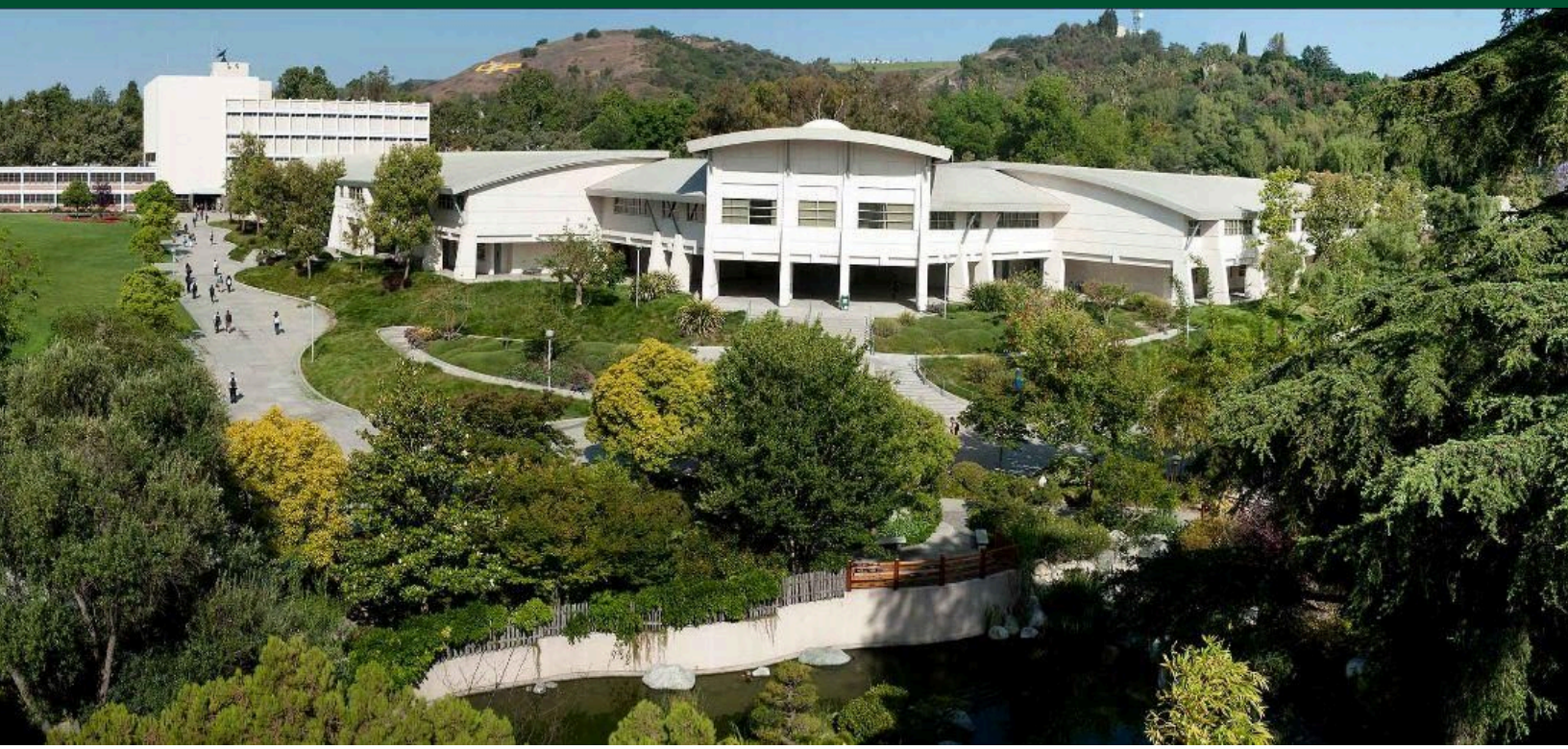
IME Newsletter Academic Year 2025–2026

GROWTH. INNOVATION. ACHIEVEMENT.



