends of industry, and mentoring students and senior design projects. In February, we held our Spring meeting in Stillwater and spent time with students and faculty. After getting great feedback from the students last year, we turned our focus to the faculty and their perspective of the department. During our faculty social, we talked about:

- Engagement of the students and faculty
- Curriculum updates and alignment with industry needs
- Explored opportunities for IEM and other Alumni to support current research and teaching

It's always good to return to Stillwater, especially when we get to see the great progress the department is making towards our strategic plan. We met with Dean Tikalsky and Dr. Heragu, enjoyed a lunch with students, and joined the senior design presentations. We recognized three Board members retiring from the board, Ashley Estes, Stephanie Royce, and Jack Watts, for their contributions to the Industry Advisory Board. We also elected a new Vice-Chair, Zach Roberts, who will serve in that capacity for two years, before assuming the role of Chair.

With the retirement of three board members, we are looking to add new members to the IAB in the Fall of 2022. If you or someone you know is interested, please reach out to Zach Roberts: zach.roberts@jbhunt.com.

With warm regards,

The OSU IEM Industrial Advisory Board

IAB Members

Brian Adams
Textron Aviation

Kevin Doeksen
American Airlines

Ashley Estes
Great Plains Manufacturing

Michael Foss
CoachFossLLC

Jack Goertz
Tandems, Ltd

Frank Groenteman
TMAC

Steve Kiestler
Bell Flight

Mark Lewis
PwC

Ed Pohl
University of Arkansas

Zach Roberts
J.B. Hunt Transport Inc.

Stephanie Royce
Oklahoma State University

Tom Saunders
Pioneer Natural Resources

Brenda Shumate
DCP Midstream

Jack Watts
Portola Company

IAB Spotlight: Zach Roberts



Zach Roberts has served on the Industrial Advisory Board since 2019. He graduated from Oklahoma State University with an Industrial Engineering & Management degree in 2013 and has worked for J.B. Hunt Transport since. As a Logistics Engineer Zach helped develop and enhance many of the metrics that are used to manage and monitor performance in the company's Intermodal division. Zach is currently working in Northwest Arkansas as the Director of the Temperature Controlled Intermodal division at J.B. Hunt. He has a strong desire to help students get ready for their careers and looks forward to volunteering as a Sr Design mentor each year. He has served as the Outreach Committee Chair since 2020 and will be transitioning to Vice Chair Fall of 2022. Outside of work and the IAB Zach loves spending time mountain biking, golfing and hanging out with his wife, Mallori, and daughter, Hadley.

Scholarships & Endowed Professorships

Endowed undergraduate scholarships provide the foundation for excellence and growth of our program. They offer the ability to fund undergraduate students and their enrichment activities with certainty, a critical element in our strategic plan to improve the student experience and create impact. Undergraduate and graduate scholarships provide the opportunity to recruit and retain top student talent.

Undergraduate Scholarships

- Braun Engineering Scholarship
- William L. Cain Industrial Engineering Endowed Scholarship
- Ken and Lynn Case Scholarship
- Robert G. Herod Endowed Engineering Scholarship
- Ron and Diana Orr Endowed Scholarship
- Kent and Sheryl Powers Endowed Scholarship in Industrial Engineering and Management
- Cynthia Renee Travis Endowed Scholarship
- The Cowboy Academy Leadership Endowed Scholarship
- Woodson Family Trust Scholarship
- S.D. and B.W. Yeigh Scholarship for Women in Engineering

Graduate Scholarships

- Leland Blank '70 and Sallie Sheppard Graduate Fellowship in Industrial Engineering and Management
- Lynn E. Bussey Scholarship

Scholarships & Endowed Professorships

Endowed Chairs & Professorships

Endowed Chairs and Professorships provide perpetual funding to attract and retain the highest-quality faculty with the best minds, the most-creative researchers and the most-engaged teachers with national and international recognition. The recognition honors outstanding, distinguished and influential professors who inspire, enhance, and challenge students for greater learning. These endowed positions provide crucial support for scholarly and research pursuits which, in turn, raises the quality, recognition, and reputation of Oklahoma State University.

Endowed Chair

- Donald and Cathey Humphreys Chair in Industrial Engineering and Management

Endowed Professorship

- Wilson Bentley Professorship in Industrial Engineering and Management

Legacy Gifts for Endowed Chairs & Professorships

Legacy gifts for Endowed Chairs and Professorships enable donors to create a powerful philanthropic legacy by making estate gifts towards the hiring and retention of world class faculty in the School of Industrial Engineering and Management for years to come. These endowed positions are crucial for recruiting and retaining the highest-quality faculty with the best minds, the most-creative researchers and the most-engaged teachers with national and international recognition.

Endowed Chair

- Ken and Lynn Case Endowed Chair in Industrial Engineering and Management
- Jack L. and Susan D. Goertz Chair in Engineering

Endowed Professorship

- Rick and Sandra Webb Endowed Professorship in Industrial Engineering and Management

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SCHOOL OF
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AND MANAGEMENT**
College of Engineering, Architecture and Technology

Awards and Honors



Sarah Bishop
*MHEFI Bastian Family
Scholarship*



Keaton Carter
*MHEFI Material
Handling Education
Foundation Honor
Scholarship*



Raegen Daigle
*MHEFI Protective
Guarding Manufactur-
ers Association Honor
Scholarship*



Alie Lory
*Lynn E. Bussey
Scholarship*



Josh Linholm
*MHEFI The Robotics
Group Honor Schol-
arship*



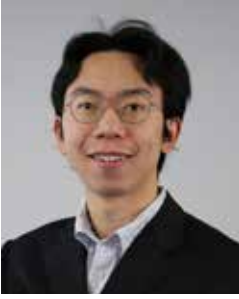
Sam Koscelny
*IISE James W Barany
Student Award for
Excellence*



Emma Wilson
*MHEFI Conveyor &
Sortation Systems
Honor Scholarship*

*Bailey Family Memorial
Scholarship*

*CEAT Saint Patrick's
Award*



Zhangyue Shi
*To be published in
Journal of Intelligent
Manufacturing*

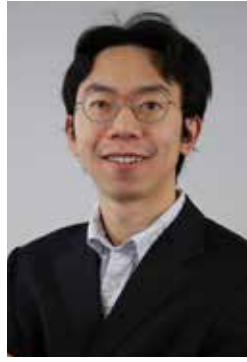


Niloufar Daemi
*Published in INFORMS
Journal on Optimiza-
tion*

CEAT Awards



Sam Koscelny
*Industrial Engineering
and Management
Outstanding Senior
Student*



Zhangyue Shi
*Industrial Engineering
and Management
Outstanding Graduate
Student*



