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and Management
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@OkStateIEM
@IEM_Okstate

Front cover: IEM students at work in the new ENDEAVOR lab (photo by Dr. Tim Hardin)
Back cover: Members of our IISE student chapter on the campus of Lamar University

Oklahoma State University

School of Industrial Engineering and Management

College of
Engineering, Architecture and Technology

COWBOY CONNECTIONS

SPRING 2019

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

Dr. Baski Balasundaram
Graduate Program Director
Associate Professor and
Wilson Bentley Chair

Dr. Terry Collins
Undergraduate Program
Director
Associate Professor

Greetings!

Spring is in the air! Commencement will soon be upon us. This is an exciting time for faculty, students, and parents alike as we are set to graduate another (large) class on May 11th--27 BS students along with 27 MS and 2 PhD students. In academic year 2018-19, IEM would have graduated 39 BS, 48 MS, and 6 PhD students.

IEM also hired three new faculty members recently. You can read about them on pages six and seven. Of the fourteen faculty members IEM will have in Fall 2019, nine were hired since Fall 2013.

We are proud that our alumnus, Dr. Berok Khoshnevis, was elected a member of the National Academy of Engineering (see page 21).

IEM's rankings have increased. According to the US News and World Report, the College's online graduate engineering programs (of which the MS ETM program is dominant) was ranked #13 among public universities (#16 overall). This is a significant jump from #33 just last year. IEM was also ranked #25 among graduate programs in industrial/manufacturing/systems engineering in public universities.

We will be moving back to our home since the 1960's--the 3rd floor of Engineering North. The floor is undergoing a full-scale renovation. All the interior walls have been demolished; new offices, meeting spaces, and three classrooms created; furniture ordered; and audio/visual systems designed and ordered for all meeting and classroom spaces. The contractors have until early June to complete the remaining activities and IEM would have fully moved before June 12th. We cannot wait to go back to our new space. You can keep up with the renovation-related activities, including the before and after pictures at iem.okstate.edu/renovations.

The grand opening of the 3rd floor of Engineering North will occur on Friday, September 27th at 3:30 pm. We will have ribbon-cutting, followed by tours, and a recognition banquet at the Click Hall in the ConocoPhillips alumni center. There will also be a tailgate (vs K-State) the next day.

IEM is making major changes to its program offerings. We are considering making the BS IEM program available at the Tulsa campus this fall. We are also making available the MS ETM program on-campus (in addition to online) and will market that program and the MS IEM program to Ag Econ, CEAT, Mathematics, and Statistics majors, so a student pursuing a four-year BS degree in another field (say, Mechanical) can complete his or her MS degree in IEM (or ETM) in the fifth year. This is called the 4+1 option in university parlance. We will also be signing a memorandum of understanding with South Western Jiaotong University (SWJTU) in China so that engineering students there will complete three years towards their BS degree there and come here for two years to earn their BS from SWJTU (at the end of the fourth year) and an MS in IEM at the end of the fifth year. This is called a 3+2 program.

Thanks to The Cowboy Academy of Industrial Engineering and Management (TCA), IEM is embarking on a major marketing campaign. You will see a video of our student Hannah Anthony exhibit her passion for industrial engineering and IEM on our Facebook page: https://www.facebook.com/IEMOkstate. This and other media pushes will be part of a campaign in which we will develop and deliver two major campaigns via six delivery channels to nine select audiences. Stay tuned for more on that in the coming weeks and months.

Our alumni, students, staff, and faculty continue to receive awards – external to the university and internally as well. You will see examples of that throughout this newsletter. IEM has also been making significant alumni outreach over the years. To help you reconnect with them, we include a Q&A with a few alumni each newsletter. You will see that on pages 12 and 26 of this newsletter. If you would like to be showcased, please let me know by emailing iem@okstate.edu and we would be happy to feature you in an upcoming newsletter.

In addition to this newsletter, we have been sending out small email campaigns via ConstantContact each week. If you have not been receiving those emails and would like to do so, text IEM to 22828 to subscribe to that list.

Go Pokes!

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

IEM Mission, Vision, and Goals

Vision
IEM's vision is to place industrial engineers in a wide variety of industries including manufacturing, service, energy, healthcare, humanitarian and others, so that our society at large can benefit from systems that effectively use an optimal set of resources, efficiently produce goods or provide services and enrich the quality of life for all.

Mission
IEM's mission is to develop a diverse group of professionals and leaders in industrial engineering and management by being a leader in education, research, and outreach.

Educational Goals
IEM's educational goals are to educate and produce a new generation of diverse students who are proficient in theoretical, applied, and technology relevant concepts and practices that will have a global reach and global impact. IEM will continue to monitor and enhance the student recruiting, learning, retention, advising, mentoring, internship, and placement processes.

Research Goal
IEM's research goals are to engage in cutting edge research of global importance and to produce innovators as well as next generation engineering, education, and societal leaders.

Outreach Goals
IEM's outreach goals are to actively engage in community projects, economic development, and service for the greater good. The outreach goals also include enhancement of IEM's image within CEAT and OSU and the world at large.

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 $7 million. The remaining $13 million must be raised in 1.5 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.

Space on donor wall in refurbished IEM space | $1,000
IEM spaces will be fully renovated in 2019

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 | $20,000,000

If you wish to donate, please send a check payable to the "Industrial Engineering and Management Excellence Fund" at Oklahoma State University, 322 Engineering North, Stillwater, OK 74078 or make a gift online by clicking the GIVE button at iem.okstate.edu.

For more information please contact

Bryce Killingsworth – Associate Development Director

Office: 405-385-5623
Cell: 405-385-3497
Email: bkillingsworth@osugiving.com

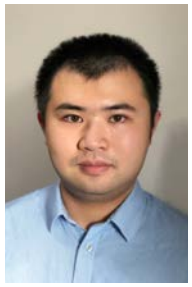
http://iem.okstate.edu/sites/default/files/TheNextFiveGenerations.pdf

New Faculty

Dr. Saeed Ghadimi
Assistant Professor

Saeed Ghadimi is an associate research scholar in the department of Operations Research and Financial Engineering at Princeton University. Saeed received his Ph.D. with major in Industrial and Systems Engineering and minor in Mathematics from the University of Florida. His research interests lie in the broad area of applying quantitative optimization methods to decision-making problems under uncertainty. Motivated by data-driven applications, he has been working on developing different algorithmic frameworks and analyzing their finite-time convergence behavior for non-convex stochastic optimization.

New Faculty



Chenang Liu
Assistant Professor

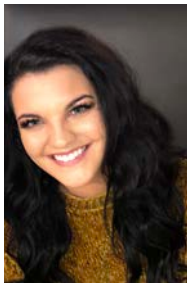
Chenang Liu is currently a Ph.D. candidate in the Grad Department of Industrial and Systems Engineering at Virginia Tech under the supervision of Dr. Zhenyu (James) Kong, and is expected to defend his dissertation in May 2019. He received his double B.S. degrees in Environmental & Resource Sciences and Mathematics from Zhejiang University, China, in 2014, and his M.S. degree in Statistics from Virginia Tech in 2017, respectively. He served as the vice president of the INFORMS Virginia Tech student chapter. Currently, he is serving as a board member (student representative) of the IISE QCRE division. His research is focused on advanced data analytics, statistical modeling, and machine learning with applications in online quality assurance for advanced manufacturing. His research has been recognized by the 2017 IISE QCRE Best Paper Award, the 2017 INFORMS QSR Best Paper Award, the 2018 IISE QCRE Best Student Paper Award Finalist, and the 2018 INFORMS Best Poster Award.

