Alumni and friends of IEM,

Have you seen our new billboards on Highway 51? If not, look for them the next time you drive into Stillwater from I-35. One of them is on the North side of the highway about 6 miles from the campus (just before the Lake Carl Blackwell entrance as you are driving into Stillwater). Another is on the South side about 4 miles from OSU campus. I should mention that the slogan “Design the next BIG thing” was proposed by an IEM alumnus. See the last page.

There is a lot to report. Once again, we had a very successful night at the annual IIE conference this year. In fact, the recipient of the Frank and Lillian Gilbreth award, Dr. James Tompkins, jocularly remarked that with so many OSU alumni, faculty and students receiving awards, his brother, also an OSU alum, should not have been left out! See page 11 for details on the awards won by our students, faculty and alumni. Speaking of awards, please let me know if you are a member of ASQ, IIE, INFORMS, SME, or other professional organizations so we can nominate you for their awards.

We welcomed 32 new students into the freshman IEM class this fall. This appears to be a record. Drs. DeYong, Pratt and I participated in a summer ’boot’ camp where the students were introduced to a hands-on IEM project.

A few of our alumni have begun a mentoring program in which eight alumni (see page 9) will serve as mentors for IEM freshmen, sophomore, juniors and seniors. They will meet with the students on campus about twice a year, have periodic phone calls, and be available to serve as a ‘sounding board’ as necessary to current students. I would like to thank Steven Welch and Syman Anthony for leading this effort, and Ravi Chandra, Randy Clark, Cody Eden, Jared Green, Josh Hallman and Brenda Shumate for volunteering to help current IEM students. Through this program, students can consult with mentors about their education and professional careers, including seeking help with resume writing, interviewing, succeeding as an IEM professional, how to progress in their career while at OSU and beyond, etc.

IEM faculty strength has grown from 11 in Spring 2015 to 15 this Fall. We will add two more faculty positions in Fall 2016 – one in manufacturing processes and another in simulation.

ABET was on campus recently to evaluate the IEM program and we hope to hear about their accreditation decision by next July. IEM has been continuously accredited since at least 1936.

The College of Engineering, Architecture and Technology has embarked on the construction of a state-of-the-art undergraduate laboratory building that is to be used exclusively for undergraduate engineering education. Planning is underway and Dean Tikalsky is visiting with alumni to raise funds for the project. Current plans show that the building will have about 60,000 square feet of laboratory space. The building will be constructed adjacent to the School of Architecture and is expected to cost $30 million.

(Continued on page 6)
WHO’S WHO IN IEM

FACULTY & STAFF SPOTLIGHT

Dr. David Pratt

FACULTY SPOTLIGHT

Dr. David Pratt is in his 23rd year on the IE&M faculty. Prior to joining IE&M, he spent 13 years in industry as a consultant and manager working for three companies in different industries: oil & gas, aerospace, and pulp & paper. Dr. Pratt has served IE&M as its Undergraduate Program Director for the past 11 years. In that time, he has guided 283 undergraduates to complete their BS IEM degree and conducted over 2,000 one-on-one advising sessions. At the graduate level, Dr. Pratt has served as Committee Chair for 9 PhD students and 114 MS students. Dr. Pratt is passionate about IE and his role in teaching and mentoring students. He shares his enthusiasm for IE in the classroom. During his OSU career, he has taught 18 different courses with combined enrollments in excess of 7,400 students. “I believe the learning experience must be crafted to effectively combine many things; solid foundation in time-tested concepts and theory, understanding of the current state of the art, reinforcement using traditional ‘end of chapter problems’, and practical application based on ‘real world’ problems and projects.” Dr. Pratt’s professional, teaching, and research interests are in the design and implementation of manufacturing planning & control systems as well as economic analysis & justification of engineering projects.

“I believe the role of a professor is to excite, challenge, and motivate students to learn the material at hand and to become life-long learners; in other words, to nurture and encourage the never-ending process of education.”

Sarah Lewis

STAFF SPOTLIGHT

Sarah joined IEM as an administrative support specialist in February of 2015. She was born and raised in Muskogee, OK where she has seven younger sisters. She earned her B.S. in Biology with a minor in Environmental Science from Northeastern State University, Tahlequah, OK., in 2013. Afterwards, she worked seasonally as a Park Naturalist and substitute Zoology teacher. Sarah plans to earn her OSU M.S. in Natural Resource Ecology Management in the near future. She lives in Stillwater with, Aaron, their two children; Kamryn, age 5, Maxwell, age 7 months, and their dog, Darwin. Sarah loves to read, write, listen to music, hike, and learn to cook new things. She is also learning to play guitar. Sarah wants to help make the world a better place by working in wildlife and habitat conservation. She also hopes to adopt more children after completing her education.

“Most of the shadows of this life are caused by standing in one’s own sunshine.”

-Ralph Waldo Emerson

IEM Faculty and Staff

Jennifer Arnold
Student Worker
Dr. Balabhaskar Balasundaram
Associate Professor
Laura Brown
Senior Financial Assistant & Administrative Support Supervisor
Dr. Austin Buchanan
Assistant Professor
Dr. J. Cecil
Associate Professor
Dr. Terry Collins
Associate Professor
Dr. Camille DeYong
Associate Professor
Dr. Jennifer Glenn
Lecturer
Dr. Sunderesh Heragu
Professor & School Head
Megan Hughes
Administrative Support Specialist
Dr. Manjunath Kamath
Professor & Graduate Program Director
Dr. William J. Kolarik
Professor
Sarah L. Lewis
Administrative Support Specialist
Dr. Tieming Liu
Associate Professor
Dr. John W. Nazemetz
Associate Professor
Dr. Arash Pourhabib
Assistant Professor
Dr. David Pratt
Associate Professor & Undergraduate Program Director
Dr. Farzad Yousefian
Assistant Professor
Dr. Chaoyue Zhao
Assistant Professor
Trey Gilbertson
UNDERGRADUATE STUDENT SPOTLIGHT