Dr. Manjunath Kamath
*CEAT Excellent Teach-
er Award*

Remembrance

We are saddened to announce the passing of M.S. IEM alumnus, G. Lowrance Hodge. Lowrance retired from the U.S. Naval Reserve in 1987 with the rank of Captain after four years Active Duty and 28 years as a “Weekend Warrior”. His civilian career included the Ethyl Corporation, Dow Chemical, and several years as a Director in Management Services for the accounting firm of Arthur Young and Company. Later, he was the Senior Vice President of Manufacturing Operations and Engineering for Mary Kay Inc. until his retirement in 1997.

IISE Honors



Ian Giese
*IISE Outstanding Early
Career IE in Business/
Industry Award*



Dr. Sunderesh Heragu
*IISE Fred C. Crane
Distinguished Service
Award*



Steve Kiester
IISE Fellow



Ayşe Doğan
*IISE Graduate Re-
search Award*



Kaustuvi Thapa
*1st Place, IISE South
Central Region Con-
ference Paper Presen-
tation*

Alumni Spotlight: Ian Giese

Tell us a little bit about yourself:

I grew up in Minnesota and graduated from Oklahoma State in December 2015 with a bachelor of science in IEM and a minor in Food Science. I currently live in Emporia, KS, where I will be starting a role as an Industrial Engineer III for Tyson Fresh Meats in April. I enjoy playing disc golf, riding my bicycle, and going to trivia, along with attending events hosted by the town. I am also the IISE Greater Kansas City Chapter President.



How has your IEM degree helped you?

My degree in IEM helped develop communication and problem solving skills that have been useful in every step of my career. I may not have encountered a career problem from every class in my degree, but every career problem I have encountered needed communication and problem solving that were needed to be successful in class.

What aspects of your OSU affiliation while you were a student stand out?

As an OSU student I was fortunate to participate in several organizations that provided opportunities in leadership roles. I was in the Residence Halls, Toastmasters, and most importantly, IISE. These organizations gave me a foundation for organization and working in groups for success, while also trying to bring together new events. My first opportunity was bringing the IISE Six Sigma Green Belt course to the University, which enrolled 50 participants the first year. This carried on to my professional career, as I organized an All-Kansas Conference that brought together the two professional and two student chapters of the state in the central location of Emporia. These organizational leadership positions have been experience to lean on when working on project teams in industry.

What has motivated you to stay engaged with OSU, years after graduation?

I was raised to believe in giving back whenever possible. There were many people before me who contributed significantly to my success because they donated to the university or came back to provide mentorship. I believe carrying that tradition forward will provide opportunities for today's students to further the field of Industrial and Systems Engineering. To grow this opportunity further, we are founding an Early Career Alumni Council to fill the gaps between graduated students and the IAB and Cowboy Academy. We are looking forward to seeing where this

can lead to connections between alumni and the university in the near future.

What do you think the future holds for the IEM student?

The future is an open door of possibilities for an IEM student. The skills learned are transferable to any industry, because all of them are looking for the next way to run more efficiently and effectively. Attendees from the initial Early Career Alumni Council calls were all in different industries, from healthcare to manufacturing, logistics, warehousing, accounting, oil and gas, software, and some were in different fields within those industries. Companies today are looking for people who want to develop into a variety of areas so they have a broad understanding of the industry, and Industrial and Systems Engineering students are best suited to meet that challenge because of the broad range of topics they learn about in their degree.

List one or two highlights of your career:

In my most recent role, I had several amazing opportunities within the engineering team. I was able to help drive the production output of an existing line by 25% by analyzing the equipment and working with operations on the process flow. I also used the analysis of that line to provide input to the design of a new machine, which improved safety and ergonomics, reduced manpower and cycle time, and increased control of product quality.

Why is international exposure important for today's engineers? How would they benefit from availing of study abroad opportunities?

Today's engineers benefit from international exposure because of how interconnected the supply chain is and will become in the near future. By learning about new cultures now, today's engineers can understand the best way to communicate to each person or team they will be involved with in their work. It is rare for any product now to be made in a silo of a single location from start to finish. International exposure is also enriching in an engineer's personal life. I credit much of my personal development to experiences abroad that helped me break out of my comfort zone by communicating with people from the places I visited.

Recent Events



Tulsa Area Alumni Meet and Greet- Tulsa area IEM alumni recently gathered in the home of Mike and Carolyn Barlett for hors d'oeuvres and networking.



Highlights from the Bell Ringing during the Spring Industrial Advisory Board meeting.

New Faculty



Akash Deep will be receiving his Ph.D. from the Department of Industrial and Systems Engineering at the University of Wisconsin-Madison. He obtained his B.Tech degree in Production and Industrial Engineering from the Indian Institute of Technology Roorkee, India. He also has a M.S. in Statistics from the University of Wisconsin-Madison. His research broadly belongs to the realm of industrial data analytics, focusing specifically on methods for predictive analytics for intelligent maintenance, data-driven operations planning for production systems, and monitoring and anomaly detection of service processes. During his Ph.D., he has served as the lead researcher for several industry-sponsored projects. He is a recipient of the E. Wayne Kay Graduate Scholarship from the Society of Manufacturing Engineers (SME), the Vinod K. and J Gail Sahney Graduate Student Scholarship, and two summer scholarships from India and Germany. His work is published in several high-quality journals within quality, statistics, and reliability including ISE Transactions and IEEE Transactions.



Paritosh Ramanan is a Postdoctoral Fellow with the Georgia Institute of Technology in Atlanta, Georgia. He got his Ph.D. in Computational Science and Engineering with a Minor in Operational Research from the H. Milton Stewart School of Industrial and Systems Engineering at Georgia Institute of Technology in Atlanta, Georgia in 2020. In 2018, he was awarded the Sam Nunn Security Program Fellowship for research at the intersection of cybersecurity in critical infrastructure and public policy. Prior to his Ph.D., he earned a Masters in Computer Science from Georgia State University in Atlanta, Georgia in 2015 and obtained his Bachelors in Information Systems from Birla Institute of Technology and Science (BITS) Pilani in 2013. His research pertains to decentralized optimization, federated machine learning and analytics with a focus on computational performance, privacy and security in the context of distributed paradigms such as high-performance computing and blockchain.