New Faculty

Bing Yao
Assistant Professor

Bing Yao is a Ph.D. candidate in the Harold and Inge Marcus Department of Industrial and Manufacturing Engineering at the Pennsylvania State University. She received her Master's degree in Physics from Penn State and Bachelor's degree in Physics from the University of Science and Technology of China. Bing's research focuses on developing integrative physical-statistical models for decision optimization in complex healthcare and manufacturing systems. She is the recipient of multiple awards and scholarships, including the Best Poster Award in 2018 Northeast Regional Conference on Complex Systems, 2018 Penn State IME Susan Schall Fellowship, the 1st Place in 2017 IISE Healthcare Systems Student Best Paper competition, 2017 SRC Student Scholarship, and 2016 INFORMS MIF Best Poster Finalist. Bing is also the vice president of Penn State INFORMS Student Chapter, and a member of IISE, INFORMS and IEEE.

Who's New in IEM



Cara Sides
Student Worker

Cara was born in Duncan, Oklahoma and grew up in Edmond. She graduated from Deer Creek High School and chose to come to Oklahoma State University to pursue a degree in Marketing and Entrepreneurship. Her favorite things about OSU are football season and Homecoming. When she isn't in class, she enjoys traveling. Her favorite places are Colorado, Grand Lake, and anywhere on the beach.

Cara hopes to continue her education in law after graduating from OSU. She dreams of moving to California someday.

"The next adventure begins now."

Staff Update
Matt Taylor has recently transitioned roles to
Undergraduate Student Advisor

Student Spotlight

Logan Price
Undergraduate Student

Logan Price is originally from Broken Arrow, OK. He is the oldest of four siblings and the son of Lance and Julia Price. In his free time, Logan enjoys watching and playing sports, going to the Colvin Center, traveling, and spending time with his girlfriend, Hope.

Logan will graduate with an Honors IEM degree and Leadership Minor in spring of 2019. In the last few years, Logan has traveled to Cedar Breaks National Monument in Utah through a national honors college program and to Puebla, Mexico with the College of Engineering, Architecture, and Technology. He plans on graduating with an MBA from the Spears School of Business in spring of 2020.

During his time at OSU, Logan was a Phillips 66 SHIELD Scholar, a member of the President's Leadership Council, a Leadership Mentor for Housing and Residential Life, and the President of the Institute of Industrial and Systems Engineers. He was also named one of two Outstanding Undergraduate IEM Students last fall.

Logan has accepted a full-time job offer to work for Phillips 66 after his MBA graduation. He will have completed three internships with Phillips 66 after the summer of 2019. Logan plans on moving to Tulsa in May to complete his MBA and to begin his career at Phillips 66.

"It is our choices…that show what we truly are, far more than our abilities." - Albus Dumbledore

Student Spotlight

Maddie Hawkins
Undergraduate Student

Maddie Hawkins is a senior from Carrollton, TX, pursuing her undergrad in Industrial Engineering and Management with a minor in Computer Science. She is currently serving as the CEAT Student Council President and is a member of the CEAT Scholars Executive Board. Outside of school, she enjoys participating in intramural sports, playing the piano and guitar, traveling, and doing crossword puzzles.

Maddie was named an Outstanding Senior by the OSU Alumni Association, CEAT Outstanding Senior, and was recognized as one of two Outstanding Undergraduate IEM students. After graduation, she will intern on the Walmart Supply Chain Engineering – Automation Strategy team in Colton, CA before pursuing an MPhil in Industrial Systems, Manufacture and Management at the University of Cambridge.

"It's not fair to ask of others what you are not willing to do yourself." - Eleanor Roosevelt

Sean Wilferd
Master's ETM Distance Education Student

Sean Wilferd was born and raised in St. Louis, Missouri. In 2014, he received his Bachelor's Degree in Mining Engineering from Missouri University of Science & Technology in Rolla, MO. While in college, he enrolled in the Air Force R.O.T.C. Program. Upon graduation, he received his commission into the U.S. Air Force as a Second Lieutenant. He is currently stationed at Buckley Air Force Base in Aurora, Colorado. He lives with his wife, Brittany, and two dogs. He is currently enrolled in the Engineering & Technology Management Program at Oklahoma State University, and will graduate in May of this year with his Master's degree. In his free time he loves camping, skiing, visiting breweries, cooking, binging TV shows, and spending time with his family. Sean says, "I am extremely excited to begin the next chapter of my life, and want to thank Oklahoma State University for the education and experience it has given me. Go Cowboys!!"

"No, I'm not a hero, but I have served in a company full of them." - Maj. Richard Winters

Student Spotlight

Ishita Gupta
Master's Student

Ishita Gupta is currently enrolled in the Master's program in Industrial Engineering and Management. Her hometown is Delhi, the capital city of India and she moved to the United States in 2015.

She joined the Industrial Engineering program here at OSU because she is passionate about the work supply chain professionals do, and she wants to do the same--improve how the industry works and optimize its processes. She has an undergraduate degree in Computer Science from India, and she started her professional life working as a Materials Analyst which helped her identify her interest in the field of Supply Chain and Logistics.

She is a member of APICS - OSU Chapter and serves as their Vice-President (Treasurer). She is also a member of Alpha Pi Mu honors society and actively takes part in other in-class and on campus activities. In her free time she likes to read and garden as it really helps her to relax and be close to nature.

Her future plan is to work with an organization where she can implement the knowledge and skills she learned during her education and past experience, and help the company grow with the focus on improving customer service and sensitivity towards the environment.

"You learn more from failure than from success.
Failure builds character, don't let it stop you."

Student Spotlight

Akash Gupta
Doctoral Student

Akash Gupta is a doctoral student and hails from a small town in northern India. He was raised in a big, loving family, with six siblings. He is the youngest one, hence, the most spoiled. For his Ph.D. research, in collaboration with the Center for Health Systems Innovation at Oklahoma State University, he devised a clinical decision support system to diagnose sepsis in early stages. His research can make a significant impact, especially to the rural communities where the shortage of doctors is imminent. Akash's work has been published in high-quality peer-reviewed journals, and he also served as a reviewer to many reputed journals. Along with his studies, he enjoys making friends and sharing jokes. In his leisure, he cherishes reading novels and playing volleyball. His life journey is like driving a car at night: you never see much beyond your headlights, but you savor the journey, and the mystery of unknown never ceases to surprise you!

Akash recently accepted a tenure track position in the College of Business and Economics at the California State University Northridge, where he will be a key faculty member to develop the new Data Analytics Program in the Department of Systems and Operations Management.

"If you can't fly, then run, if you can't run, then walk, if you can't walk, then crawl, but whatever you do, you have to keep moving forward." - Martin Luther King Jr.

