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# MMME

# NEWSLETTER



SCHOOL OF  
**MATERIALS, MECHATRONICS AND  
MANUFACTURING ENGINEERING**

College of Engineering, Architecture and Technology

# GREETINGS

## FROM THE SCHOOL OF MATERIALS, MECHATRONICS & MANUFACTURING ENGINEERING



**IF YOU GRADUATED FROM** Electrical Engineering Technology, Mechanical Engineering Technology, Mechatronics and Robotics or Materials Science and Engineering at Oklahoma State University, your program is now part of MMME. In 2025, Dean Hanchen Huang led a realignment within the College of Engineering, Architecture and Technology to better match our programs with industry needs and strengthen education and research across Stillwater and Tulsa. It is now my honor to lead and grow this combined school.

This transition was managed with a clear priority: continuity for students. Degree progression remained uninterrupted, and EET, MET and MERO all retained their Industrial Advisory Boards. ABET accreditation for EET and MET was successfully renewed in late 2025, and we are actively pursuing accreditation for the B.S. and BSET degrees in MERO.

We have also seen expected faculty transitions. Professors Chulho Yang and Lingfeng Tao accepted positions at other universities, and Professor Ellis Nuckolls will retire after the spring 2026 semester following a long and impactful career. At the same time, we have added new faculty and staff, including Chelsea Woolridge, Professor Steven Fowler, Dr. Nahid Uzzaman and visiting assistant professor Dr. Juan Zhai, who is supporting our expansion into Tulsa.

Several alumni and faculty achievements are worth noting. Bob Nickles (MET, 1989) was inducted into the CEAT Hall of Fame. Dr. Hitesh Vora's Industrial Training and Assessment Center was named DOE Center of the Year, and he was also named a Faculty Fellow at the OSU Hamm Institute for American Energy. Dr. Raj Singh was elected to the National Academy of Engineering and Dr. Aaron Alexander has taken on a leadership role as Associate Director of the Center for Integrated Building Systems.

On the student side, participation and visibility continue to grow. The Cowboy Mechatronics and Robotics Association has expanded its outreach efforts, including demonstrations with Pistol Pup, our UniTree Go2 Pro quadruped robot. Senior design teams across EET, MET and MERO continue to produce strong, hands-on work, and our online programs in MET and MERO are growing steadily.

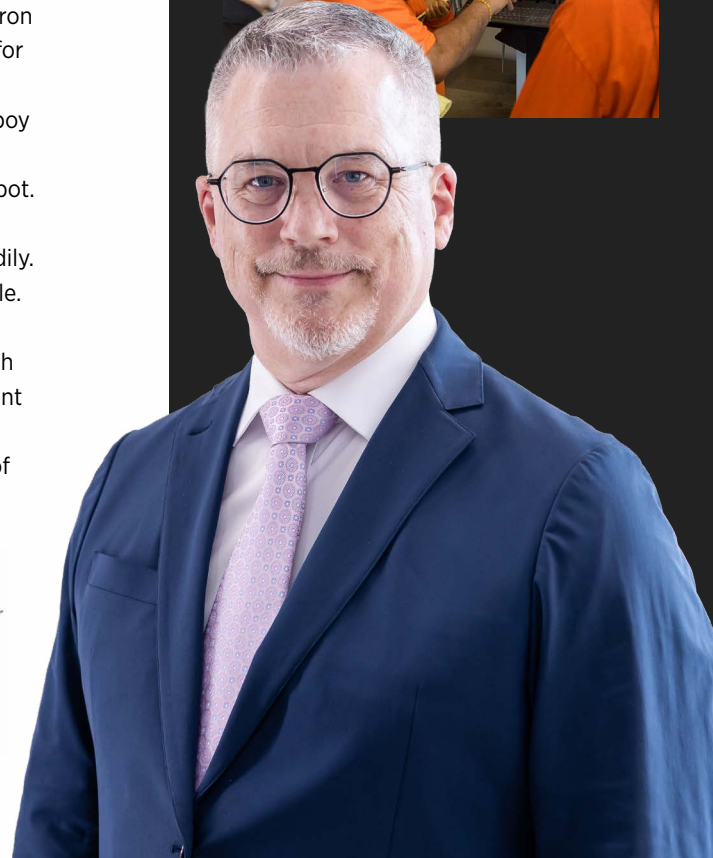
As an alumnus of these programs, you are part of what makes them credible. I encourage you to stay connected — whether through advisory boards, mentoring students, supporting senior design projects or contributing through the OSU Foundation. We rely on that connection to keep the programs relevant and grounded in practice.