Srikanthan Ramesh is a doctoral candidate in the Industrial and Mechanical Engineering Ph.D. program at the Rochester Institute of Technology, New York. As part of the Center for Additive Manufacturing and Multifunctional Printing, his research focuses on droplet- and extrusion-based additive manufacturing techniques including material development, process modeling, and inter-disciplinary mechanical and biomedical applications. His research interests include bio-additive manufacturing (bio-AM), tissue engineering, biomaterials, surface engineering of biomaterials, and process monitoring in bio-AM. His research efforts have been acknowledged through several awards, including the 2018 Research Excellence Award from Iowa State University, the 2018–19 Gilbreth Memorial Fellowship from the Institute of Industrial and Systems Engineers (IISE), and others. Before moving to New York, he received his M.S. in Industrial and Manufacturing Systems Engineering from Iowa State University and B.S. in Mechanical Engineering from Amrita University, India.



NSF CAREER Award



Dr. Juan Borrero, assistant professor in the School of Industrial Engineering and Management, received a CAREER award from National Science Foundation (NSF) in the amount of \$500,000.

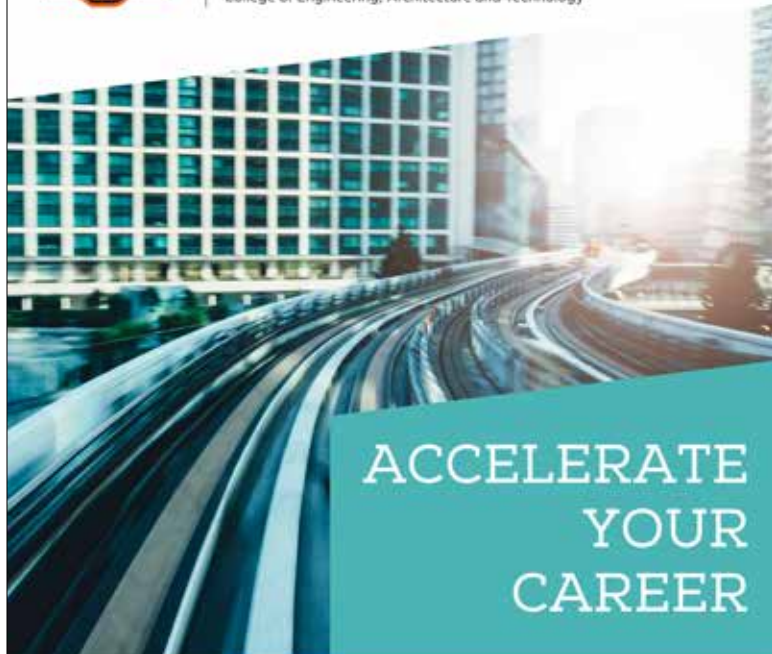
This Faculty Early Career Development Program (CAREER) grant supports research that will investigate theoretical and computational approaches to commit or defer problems with decision-making hierarchies. Problem settings in vaccine design, disaster response, and smuggling prevention, among others, involve decision-makers observing a system evolving over time who periodically decide whether to commit non-renewable resources, or defer their use, to optimize the system's overall performance. The evolution of the system is subject to randomness and its performance may depend on other decision makers, about whom there may be incomplete information, who seek to optimize their own performance. The research supported by this award seeks to determine what rules should guide commit or defer decisions in these settings, how and to what extent the decision-maker should use the information feedback observed, and how to computationally find the commit or defer decisions in specific problem settings. The educational activities include the creation of an online game to teach fundamentals of multistage decision-making to K-12 students.

Standard commit or defer problems (CDPs) assume a single decision-maker and cannot model problems that involve multiple decision-makers, e.g., a Leader and a Follower, who interact in a hierarchical manner. This project will establish a mathematical and algorithmic framework to solve hierarchical CDPs. The framework will improve our understanding of real-life CDPs and their practical requirements. The project will simultaneously address a number of technical challenges. First, the Leader may face global resource constraints, such that the resources spent in one period, cannot be replenished in future periods; second, the Leader's performance depends on the optimal actions of the Follower; and third, the Leader learns about the uncertain parameters of the Follower's problem by observing their reaction to the Leader's actions. By using approaches at the interface of hierarchical and online optimization, the project will rigorously establish the manner by which commit or defer decisions should be made in hierarchical settings under uncertainty. Furthermore, the project will use tools from mathematical programming and probability to uncover how and to what extent the decision-maker should use the information that is learned, and then formulate and solve for optimal or near optimal policies in large instances of relevant applications.



ENGINEERING AND TECHNOLOGY MANAGEMENT

College of Engineering, Architecture and Technology



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The Cowboy Academy

The Cowboy Academy Vision

For graduates to achieve their most valued and rewarding careers!

The Cowboy Academy has been busy. In December 2021, the TCA Board voted to use some of the TCA funds that have been collected to create The Cowboy Academy Leadership Endowed Scholarship, with an initial funding of \$50K. This endowment will provide a \$2,000 scholarship annually to the individual who best meets the criteria established by the TCA Board of Directors. We will be adding to this endowment each year, and as the endowment grows, we'll have more funds available to be awarded as scholarships. The Board believes this is an excellent use of the funds provided by the Academy members' annual contributions and will help the Academy meet its overall goals of improving the program.

How can each member of the Academy help? Simple, by getting involved! The TCA is an honors and service organization, and each member is invited to become more involved with the Academy. You can volunteer to help with one of our active committees by contacting the chair and volunteering. We also have standing committees to select the next class of inductees and for identifying the next slate of officers for the Board. We invite all TCA members to consider running for a board position. If interested, don't hesitate to let us know.

Our active committees are meeting regularly to discuss ways to enhance the IEM program at OSU. Below is a brief summary of each committee and their goals:

Center of Excellence – Chaired by Jon Womack (womack.jon@gmail.com). The COE is working hard to bring a closer relationship between the school and local industries. They are currently working with Sunderesh to add a faculty member – with TCA's help – to bridge the gap and also assist with the Senior Design Projects each semester.