Alumni Spotlight

Laura Easley

Tell us a little bit about yourself.
I have been happily married to my husband, Jeff, for 25 years and am the proud mother of four children, Jeffrey, Jeanna, Weston, and Austin. Upon graduation from OSU, I started my career at ABF Freight System in Fort Smith, AR as a Pricing Analyst and progressed within seven years to Director of Marketing for their new logistics division, Best Logistics. I then took a role with Innovative Logistics as Director of Program Development in Charlotte, NC. From there, I moved to St. Paul, MN and then San Jose, CA to serve in two roles at Menlo Worldwide Logistics. My last role at Menlo was as Director of Operations on-site at Hewlett-Packard. Fourteen years ago, I moved to Bentonville, AR to serve as Chief Business Development Officer for Transportation Insight, a third-party logistics company, based out of Hickory, NC. I enjoy exercising and traveling. I am very passionate about serving others and am an active volunteer with both Samaritan's Feet, an organization that provides shoes and hope to children in need, and my local church. I also enjoy mentoring young professional women through an organization called Work Matters.

How has your IEM degree helped you?
I chose to purse an IEM degree, because I wanted to learn how to develop, improve, and implement new solutions to business problems. My IEM courses and degree gave me the knowledge and confidence needed to accomplish this goal, along with providing me the skillset to work well with teams.

What aspects of your OSU affiliation while you were a student stand out?
I truly enjoyed the OSU Cowboy experience and met life-long friends. What I most loved about OSU was the down-to-earth atmosphere. I had many highlights beyond my IEM studies. I served as President of Chi Omega, where I learned how to create a path of purpose and success beyond engineering.

What has motivated you to stay engaged with OSU, years after graduation?
OSU provided me my foundation to succeed in life and in my career. Today, I have the opportunity to serve on the Cowboy Academy for IEM and am so excited to give back where I can. I have a firm sense of loyalty and a respect for this fantastic institution. I enjoy keeping up with the progress OSU and IEM have made, especially with the continued promotion of women in engineering. I also love rooting for the Cowboys…especially against the Sooners!

What do you think the future holds for the IEM student?
The future is very bright for IEM students. All companies and industries benefit from the knowledge and discipline of IEM students, including their problem-solving abilities, their focus on streamlining processes, and their zest for improving the status quo.

List one or two highlights of your career.
I have been in logistics for the last 32 years. I have been blessed to serve as Chief Business Development Officer (in charge of Sales) and now as Chief Operating Officer (in charge of Operations) in my 14-year tenure at Transportation Insight. I have been part of a fun journey to grow this company from 75 employees and $75 million in gross revenue in 2005 to 1,400 employees and $3 billion today. What an experience to lead and mentor all of our fantastic associates!

Why is international exposure important for today's engineers? How would they benefit from availing of study abroad opportunities?
One of my sons recently traveled internationally for his college studies and it was an eye-opening experience. A strong understanding of cultural differences and the unique business perspectives abroad are critical in the planning, implementation, and execution of international business. The sooner engineers are exposed to international opportunities, the more valuable they will be to future employers.

Seminar Series

Fall 2018

Aug. 29: Bayesian Optimization in the Tech Sector, Dr. Peter Frazier, Cornell University

Oct. 10: A Binary Decision Diagram Based Algorithm for Solving a Class of Binary Two-Stage Stochastic Programs, Dr. Leonardo Lozano, University of Cincinnati

Nov. 14: Online Balancing of Bias-Variance Tradeoff in Stochastic Gradient Estimation, Dr. Henry Lam, Columbia University

Nov. 28: Retail Layout: Optimizing for Visual Experience, Dr. Pratik Parikh, Wright State University

Dec. 3: Operational Decision Making across Patient Care Cycle: From Capacity Planning to Care Management, Hyo Kyung Lee, University of Wisconsin-Madison

Dec. 5: Smart Additive Manufacturing Using Advanced Data Analytics and Closed-loop Control, Chenang Liu, Virginia Tech

Dec. 7: Big Data Modeling and Monitoring in Complex Systems, Xiaochen Xian, University of Wisconsin-Madison

Dec. 10: Data Driven Modeling and Control for Smart and Connected Systems, Chao Wang, University of Wisconsin-Madison

Spring 2019

Jan. 16: Physical-Statistical Modeling and Optimization of Complex Systems—Healthcare and Manufacturing Applications, Bing Yao, The Pennsylvania State University

Jan. 18: Data Analytics and Optimization for Efficient and Sustainable Operation of Urban Mobility Systems, Dr. Xinwu Qian, Purdue University

Jan 23: Modeling and Improvement of Complex Systems with High-Dimensional Heterogeneous Data, Mostafa Reisi Gahrooei, Georgia Tech University

Jan. 25: Flow Capturing Problem with Length-Bounded Paths, Dr. Okan Arslan, HEC Montreal

Jan. 28: Infectious Disease Control in Metapopulations with Limited Resources, Dr. Burak Eksioglu, Clemson University

Jan. 29: Optimization Models for Biopower System Optimization, Dr. Sandra D. Eksioglu, Clemson University

Feb. 27: Nonconvex Stochastic Optimization: From Conditional Gradient to Newton Method, Dr. Saeed Ghadimi, Princeton University

Industry Advisory Board

Greetings OSU IE&M Enthusiasts,

In our February meeting, we were treated to a tour of the construction of the new IE&M space on the 3rd floor of Engineering North and the new Endeavor lab. Both developments are game-changers for the IE&M program and will help attract the top students looking for a cutting-edge, multi-disciplinary learning environment. We look forward to seeing how things evolve as students and faculty settle into the new spaces and explore the opportunities to learn and work in different ways. We also found it difficult to resist the feeling of jealousy for the young students embarking on their education in such state of the art facilities!

The other highlight was meeting with the senior design teams working on the following projects:

- MUTUAL Girls Club: Enhance Space Utilization at Thrift Store Operation
- OnCue Marketing: OnCue Express Drive-Thru Analysis
- NSP: ROI Analysis of Proposed Facility Layouts for Food Processing Operation
- INTEGRIS: Schedule Optimization of Robotic Surgery Equipment at Bass Baptist Health Center
- SWEP: Improve product quality for manufacturer by error-proofing the production process
- Textron Aviation: Simulation Model of the Single Engine High Wing 172 Product Line
- American Airlines: Validation and Enhancement of Inventory Simulator for Engine Parts at American Airlines Maintenance Facility

If you have ideas for future senior design projects and/or internships for either undergraduate or graduate students, please reach out to:

- Mr. Allen Glenn – Senior Design Instructor allen.glenn@okstate.edu
- Dr. Baski Balasundaram – Graduate Program Director baski@okstate.edu

Also, we will be seeking two new Board members to join in the Fall. An email will be circulated soon with further details, but in the meantime, if you are interested, please reach out to Brian Adams at badams@txtav.com.

With warm regards,
The OSU IE&M Industrial Advisory Board

Members

Brian Adams
Textron Aviation

Syam Anthony
Nike, Inc

Kevin Doeksen
American Airlines

Bill Dueease
The Coach Connection

Ashley Estes
Zeus Industrial Products

Michael Foss
Amazon

Matt Freeman
Burns & McDonnell

Jack Goertz
Tandems, Ltd

Steve Kiester
Bell

Stephanie Royce
Weamco

G. Satish
Connixt Inc.

Tom Saunders
Pioneer Natural Resources

Brenda Shumate
Williams Companies

Jack Watts
The Portola Company

Jon Womack
The Wilcox Company

Graduate Reception

Spring 2019 graduating seniors and graduate students gathered at the Heragus' home for a reception. Also in attendance were members of our Industrial Advisory Board and faculty.