I appreciate your continued engagement and hope to connect with many of you directly.

**GO POKES!**

**DR. JAMES E. SMAY**  
Professor and Head

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**ANSWER  
THE CALL.**

**THE  
CODE  
CALLS.**

# PISTOL PUP

HAS BEEN MAKING AN IMPACT ON PAST, PRESENT AND FUTURE CEAT STUDENTS.



**PISTOL PUP**, the Unitree Go2 robotic dog, has been keeping CMRA busy. Recently, the robot joined club members on a walk around campus. Pistol Pup visited Edmon Low Library, the Student Union, the ATRC and more.

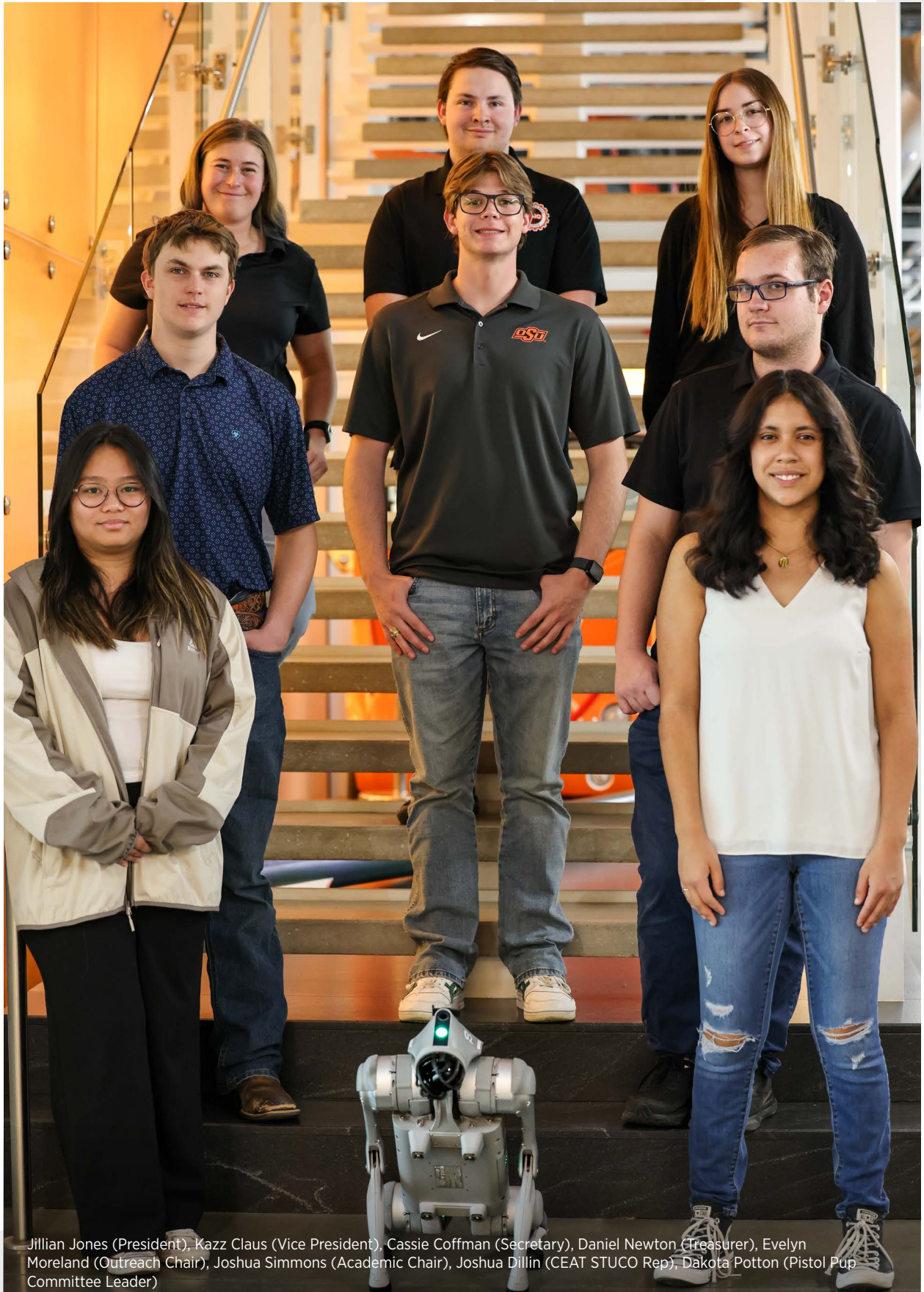
During the walk, the robot met many new people who had lots of questions. CMRA members answered these questions and practiced their networking skills, as well.