Fundraising Committee – Chaired by Mike Bartlett (mike.bartlett.tulsa@gmail.com). The Fundraising Committee is working to bring in more contributions in support of the IEM program at OSU. Our immediate goal is to raise money for scholarships, and also to help IEM become an endowed, named department within the next five generations. If interested in the overall program, check it out on the IEM website at https://ceat.okstate.edu/iem/site_files/docs/the-next-five-generations.pdf.

Career Opportunities/Mentoring Committee – Chaired by Leva Swim (leva.swim@sbcglobal.net). This committee has developed a plan to link mentors to current students and recent graduates. A number of mentors have already been matched with current students, but more mentors are needed and will be welcomed.

External Visibility/Marketing Committee – Chaired by Greg Watson (greg@excellence.fi). This committee is charged with marketing the school to prospective students, both at the undergraduate and the graduate levels. They are working with a marketing intern to highlight the benefits to obtaining a degree in IEM from OSU.

Go Pokes!

Jack Goertz
President, The OSU Cowboy Academy

The Cowboy Academy

Board Members

Mike Bartlett
Leland Blank
Tom Britton
Brian Eaton
Jack Goertz
Jeff Greer
Frank Groenteman
Mitch Myers
Leva Swim
Gregory Watson
Stacie Wrobbel

Officers

Jack Goertz
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Jeff Greer
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Current Members

Syam Antony	Phil Farrington	Ron Orr
Jaxon Axtell	Chad Frye	Robert Paiva
Tony Bacher	Kerry Gannaway	Kent Powers
Paul Baker	Jack Goertz	David Pratt
Michael Bartlett	Jeff Greer	Dan Rao
Terrance Beaumariage	Frank Groenteman	Stephanie Royce
Derek Blackshare	John Harrington	Allen Schuermann
Leland Blank	Dave Hartmann	James Selman
David Boyer	Gary Hogsett	Mark Semkoff
Shay Braun	Don Humphreys	Brenda Shumate
Thomas Britton	Cem Karacal	Ting Nee Su
Neal Buck	Stuart Keeton	Jill Swift
Denny Carreker	Behrokh Khoshnevis	Leva Swim
Kenneth Case	Steve Kiester	Lyndon Taylor
Geoff Clarke	William Kolarik	Silvanus Udoka
Samuel Combs	David Kyle	Channarong Vinyangkoon
Megan Crozier	John Lewis	Gregory Watson
Jerry Dechert	Rasaratnam Logendran	Randy Watson
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Bill Dueuease	Jeff McKnight	Lawrence Whitman
Laura Raiman DuPont	Joe Mize	Marion Williams
Laura Easley	Alejandro Moronta	Nancy Winchester
Brian Eaton	Mitch Myers	Jon Womack
John English	Guat Mei Ng	Eric Woodroof
Wolter Fabrycky	David Nittler	Stacie Wrobbel

Seminar Series

The School of Industrial Engineering and Management in conjunction with the OSU INFORMS Student Chapter sponsors a Seminar Series in the fall and spring semesters. Various topics are covered by speakers from OSU and other organizations. The seminars were held on Wednesdays from 2:30-3:30 p.m. during the spring semester and seminars were a mix of in-person and virtual. Listed below are the seminars we held this semester:

Date	Speaker/Institution	Title
3/9	Dr. Robert Curry, United States Naval Academy	Decomposition Methods for Solving Large-scale Dynamic Network Flow Optimization Problems
3/23	Dr. Linda Ng Boyle, University of Washington	Assessing Operator Performance in Cars: Implications for Automated Vehicles
3/30	Dr. Esra Akbas, Oklahoma State University	Graph Processing: From Algorithms to Applications
4/20	Dr. Kylie Gomes, MedStar Health National Center for Human Factors in Healthcare	Patient Safety Risks during On-Demand Telehealth Referrals and Implications for Human Factors Research
4/27	Dr. Dionne Aleman, University of Toronto	Prediction of Severe COVID-19 Infection at the Time of Testing: A Machine Learning Approach

US News Rankings

US News and World Report has once again recognized the outstanding quality of IEM's programs.

The online graduate MS ETM was ranked #12 among public universities for Online Master's in Engineering Management

US News also ranked IEM #25 among graduate programs in industrial/manufacturing/systems among public universities.

Student Chapters

The Institute of Industrial and Systems Engineers

The Institute of Industrial and Systems Engineers (IISE) has had an extremely successful Spring semester! Our organization is a global association committed to connecting students and professionals in the Industrial and Systems Engineering field. No better way to exemplify this commitment to professional development than the chapter's successful hosting of the 2022 IISE South Central Regional Conference. The IISE Chapter at Oklahoma State University had the great opportunity to host this conference from Thursday, February 25-Saturday, February 26. With an attendance of over 100 Industrial Engineering students and faculty members from the University of Oklahoma, University of Missouri, Texas A&M University, Kansas State University, Wichita State University, University of Texas at Arlington, and Oklahoma State University, this event was an incredible example of the strong commitment to excellence the IISE Chapter at Oklahoma State University maintains.

A special thanks goes out to the generous financial supporters of the conference. These include Phillips 66, ConocoPhillips, Webco, Scott and Beatrice Sink, the College of Engineering, Architecture and Technology, and the IEM Department.

While programming for the conference was IISE's main priority this academic year, it is not all we had been doing. From April 8-10, the IISE Chapter virtually hosted the IISE Six Sigma Green Belt Certification Course with undergraduate and graduate attendees in the IEM Department. Additionally, the chapter is planning an IISE Pizza and Hangout event in late April to celebrate a tremendous academic year for the chapter. This event will be open to all IEM students and faculty and will serve to engage and impact the students within the department.

After all of the disappointments of 2020-2021, the IISE Chapter officers are proud to say we made a positive impact during the 2021-2022 academic year and believe we are leaving this chapter in a strong and capable position for the future leadership of this chapter for years to come. At this moment, we would like to recognize the students who have worked so hard to continue the tradition of excellence within our organization. The officers this academic year are:

- Sam Koscelny, President
- Kylie Dowers, Vice President
- Emma Wilson, Conference Chair
- Jay Eischen, Treasurer
- Ainsley Kyle, Secretary
- Kent Slater, Events Chair
- Chloe Jones, Recruiting Chair
- Raegen Daigle, Mentorship Chair
- Brenna Rodgers, Merchandise Chair
- Sarah Bishop, Social Chair
- Marco Pina, Communications Chair
- David Schwartz, CEAT Student Council Representative

Faculty Advisor: Dr. Chenang Liu

If you would like more information about IISE or want to become a member, please email Sam Koscelny at sam.koscelny@okstate.edu.