Undergraduates: Back: Maddie Hawkins, Kalley Schwind, Erica Crain, Michael Moylan, Duke Hwang, Willis Cook, Hannah Anthony, Jessica Tyler, Rania Farhani, Logan Price, Ahmed Almuhanna Front: Caleb Coats, Emilie Ritz, Noah Seltzer, Miguel Leal, Megan Basenfelder, Maddie Marko, Abbye Coan

Graduate Students: Diana Rodriguez Coca, Paritosh Mehta, Pranav Muttha, Sreeja Malka, Ishita Gupta, Rita Heragu, Dr. Sunderesh Heragu, Sourabh Nashte, Arunprakash Elavarasan, Gaurav Nandangiri

Welcome

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

BS IEM
Alali Ahmad
Alreda Baqer
Ali Alkhalaf
Pete Billerbeck
Bailey Bretz
Jacob Brown
Kaiser Cleburn
Khanh Do
Aaron Geist
McKenzie Goudy
William Harrison
Samuel Koscelny
Lizbeth Lopez
Luke Loughren
Jake McClure
Madison Moore
Gloria Flores Morales
Cade Phelan
Alexander Roubik
Laney Smith
Abbie Winchester

MS ETM
Paul Christian
Adolfo Corral
Courtney Lawrence
Matthew Martinez
Kehinde Ogunwemimo
Kyle Yamamoto
Portel Bellamy
Martin Bortolutti
Sonny Calderon
Eduardo Corona
Adam Doerty
Brennan Graves
Yang Liu
Katey Luster
Eric Oliver
Magaji Peter
Juan River
Kathryn Smergalski

PhD IEM
Pouya Ahadi
Mehdi Ansari Hadipour
Majid Akhgar Farsani

Congratulations Graduates

OSU held its fall commencement ceremony on December 15th, 2018. We would like to congratulate the following IEM students for their hard work and dedication in completing their degree.

BS IEM
Ahmed Alsabban
Rikiyah Fletcher
Tara Hall
Jordan Hood
Oluwafemi Ishiola
Farhan Israk
Lauren Leto
Shihan Ma
Holly Palmer
Alexander Pick
Zhiwei Shao

MS IEM
Taylor Hurst
Phillip Malamma
Srikar Aditya Penyala
Prajwal Upadhya

MS ETM
Tim Bartholow
Jeffrey Dobbs
Zeke Ellis
Cody Fields
Theresa Flood
Jeremy Gillam
Daniel Johnson
Martin Keiner
Ryan Legg
Matt Lovett
Mike Moore
Yousef Muwaquet
Bailey Nett
Ronald Porcadas
Michael Rubanka
Derek Rupp
Taylor Voss

PhD
Ali Bagheri
Babak Farmanesh

IAB Spotlight

Ashley Estes

1. Where are you now?
Corporate Continuous Improvement Manager for Zeus Industrial Products

2. What is the road you have taken to get there?
I started my career as an Industrial Engineer working for Michelin. Over the course of 3 years, I worked in 2 different plants to reduce cycle time, evaluate staffing, and help with a new plant expansion. In 2015, I accepted a position with Zeus Industrial Products as a Continuous Improvement Coordinator for one of their manufacturing sites. I had the opportunity to work in this job function at 2 different sites to lead yield improvement projects and implement systems to reduce wastes. Most recently, I was involved with the planning of a new manufacturing site that is currently under construction. In October, I accepted the position of Corporate Continuous Improvement Manager. I am responsible for helping lead the company as we continue to implement lean principles in all of our facilities.

3. How has your IEM degree from OSU helped you?
I believe the quality of education I received from IEM at OSU is second to none. The degree is designed to provide a diverse foundation of principles/concepts. This has proved vital in relating to people throughout organizations and building relationships. An IE can talk manufacturing processes to finance to operations to stats to project management and speak the same "language" because of the experiences you receive through the coursework. I have been able to pull examples from projects/assignments while at OSU and countless times have received the same response, "Wow! You learned that in school?!?" That's right. I did. Thanks to the dedicated faculty and their commitment.

Alumni Accolades

IEM Alumnus Elected to NAE

Dr. Berok Khoshnevis

The National Academy of Engineering has elected IEM alumnus Behrokh (Berok) Khoshnevis as one of its 86 new members. Dr. Khoshnevis received both his Master's degree (1975) and PhD (1979) in Industrial Engineering and Management from OSU. He is the second member of the Cowboy Academy to be elected to the NAE.

Dr. Khoshnevis has been on the faculty at the University of Southern California since 1983. He is currently Dean's Professor of Industrial and Systems Engineering, and will soon be appointed to the Louise L. Dunn Professorship.

He is a Fellow of the National Academy of Inventors and a Member of the EU Academy of Sciences. Through his passion-driven inventive research activities, Dr. Khoshnevis has made many useful inventions and innovations in different domains including robotics, biomedical, oil and gas, renewable energy, fabrication, construction, and space systems. He has over 100 US and international patents. His inventions have been recognized by NASA, the National Inventor's Hall of Fame and the History Channel's Modern Marvels, among others, and have received worldwide media attention. His TEDx talk on the subject on automated construction has been ranked by the TED organization as one of five TEDx Moments among over 30,000 and has been viewed over one million times. In addition to his academic role at USC, Dr. Khoshnevis is president and CEO of Contour Crafting Corporation, pioneering the field of large-scale 3D printing, with application in construction, infrastructure and space.

Election to the National Academy of Engineering is among the highest professional distinctions accorded to an engineer. Academy membership honors those who have made outstanding contributions to "engineering research, practice, or education, including, where appropriate, significant contributions to the engineering literature" and to "the pioneering of new and developing fields of technology, making major advancements in traditional fields of engineering, or developing/implementing innovative approaches to engineering education."

"When I was a graduate student at IEM the department was ranked 7th in the nation and we had several powerful professors who taught with confidence and shared their valuable insights and experiences eloquently and generously. Owing to the quality education that I received, I performed very well in all courses, and gained a deep understanding of the subject matters that I took. I think the IEM experience has had a great positive impact on the quality of my teaching and research throughout my career." - Dr. Berok Khoshnevis

IEM Gatherings

IEM Gatherings

Faculty Accolades

Regents Distinguished Teaching Award

Camille DeYong
Associate Professor

Dr. Camille DeYong was awarded the Regents Distinguished Teaching award at the December Convocation. It is her second time to receive this award. It is given to a full-time member of the faculty who has evidenced unusually significant and meritorious achievement in the instruction of students for a significant period of years.

On receiving this award, Dr. DeYong said, "Receiving the Regents' Distinguished Teaching Award was humbling for me. There are so many excellent teachers in IEM and across CEAT that deserve this award too. I love teaching. It is the very best part of my job and our students challenge me every class period to improve. Thanks to the department for nominating me, alumni and students who wrote recommendation letters, and to the RDTA Selection Committee!"

US News Rankings

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

The online graduate engineering programs in the College of Engineering, Architecture and Technology (CEAT), of which the MSETM is a major player, was ranked #13 among public universities (#16 overall) by US News and World Report.

US News also ranked IEM among the top 25 graduate programs in industrial/manufacturing/systems among public universities (#36 overall).