Pistol Pup attended the Introduce a Girl to Engineering event and the Engineering and Science Night in Oklahoma City. Pistol Pup was very popular and helped middle school and high school students learn about the Mechatronics and Robotics program at Oklahoma State University.

Lastly, Pistol Pup attended Tulsa's Engineering Night Out and promoted MMME and MERO to CEAT alumni.

PISTOL PUP HAS HAD A BUSY COUPLE OF MONTHS WITH CMRA, **BUT HE IS JUST GETTING STARTED!**





Jillian Jones (President), Kazz Claus (Vice President), Cassie Coffman (Secretary), Daniel Newton (Treasurer), Evelyn Moreland (Outreach Chair), Joshua Simmons (Academic Chair), Joshua Dillin (CEAT STUCO Rep), Dakota Potton (Pistol Pup Committee Leader)



## 2026 OUTSTANDING YOUNG ENGINEER AWARD

CONGRATULATIONS to Mr. Prudhvi Raj Pola for being selected as the 2026 Outstanding Young Engineer Award recipient by the Wichita Council of Engineering Societies at their Engineers Week Banquet. Pola was nominated by the Wichita SAMPE chapter in recognition of his leadership, technical excellence and sustained service to the engineering community. The WCES selection committee chose him for this prestigious honor, which recognizes young engineers (≤35 years old and within 10 years post-B.S.) who demonstrate outstanding professional achievement and service.

As president of the Oklahoma State University SAMPE student chapter, Pola has invested significant effort in strengthening student engagement, organizing technical programming, expanding professional development opportunities and supporting composites and advanced manufacturing outreach. His contributions extend beyond research into meaningful service that strengthens both the academic and professional engineering community. It was a proud moment to see him receive the award at the WCES 36th annual Banquet during Engineers Week 2026.

## 2026 OUTSTANDING MMME SENIOR

JILLIAN JONES has been named the Outstanding MMME Senior for 2026, an honor that reflects her hard work, leadership and dedication to her field. A mechatronics and robotics major at OSU, Jillian has made a lasting impact through both her academic achievements and her role as president of the Cowboy Mechatronics and Robotics Association. She is set to graduate in the fall of 2026, marking the culmination of her impressive work and commitment during her time at the university. We are incredibly proud of all she has accomplished and look forward to seeing the exciting path she will forge in the future.

POLA'S CONTRIBUTIONS  
EXTEND BEYOND RESEARCH  
INTO MEANINGFUL SERVICE  
THAT STRENGTHENS BOTH THE  
ACADEMIC AND PROFESSIONAL  
ENGINEERING COMMUNITY.





MOST STUDENTS  
DON'T GET  
THIS KIND OF  
**REAL-WORLD**  
EXPOSURE  
UNTIL LATE IN  
THEIR DEGREE.

-DR. HITESH VORA



ITAC STUDENT  
**PATHWAYS**



Oklahoma State University's Industrial Training and Assessment Center is helping reduce energy waste in buildings across the state while preparing the next generation of engineers to tackle those challenges.

Through the U.S. Department of Energy's Commercial Building Efficiency Workforce Development Pilot Project, ITAC has created a pathway for students from Northern Oklahoma College to move into the College of Engineering, Architecture and Technology while gaining early, hands-on experience in energy efficiency and building systems.

Elyssa Kaniatobe, an architectural engineering major, and Esteban "Steven" Maxwell, a chemical engineering major, both began their OSU studies in fall 2025 after participating in the pilot program while students at NOC.

For many engineering students, field experience comes later in college. Kaniatobe and Maxwell began much earlier.