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A MESSAGE FROM THE CHAIR

A Year of Growth, Innovation, and Achievement



Dr. Shokoufeh Mirzaei, Chair

This year has been an exciting period of growth, innovation, and achievement for the Industrial and Manufacturing Engineering Department at Cal Poly Pomona. From receiving a landmark $7.5 million National Science Foundation grant to establish the Center for Research Advancement in Smart Manufacturing (CREST-RASM), to expanding interdisciplinary research, student success, and community outreach, our department continues to strengthen its impact in education and research.

We also launched registration for the new Industrial Engineering (IE) and Manufacturing Engineering (MFE) curricula, which officially begin in Fall 2026. These major curriculum updates integrate artificial intelligence, automation, and project management concepts to better prepare students for the rapidly evolving engineering workforce. Faculty have been actively advising students on whether to transition to the new curriculum or remain on their current program plan, making this an especially busy and important year.

Our faculty and students earned numerous recognitions this year, including College of Engineering awards for excellence in teaching and research, first-place student competition achievements, and new research initiatives in smart manufacturing, sustainability, healthcare, and advanced robotics. We also proudly welcomed local high school students to campus through our Summer Academy program, helping inspire the next generation of engineers and innovators.

These accomplishments reflect the dedication of our faculty, staff, students, alumni, and industry partners. Thank you for your continued support of the IME community as we continue advancing hands-on learning, impactful research, and student success.

Warm regards,
Shokoufeh Mirzaei
Chair, Department of Industrial and Manufacturing Engineering

RESEARCH MILESTONE

$7.5M NSF Grant Establishes a CREST Center for Smart Manufacturing



$7.5M
National Science Foundation

4
Research thrusts

Industry 4.0
AI, robotics, XR, cybersecurity

Cal Poly Pomona has been awarded a $7.5 million grant from the National Science Foundation to establish the Center for Research Advancement in Smart Manufacturing (CREST-RASM), one of the largest research investments in the university's history. Led by IME Professor Dr. Shokoufeh Mirzaei as Principal Investigator, the center brings together an interdisciplinary team of co-PIs: Dr. Ellips Masehian (IME), Dr. Zahra Sotoudeh (Aerospace Engineering), Dr. Fatemeh Jamshidi (Computer Science), and Dr. Mingyan Xiao (Computer Science).

CREST-RASM advances Industry 4.0 through four research thrusts: AI-driven robotics and automation (Dr. Masehian), digital twin-enabled smart manufacturing systems (Dr. Sotoudeh), augmented and virtual reality for manufacturing and training (Dr. Jamshidi), and cybersecurity and intelligent data systems (Dr. Xiao). The center integrates artificial intelligence, robotics, immersive technologies, and secure cyber-physical systems to support the future of intelligent and sustainable manufacturing.

WELCOME

New Faculty Member: Dr. Caio Mucchiani



We are pleased to announce that Dr. Caio Mucchiani will join the IME Department in Fall 2026. He is currently a Postdoctoral Researcher at the University of California, Riverside (UCR), where his research in the ARCS Lab focuses on soft robotics, precision agriculture, and pediatric assistive devices. His recent work includes automating in-situ sampling methods for water-status determination, and data-driven modeling and closed-loop control for soft wearable exosuits that assist infant upper-extremity motion.

Dr. Mucchiani earned his Ph.D. in Mechanical Engineering from the University of Pennsylvania, where he was a member of the GRASP Lab. He specialized in robotic manipulation and the design of underactuated end-effectors, developing “zero-DOF” passive grippers and planning algorithms for dynamic object picking and in-hand manipulation. He also helped design low-cost mobile service robots to assist older adults with activities of daily living.

STUDENT ACHIEVEMENT

Senior Project Team Wins 1st Place at the 2026 COE Showcase and Symposium



A senior project team advised by Dr. Ellips Masehian won **1st Place among all departments** in the College of Engineering at the 2026 COE Showcase and Symposium. The project, *Manufacturing Process Development and Tooling Integration for Bronco Motorsports Formula SAE Carbon Fiber Monocoque*, was completed by Jason Anda, Emely Leiva Martinez, Julian Romero, Benjairo Velarde, Axel Celis, Leo Davoodianes, Jennise Alfaro, and Diana Martinez.

The team applied industrial and manufacturing engineering principles to improve production workflow, tooling integration, cycle time, process stability, and facility utilization, and established standardized procedures for composite fabrication.