13

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Alumni Spotlight

Q & A With IEM Alumnus Robert De Paiva

Tell us a little bit about yourself.
My name is Robert De Paiva. I was born in Bitburg, Germany as my father, the late Donald Arthur Paiva was a career veteran in the United States Air Force and met my wonderful late mother Rosa Hedwig Paiva while stationed in Germany. Neither were college graduates. They were both tremendous influencers in myself and my only brother's lives and truly believed that the role of parents was to provide the greater opportunities they had during their childhood. They succeeded big time. In 1988, I graduated with a Bachelors degree in Industrial Engineering and Management (the first college graduate in my family). I truly felt my degree In Industrial Engineering and Management from Oklahoma State University was my Heisman trophy achievement and that has proven out as my career has unfolded. I married a wonderful Sooner wife, Kendra Paiva, who has a PHD in Immunology from the University of Oklahoma. We have a well-grounded, sharp teenage son, Mitchell Paiva, who is a competitive swimmer, great student and an outstanding young man--thanks to his mother no doubt. I enjoy snow skiing, water sports, motorcycle riding (all types) and am a Licensed private pilot. Currently, my role is President of Nextstream's (a subsidiary of Baker Hughes General Electric) sensor and separator technologies after a long career in with multiple corporate enterprises ,both foreign and domestic. That along with my OSU IEM academic background has shaped me into the role I am currently fortunate to be part of. It is a culmination of my diverse global, academic and work experience. I truly am a blessed man for a lot of reasons.

How has your IEM degree helped you?
I really did not realize the value of the Oklahoma State University degree until after college--it really is like building a house. The OSU IEM degree is the foundation of many remodels that occur during this life journey. Much like many of you that are taking the time to read this, I was focusing on "just" graduating--the value of the IEM degree truly is a lifelong payback. Without it, there is no foundation and your career will be unstable over time. My logic was for the most the part Industrial Engineering and Management is really focused on work flow optimization and very "people centric".

This is evidenced by the curriculum - theory of constraints - ergonomics - entrepreneurship, etc., which mean ultimately requires "excellence through people". This core value in my opinion is the most critical element for successful leaders and the OSU IEM is a perfect fit for this critical attribute. For me, Industrial Engineering and Management fits that skill development foundation, and I am convinced that IEM has prepared me to excel as a "People Engineer for Excellence".

What has motivated you to stay engaged with OSU, years after graduation?
From a personal standpoint, Oklahoma State has given so much to me in terms of personal growth and knowledge - after all, knowledge is power.

I am a huge "take pride in what you do and where you come from" - otherwise STOP doing it - so, I am a 24/7/365 Oklahoma State Cowboy. It is special to me for many reasons: the first college I graduated from followed by great complimentary degrees from Oklahoma City University and the University of Illinois. If you look at my LinkedIn profile it proudly displays - "THE Oklahoma State University".

List one or two highlights of your career.
The first was during my career with Eaton Corporation, my first employer. In 1999, Eaton acquired Aeroquip-Vickers and I was selected to lead a commodity team for machined components to achieve a synergy savings target. I was asked to lead team with in parallel with McKinsey and Company in a remote location--Detroit, Michigan. We were given an aggressive target of over $105 million dollars of savings which, at first, I thought was impossible. Once we developed a project plan, implemented a global-approached sourcing strategy and leveraged the consolidated spend—all academic topics covered in the OSU IEM program—we not only met our target but exceeded it by $11 million. This project leveraged all the tools OSU IEM taught me BUT further the element of developing a high-performance team (People Engineered) that achieved excellent results. The entire team was rewarded with Eaton sponsoring an advanced education degree, which I did in the University of Illinois Executive Master's Program.

The second is my current role as President of NextStream that I recently embarked on. It is, as Mike Gundy once said about being the head football coach at OSU, my "New York Yankees job". This role allows our team the ultimate stage to exercise their entrepreneurial minds in a corporate setting as our parent company Baker Hughes General Electric whose facilities we use that has a wealth of innovation available to achieve great results. We are blessed with all the benefits of corporate America - yet with the agility of a venture capital-funded start -up company. It is the perfect organizational structure to maximize our life changing innovation. We also have the pleasure of working directly with the Oklahoma State University IEM program to identify interns for the summer of 2019 to be part of this exciting journey bound for success. This really is the culmination of my consolidated skills sets started by my OSU IEM foundation, my career experiences and my internal entrepreneurial spirit.

Why is international exposure important for today's engineers? How would they benefit from availing of study abroad opportunities?
This is absolutely, positively critical today. As the book The World Is Flat pointed out, if you do not view the globe as "one", you are destined for failure. The media platforms that allow for instantaneous global communication are only going to continue to advance and geographical distance will be neutralized to "zero" and in many ways it already has. I have had the pleasure of working for global companies all my life and any study abroad is fast becoming a prerequisite for any employment and in fact for our business a "soft" requirement. So, I cannot be clearer it is an ABSOLUTE MUST to gain a global perspective. I don't look at the term "international world" anymore--it really, at least in the business world, is now one huge connected world.

Student Chapters

The Institute of Industrial and Systems Engineers

The Institute of Industrial and Systems Engineers (IISE) is a global association committed to connecting students and professionals in the Industrial and Systems Engineering field. As a collegiate chapter of IISE at Oklahoma State, we strive to help undergraduate and graduate students engage with their fellow students, faculty, and alumni to further their success in the academic and professional worlds.

This semester, IISE hosted a Six Sigma Green Belt event where over 70 students received their Six Sigma Green Belt Certification from the national IISE organization. This was the largest Six Sigma Green Belt course the IISE chapter at OSU has ever hosted. Participants were provided lunch each day and an event t-shirt.

IISE also sent a delegation of 11 students to Lamar University in Beaumont, TX for the annual IISE South Central Regional Conference. OSU had one of the largest delegations at the conference. Participants had the opportunity to visit several local businesses, listen to successful Industrial Engineers from Lamar's Industrial Advisory Board, and take part in team building and small group learning exercises.

The IISE and APICS student organizations organized a site tour at the Amazon Fulfillment Center in Oklahoma City in late March. A total of 24 students participated on the trip. The student group ate lunch in Bricktown before arriving at the Amazon facility. Students were introduced to the complexity of Amazon's supply chain and witnessed the fast-moving operations inside an Amazon Fulfillment Center.

If you want more information about IISE or want to become a member, please email Logan Price at logp@okstate.edu.

We would also like to recognize the students who freely give their time and effort to make this organization great. The officers this academic year are:

- Logan Price, President
- Brittany Grubert, Vice President of Internal Affairs
- Lane Workman, Vice President of External Affairs
- Ashlynn Hughes, Secretary
- Matt Burchard, Treasurer
- Susan Weckler, Events Chair
- Matthew Wilkinson, Speaker Chair
- Cynthia Craig, Merchandise Chair
- Mallory Newell, Alumni Chair
- Victoria Stow, Communications Chair
- Aspen Dixon, Fundraising Chair
- Paula Sarmiento, Recruiting Chair
- Cristina Montemayor, Mentorship Chair
- Cole Luetkemeyer, Website Chair

Faculty Advisor: Dr. Sunderesh Heragu

APICS

APICS OSU Student Chapter focuses on enhancing knowledge and competency of its members in the field of supply chain operations and management to work towards its objectives. APICS Student Chapter encourages certifications and organize events to provide our members with industrial exposure and networking opportunities.

One of the main purposes of APICS OSU Student Chapter is to encourage and guide its members to pursue APICS certifications and we promote that by organizing various events.

Besides encouraging our members for APICS certifications, we arranged an industrial visit this semester in collaboration with IISE to Amazon Fulfillment Center, Oklahoma City. The visit gave us great insights in warehouse operations and management of a big company. We were able to gain a first-hand experience in the retrieval, sorting and dispatch of the packages in an extremely quick and efficient way.