"As a freshman, I didn't expect to be walking facilities and learning how HVAC, lighting and building systems drive energy costs — but ITAC put me right into it," Maxwell said. "The pilot made the transition from NOC to OSU feel like a true pipeline, and it helped me see how chemical engineering can support cleaner, more efficient communities."

At NOC, the students worked with real building data and energy systems while learning how assessments help organizations identify cost-saving opportunities.

"It is important for students to see that they can participate in research at all levels," said Dr. Frankie Wood-Black, chair of NOC's Engineering, Physical Sciences and Process Technology Division. "This program allows students to develop skills they can use right away and helps them transition into a research program at Oklahoma State."

Backed by \$500,000 in federal and cost-share funding, the pilot connects NOC, CareerTech partners and OSU through a structured training process that includes safety workshops, technical modules and on-site building assessments.

"Most students don't get this kind of real-world exposure until late in their degree," said Dr. Hitesh Vora, ITAC director. "When students see the impact of their work, they don't just learn engineering — they become part of Oklahoma's energy solution."

For Kaniatobe and Maxwell, the program offers more than early experience. It provides a pathway to careers helping Oklahoma communities build a more efficient energy future.





**STEVEN FOWLER** is an associate professor of professional practice in mechanical engineering technology under the CEAT School of Materials, Mechatronics, and Manufacturing Engineering. He has over 20 years of experience teaching engineering courses including statics, thermodynamics, fluid mechanics and electrical science. Additionally, he has dedicated his academic career to integrating additive manufacturing into the engineering curriculum. He also works part-time at Tinker Air Force Base as part of Reverse Engineering and Critical Tooling (REACT) where he identifies opportunities and solutions for improving the Air Force's ability to sustain aircraft operations, including the use of 3D scanning and additive manufacturing.

### ACADEMIC BACKGROUND

M.S. Biosystems Engineering  
Oklahoma State University, 2008

B.S. Biosystems Engineering  
Oklahoma State University, 2004

### RESEARCH INTERESTS

Additive manufacturing, Heat exchanger optimization  
Engineering education

### TEACHING INTERESTS

Thermal sciences | CAD applications | Additive manufacturing



**DR. RANJI VAIDYANATHAN'S** work in advanced manufacturing and engineering education has earned him recognition as a Distinguished Alumnus of the Indian Institute of Technology (Banaras Hindu University, Varanasi) in the research and innovation category.

Vaidyanathan is the Varnadow Chair Professor of Materials Science and Engineering for MMME at Oklahoma State University-Tulsa. His research focuses on additive manufacturing, composites manufacturing and the performance of materials under real-world conditions.

Beyond the laboratory, Vaidyanathan has built a reputation as a mentor who encourages students to explore entrepreneurship, product development and applied research. Many of his students have gone on to pursue careers in industry and innovation-driven fields.

Vaidyanathan said the recognition is especially meaningful because of the role IIT-BHU played in shaping his early career.

"To be recognized by an institution that set me on this path decades later and from across the world is both an honor and a moment of reflection," he said.

He credits students, collaborators and mentors for the work that led to the award and views the recognition as a reminder that education and research can connect people and ideas across institutions and countries.

"I see it not only as a personal milestone," Vaidyanathan said, "but as recognition of the many people who have been part of this journey."





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**DR. NAHID UZZAMAN** joined the School of Materials, Mechatronics & Manufacturing Engineering in 2025 as an assistant professor of professional practice in the Mechatronics and Robotics (MERO) program. His background spans mechanical engineering, control systems, robotics and mechatronic systems, with a focus on developing intelligent and data-driven methods for modern engineering systems.

Uzzaman's research interests center on estimation, learning and control of dynamic systems. His work integrates model-based control with machine learning approaches to improve system performance, robustness and environmental awareness in autonomous systems. His research also focuses on probabilistic learning methods and Bayesian estimation techniques for modeling and estimating uncertainty in robotic systems.

Prior to joining Oklahoma State University, Uzzaman worked as a lecturer at City University of Bangladesh from 2016-17. He completed his Ph.D. in mechanical and aerospace engineering at OSU, where his research focused on advanced estimation and machine learning techniques for robotic systems, with applications including wind estimation using unmanned aerial vehicles.