CLASS OF 2026

Valedictorians and Salutatorians

Congratulations to this year's valedictorians and salutatorians in Industrial Engineering and Manufacturing Engineering. It's no easy feat to have the highest GPA in your program — and even harder among the entire graduating class.



Top: Kevin Simeth, Jennise Alfaro. Bottom: Kevin Leng Kruoch, Mark Anthony Reyes.

Kevin Simeth
Valedictorian · Industrial Engineering

Jennise Alfaro
Valedictorian · Manufacturing Engineering

Kevin Leng Kruoch
Salutatorian · Industrial Engineering

Mark Anthony Reyes
Salutatorian · Manufacturing Engineering

RESEARCH AND INNOVATION

Turning Athlete Data into Actionable Insights



Dr. Payam Parsa and his Techeeta team — Ehsan Jahanpour, Senior Data Scientist at Meta, and Paul Robbins, sport scientist and industry mentor — completed the NSF I-Corps program in Fall 2025 and were invited to the NSF AccelCorps program in Spring 2026. Techeeta is developing an intelligent sports technology platform that turns fragmented athlete data into coordinated, actionable insights for performance, workload management, and future injury-risk prediction. AccelCorps is helping the team move from problem-solution fit toward product-market fit as it begins MVP development.

RESEARCH AND INNOVATION

Smart Manufacturing for Plant-Based Protein



Dr. Mohammad Zarei (Nutrition and Food Science, College of Agriculture) and Dr. Shokoufeh Mirzaei (IME) are collaborating on an interdisciplinary initiative to bring smart manufacturing concepts into plant-based protein production. The team received two internal grants — the Research, Scholarship, and Creative Activity (RSCA) Mini-Grant and the Strategic Interdisciplinary Research Grant (SIRG) — to generate preliminary data for future external proposals, combining expertise in sustainable food production, manufacturing, and computational modeling.

TEACHING INNOVATION

SPICE Grant for Sensor-Driven Smart Manufacturing Education



Dr. Ellips Masehian received a 2026–2027 SPICE Innovative Approaches to Instruction grant ($25,000) for “Enhancing Smart Manufacturing Education and Laboratory through Sensor-Driven Learning Units and Advanced Robotics.” The project adds sensor-based mechatronic learning stations and enhanced robotics integration to MFE 4250/L Smart Manufacturing in the department’s Smart Factory laboratory, giving about 250 students a year hands-on experience with real-time data acquisition, predictive maintenance, robot programming, and Epson SCARA robots.

TEACHING INNOVATION

Generative AI in Engineering



Four IME faculty members received 2026 Generative AI Course Integration Grants from Cal Poly Pomona Academic Affairs, supported by the Kellogg Legacy Endowment. The competitive program supports integrating generative AI into coursework while promoting AI literacy and responsible technology use.

Dr. Ellips Masehian
IME 3510: Industrial Applications of Artificial Intelligence and Robotics

Dr. Saeideh Fallah-Fini
IE 4360: Capstone Experience

Dr. Payam Parsa
IME 3261: Production Planning and Control

Dr. Javad Seif
IME 4150: Statistical Quality Control

The projects are being developed during Summer 2026, with updated course materials planned for Fall 2026.

ALUMNI VOICES

Guiding the Next Generation

The IME Alumni Panel Series continues to connect students with alumni across industries, who share career insights and advice on navigating early-career challenges. This year's panel was held during the department's annual banquet.

AWARDS AND RECOGNITION

College of Engineering Awards





IME faculty received two of this year's College of Engineering awards. **Professor Dixon Davis** received the **Beacon of Knowledge Award** (Excellence in Teaching), honoring faculty who consistently go above and beyond in teaching and mentoring. **Dr. Shokoufeh Mirzaei** received the **Innovation Catalyst Award** (Excellence in Research), celebrating groundbreaking ideas and innovative research that advance the college's mission.

Faculty/Staff Appreciation Night



At Cal Poly Pomona's 2026 Faculty/Staff Appreciation Night, Dr. Payam Parsa and adjunct faculty member Kourosh Nouri were recognized at halftime of the women's basketball game after being nominated by student-athletes Kevin Simeth and Andrea Stajic for their positive impact on students' academic journeys. Both received awards from the university president in front of students, colleagues, and the campus community.