Trey Gilbertson is an IEM senior minor- ing in Economics. With two siblings as OSU grads, he is a diehard fan. Trey is involved with a number of on-campus organizations, such as CEAT Student Council, IIE, Society of Petroleum Engineers, The Wells Project, and a National Greek Letter Fraternity. He spent the last semester studying at the University Of Ljubljana Faculty Of Economics in Ljubljana, Slovenia. Trey is interested in the energy industry and has aspirations for a career on the production and distribution end of the spectrum. IEM has allowed him to learn the science of solving problems, while time abroad has provided him with exposure to a vast array of cultures, economies, and livelihoods. He is currently seeking a full-time summer internship in which he can apply what he’s learned. Trey loves spending time with friends, helping others resolve issues, and generally enjoying his current activities. Regardless of where he ends up, Trey is confident that he has the skills to solve problems, make things better, and contribute to the betterment of society.

“IT is the mark of an educated mind to be able to entertain a thought without accepting it.” – Aristotle

Jacob George
MASTERS STUDENT

Jacob joined OSU as a master’s student in IEM in Fall of 2014. At OSU, he is working under Dr. Jennifer Glenn as one of her lead teaching assistants for ENGR1412 – Introduction to Computer Programming. He received his bachelor’s degree in Industrial Engineering from Nagpur University in 2012. He worked for more than 2 years in a leading technology outsourcing company. He was the cultural secretary for the Students’ Representative Council where he was involved in organizing national-level cultural and technical events. He loves playing console games and listening to music in his free time. After graduation, he wishes to work in the supply chain industry.

“IF you want to shine like a sun. First burn like a sun.”
– Dr. A.P.J Abdul Kalam

Diana Rodríguez Coca
DOCTORAL STUDENT SPOTLIGHT

Diana is from Colombia. She is here with her husband Cristian and her 20 month old son Jacob. She received her B.S from Escuela Colombiana de Ingenieria Julio Garavito in 2000 and her M.S. from Universidad de los Andes in 2004 both in Industrial Engineering. Diana worked 10 years on the faculty at the Escuela Colombiana de Ingenieria. During her time there, she worked in the optimization of supply chain for hospital waste and in the creation of teaching methodologies that connect education in engineering with social projects. Diana also worked as a volunteer in different ONG in Colombia helping vulnerable communities. She is working with Dr. Kamath on her dissertation studying Humanitarian Logistics.

“Each good morning we are born again, what we do today is what matters most.” – Buddha

David Reed
IAB SPOTLIGHT

For the last 35 years David has worked in various software development, systems analyst, and leadership roles for manufacturing companies. He’s worked for Webo Industries since 1988 and currently serves as the Chief Information Officer. He has led SAP ERP implementations and written or led the development of systems covering sales, production planning, inventory, manufacturing execution, quality, finance, and their integration with industrial automation. He’s been part of the transition of computing from punched cards and magnetic core memory to cloud-based systems. In his current role he’s focused on how to use information technology to create value for Webo and its customers, creating competitive advantage using IT, and developing skills and leadership in those he leads. Over the years, he has worked with many OSU students and graduates as well as many current and former OSU IEM faculty on a wide variety of projects that utilize the skills taught in IEM. The work on those projects gave him an appreciation for IEM, OSU and the challenge of learning something new. David’s education was in computer science at the University of Nebraska. He brings his experiences to the IEM Industrial Advisory Board and has been a member since 2011.

“I am a believer in lifelong learning and accepting challenges that fall outside of my experience. Both are important to success and can lead to unexpected opportunities.”
WHO’S WHO IN IEM

ALUMNI SPOTLIGHT

DR. PRAHALAD RAO

Prahalad earned his master’s and doctoral degrees in IEM in 2006 and 2013, respectively, under the aegis of Dr. Satish Bukkapatnam. His research was closely guided by the late Dr. Ranga Komanduri, Dr. Ken Case, and Dr. Zhenyu Kong. Both his MS thesis and PhD dissertation were nominated for IIE awards. His PhD dissertation was recommended by Dr. Case for the university-wide research award. In 2014, he was the School’s finalist for the IIE Pritsker Dissertation award, and in 2010 he was a finalist for the IIE John Imhoff graduate scholarship. In 2009 he was awarded the outstanding research assistant award by the IEM chapter of Alpha Pi Mu. After finishing his Ph.D., he worked as a post-doctoral fellow at Virginia Tech under Dr. Zhenyu Kong. Prahalad joined the Department of Systems Science and Industrial Engineering at Binghamton University in 2014 as assistant professor. While in this role, he received an NSF award. A recent research article published in the *IIE Transactions* was highlighted in the September 2015 issue of the *Industrial Engineer* magazine.

Prahalad’s research focuses on sensor-based modeling in advanced manufacturing, including ultraprecision machining, semiconductor planarization, and additive manufacturing (3D printing).

He is a licensed HAM radio operator with the call sign K5RAO. Prahalad and his wife Shilpa (Oklahoma State MBA, 2014) currently reside in Syracuse; Shilpa is studying for her doctorate in Marketing at Syracuse University. They are both fanatically obsessed with Cowboys sports.

Welcome New Students!!