This semester has been quite successful in terms of goals we had set. The committee members are graduating this semester, and we are looking forward to new faces in the committee to further our objective of growing in the supply chain domain.

Faculty Advisor: Dr. Tieming Liu

Committee Members:

- Pranav Muttha, President
- Arunprakash Elavarasan, Secretary
- Sourabh Nashte, VP Education and Program Planning
- Paritosh Mehta, VP Membership and Networking
- Ishita Gupta, VP Finance
- Sreeja Malka, Webmaster

INFORMS

The Institute for Operations Research and the Management Sciences (INFORMS) is the largest society in the world for professionals in the field of operations research, management science, and analytics. The OSU Student Chapter of INFORMS is a student lead campus organization focused on promoting student learning, professional advancement, and camaraderie with fellow students and faculty within the field of operations research and the 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 OR/MS professionals. Upcoming activities for Spring 2019 include:

Social gathering of faculty members and grad students
Hosting the seminar series
A workshop on R programming

The INFORMS student chapter advisor is Dr. Juan Borrero and the Spring 2019 student officers are:

Mohammad Javad Naderi, President
Akash Gupta, Vice President

If you have any questions or would like to connect with the student chapter, please feel free to email Mohammad Javad Naderi at mnaderi@okstate.edu Also, don't forget to check out our Facebook page "INFORMS Student Chapter – Oklahoma State University" for more updates on events and chapter activities.

Alpha Pi Mu Industrial Engineering Honor Society

The purpose of Alpha Pi Mu is to recognize students who have achieved academic excellence, promote scholarly activities, and foster and atmosphere to facilitate social interactions between students and faculty. Being a part of Alpha Pi Mu gives individual scholarship and volunteer opportunities. The society is open to juniors, seniors, and graduate students who meet the membership requirements. Last semester, Alpha Pi Mu was involved in taking senior class pictures and IEM tutoring. This semester, Alpha Pi Mu secured funding for facility tours scheduled for next semester at NORDAM and Walmart. For more information about Alpha Pi Mu, you can visit their new website at apm.okstate.edu

Faculty Advisor: Dr. Manjunath Kamath

Study of Online Freight Consolidation Problem and Its Impacts

Dr. Tieming Liu
Associate Professor

The trucking industry has become an indispensable part of U.S. economy. U.S. companies transport over 70 percent of their goods across the country using freight trucking services. The trucking industry contributes around $650 billion dollars of revenue to U.S. annually. This constitutes over 84% of revenue in the country's commercial transportation sector [1].

However, the trucking industry in the U.S. is very fragmented. The trucking industry is composed of 110,000 carriers and 350,000 independent owner-operators [2]. Around 97% of carriers in America own less than 20 trucks and around 90% of carriers own 6 or lesser trucks [1]. The number of businesses which want to transport less than full truckload is also high and scattered across the country. This fragmentation presents a big barrier to improve the efficiency of the trucking industry. It is difficult for small carriers to get enough shipping demand to fill the truckload for every trip.

Newly established online freight-equipment matching marketplaces can help small carriers find shippers quickly. In online freight matching marketplaces, a mobile application is used as communication platform between carriers and businesses needing transportation. The application selects carriers based on their quote, reputation and availability. The parties meet without the intervention of the logistics company and the payment details are handle by the application.

However, online freight consolidation is much more complicated than online ride sharing, e.g., UberPOOL. In passenger transportation, both cars and passengers are standard. Whereas, in freight transportation, there are many different types and sizes of freight, and every type of trucks has its own size and weight limits. Only certain types of freight may be shipped together in the same truck. It is very difficult and time-consuming for carriers to search shippers' demand information to identify freight consolidation options. It will be very helpful if the online freight-matching marketplace could provide consolidation solutions to the carriers.

Although highly demanded, currently there are no online freight consolidation algorithms available, due to the complex nature of the problem itself. Most online matching marketplaces are small start-up companies, and they lack the recourse and expertise to develop freight consolidation algorithms. In this project, we study the Problem of Multiple Vehicles with Pickup and Delivery Time Windows (MVPDTW) in order to provide real-time freight consolidation solutions. To reduce the amount of loading and unloading labor, we also extend the MVPDTW model with LIFO (last in, first out) constraints or penalty for LIFO violations. The problem was solved with a Branch-and-Cut algorithm.

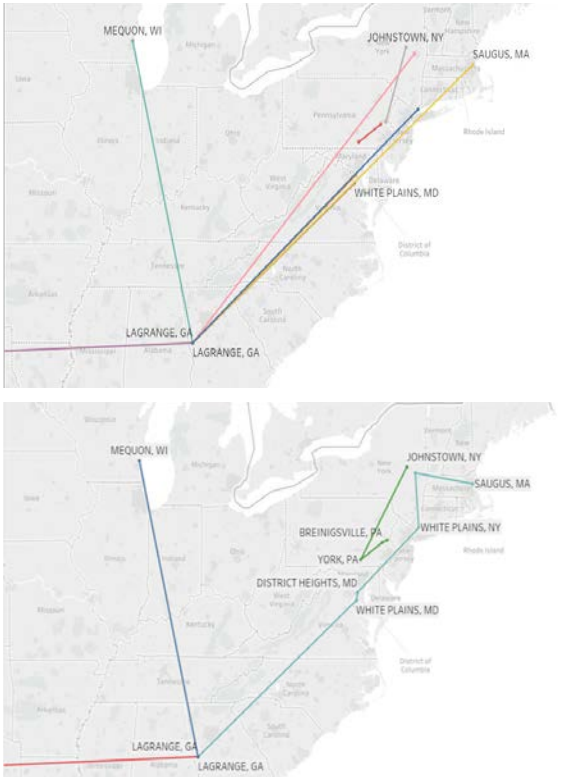

Figure 1. Unconsolidated routes(top)andconsolidated routes (bottom) along east coast

Real-world test instances from a logistics company were used for testing our model results. Ten instances transported by the company using less-than truckload (LTL) mode on May 2016 were tested. Each instance has 10 shipment orders, 22 vertices (complete graph for pickup and delivery) and time windows for every pickup and

delivery node. Maximum time a driver can spend on a road were fixed to be 55 hours (excluding breaks).

We compared consolidated routes from our model with actual routes used by the company on the 10 instances. Figure 1 shows consolidated routes from our model with actual routes used by the company on one of the instances. The results of the 10 instances are shown in Table 1. The unconsolidated fields are actual routes. Whereas, the consolidated fields show the results attained by our model. The total cost in our results include the fixed cost for dispatching a truck and the traveling cost based on traveling distance. The fixed cost for dispatching a truck includes trailer rent, licensing, fixed office cost, and cargo, collision, bobtail and life insurance. Using the estimates from [3], we assume the operating cost for trucks to be $1.38 per mile. Using the estimates from [4], we also assume that the fixed cost of dispatching a truck is $272 per day.

The solution from our model still respects customer time window constraints, vehicle capacity constraints and maximum time on a road for a truck driver. From the results, we can see that the trucks used in the consolidated case is fewer than in unconsolidated routes. For all the 10 instances, our model found consolidated routes are less expensive than unconsolidated routes.