OUTREACH

Summer Academies for Regional High School Students

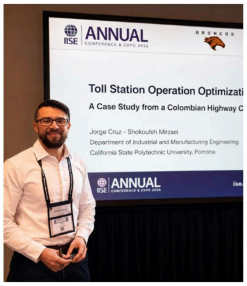


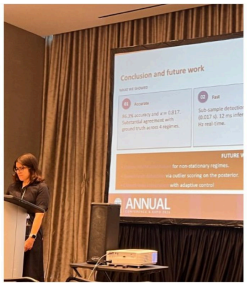
In Summer 2025, the IME Department hosted two Summer Academy programs and an additional outreach session that introduced more than 100 high school students to industrial and manufacturing engineering. Students worked hands-on with CNC machining, robotics, automation, systems simulation, casting, and thermoforming while exploring engineering careers. The programs were coordinated by Dr. Shokoufeh Mirzaei, Dr. Ellips Masehian, and Dr. Saeideh Fallah-Fini with support from faculty, staff, alumni, and student mentors.

GRADUATE RESEARCH

Graduate Students Present at the IISE Annual Conference

Advised by Dr. Mirzaei, graduate students presented at the 2026 Institute of Industrial and Systems Engineers (IISE) Annual Conference in Arlington. **Jorge Cruz** (M.S. Engineering Management) presented “Toll Station Operation Optimization: A Case Study from a Colombian Highway Concession,” and **Annice Najafi** (M.S. Systems Engineering) presented “Hidden Markov Modeling of Module-Level Errors for Runtime Monitoring in Digital Twins.”



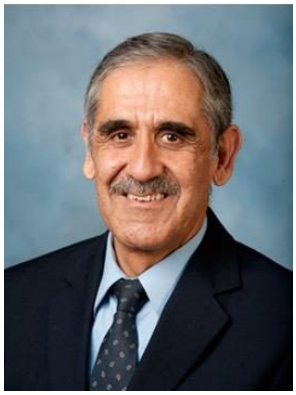


COMMUNITY

End-of-Year Banquet



The IME Department wrapped up the academic year with a lively End-of-Year Banquet attended by more than 80 students, faculty, and industry representatives. The evening featured dinner, awards, entertainment, an alumni panel, and club officer transitions — a wonderful opportunity to recognize student achievements, honor outgoing leaders, and welcome new ones.



Honoring Dr. Abdul Saadat

The evening also recognized distinguished retiring faculty member Dr. Abdul Saadat for his decades of dedicated service to the IME Department, including 17 years as Department Chair and many years as a core faculty member in Manufacturing Engineering. His leadership, mentorship, and long-standing contributions were warmly acknowledged by colleagues, alumni, and current students alike.