#### **ACADEMIC BACKGROUND**

Ph.D. Mechanical and Aerospace Engineering  
Oklahoma State University, 2025

M.S. Mechanical Engineering  
Kansas State University, 2019

B.S. Mechanical Engineering  
Military Institute of Science and Technology, Bangladesh, 2016

#### **RESEARCH INTERESTS**

Robotics and Autonomous Systems | Machine Learning  
Mechatronic Systems | Control Systems  
Bayesian Estimation and Probabilistic Modeling

#### **COURSES TAUGHT**

MET 3803 – Fundamentals of Mechatronics, EET 4363 – Digital Signal Processing, MET 3543 – Manufacturing Processes, MERO 5113 – Mechatronic Systems I

## **36 YEARS**

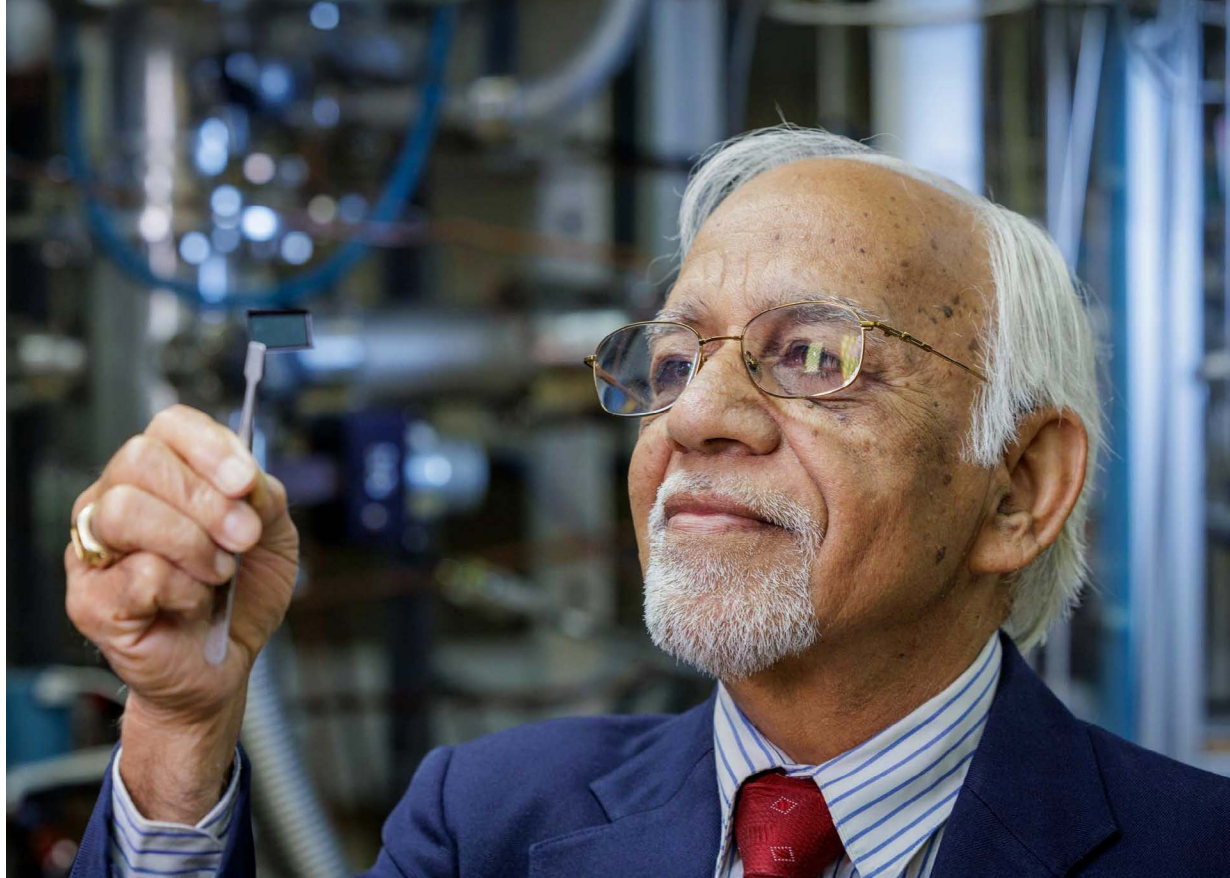


**ASSISTANT PROFESSOR** Ellis Nuckolls is retiring from CEAT after an incredible 36 years of teaching electrical engineering technology. Throughout his career, he has shown unwavering dedication to his students, colleagues and the program, leaving a lasting impact on generations of engineers. His commitment to excellence and passion for teaching will be greatly missed. We extend our sincere gratitude for his many years of service and wish him all the best as he begins a well-deserved and enjoyable retirement.