Undergraduate

- Abbye Coan
- Caleb Coats
- Erica Crain
- Derek Dixon
- Jacob Evett
- Blake Fabian
- Whitney Fillmore
- Keith Gage
- Nathan Green
- Madeline Hawkins
- Erik Hjelm
- Macie Hull
- Erin Kraft
- Joseph Lanza
- Miguel Leal
- Mitchel Liseau
- Erinn McArtor
- Dakota Morgan
- Bich Nguyen
- Landen Peeler
- Nicholas Perez
- Kalley Schwind
- Noah Seltzer
- Cody Sheets
- Samantha Skaggs
- Isaac Smith
- Jordan Spencer
- Hunter West
- Rachael Wheat
- Connor Wilkins

Graduate

- M.S.
  - Aditya Agrawal
  - Nikita Agrawal
  - Shukla Avula
  - Mohammad Azhar
  - Yogesh Bapat
  - Shraddha Bherde
  - Vaneet Bhutani
  - Anshul Dakwale
  - Lavanya Eswaran
  - Venkata Aswin Reddy
  - Gajjala

- Rajeev Gangwar
- Sutej Indap
- Aditya Janefalkar
- Mohit Khandelwal
- Ankita Khurana
- Ashwini Kumar
- Kounduri
- Karthik Krishnamoorthi
- Pranav Kulkarni
- Sankeerthan Mali
- Manoj Madhavaa
- Manikam

- Gaurang Margaj
- Pranav Nashte
- Aniket Padval
- Siddhant Panigrahi
- Vandan Patel
- Urjeet Singh
- Pawar
- Manikhandan
- Rajendran
- Harshwardhan
- Rathod
- Rahul Sati

- Jay Shah
- Sunuktaeeng Shaikh
- Arijit Sharma
- Akanksh Shetty
- Ritesh Shetty
- Mukesh Singh
- Vibhore Srivasta
- Venkanna Dora Takasi
- Sudeep Chandan
- Talatoti
- Tilip Thiyagarajan
- Shashwat Tiwari

- Archit Upadhyay
- Sada Shiva Vaddamani
- Kisorkumar Varadarajan
- Yeswanth Kumar
- Yaddanapudi
- Chunming Yang
- Ph.D.
- Sadra Babaeh
- Kuntal Ghosh
- Nahid Sadat
- Majlesinasab
- Ronny Pacheco

Welcome and congratulations! We look forward to getting to know all of you and helping you on your way to becoming industrial engineers!
Dear OSU IE&M Partners,

Greetings from the OSU IE&M Industrial Advisory Board (IAB). The IAB serves the OSU IE&M community through Student, Faculty, and Alumni outreach, and through providing industry feedback in the ABET Accreditation process.

The IAB would like to extend its sincere appreciation to each of you who expressed an interest in joining the Board. The response was overwhelming and we were extremely pleased to know a number of you are willing to give back to OSU IE&M in this capacity. Please join us in welcoming our new Industrial Advisory Board members.

**Syam Anthony**
Syam is a 2004 graduate of OSU with a Bachelor of Science in Industrial Engineering. He also received a MBA from Georgia Institute of Technology in 2014. Syam is currently employed by Wal-mart Stores, Inc. in Bentonville, AR.

**Jonathan Womack**
Jon is a 1999 graduate of OSU with a Bachelor of Science in Industrial Engineering. He is currently employed by JPMorgan Chase & Co in Chicago, IL.

**Jack Goertz**
Jack is a 1972 graduate of OSU with a Bachelor of Science in Industrial Engineering and a Master’s of Science in Industrial Engineering in 1974. Jack worked for Southern Company for 28 years before retiring in 2001. Jack founded Tandems, Limited and Recumbents, Too, a tandem and recumbent bicycle specialty store. He currently resides in Birmingham, AL.

Sincerely,

OSU IE&M Industrial Advisory Board
The School of Industrial Engineering and Management is also embarking on a fund raising campaign. You will see below several opportunities for you to give back to your alma mater. If you wish to donate, please send a check payable to the “Industrial Engineering and Management Fund”, Oklahoma State University, 322 Engineering North, Stillwater OK 74075.

- $2,000 Study Abroad scholarship per student for up to 12 students
- $2,500 with match from donor gifts - Donor pays $2,500 to the Engineering Building Fund for a $5,000 scholarship in your name

$25,000 for sponsoring IEM Networking events
$500,000 for endowing a Professorship

$25,000 annual sponsorship for student travel to IIE conferences, commencement lunches, IAB-student luncheons and IEM reception at annual IIE meeting.

$1,000,000 for endowing a Chaired Professorship

$1,000 for space on donor wall
$1,000,000 for naming opportunity for a lab
$2 million for naming opportunity of student lounge

$15,000 annually for two billboards
$75,000 annual sponsorship for weekly seminar series with a naming opportunity
$20 million for naming and endowing IEM

As always, we are open to new ideas, suggestions and comments on how we can enhance the IEM program at OSU even further. Please do not hesitate to contact me with any suggestions or comments at Sunderesh.heragu@okstate.edu
IEM Class Featured in News

Innovative learning experiences were part of an IEM senior elective/graduate engineering course titled 'Virtual Engineering for Space Systems'. It’s an interdisciplinary IEM course offered each spring and is open to all engineering and science majors (including computer science students) at OSU.

As part of the course, students interact with NASA engineers to design a Deep Space Habitat where four astronauts can live and work. Biweekly teleconference meetings are held between students and engineers at NASA’s Marshall Space Flight Center in Huntsville, Alabama. Based on the feedback they receive from NASA, the students modify and continue to develop their habitat designs. A unique aspect of this course is the extensive use of digital mockup techniques and technologies in developing the Habitat design. Dr. Cecil’s Virtual Reality Lab was used for these activities.