Student Chapters

Association for Supply Chain Management

The ASCM OSU Student Chapter, formerly known as APICS, aims to provide a learning environment for new supply chain enthusiasts on multiple supply chain operations and management topics. Our goal is to encourage developing expertise within supply chain management, certifications and provide networking opportunities that will create a bridge between academics and the supply chain industrial work environment.

The officers for the 2021-2022 academic year are:

- Prayash Bhattarai, President
- Adwait Chabukswar, Vice President
- Shweta Subramaniam, Secretary-cum-treasurer

Faculty Advisor: Dr. Tieming Liu

Student Chapters

Alpha Pi Mu Industrial Engineering Honor Society

Alpha Pi Mu is an honors society that aims to recognize IEM students that have achieved academic excellence. It holds scholarly activities and fosters an atmosphere to facilitate social interactions between students and faculty. Alpha Pi Mu offers scholarships, volunteer events, and networking opportunities. Members consist of juniors, seniors, and graduate students that have met the academic requirements.

This year, we held in-person initiation in the fall for the first time since the pandemic and welcomed 17 new members. Initiation for the spring is currently being planned. Two new incoming officers are aiding in planning initiation: Emma Wilson, President and Caleb Triplett, Treasurer. We look forward to their leadership in the next year.

We have also selected officers for the 2021-2022 academic year were:

Kylie Dowers, President
Sam Koscelny, Treasurer

Faculty Advisor: Dr. Manjunath Kamath

Student Chapters

INFORMS

The Institute for Operations Research and the Management Sciences (INFORMS) is the world's largest professional association dedicated to and promoting best practices and advances in operations research, management science, and analytics to improve operational processes, decision-making, and outcomes. The Oklahoma State University Student Chapter of INFORMS is a student lead campus organization focused on promoting student learning and professional advancement with fellow students and faculty within the field of operations research and management sciences. Our goal is to enable students to go beyond the bounds of coursework as they engage in research and extracurricular activities that lay the groundwork for their future as professionals in operation research, supply chain management, advanced manufacturing, human factor, and healthcare. In 2021, INFORMS student chapter was nominated as an Honorable Mention Chapter. Due to COVID-19, we have held hybrid events through the 2021-2022 school year.

- Gathering: A social hour for Ph.D. students and faculty in March 2022.
- Programming workshop: R workshop for both undergraduate and graduate students in the School of Industrial Engineering and Management in April 2022.

The INFORMS student chapter advisor is **Dr. Juan Borrero** and the Fall 2021 and Spring 2022 student officers are:

Zhangyue Shi, President

Jianxin Xie, Vice President

If you have any questions or would like to connect with the student chapter, please feel free to email Zhangyue Shi at zhshi@okstate.edu

IISE South Central Regional Conference

Our IISE student chapter had the privilege of hosting the 2022 IISE South Central Regional Conference February 24-26. More than 100 students and professionals from Mizzou, K-State, Wichita State, OU, OSU, UT Arlington, and Texas A&M attended. Conference activities included tours of Kicker and Iron Monk, a student paper competition, awards banquet with keynote speaker Michael Foss, a panel and leadership session by Brenda Shumate, and lots of networking opportunities! We are thankful to our IISE chapter for their hard work in putting together this event and we are proud of their success!



OSU's IISE student chapter officers



Kicker Industry Tour



Iron Monk Brewing Industry Tour

***Paper Presentation
Winners***

Sam Koscelny, OSU,
3rd Place (tie)

Joshua Maxton,
Wichita State, 3rd
Place (tie)

Kaustuvi Thapa, OSU,
1st Place

Joyce Chiam Ziyi, Wich-
ita State, 2nd Place



***Michael Foss (center)
and OSU IEM students***

***Panel Discussion with
Brenda Shumate, Dr.
Katie Jurewicz, Mark
Lewis and Dr. Leva
Swim***



Research Grants

Active in 2020-2022

B. Balasundaram, A. Buchanan, and S.S. Heragu, FLAT: Freight Lane Assignment Tool, TreeHouse Foods, Inc., 1/13/2020–1/16/2021, \$163,730.

B. Balasundaram, A. Buchanan, and S.S. Heragu, Optimization-Based Aggregate Master Planning Tools for Bay Valley Foods, LLC, Bay Valley Foods, LLC, 10/1/2017–1/31/2020, \$250,599.

J.S. Borrero (PI). CAREER: Hierarchical Commit or Defer Problems with Learning: Methods and Applications. \$500,000. National Science Foundation (NSF), Grant CMMI 2145553, January 1st 2022-December 31st 2026.

J. Borrero and L. Lozano, Modeling Worst-case Defender-Attacker Problems as Robust Linear Programs with Mixed-Integer Uncertainty Sets, Office of Naval Research, 05/01/19 - 02/30/22, \$300,000.

A. Buchanan, CAREER: Parsimonious Models for Redistricting, National Science Foundation, 6/1/2020 – 5/31/2025, \$508,000.

A. Buchanan, Imposing Connectivity Constraints in Large-Scale Network Problems, National Science Foundation, 6/15/2017 – 5/31/2021, \$258,586.

S.S. Heragu and R. Wilson (PIs), The Conoco Phillips/OSU Data Analytics Collaboration, ConocoPhillips, 7/1/19 - 6/30/25 \$675,000.

R. Taylor, **S.S. Heragu**, and **K. Jurewicz**, New Product Development Center, Economic Development Administration, 10/8/2020-10/7/2023, \$1,000,000.

M. Kamath, F. Yousefian, and S. Frazier, Using HazMat Flow Analyzer and Risk Assessment Tools to Support Emergency Resource Planning and HazMat Training Activities in Oklahoma, Oklahoma Department of Emergency Management, 10/1/2019 - 9/31/2020, \$131,341.

M. Kamath, F. Yousefian, and S. Frazier, Phase VI: An Integrated GIS Application for HazMat Flow Analysis and Risk Assessment to Support Local Emergency Planning and Preparedness in Oklahoma, Oklahoma Department of Emergency Management and Homeland Security, 10/1/2020-9/30/2021, \$118,110.