Instance ID	Number of trucks		Total cost ($)		Total distance (miles)	
	Unconsolidated	Consolidated	Unconsolidated	Consolidated	Unconsolidated	Consolidated
1	10	5	$13,116	$7,369	7,534	4,356
2	10	5	$7,577	$6,018	3,519	3,375
3	10	6	$9,107	$6,618	4,628	3,613
4	10	7	$6,483	$5,627	2,727	2,698
5	10	8	$5,621	$4,669	2,102	1,807
6	10	5	$3,414	$1,918	503	404
7	10	8	$15,466	$13,096	9,236	7,913
8	10	7	$10,617	$9,635	5,723	5,602
9	10	6	$6,021	$4,664	2,392	2,197
10	10	6	$5,669	$3,966	2,137	1,691

Table 1. Comparison between unconsolidated and consolidated routes on different instances

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[1] American Trucking Association, "Reports, trends & statistics," 2017. [Online]. Available: http://www.trucking.org/News_and Information Reports Industry Data.aspx.
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Research Grants

Active in 2017 - 2019
B. Balasundaram, and I. V. Hicks, Collaborative Research: Risk-Averse Cluster Detection in Network Models of Big Data Under Measurement Uncertainty, National Science Foundation, 4/15/2014 - 3/31/2017, $271,649.

D. Brunson, B. Balasundaram, M. Borunda, C. Fennell, P. Hoyt, MRI: Acquisition of Shared High Performance Compute Cluster for Multidisciplinary Computational and Data-Intensive Research, National Science Foundation, 10/1/2015 - 9/30/2018, $951,570.

B. Balasundaram, A. Buchanan, and S. Heragu, Optimization-Based Aggregate Master Planning Tools for Bay Valley Foods, LLC, Bay Valley Foods, LLC, 10/1/2017–9/30/2018, $209,090.

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, Imposing Connectivity Constraints in Large-Scale Network Problems, National Science Foundation, 6/15/2017 – 5/31/2020, $258,586.

S.S. Heragu and R. Wilson (PIs), The Conoco Phillips/OSU Data Analytics Collaboration, ConocoPhillips, 7/1/19 - 6/30/22 $670,000.

M. Kamath, F. Yousefian, S. Frazier, Developing a Modeling Framework for Hazardous Material Movement in Oklahoma, Oklahoma Department of Emergency Management, 10/1/2016 - 9/31/2017, $89,961.

M. Kamath, F. Yousefian, and S. Frazier, "Flow Visualization and Risk Assessment of Hazardous Material Movement in Oklahoma," Oklahoma Department of Emergency Management, 10/1/2017 - 9/31/2018, $119,985.

M. Kamath, F. Yousefian, and S. Frazier, Development of a GIS Application for Analyzing HazMat Flows in Oklahoma, Oklahoma Department of Emergency Management, 10/1/2018 - 9/31/2019, $131,620.

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

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 - 7/31/2020, $90,000.

T. Liu and C. Zhao, Studying the Impacts of Freight Consolidation and Truck Sharing on Freight Mobility, Transportation Consortium of South Central States (TranSET), 5/1/2017 - 10/31/2018, $55,000.

C. Zhao, Data-Driven Optimization on Power Grid Investment, Operation and Resilience, Argonne National Laboratory, 9/01/2016 - 8/31/2019, $30,000.

C. Zhao and Y. Guan, Collaborative Research: Data-driven Risk-Averse Models and Algorithms for Power Generation Scheduling with Renewable Energy Integration, National Science Foundation, 10/1/2016 - 9/30/2019, $403,519.

C. Zhao and R. Jiang, Collaborative Research: Enhancing Power System Resilience via Data-Driven Optimization, National Science Foundation, 09/01/2017 – 8/31/2020, $401,796.

Journal Publications

Papers published or accepted in 2017-2019

J. Ma and B. Balasundaram. On the chance-constrained minimum spanning k-core problem. Journal of Global Optimization, October 2018. Accepted for publication.

S. Sun, Z. Miao, B. Ratcliffe, P. Campbell, B. Pasch, Y. A. El-Kassaby, B. Balasundaram, and C. Chen. SNP variable selection by generalized graph domination. PLOS ONE, 14(1):1–18, January 2019.

Y. Lu, E. Moradi, and B. Balasundaram. Correction to: Finding a maximum k-club using the k-clique formulation and canonical hypercube cuts. Optimization Letters, 12(8):1959–1969, November 2018.

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Z. Miao and B. Balasundaram. Approaches for finding cohesive subgroups in large-scale social networks via maximum k-plex detection. Networks, 69(4):388–407, July 2017.

F. Mahdavi Pajouh, E. Moradi, and B. Balasundaram. Detecting large risk-averse 2-clubs in graphs with random edge failures. Annals of Operations Research, 249(1):55–73, February 2017.

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H. Validi, A. Buchanan. A Note on "A linear-size zero-one programming model for the minimum spanning tree problem in planar graphs". Networks, 73(1): 135-142, 2019.

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A. Buchanan, Y. Wang, S. Butenko. Algorithms for node-weighted Steiner tree and maximum-weight connected subgraph. Networks, 72(2): 238-248, 2018.

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E. Khodabandeh, L. Bai, S.S. Heragu, G.W. Evans T. Elrod and M. Shirkness, Modeling and solution of a largescale vehicle routing problem at GE Appliances and Lighting, International Journal of Production Research, 55(4): 1100-1116, 2017.

A. Paleshi, K.H. Bae, G.W. Evans, and S.S. Heragu, A simulation-based optimization approach for mitigation of pandemic influenza, IISE Transactions on Healthcare Systems Engineering, 7(2): 107-120, 2017.

D. Roy, A. Krishnamurthy, S.S. Heragu, and C.J. Malmborg, A multi-tier linking approach to analyze performance of autonomous vehicle-based storage and retrieval systems, Computers and Operations Research, 83: 173- 188, 2017.

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Ma, J., Y.T. Leung, and M. Kamath, 2019, "Service System Design under Uncertainty: Insights from an M/G/1 model," Service Science.

Piri, S., Delen, D., Liu, T. 2018. A Synthetic Informative Minority Over-Sampling (SIMO) Algorithm Embedded into Support Vector Machine to Learn from Imbalanced Datasets. Decision Support Systems, 106, 15-29.

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Gupta, A., T. Liu, S. Shepherd, W. Paiva. 2018. Using Statistical and Machine Learning Methods to Evaluate the Prognostic Accuracy of SIRS and qSOFA. Healthcare Informatics Research. 24(2), 139-147.

Piri, S., Delen, D., Liu, T., & Zolbanin, H.M. 2017. A Data Analytics Approach to Building a Clinical Decision Support System for Diabetic Retinopathy: Developing and Deploying a Model Ensemble. Decision Support Systems, 101, 12-27.

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Zhou, Y., T. Liu, C. Zhao. 2018. Backup Capacity Coordination with Renewable Energy Certificates in a Regional Electricity Market. IISE Transactions, 50(8), 711– 719.

Zhou, Y., T. Liu, G. Cai. 2018. Impact of In-store Promotion and Spillover Effect on Private Label Introduction. Accepted by Service Science.

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The Cowboy Academy

The Cowboy Academy Vision
For graduates to achieve their most valued and rewarding careers!

If you are connected to the OSU IEM program on social media, you may have already watched a short video on the IEM Facebook page showcasing some of the aspects of IEM program. It is the first in a series of videos for social media, and the beginning of implementing a new marketing campaign for IEM brought about through the efforts of The Cowboy Academy's marketing committee. Over the next 12 to 18 months, we expect to increase awareness of the OSU IEM program among potential students, faculty members, and the general public. The comprehensive plan was presented to the TCA board and at the annual meeting last fall and approved by both bodies.