The images show two of the students, Kevin Gasperino and Yajun Lu discussing the Habitat’s design using the Virtual Reality Powerwall. The design activities were split into several thrust areas: fitness (exercise equipment and areas), hygiene (bathroom), food (eating area, storage and hydroponics), health (medical checkup area, sleeping quarters) and general storage. The culmination of the class activities was a visit to Marshall Space Flight Center in Huntsville, AL, where students presented their final design to NASA engineers. In spring 2015, David Reynolds (Marshall NASA) coordinated the class interactions with OSU students. We would like to thank Mr. Reynolds and his colleagues for supporting these learning experiences.

The use of digital mockup technologies, including Virtual Reality, is part of a Smart Technologies movement happening worldwide in both academia and industry. In educational realm, its part of Cyber Learning approaches being adopted to enrich and enhance teaching engineering education. Dr. Cecil has been actively exploring creating new Cyber Learning approaches, which also includes developing 3D Virtual Learning Environments to enrich student learning in this course and others. Our IEM department is one of the few departments nationwide which has adopted such innovative teaching methods to improve student engagement and learning.

The Oklahoma Space Grant Consortium provided funds for the students to travel to Marshall NASA and present their habitat designs. We want to thank them for their support of this important educational activity.
Q&A WITH JACK GOERTZ

Jack Goertz was born in Enid, OK and grew up on a farm between Medford and Wakita, OK. He graduated high school in 1969. He attended OSU on a President’s Scholarship and graduated with a BSIE. He received his MSIE in 1974. During his time at OSU, Goertz served a term as President of AIIE as well as Alpha Pi Mu. He was also a member of Sigma Tau – Tau Beta Pi and an IE graduate assistant. Upon graduation, Goertz took a position as an Assistant Project Planner with Southern Company where he worked for 28 years. Using tools and techniques gained during his time at OSU, he retired as Senior Engineer in the IT department. He married his wife, Susan, in 1981. They have owned Tandems, Ltd, a Birmingham bicycle business, for 31 years.

How have your IEM degrees helped you?
My IE degree was instrumental in obtaining my job with Southern Company. I used tools and techniques I learned at OSU to help me with the power plant scheduling, and programming techniques learned to launch into new jobs within the Southern Company. I use methods learned in Engineering Economics to analyze purchases and make business decisions in my retail endeavors, and I’ve used many things learned in my classes in Ergonomics to set up the shop area of the three bicycle shops I’ve been associated with in Birmingham, AL.

What aspects of your OSU affiliation (while you were a student) or faculty interactions stand out?
I thoroughly enjoyed the many friendships I made as a student at OSU in IE. Even 40 years after graduating, I still keep in touch with several of my former classmates, many who are also now retired and enjoying different careers.

What has motivated you to stay engaged with OSU years after graduation?
OSU is an important part of my life. I received a quality education, made many great friendships, and got a great start toward a fantastic career. While I was not the most active OSU alum – living in Alabama presents some challenges to staying closely connected to OSU – I am an OSU Cowboy for life!

What do you think the future holds for IEM student?
IEM students have a world of opportunities to take advantage, but it may not be easy! While IEM students today have the opportunity to study and specialize in a number of different fields, many companies today do not seem to realize the benefits of having an industrial engineering department. Today’s IEM students need to think outside the box and look for ways to use their interests and abilities in ways that may not be typical, such as in retail, the service industries, or in research.

What are a couple highlights of your career?
I’ve had many high points in my career. It would be impossible to isolate one or two, but I’ll try – Back in the early days of personal computers, one of the first PC’s the Southern Company purchased landed on my desk. I was admonished to “Figure out what to do with it and see if we can use it somehow”. I did – and I’m very proud to be one of the pioneers in Southern Company who helped bring PC’s into the company. Later, I was also involved in designing and installing the first local area network within the Southern Company. I can look back with pride at how far small computers and networking has grown in the world, and knowing I had a part in making it happen, at least within the Southern Company!

Why is international exposure important for today’s engineers? How would they benefit from availing of study abroad opportunities?
We don’t live in isolation. Almost everything we do today has international implications. If today’s engineers can’t operate or communicate with their international counterparts, they are severely hindered. If our IEM students have the chance to broaden their base with a semester or longer of international study, they should avail themselves of that opportunity.
Purpose
• Formalize a mentorship program for IEM undergraduates
• Provide objective career guidance and feedback from IE professionals
• Align with IEM department’s strategic outreach objectives

The Framework
• Based upon conceptual discussions with IEM School Head, current students, and faculty—students need a resource for mentorship.

• Students are encouraged to contact mentors, as needed, with questions or concerns. Mentors are available via email or through the program’s LinkedIn group.

IEM Alumni Mentors
Supporting OSU Industrial Engineering & Management

Steven Welch
stevenwelch@walmart.com
Current employer: Walmart (since 2006)
BS IEM 2005

Syam Antony
syamantony@walmart.com
Current employer: Walmart (since 2005)
BS IEM 2004

Jared Green
jagreen@nalco.com
Current employer: Nalco (since 2007)
Previous employer(s): Accenture
BS IEM 2005

Randy Clark
randy.clark@gardnerdenver.com
Current employer: Gardner Denver (since 2013)
Previous employer(s): Cameron
BS IEM 2005

Josh Hallman
joshua.w.hallman@usps.gov
Current employer: USPS (since 2006)
BS IEM 2006

Cody Eden
cody.eden@dvn.com
Current employer: Devon (since 2013)
Previous employer(s): ATC Drivetrain, IEC (LXU), Ingersoll Rand, Brunswick Corp.
BS IEM 2001

Brenda Shumate
brenda.shumate@williams.com
Current employer: Williams Company (since 2014)
Previous employer(s): Occidental Petroleum, The Tagos Group, Key Energy, Aera Energy, Bechtel
BS IEM 1991, MBA 2006

Ravi Chandra
ravi@powercosts.com
Current employer: Power Costs Inc. (since 2011)
MS IEM 2010
OSU held its spring & summer commencement ceremony on May 8th and 9th. We would like to congratulate the following IEM students for their hard-work and dedication in completing their degree. These students received either: Bachelor of Science in Industrial Engineering and Management (BSIE), Master of Science (MS), Master of Science in Engineering Technology Management (MSETM), or Doctorate of Philosophy (PhD).