M. Kamath, F. Yousefian, and S. Frazier, Deployment and Enhancement of the Arc-GIS Application for Flow Analysis and Risk Assessment of HazMat Transportation in Oklahoma, Oklahoma Department of Emergency Management and Homeland Security, 10/1/2021-9/30/2022, \$132,484.

W. Kolarik, Industrial Assessment Center Program, U.S. Department of Energy, 9/1/2016 - 9/31/2021, \$1,500,000.

Y. Shan and **C. Liu**, "PFI-TT: Intelligent Quality Assurance and Integration Tool for Sewer Inspection Data", National Science Foundation. 02/01/2022 - 01/31/2024, \$266,000.

T. Liu, W. Paiva and Ye Liang. "Validating a clinical decision support algorithm developed with big data to diagnose, state, prevent, and monitor a patient's diabetic retinopathy," OCAST, 8/1/2018 - 7/31/2021, \$90,000.

T. Liu (PI), **C. Liu**, **B. Yao**, Y. Liang. SCH: Harnessing Tensor Information to Improve EHR Data Quality for Accurate Data-driven Screening of Diabetic Retinopathy with Routine Lab Results. NSF/NIH Smart and Connected Health Program and National Eye Institute. 9/30-2021 – 9/29/2025. \$1,193,956.

F. Yousefian, "CAREER: Advancing Mathematical Models and Algorithms for Decentralized Optimization in Complex Multi-agent Networks", National Science Foundation, 3/1/2020 – 2/28/2025, \$500,000.

Journal Publications

Papers published or accepted in 2020-2022

Niloufar Daemi, **Juan S. Borrero**, and **Balabhaskar Balasundaram**. Interdicting low-diameter cohesive subgroups in large-scale social networks. *INFORMS Journal on Optimization*, February 2022 DOI:10.1287/ijoo.2021.0068.

B. Balasundaram, **J.S. Borrero**, H. Pan, Graph Signatures: Identification and Optimization. *European Journal of Operational Research*, 296(3):764–775, February 2022.

B. Farmanesh, A. Pourhabib, **B. Balasundaram**, and **A. Buchanan**. A Bayesian framework for functional calibration of expensive computational models through non-isometric matching. *IJSE Transactions*, 53(3):352–364, March 2021.

Z. Miao and **B. Balasundaram**. An ellipsoidal bounding scheme for the quasi-clique number of a graph. *INFORMS Journal on Computing*, 32(3):763–778, August 2020.

F. Nasirian, F. M. Pajouh, and **B. Balasundaram**. Detecting a most closeness-central clique in complex networks. *European Journal of Operational Research*. 283(2):461-475, June 2020.

J. Yang, **J.S. Borrero**, O.A. Prokopyev, D. Saure, "Sequential Shortest Path Interdiction with Incomplete Information and Limited Feedback," *Decision Analysis* (2021). Forthcoming.

J.S. Borrero, L. Lozano, "Modeling Defender-Attacker Problems as Robust Linear Programs with Mixed-integer Uncertainty Sets," *INFORMS Journal on Computing*, Vol. 33, No. 4 (2021).

J. S. Borrero, M. Akhgar, P. Krokmal, "A Scalable Markov Chain Framework for Influence Maximization in Arbitrary Networks," *IEEE Transactions on Network Science and Engineering*, Vol. 8, No. 3 (2021).

J. S. Borrero, O. A. Prokopyev, D. Saure. Learning in Sequential Bilevel Linear Programming. *INFORMS Journal on Optimization* (2021). Forthcoming.

J.L. Walteros, **A. Buchanan**. Why is maximum clique often easy in practice? *Operations Research*, 68(6): 1866-1895, 2020.

H. Validi, **A. Buchanan**. Political districting to minimize cut edges. To appear at *Mathematical Programming Computation*.

M.J. Naderi, **A. Buchanan**, J.L. Walteros. Worst-case analysis of clique MIPs. To appear at *Mathematical Programming*.

H. Salemi, **A. Buchanan**. Solving the distance-based critical node problem. To appear at *INFORMS Journal on Computing*.

H. Validi, **A. Buchanan**, E. Lykhovyd. Imposing contiguity constraints in political districting models. *Operations Research*. 70(2): 867-892, 2022.

V. Stozhkov, **A. Buchanan**, S. Butenko, V. Boginski. Continuous cubic formulations for cluster detection problems in networks. To appear at *Mathematical Programming*.

H. Salemi and **A. Buchanan**. Parsimonious formulations for low-diameter clusters. *Mathematical Programming Computation*. 12(3): 493-528, 2020.

H. Validi, **A. Buchanan**. The optimal design of low-latency virtual backbones. *INFORMS Journal on Computing*. Accepted for Publication.

T. van de Kracht and **S.S. Heragu**. Lessons from Modeling and Running the World's Largest Drive-Through, Mass Vaccination Clinic. *INFORMS Journal of Applied Analytics*, Vol. 51, No. 2, pp. 91-105, March-April 2021.

F. Majzoubi, L. Bai, and **S.S. Heragu**, The EMS Vehicle Transportation Problem During a Demand Surge. *Journal of Global Optimization*, Vol. 79, No. 4, pp. 989-1006, 2021.

K. A. Jurewicz, D. M. Neyens, K. Catchpole, A. Joseph, S. T. Reeves, J. H. Abernathy III. An observational study of anaesthesia workflow to evaluate physical workspace design and layout. *British Journal of Anaesthesia*. Accepted, 2020.

C. Liu, W. Tian, and C. Kan. When AI Meets Additive Manufacturing: Challenges and Emerging Opportunities for Human-Centered Products Development. *Journal of Manufacturing Systems*. 2022. Accepted for publication

C. Liu, R. Wang, I. Ho, Z. Kong, C. Williams, S. Babu, and C. Joslin. Toward Online Layer-wise Surface Morphology Measurement in Additive Manufacturing Using a Deep Learning-based Approach. *Journal of Intelligent Manufacturing*. 2022. Accepted for Publication.

Y. Chen, A. Abu-Heiba, S. Kassaei, **C. Liu**, G. Liu, M. Starke, B. Smith, and A. Momen. Coupled Heat-Power Operation of Smart Buildings via Modular Pumped Hydro Storage. *ASME Journal of Energy Resources Technology*. 2022. Accepted for Publication.