# OSU'S RAJ SINGH

NAMED BIG 12  
FACULTY  
OF THE YEAR  
HONOREE



**DR. RAJ SINGH**, a Regents Professor for MMME in the College of Engineering, Architecture and Technology, has been named a Big 12 Faculty of the Year honoree. The recognition highlights faculty members across the conference whose work advances research, teaching and student success.

Singh is also a member of the National Academy of Engineering, one of the highest professional honors for engineers. His selection reflects a career defined by influential research in materials science and a long-standing commitment to educating future engineers.

“Dr. Singh’s work reflects the core of CEAT’s mission, advancing cutting-edge research while preparing students to solve real-world challenges,” said CEAT Dean Dr. Hanchen Huang. “His selection as Big 12 Faculty of the Year highlights the caliber of faculty at Oklahoma State University and the impact they have locally, nationally and globally.”

Over the course of his career, Singh has authored more than 350 research publications and holds 29 patents. His

work spans nanostructured materials, fuel cell materials and ceramic matrix composites used in demanding engineering environments.

Among his most influential contributions is the development of a patented melt-infiltration process used to produce silicon carbide fiber-reinforced ceramic matrix composites. The technology has been commercialized in aircraft engines, helping reduce weight, improve efficiency and lower emissions.

Singh joined OSU after research roles at Argonne National Laboratory and GE Global Research Center as well as faculty service at the University of Cincinnati. He also served as the founding school head of materials science and engineering at OSU-Tulsa.

Despite his global research impact, Singh says educating students remains the most rewarding part of his career.

“The best part of my job is to help educate the best possible engineers and impart knowledge of the discipline of materials science and engineering,” Singh said. “Never forget to be curious and inventive. It should be a lifelong pursuit.”



THE BEST PART OF MY JOB IS TO HELP EDUCATE THE BEST POSSIBLE ENGINEERS AND IMPART KNOWLEDGE OF THE DISCIPLINE OF MATERIALS SCIENCE AND ENGINEERING. NEVER FORGET TO **BE CURIOUS** AND INVENTIVE. IT SHOULD BE A LIFELONG PURSUIT.

—DR. RAJ SINGH

## AWARDS



## OSU ITAC NAMED DOE CENTER OF THE YEAR

OSU ITAC has been named Center of the Year by the U.S. Department of Energy, recognizing the program's leadership in energy efficiency, workforce development and community impact.

Since its founding in 1982, OSU's ITAC has conducted more than 1,130 energy assessments for small and medium-sized manufacturers, agricultural producers and commercial facilities across Oklahoma and the Great Plains. Those efforts have identified more than \$138 million in potential energy savings while helping organizations reduce costs and improve operations. OSU's center is the first in the national ITAC network to surpass 1,100 assessments.

Equally important is the program's role in preparing future engineers. ITAC has trained 266 students in energy systems, waste reduction and productivity improvement, giving them hands-on experience working with real facilities and industry partners.

"The students, faculty and staff at the OSU ITAC entirely deserve the honor of being selected as Center of the Year," said John Smegal, ITAC program manager at the DOE.

Dr. Hitesh Vora, ITAC director, stated that the recognition highlights decades of collaboration among students, faculty and industry partners.

"This award reflects the extraordinary impact of our team's work — transforming industries, empowering students and strengthening communities across Oklahoma and beyond," Vora said.

Funded by the DOE, ITAC programs provide no-cost technical assessments nationwide while helping train the next generation of energy and manufacturing professionals.