BSIE
Samuel Cannon
Blake Fulton
Eric Gilbert
Natasha Hagen
Kaitlin Kliewer
David Koesno
Ann Meister
Tyler Moore
Jeremy O’Berry
Savannah Parsons
Morgan Reiner
Nicole Simmons

Cameron Sissom
Tristan Stradtmann

Mohit Agarwal
Prabhakara Allampalli
Vinod Basalalli
Sahil Bhosale
Jayaram Burri
Sujay Chogule
Vedika Dengada
Charuta Deshpande
Amit Dhakate
Dustin Donnell

PhD
Mario Cornejo Barriere

Seyednima Taheri
Yan Tai
Devi Velugotla
Zeyu Wu
Harsha Yakkanti
Justin Zawoiski

Balakrish
Mahesh Nallapaneni
Dinesh Nallasamy
Bharath Narayanan
Rohit Nimmagadda
Vidisha Patak
Varun Pingale
Shi Pow
Shravan Rao
Abraham Robledo
Gallegos
Sri Siddabathuni

Good luck in all your future endeavors!
OSU SHINES BRIGHT AT IIE ANNUAL CONFERENCE IN NASHVILLE

Oklahoma State University's School of Industrial Engineering & Management (OSU IEM) recently attended the IIE Annual Conference in Nashville, where faculty, staff, and alumni were recognized for their outstanding achievements. Dr. David Pratt and Kenneth Case, faculty members at OSU IEM, won the IIE Joint Publishers Book-of-the-Year Award for their 1st edition of *Fundamentals of Engineering Economic Analysis*, published by Wiley. The co-authors of the book are Dr. David Pratt, Kim Needy, Kellie Grasman, Kenneth Case, and John White.

Dr. J. Cecil received the IIE Award for Technical Innovation in Industrial Engineering. He was pictured with IIE President Jim Moore and President-Elect Michael Foss.

OSU’s IEM attendees included Drs. Baski, Pratt, Cecil, and Heragu as well as Dean Tikalsky. Emeritus Faculty members Ken Case, and alumni Hans Demmel, Don Humphreys, Lyndon Taylor, and Rick Webb were among those who attended. Students included, Juan Ma, Bailey Nett, Natasha Hagen, Lacy Greening, Andrea Lewis, Carly Reaves, Ian Giese, Zechariah Shrum, Connor Mojo, Babak Farmanesh, and Esmaeel Moradi.

**Alumni**
- Dr. Hans Demmel - *Fred C. Crane Distinguished Service Award*
- Dr. Rick Webb and Mr. Lyndon Taylor - *Captains of Industry Award*
- Mr. Don Humphreys - *Outstanding Achievement in Management Award*

**Faculty**
- Dr. Baski - *IIE OR Division Annual Award for Excellence in the Teaching of Operations Research*
- Dr. Case - *Wellington Award from the Engineering Economy Division*
- Dr. Zhao - 2nd Place, *Pritsker Doctoral Dissertation Award*

**Student**
- Andrea Lewis, Katie Luster and Weikao Wu - *Finalists for the John Deere IIE Undergraduate Student Technical Paper Competition*
- Connor Mojo - *Dwight D. Gardner Scholarship*
- Saeed Piri - *Gilbreth Memorial Scholarship*
- Lacy Greening - *Harold & Inge Markus Scholarship*

Other Awards Include:
Three IEM students were awarded scholarships for the 2015-2016 school year. Madeline Hawkins, Lacy Greening and Arun Jayaraman were all recipients of awards from various organizations. Hawkins is an incoming freshman and has been selected for the prestigious W.W. Allen Scholars Program. Greening is an undergraduate student and the recipient of the Howard Bernstein Scholarship through the Material Handling Education Foundation Inc. (MHEFI.) Jayaraman is a graduate student and recipient of the Rach Manufactures Institute/John Nofsinger Honor Scholarship.

We also have 13 recipients of various Industrial Engineering and Management Scholarships. They are: Daniel Anderson, Alyssa Danker, Trey Gilbertson, Lacy Greening, Kaitlin Krause, Taylor Mastin, Connor Mojo, Carly Reaves, Dallas Rehberg, Nader Shaker, Zechariah Shrum, Kimberly Sookbang, and Bailey Whitman.

Dr. Sunderesh Heragu, Head and the Donald and Cathey Humphreys Chair in the School of Industrial Engineering and Management was recently appointed Regents Professor at Oklahoma State University. The position of Regents Professor recognizes faculty who have made unique contributions in several areas including research, artistic performance, creativity, teaching, and extension. It is the most prestigious position that may be attained in recognition of scholarly accomplishments by faculty on the campus of Oklahoma State University. Dr. Heragu has developed deterministic as well as stochastic models for important design and operational problems arising in manufacturing, logistics, materials handling, warehousing and healthcare systems. He has authored over 250 articles and a book titled Facilities Design (currently in its fourth edition). He has received the David F Baker Distinguished Research Award from the Institute of Industrial Engineers. Dr. Heragu is also a Fellow of IIE, has won the IIE Award for Technical Innovation, the IIE Transactions on Design and Manufacturing Award and IIE Transactions Award for Best Paper published in "Feature Applications", the Gold Award of Excellence for leadership in Facilities Planning and Design, and the New York State and United University Professions New Faculty Development Award.