A. Mamun, **C. Liu**, C. Kan, and W. Tian. Securing cyber-physical additive manufacturing systems by in-situ process authentication using streamline video analysis. *Journal of Manufacturing Systems*. 62: 429-440, 2022.

Y. Li, Z. Shi, **C. Liu**, W. Tian, Z. Kong, and C. Williams. Augmented Time Regularized Generative Adversarial Network (ATR-GAN) for Data Augmentation in Online Process Anomaly Detection. *IEEE Transactions on Automation Science and Engineering*, 2022. Accepted for publication.

Z. Shi, A. Mamun, C. Kan, W. Tian, and **C. Liu**. An LSTM-Autoencoder Based Online Side Channel Monitoring Approach for Cyber-Physical Attack Detection in Additive Manufacturing. *Journal of Intelligent Manufacturing*. 2022. Accepted for Publication.

Y. Li, J. VanOsdol, A. Ranjan, and **C. Liu**. A Multilayer Network-Enabled Ultrasonic Image Series Analysis Approach for Online Cancer Drug Delivery Monitoring. *Computer Methods and Programs in Biomedicine*. 213: 106505, 2022.

Z. Ye, **C. Liu**, W. Tian, and C. Kan. In-situ Point Cloud Fusion for Layer-wise Monitoring of Additive Manufacturing. *Journal of Manufacturing Systems*. Vol.61 pp.210-222, 2021.

Z. Shi, C. Kan, W. Tian, and **C. Liu**. A Blockchain-based G-code Protection Approach for Cyber-Physical Security in Additive Manufacturing. *ASME Journal of Computing and Information Science in Engineering*, 21(4): 041007, 2021.

C. Liu, Z. Kong, S. Babu, C. Joslin, and J. Ferguson. An Integrated Manifold Learning Approach for High Dimensional Data Feature Extractions and its Applications to Online Process Monitoring of Additive Manufacturing. *IIE Transactions*. 53(11), 1215-1230, 2021.

Krishnan, D.R., **T. Liu**. 2022. A Branch-and-cut Algorithm for Pickup-and-delivery Traveling Salesman Problem with Handling Costs. Accepted at *Networks*.

A. Gupta, **T. Liu**, C. Crick. Utilizing Time Series Data Embedded in Electronic Health Records to Develop Continuous Mortality Risk Prediction Models using Hidden Markov Models: A Sepsis Case Study. *Statistical Methods in Medical Research*, 29(11): 3409-3423, 2020.

S. Hariharan, **T. Liu**, M. Z. Shen. Role of Resource Flexibility and Responsive Pricing in Mitigating the Uncertainties in Production Systems. *European Journal of Operational Research*, 284(2), 498-513, 2020.

J. K. Nuamah, Y. Seong, S. Jiang, E. Park, & D. Mountjoy. Evaluating effectiveness of information visualizations using cognitive fit theory: A neuroergonomics approach. *Applied Ergonomics*, 88, 103173, 2020.

L. M. Mazur, R. Adams, P. R. Mosaly, M. P. Stiegler, **J. K. Nuamah**, K. Adapa, ... & L.B. Marks. Impact of simulation-based training on radiation therapy therapists workload, situation awareness, and performance. *Advances in Radiation Oncology*, 2020.

J. K. Nuamah, P. R. Mosaly, R. Adams, K. Adapa, B. S. Chera, L. B. Marks, & L. M. Mazur. Assessment of Radiation Therapy Technologists' Workload and Situation Awareness: Monitoring 2 Versus 3 Collocated Display Monitors. *Advances in Radiation Oncology*, 2020.

L. M. Mazur, R. Adams, P. R. Mosaly, **J. K. Nuamah**, K. Adapa, & L. B. Marks. Impact of Simulation-based Training and Neurofeedback Interventions on Radiation Technologists Workload, Situation Awareness, and Performance. *Practical Radiation Oncology*, 2020.

J. K. Nuamah, K. Adapa, & L. Mazur. Electronic health records (EHR) simulation-based training: a scoping review protocol. *BMJ open*, 10(8), e036884, 2020.

P. R. Mosaly, R. Adams, G. Tracton, J. Dooley, K. Adapa, **J. K. Nuamah**, ... & L. M. Mazur. Impact of Workspace Design on Radiation Therapist Technicians' Physical Stressors, Mental Workload, Situation Awareness, and Performance. *Practical Radiation Oncology*, 2020.

R. K. Mehta, & **J. K. Nuamah**. Relationship Between Acute Physical Fatigue and Cognitive Function During Orthostatic Challenge in Men and Women: A Neuroergonomics Investigation. *Human Factors*, 0018720820936794, 2020.

J. K. Nuamah, C. Rodriguez-Paras, & F. Sasangohar. Veteran-Centered Investigation of Architectural and Space Design Considerations for Post-Traumatic Stress Disorder (PTSD). *HERD: Health Environments Research & Design Journal*, 1937586720925554, 2020.

Y. Zhu, J. K. Jayagopal, R. K. Mehta, M. Erraguntla, **J. K. Nuamah**, A. D. McDonald, ... & S. H. Chang. Classifying Major Depressive Disorder Using fNIRS During Motor Rehabilitation. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, 28(4), 961-969, 2020.

J. K. Nuamah, R. Mehta, & F. Sasangohar. Technologies for Opioid Use Disorder Management: Mobile App Search and Scoping Review. *JMIR mHealth and uHealth*, 8(6), e15752, 2020.

J. K. Nuamah, F. Sasangohar, M. Erraguntla, & R. K. Mehta. The past, present and future of opioid withdrawal assessment: a scoping review of scales and technologies. *BMC medical informatics and decision making*, 19(1), 113, 2019.

Z. Wang and **B. Yao**. Multi-Branching Temporal Convolutional Network for Sepsis Prediction. *IEEE Journal of Biomedical and Health Informatics*, accepted 2021. <https://doi.org/10.1109/JBHI.2021.3092835>

B. Yao, Spatiotemporal Modeling and Optimization for Personalized Cardiac Simulation. *IJSE Transactions on Healthcare Systems Engineering*, accepted 2021. <https://doi.org/10.080/24725579.2021.1879322>

B. Yao, Y. Chen, and H. Yang, Constrained Markov Decision Process Modeling for Optimal Sensing of Cardiac Events in Mobile Health. *IEEE Transactions on Automation Science and Engineering*, accepted 2021. <https://dx.doi.org/10.1109/TASE.2021.3052483>

B. Yao and H. Yang. Spatiotemporal Regularization for Inverse ECG Modeling. *IJSE Transactions on Healthcare Systems Engineering*: 1-25. <https://doi.org/10.1080/24725579.2020.1823531>, accepted 2020.