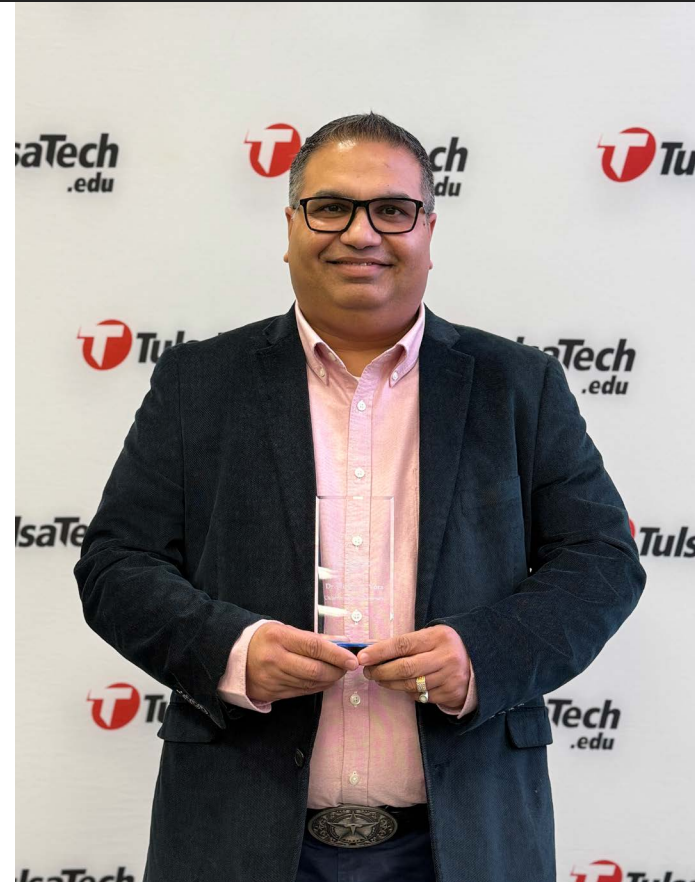
## OSU'S HITESH VORA RECOGNIZED WITH EMERGING MANUFACTURING LEADERS AWARD

DR. HITESH VORA, MMME associate professor, has received the Emerging Manufacturing Leaders Award from Tulsa Ports, recognizing his contributions to workforce development and sustainable manufacturing in Oklahoma. The award honors individuals who strengthen the state's manufacturing sector through collaboration with students, educators, industry partners and policymakers.

Vora leads OSU's Energy Efficiency Hub, which includes several federally supported programs such as the Industrial Training and Assessment Center. Under his leadership, the centers have conducted more than 1,100 no-cost energy and productivity assessments for manufacturers, agricultural producers and other organizations across Oklahoma and the surrounding region.

Those assessments have helped businesses identify ways to reduce energy use, improve productivity and lower operating costs while giving engineering students hands-on industry experience.

"Receiving the Emerging Manufacturing Leaders Award is a tremendous honor," Vora said. "Manufacturing plays a crucial role in driving economic growth, innovation and workforce development."



## OSU'S HITESH VORA NAMED AEE REGIONAL VICE PRESIDENT



**DR. HITESH VORA**, a Jim and Lynne Williams Endowed Associate Professor for MMME, has been named regional vice president for the Central and South region of the Association of Energy Engineers.

The role covers 13 states across the central United States and supports the organization's mission to advance energy efficiency, professional certification and workforce development.

At OSU, Vora leads several energy-focused initiatives, including the Industrial Training and Assessment Center and the Great Plains Center of Excellence. Through these programs, students work alongside faculty to conduct real-world energy assessments for manufacturers, commercial buildings and other facilities across the region.

"I'm truly honored and grateful," Vora said. "This recognition reflects the dedication of our students, staff, stakeholders and partners at OSU, as well as the AEE community that has supported my work."

Vora will serve a two-year term, working with regional chapters to strengthen partnerships between industry, professionals and students in the energy sector.



## OSU PROGRAM HELPS RURAL BUSINESSES CUT ENERGY COSTS



**OKLAHOMA STATE UNIVERSITY'S** Rural Energy Assessment Center is helping agricultural producers and small businesses across Oklahoma reduce energy use and lower operating costs.

The program provides energy audits that identify inefficiencies in lighting, HVAC systems and building envelopes. While similar assessments often cost between \$10,000 and \$20,000, qualified rural businesses can receive the service through the center for \$500.

By implementing recommended upgrades, many clients reduce annual energy costs by 5% to 15%. Businesses may also qualify for funding through the United States Department of Agriculture Rural Energy for America Program, which supports improvements such as energy-efficient lighting, insulation upgrades and renewable energy systems.