Brianna Harris
IEM student sets multiple National records

Brianna grew up in Tulsa, OK and graduated high school in 2010. She is the student supervisor of Jamba Juice and is set to graduate with her BSIE in Fall 2015. Afterwards, she will begin work for Textron Aviation located in Wichita, Kansas. In November of 2014, Brianna represented OSU at the International Powerlifting League (IPL) world championship held in Las Vegas, Nevada. Competitive powerlifting consists of three lifts (squat, bench press, and deadlift,) which accumulate into one total. During the championship, she was able to set two new International records in her age and weight class. These two records were a squat of 330 pounds and a bench press of 176 pounds. Since then, she has set three American records in the United States Powerlifting Association (USPA) consisting of a 336 pound squat, a 194 pound bench, and a total of 892 pounds. She will compete again at this year’s IPL world championship with goals of attaining new records and hitting the milestone of a 900+ pounds total. Brianna is also working towards her referee certification in the USPA and plans to compete in the OSU Classic bodybuilding competition as a figure competitor.

Outstanding Scholars

Congratulations Scholars!
You are truly OUTSTANDING!
**HONORS & AWARDS**

**Dr. Kamath wins Outstanding Graduate Coordinator Award**

The Oklahoma State University Graduate College and Graduate Professional Student Government Association (GPSGA) announced Dr. Kamath as the winner of the Outstanding Graduate Coordinator Award. This award is to recognize the exemplary service of the faculty who lead and manage graduate programs. The award is one of the few opportunities available to recognize the incredible contributions to graduate education made by these individuals.

The quality and continuity of the graduate program, as well as the experience of the graduate students in the program, depends in part on the talent and commitment of the graduate coordinators and their support staff. The Outstanding Graduate Coordinator Award and Outstanding Graduate Support Staff Award recognize those faculty and staff members who exceed expectations by making innovative or unique contributions that positively impact the quality of the graduate program and/or student experience.

Dr. Kamath was recognized during Graduate Education week April 13th-17th, 2015.

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**Juan Ma Receives 2015 Phoenix Award**

Juan Ma, an Industrial Engineering and Management PhD student, won the 2015 Phoenix award on April 15th, 2015. This award is the highest OSU honor awarded to graduate students.

The Phoenix Award is given annually to one doctoral student who demonstrates exemplary achievement in leadership and scholarship, community, and university service, and professional involvement. All winners have their names engraved on the Phoenix Awards Plaque located outside the Graduate College offices in Whitehurst Hall.

GPGSA, the Graduate Professional Student Government Association organized the awards and sponsored the awards ceremony.

*Winners of the 2015 Phoenix awards presented April 15 were (left to right) Dr. Jason DeFreitas, Faculty Phoenix, Juan Ma, Doctorate Phoenix, and Nathalia Graf Grachet, Master’s Phoenix. The student awards are the highest honors presented to OSU graduate students.*
Welcome New Faculty

This Fall semester we are welcoming two new faculty members, Dr. Austin Buchanan and Dr. Farzad Yousefian.

Dr. Buchanan received his BSIE in 2011 from our very own School of Industrial Engineering and Management. He went on to earn his Ph.D. in Industrial Systems Engineering from Texas A&M University in 2015. Dr. Buchanan’s research focuses on solving challenging combinatorial optimization problems arising in the design and analysis of networks. In his free time, he enjoys watching OSU football and always has music playing (e.g., The Rolling Stones, Pixies, and Ty Segall).

Dr. Yousefian received his B.S. and M.S. in Industrial Engineering from Sharif University of Technology, Iran in 2006 and 2008 respectively. He went on to receive his Ph.D. in Industrial Engineering from the University of Illinois Urbana-Champaign in 2013. His research interests include; Convex Optimization, Variational Inequalities and Games, Stochastic Approximation Algorithms, Distributed Optimization and Power Systems and Markets. In his free time, Dr. Yousefian likes to watch late night shows and movies (especially Quentin Tarantino’s) bicycle, do workouts, listen to music, and talking with his family and friends.

Thank you for joining us! Welcome to the IEM family!

Best Wishes Dr. Ingalls

Dr. Ricki Ingalls left IEM this summer to take a new position with Texas State University as the Department Chair for Computer Information Systems and Quantitative Methods in the McCoy College of Business in San Marcos, Texas.

Dr. Ingalls was with Oklahoma State IEM for nearly 15 years serving as an Associate Professor and Site Director for the Center for Engineering Logistics and Distribution (CELDi) a multi-university National Science Foundation (NSF) Industry/University Cooperative Research Center (I/UCRC). He also taught Introduction to Systems Simulation Modeling, Supply Chain Modeling, Discrete System Simulation, and many more. In 2014, he led his Simio team, “Cowboy Nation Simulation” to an impressive first place win in a worldwide simulation competition hosted by Simio. The competition included 425 participants in 130 teams from 13 countries and 27 universities. Dr. Ingalls has contributed to IEM and we will miss him greatly.

Congratulations and good luck on your new appointment Dr. Ingalls!
WHAT’S GOING ON IN IEM

Study Abroad

During the Spring 2015 semester, two IEM undergraduate students studied abroad. Trey Gilbertson visited Ljubljana, Slovenia. Trey was unsure what to expect from his trip. However, after his six-month journey, Trey says that the experience has little to do with location and everything to do with attitude. “With the right attitude and willingness to explore, you can have an unforgettable time virtually anywhere you end up.” Trey also says, “Spending time abroad provides endless opportunities to apply the problem solving skills you’ve spent years in school cultivating. You will find yourself in countless unfamiliar situations, each with an associated learning opportunity.”