H. D. Kaushik and **F. Yousefian**, A Method with Convergence Rates for Optimization Problems with Variational Inequality Constraints, *SIAM Journal on Optimization*, 31 (3): 2171–2198, 2021.

A. Jalilzadeh, A. Nedich, U. V. Shanbhag, and **F. Yousefian**, A Variable Sample-Size Stochastic Quasi-Newton Method for Smooth and Nonsmooth Stochastic Convex Optimization, *Mathematics of Operations Research*, to appear.

F. Yousefian, A. Nedich, and U.V. Shanbhag, On stochastic and deterministic quasi-Newton methods for non-strongly convex optimization: Asymptotic convergence and rate analysis, *SIAM Journal on Optimization*, 30 (2): 1144-1172, 2020.

Spring 2022 Senior Design Teams

Graduating Industrial Engineering and Management seniors conclude their academic studies with a capstone course called Senior Design, taken in their last semester. During this course, student teams work as outside 'consultants' on real-world problems for clients in the manufacturing and service sectors. The projects provide students the opportunity to apply the theories and tools they have learned to provide clients with innovative solutions to a problem.

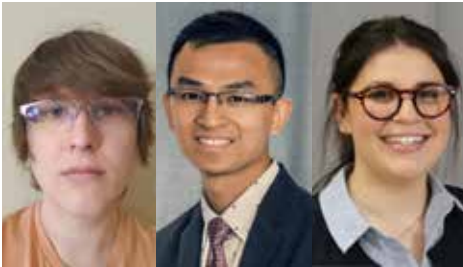


Baker Hughes Team 1:

Ryne Garrison
Payton Hill
Luke Loughren
Kramer Pascal

Faculty Mentor:
Dr. Tieming Liu

IAB Mentor:
Zach Roberts



Baker Hughes Team 2:

Pete Billerbeck
Khanh Do
Emma Ray

Faculty Mentor:
Dr. Joseph Nuamah

IAB Mentor:
Steve Kiester



Webco Industries Team:

Ben Burchard
Chris Chesnut
Jay Eischen

Faculty Mentor:
Dr. Austin Buchanan

IAB Mentor:
Mark Lewis

Spring 2022 Senior Design Teams



Zeeco Team:

Jason Abernathy
Mason Feddersen
Kendel Hart
Sam Koscelny

Faculty Mentor:
Dr. Baski
Balasundaram

IAB Mentor:
Michael Foss

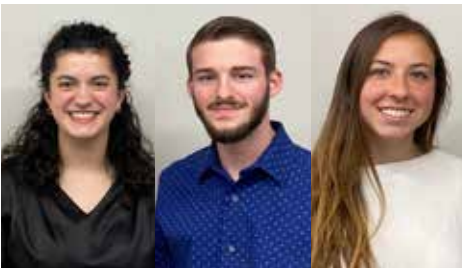


INTEGRIS Team:

Kylie Dowers
Louisa Ivey
Tyler Wedel

Faculty Mentor:
Dr. Katie Jurewicz

IAB Mentor:
Jack Watts



Mary Martha Outreach Team:

Kim Garcia
William Harrison
Megan Mann

Faculty Mentor:
Bing Yao

IAB Mentor:
Tom Saunders

CEAT Interdisciplinary Teams

Graduating Industrial Engineering and Management seniors have the option to be part of Interdisciplinary Senior Design teams, collaborating with students from other engineering disciplines to solve real-world problems.



Flight Data Retrieval and Management Team:

Ryan Hiatt



High Speed Assembly Tool Team (High Speed Assembly PNG):

Erin Lewis
Laura Singletary

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Retirement

At the end of July, IEM's Laura Brown will be retiring. Laura has been with IEM for nine years and has been the heart and soul of the department. Her care and enthusiasm have touched the hearts of students, faculty and alumni alike.



If you'd like to drop Laura a note of appreciation, you can send it to our office at 354 Engineering North, Oklahoma State University, Stillwater, OK, 74078.

A dark blue banner with white text and icons. The text reads 'Follow Us on Social Media' in large font, followed by 'Let's Get Connected for Our Latest News & Updates' in smaller font. There are four social media icons: Twitter (@okstateiem), Instagram (@iem_okstate), Facebook (@iemokstate), and LinkedIn (OSU Industrial Engineering and Management). To the right of the text is a graphic of a thumbs-up icon and a heart icon inside speech bubbles.

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 OSU Industrial Engineering and Management

IEM Faculty and Staff

Faculty

IEM Administration

Sunderesh Heragu, Ph.D.
*Regents Professor, Head, and
Humphreys Chair*

Tieming Liu, Ph.D.
*IEM Graduate Program Director
Associate Professor*

Farzad Yousefian, Ph.D.
*Undergraduate Program Director
Associate Professor*

IEM Tenured/Tenure-Track Faculty

Baski Balasundaram, Ph.D.
*Wilson Bentley
Professor*

Juan Borrero, Ph.D.
Assistant Professor

Austin Buchanan, Ph.D.
Associate Professor

Terry Collins, Ph.D., P.E.
Associate Professor

Katie Jurewicz, Ph.D.
Assistant Professor

Manjunath Kamath, Ph.D.
Professor

Chenang Liu, Ph.D.
Assistant Professor

Joseph Nuamah, Ph.D.
Assistant Professor

Bing Yao, Ph.D.
Assistant Professor

IEM Adjunct/Non-Tenure Track Faculty

Jennifer Glenn, Ph.D.
Teaching Assistant Professor

Ying Tat Leung, Ph.D.
Adjunct Researcher

Staff

Laura Brown
*Administrative Assistant,
Senior Financial
Assistant*

Lenley Brown
*Administrative Support
Specialist*

Valerie Quirey
*Graduate Programs
Coordinator*

Matt Taylor
*Undergraduate
Advisor*

Myers Turner
Marketing Intern



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