However, we need your help to put all of the pieces of the plan into practice. First, the plan calls for some activities that will need to be funded through donations. We are asking TCA members to consider helping to implement the marketing program via a donation to underwrite costs such as paid search marketing, paid social media advertising, and video production. Secondly, the plan calls for telling the stories of alumni to help people understand what is possible as an IEM graduate. If you're willing to be interviewed by our marketing team, please let Dr. Heragu know so that we can coordinate that at your convenience. Donation commitments can also be made via Dr. Heragu. We look forward to sharing the successful outcomes of the effort in future newsletters, and as always, thank you for everything you do to support the program and the university.

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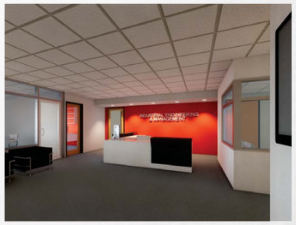
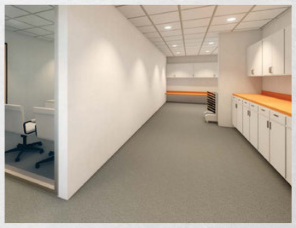
GRAND OPENING





SAVE THE DATE

FRIDAY,
SEPTEMBER 27

Make plans now to join us for the grand opening of the renovated third floor of Engineering North.

TO LEARN MORE:
http://iem.okstate.edu/renovations

INDUSTRIAL ENGINEERING & MANAGEMENT

INDUSTRIAL ENGINEERING AN

Engineering North 3rd Floor Renovation

Naming Opportunities

Office Spaces

Faculty Office (24) | $10,000
Department Head Office | NAMED
Staff Office (3) | $10,000

Classrooms

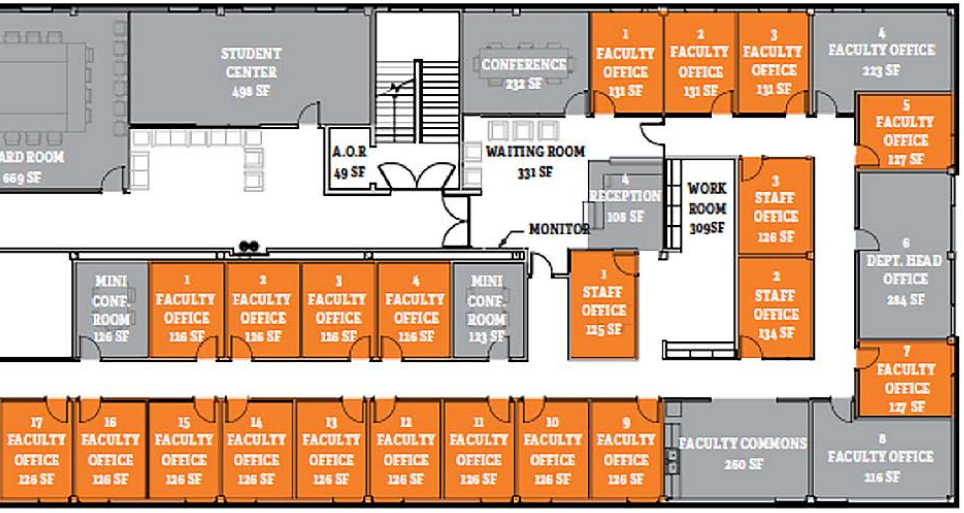
30-Person Classroom | $100,000
50-Person Classroom | $150,000
80-Person Classroom | $250,000

Meeting Spaces

Board Room | NAMED
Conference Room | NAMED
Reception | NAMED
Faculty Commons | NAMED
TA Office | NAMED
Mini Conference Room (2) | NAMED
Student Center | NAMED
Student Lounge | NAMED

School | $20M | **Program** | $10M | **Floor** | $2M

D MANAGEMENT



How to *Give*

- Go to IEM.okstate.edu
- Click the GIVE button
- Complete the secure, online form
- Include instructions regarding use of your gift in the "Comments" field

For more information contact:
Bryce Killingsworth, Assistant Director of Development, at bkillingsworth@OSUgiving.com or 405.385.5623.

Renovation Sponsors

IEM will be moving back into the renovated Engineering North in June. The renovation would not have been possible without the support of our generous alumni and supporters.

Katherine Tompkins McCollom in honor of Dr. Neal McCollom

Frank Gregory

Brenda Shumate in honor of Dr. John Nazemetz

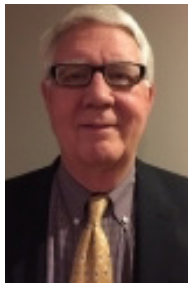
Syam Antony and Jared Green

Jamie Matlock in honor of Dr. David Pratt

Tom Britton

Webco Industries

Mitch Myers



Mike Bartlett

Laura Easley

Tony Bacher

Sunderesh and Rita Heragu
in honor of Dr. Ken Case

Rick and Sandra Webb

Spring Senior Design Class

Graduating Industrial Engineering and Management (IEM) 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.

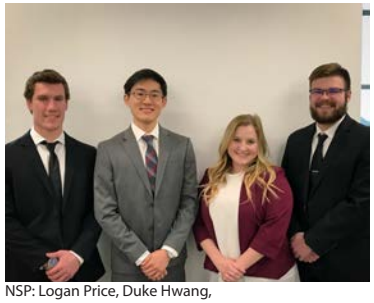
American Airlines: Michael Moylan, Ahmed Almuhanna, Erica Crain, Andrew Browning

Textron Aviation: Kevin Fabian, Chisom Anunobi, Brittany Windsor, Justin Chan

SWEP: Blake Fabian, Abbye Coan, Elle Doyle, Jessica Tyler

OnCue: Willis Cook, Taylor Lambdin, Rania Farhani, Jordan Spencer

Mutual: Cynthia Craig, Noah Seltzer, Emilie Ritz, Hannah Anthony



NSP: Logan Price, Duke Hwang, Maddie Marko, Caleb Coats

Integris: Miguel Leal, Kalley Schwind, Maddie Hawkins, Megan Basenfelder

IEM Faculty

Dr. Baski Balasundaram
Wilson Bentley Chair and Associate Professor
Graduate Program Director

Dr. Juan S. Borrero
Assistant Professor

Dr. Austin Buchanan
Assistant Professor

Dr. Terry Collins
Associate Professor and Undergraduate Program Director

Dr. Camille DeYong
Associate Professor

Dr. Jennifer Glenn
Lecturer

Dr. Tim Hardin
Lecturer and ETM Director

Dr. Sunderesh Heragu
Regents Professor and School Head
Donald and Cathey Humphreys Chair

Dr. Manjunath Kamath
Professor

Dr. Tieming Liu
Associate Professor

Dr. Farzad Yousefian
Assistant Professor

Dr. Chaoyue Zhao
Jim and Lynne William Chair
Assistant Professor

IEM Staff

Laura Brown
Senior Financial Assistant
Administrative Support Supervisor

Mya Jackson
Student Worker

Brenda Johnson
Assistant Director, ETM

Valerie Quirey
Sr. Administrative Support Assistant

Cara Sides
Student Worker

Matt Taylor
IEM Undergraduate Academic Advisor