Kaitlin Krause studied at Universität Salzburg in Salzburg, Austria. There she took classes that counted toward the International, Diversity, Social and Behavior credits. She was also able to travel to other European cities, help a high school class practice English, as well as meet with an Austrian family on a weekly basis to have English and German conversations. “I think my trip will allow me more opportunities as an IE. Studying abroad will give me an edge compared to others who have not because I have gained an understanding of other cultures. Employers will be more likely to send me abroad or relocate me since I have already gone abroad.”

Engineering is an increasingly global profession. A study abroad experience offers an opportunity to gain an international perspective on engineering and implement skills in a new environment. Engineering employers on all levels value the skills and experiences of those who travel abroad.

“Overall, studying abroad gives a newfound perspective on the world that you simply are unable to grasp without leaving your current living area. I believe this to be a trait every IE should constantly and eagerly pursue. Along these same lines is the opportunity for adaptation to ever changing situations around you, and a further appreciation of the overall “big picture” the world is continually trying to show us. The degree to which this can apply to IE is astounding.” -Trey Gilbertson

University of Ljubljana in Ljubljana, Slovenia

“I highly recommend all students study abroad. You learn about yourself and grow in ways you never thought possible. If you like adventure and experiencing new things, studying abroad is the perfect opportunity. There is never a dull moment.” - Kaitlin Krause

To learn more about OSU Study Abroad opportunities, visit abroad.okstate.edu

Kaitlin Krause in Salzburg, Austria
WHAT’S GOING ON IN IEM

INFORMS Wal-Mart Field Trip

On April 24th 2015, OSU INFORMS Student Chapter took a field trip to the Wal-Mart Distribution Center in Ochelata, OK. A group of 24 students along with INFORMS faculty advisor, Dr. Chaoyue Zhao attended the trip. The students were greeted by OSU alumni, Mike Brasel and Mike Cromwell as well as Wal-Mart Distribution Center employee, Ms. Muffin. They gave a brief presentation on the structure of Wal-Mart Distribution Centers and the strategies and dynamics at the DC.

The students were then taken to the warehouse area for a tour where they were shown how the inventory management system works, the process followed for the storage and retrieval of the goods and day to day operations at the DC. They gave a brief demonstration of the bricks-meter and the banana ripening process. The students also got to see the different AGVs that the plant uses.

After the tour, the students went to Woodward Park in Tulsa, OK for a small picnic, where they had lunch and played a few games. It was a nice opportunity for all the students to interact with each other and build a friendly relationship.

Michelin Intern Day

The Michelin plant in Ardmore, Oklahoma employs nearly 2,000 people and makes approximately 30,000 tires a day. This past summer they had five OSU interns. Three were from the School of Industrial Engineering and Management.

For the Final Presentation Day, each intern presented their summer projects. The presentations were attended by: the plant manager, each of their bosses, people they worked closely with, and representatives from six different colleges ranging from University of Texas at El Paso all the way to Oklahoma State University. Dr. Camille DeYong of IEM and Deborah Mooray of Career Services attended the event representing OSU.
INFORMS (Institute For Operations Research and Management Sciences) is one of the most prestigious professional organizations in the world which brings together professors, students, industrial practitioners, and researchers in the fields of Operations research, analytics and many more specializations. It is a common platform in which people share the opportunities of research and career with the fellow members. The student chapter representing INFORMS was formed at OSU with nine students of the School of Industrial Engineering and Management and the Department Of Management (Business School) as the chapter’s officers. The members of INFORMS student chapter have been conducting numerous activities each year in order to benefit students. Activities include brown bag seminars, software workshops for students, field trips, and interactive sessions with representatives from Industry. INFORMS- OSU has attained national recognition with its continuing efforts in student development. INFORMS has recognized the efforts of this student chapter every year by presenting it their prestigious awards including Cum Laude and Magna Cum Laude.

Alpha Pi Mu
Industrial Engineering Honor Society

The purpose of Alpha Pi Mu is to recognize those who have achieved academic excellence, promote scholarly activities, and foster an atmosphere for social interaction between students and faculty. Being a part of Alpha Pi Mu gives an individual scholarship and volunteer opportunities. The society is open to juniors, seniors, and graduate students who meet the membership requirements.

This semester, Alpha Pi Mu is involved in taking senior class pictures and is looking into IEM tutoring opportunities as well. Alpha Pi Mu is also planning to have goodie bags made for IEM students during finals week. For more information about Alpha Pi Mu you can visit our new website at apm.okstate.edu or contact the President, Jessica Robertson, at jessica.l.robertson@okstate.edu

IIE is the student organization dedicated to professional development through education and networking opportunities. OSU’s student chapter hosts social activities such as its picnic, information sessions for companies seeking students for internships and full time jobs, and continuing education including Six Sigma Green Belt Certification through IIE Headquarters. The organization also takes field trips to companies to learn what Industrial Engineers in each organization, and attends regional and national conferences and competitions as well as networking with practicing professionals. Membership is through the national organization and comes with a subscription to IE Magazine which highlights current trends in Industrial Engineering. Please be sure to like us on Facebook (IIE Oklahoma State) for more information, or contact us directly at iie.okstate@gmail.com
System Informatics provides tools to integrate empirical information in data with domain knowledge for an enhanced understanding of complex systems [1]. In particular, many energy systems can benefit from such tools due to being rich in data. The objective is to devise models based on (a) information in forms of spatio-temporal data and (b) physical laws that govern spatio-temporal systems that contain energy systems. The former consists of historical time-series data, whereas the latter leads to physics-based models which we intend to seamlessly integrate with the former.