"At the Rural Energy Assessment Center, our mission is to make energy efficiency accessible and affordable for agricultural producers and rural small businesses," said Dr. Hitesh Vora, the center's director.

Since launching, the program has completed 34 audits and helped clients identify nearly \$290,000 in potential savings. Many participants have also secured USDA grants or loans to implement recommended improvements.

The program also gives OSU engineering students hands-on experience conducting audits and working with rural businesses, preparing them for careers in the growing energy and sustainability sector.



## VORA RECEIVES HAMM INSTITUTE SEED GRANT



**DR. HITESH VORA** has received a 2025–26 Hamm Institute for American Energy seed grant to advance his project, “Efficiency First in Oil and Gas.” The initiative aims to develop an efficiency assessment framework linking operational performance directly to safety, with guidance from industry partners.

The grant is part of the Hamm Institute’s \$200,000 seed program, supporting early-stage faculty research that tackles energy security, resilience and innovation in addition to positioning Oklahoma researchers to explore bold ideas with potential statewide and national impact.

## OSU AEE CHAPTER EARNS NATIONAL RECOGNITION



**OKLAHOMA STATE UNIVERSITY’S** student chapter of the Association of Energy Engineers has earned national recognition for advancing energy efficiency and professional development. Founded in February 2024, the chapter connects students with industry, providing hands-on experience, mentorship and training in sustainable energy practices.

Dr. Hitesh Vora serves as a chapter advisor, guiding students in technical and leadership skills. Under his mentorship, former president Kritika Bhandari earned the AEE Outstanding Student Chapter Member award. The chapter itself received the Best Student Chapter Conference and Expo award, highlighting its rapid impact.

Bhandari contributed to OSU’s Industrial Training Assessment Center, leading six of 32 industrial energy assessments across Oklahoma, Kansas, Arkansas and Texas, generating more than \$2.23 million in recommended energy savings.

“These awards reflect student dedication and the mentorship and experiential learning that allow them to thrive,” Vora said, noting the chapter builds technical proficiency while preparing future leaders in energy systems engineering.

## VORA NAMED 2025 HAMM FELLOW



**DR. HITESH VORA**, has been named a 2025 Fellow of the Hamm Institute for American Energy. Vora leads a DOE-funded program advancing industrial energy efficiency and workforce development, reflecting his impact on sustainable manufacturing and student training.



ITAC IS ABOUT  
TURNING RAW  
TALENT INTO  
**PROFESSIONAL**  
EXCELLENCE

-DR. HITESH VORA

OSU ITAC STUDENTS, ALUMNI EARN DOE  
**RECOGNITION**



**OKLAHOMA STATE**

University's Industrial Training and Assessment Center celebrated two Cowboys recognized by the U.S. Department of Energy. Graduate student Himavanth Sakshi received the ITAC Outstanding Student Award, and alumnus Evan Hawk earned the ITAC Distinguished Alumni Award. Their achievements highlight OSU's leadership in applied energy engineering and workforce development.

ITAC partners with small and medium-sized manufacturers to identify energy-saving solutions while giving students hands-on experience in the field. Under Dr. Hitesh Vora's leadership, ITAC blends advanced technologies, including AI-powered assessments and drone-enabled audits, with mentorship that prepares students to become innovators and industry leaders.

Sakshi, a master's student in mechatronics and robotics, has led seven of 28 energy assessments across Oklahoma, Kansas, Arkansas and Texas, helping manufacturers identify more than \$2.1 million in potential cost savings. He also serves as secretary and

founding member of OSU's Association of Energy Engineers student chapter, mentoring peers and promoting energy efficiency on campus.

Hawk, a mechanical engineering alumnus, completed 12 assessments as an undergraduate, saving facilities over \$576,000. Now a professional engineer and Certified Energy Manager at CLEAResult, he leads utility-driven energy efficiency initiatives across North America, delivering more than 130 GWh in annual energy savings. He continues to mentor ITAC students, connecting graduates to careers and sharing industry insights.

"ITAC is about turning raw talent into professional excellence," Vora said. "Through curiosity, mentorship and applied learning, our students and alumni are shaping the next generation of energy leaders."

Through Sakshi and Hawk, ITAC demonstrates the impact of combining research, education and outreach to empower students while advancing sustainability and competitiveness in industry.