The spatio-temporal data are of high resolution, and thereby present unique challenges. That is, we need to capture the underlying pertinent information from a massive amount of data, which has nonlinear temporal patterns and are sampled from different locations in space. System informatics models can be very complicated and may use sophisticated strategies to obtain information from both sources of knowledge. However, in their crudest forms, such models are composed of two interrelated parts: one is a term obtained based on the physical understanding of the process and the other part is a data-driven component. That is, the former captures whatever information we can obtain using available domain knowledge and the latter captures the remaining information. We utilize this idea for high-resolution spatio-temporal data for a variety of application.

Predictive modeling:

Prediction constitutes an important aspect of many energy systems. For example, the power generated by a power plant, the power demand for a group of customers and the weather related features, which in turn can impact solar and wind power systems, are all examples of phenomena that need accurate predictive models. For prediction, both data-driven and physics-based models have been utilized [2]. Traditionally, for very short-term forecasts, statistical methods are preferred over physics-based methods [3]. However, it is possible to effectively combine both sources of knowledge to construct better models.

To better illustrate this approach, we proceed with an example in wind power systems. Wind energy is considered a viable alternative for many traditional sources of energy. However, one drawback of utilizing wind energy is that wind speed is very dynamic (See Figure 1). Since the power generated depends on the wind speed, the fluctuations of wind speed makes it difficult to accurately predict the power generated in each time period. Noting that to integrate a power source into a power grid, we need to know, in advance how much power we can obtain. We will benefit from accurate forecasting scheme that predicts energy generated from a wind power.

Here we present a simple idea for the seamless integration of domain-knowledge, i.e., physics-based understanding, with data [4]. To model the wind speed for wind power forecasts, we use historical data to build a vector autoregressive model (data-driven component). To employ the domain knowledge in this case, we collect the weather-related data to estimate the Geostrophic wind, which is a theoretical wind formed by assuming an exact balance between the pressure gradient and the Coriolis force. Then, we create a regularized optimization problem which takes both the data-driven and physics-based parts into consideration. See Figure 1 for an example. This example highlighted the steps that we undertake in predictive modeling using system informatics methodologies.
Rare-event detection:

For many energy applications, there are events that happen infrequently, but their occurrence causes significant damage. For examples, tornados or severe weather conditions can disrupt a power plant from functioning. If we can predict such events in advance, we may undertake measures that mitigate their negative impacts. Since many energy related functions exist in the context of spatio-temporal systems, we focus on predicting rare events in spatio-temporal systems. By spatio-temporal systems, we mean any systems that change over both time and space, and, in addition, has other explanatory variables. Understanding rare events in spatio-temporal systems is a very challenging task which requires using advanced statistical techniques [5].

For this problem we endeavor to integrate empirical information in data with domain knowledge to develop tools to predict, or help us better understand the nature of rare events. As such, we are not appealing to pure data-driven models, but we try to integrate data-driven forecasting tools with physics-based models. The data-driven approach is based on synthetic data generation, i.e., we generate synthetic data, based on the information obtained from existing data, so a follow-up algorithm can be used [6]. To incorporate domain knowledge, we should generate synthetic data that are parts of the solution path of differential equations that describe such spatio-temporal systems. Identifying such synthetic data for spatio-temporal systems is a challenging task and will be an ongoing pursuit.

Bibliography

RESEARCH GRANTS

Initiated or active in 2014 and 2015


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.

J. Cecil, PI, REU: Research Experiences in Information Centric Engineering, National Science Foundation REU, 8/15/2014 – 8/15/2017, $360,000.


T. Liu, S. Bukkapatnam, Y. Hong, N. Wang and H. Yu, Black Ice Detection and Road Closure and Warning Control System for Oklahoma, Oklahoma Department of Transportation, 10/12-9/14, $230,544.

J. Nazemetz, Motorcycle Crash Causation Study, United States Department of Transportation- Federal Highway Administration, 2012 - 2016, $3,531,600.


Accepted or published in 2014 and 2015


H. Padmanabhan, and M. Kamath, ”The need for a modular approach to IT solutions,” to appear in *IEEE IT Professional*.


A. Pourhabib, J.Z. Huang and Y. Ding, ”Short-term wind speed forecast using measurements from multiple turbines in a wind farm,” to appear in *Technometrics*.


The School of Industrial Engineering and Management at Oklahoma State University seeks talented and motivated candidates for two faculty positions, starting in Fall 2016. Rank, tenure and salary will be determined based on qualifications and accomplishments. The candidates are expected to have completed their PhD or satisfied requirements for a PhD by August 2016. Although candidates with at least one degree in industrial engineering are preferred, those with degrees in a closely related discipline will be considered. Candidates must have a strong methodological background, potential to attract funded research and complement as well as enhance the School’s current research and educational thrusts. Performance expectations include leadership and creativity in undergraduate and graduate education, funded research, scholarship, and professional service. The School has an ambitious plan for growth, recognition and visibility in the industrial engineering and management field.

For the first position, we seek candidates with strong teaching interests in discrete event simulation. For the second position, we seek candidates with strong teaching interests in manufacturing processes. Research interests can be in one or more of the following areas: energy systems, engineering management, health care systems engineering, human factors and ergonomics, logistics and supply chain management, manufacturing, materials handling and warehousing, production planning and control, quality, statistics and reliability, real-time decision making, simulation and stochastic processes.

Interested applicants should apply online at https://jobs.okstate.edu. Applicants should submit a curriculum vitae, a list of three to five references, and a statement of teaching, research and service interests. Any inquiries may be sent to Sunderesh Heragu, Professor and Head, School of Industrial Engineering and Management, Oklahoma State University, Stillwater, OK 74078 (sunderesh.heragu@okstate.edu). More information about the School can be found at iem.okstate.edu.

Applications received before December 1, 2015 will receive full consideration. However, applications will be accepted and considered until the positions are filled.

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