SCHOLARSHIP

Faculty and Student Publications

- Ashrafi, N., Yousefi, S., Aby, G. R., Issa, S. F., Darabi, H., Alaei, K., Placencia, G., & Pishgar, M. (2025). AI-driven solutions to improve safety and health: Application of the REDECA framework for agricultural tractor drivers. *PLOS Global Public Health*, 5(6), e0003543.
- Brown, K., Lemke, M. K., Robinson, D., Fallah-Fini, S., Lounsbury, D., Lambert, T., Obasanya, M. J., & Kindratt, T. (2025). Engaging communities, modeling systems: Lessons from system dynamics modeling on maternal health in Texas. *Frontiers in Global Women's Health*, 6, 1577568.
- Chen, S., Fan, J., Abdollahi, A., Ashrafi, N., Alaei, K., Placencia, G., & Pishgar, M. (2025). Machine learning-based prediction of ICU readmissions in intracerebral hemorrhage patients: Insights from the MIMIC databases. *medRxiv*.
- Chen, S., Fan, J., Pishgar, E., Alaei, K., Placencia, G., & Pishgar, M. (2025). XGBoost-based prediction of ICU mortality in sepsis-associated acute kidney injury patients using MIMIC-IV with validation from eICU. *medRxiv*.
- Chen, S., Fan, J., Si, Y., Sun, L., Pishgar, E., Alaei, K., Placencia, G., & Pishgar, M. (2025). Interpretable machine learning model for early prediction of 30-day mortality in ICU patients with coexisting hypertension and atrial fibrillation. *Informatics in Medicine Unlocked*, 101717.
- Davoodianes, L., & Rabea, M. (2026). Study the effect of adding pure copper between steel for spot-welding to improve mechanical properties. ASEE 2026, Paper No. 47121.
- Fan, J., Chen, S., Sun, L., Si, Y., Pishgar, E., Alaei, K., Placencia, G., & Pishgar, M. (2025). Development of interactive nomograms for predicting short-term survival in ICU patients with aplastic anemia. *arXiv*:2505.18421.
- Habibi-Moshfegh, P., Naderpajouh, N., Morshedi, M., Fallah-Fini, S., & Wong, W. (2026). Social outcomes of the housing market under climate change. *Cities*, 174, 107050.
- Jin, H., Ashrafi, N., Alaei, K., Pishgar, E., Placencia, G., & Pishgar, M. (2025). A novel multi-task teacher–student architecture with self-supervised pretraining for 48-hour vasoactive-inotropic trend analysis in sepsis mortality prediction. *IEEE Journal of Biomedical and Health Informatics*.
- Lemke, M. K., Brown, K., Fallah-Fini, S., Lounsbury, D., Kindratt, T., Robinson, D., & Lambert, T. (2025). One month, two projects, many lessons: Insights from concurrent system dynamics group model building approaches. *System Dynamics Review*, 41(3), 1–7.
- Lemke, M. K., Brown, K., Fallah-Fini, S., Lounsbury, D., Kindratt, T., Lambert, T., & Robinson, D. (2025). Understanding and addressing severe maternal morbidity among Black women in Texas: Findings from a system dynamics group model building study. *Journal of Racial and Ethnic Health Disparities*, 1–14.
- Lemke, M. K., Brown, K., Fallah-Fini, S., Ojo, R., Lounsbury, D., Lambert, T., Obasanya, M. J., & Kindratt, T. (2026). The dynamic complexity of cardiovascular severe maternal morbidity among Black women in North Texas: Insights from a system dynamics group model building study. *Ethnicity & Health*, 1–21.
- Lemke, M. K., Ojo, R., Brown, K., Obasanya, M. J., Fallah-Fini, S., Lounsbury, D., Kindratt, T., Lambert, T., & Robinson, D. (2026). Evaluating the use of participatory system dynamics group model building for expanding systems thinking capacity among community-based stakeholders. *Journal of Prevention & Intervention in the Community*.
- Liu, Y., Jiang, D., & Ning, F. (2025). Sintering mechanisms in metal extrusion-based sintering-assisted additive manufacturing: State-of-the-art and perspectives. *Journal of Manufacturing Science and Engineering*, 147(7), 070801.

SCHOLARSHIP (CONTINUED)

- Mirzaei, S., & Garcia, A. M. (2026). A framework to define optimal fallowing programs. *Water Resources Management*.
- Mirzaei, S., & Arzate, J. (2026). Enhancing aviation communication transcription: Fine-tuning Distil-Whisper with LoRA. *AIAA Journal of Aerospace Information Systems*.
- Najafi, A., Elsarraj, R., Gonzalez, R., Ho, A., Lucas, J., Reyes, J., Ruiz, A., Todd, B., & Placencia, G. (2026). A systems-level case study of the Jeju Air Flight 2216 crash. *Next Research*, 101837.
- Najafi, A., & Mirzaei, S. (2026). Hidden Markov inference framework for error propagation mitigation in modular digital twins. *ASME Journal of Risk and Uncertainty in Engineering Systems*, in press.
- Najafi, A., & Mirzaei, S. (2026). Hidden Markov modeling of module-level errors for runtime monitoring in digital twins. *Proceedings of the IISE Annual Conference*, May 16–19, 2026.
- Najafi, A., Mirzaei, S., & Sotoudeh, Z. (2025). Prediction accuracy analysis of a two-arm robotic link digital twin. *ASME IMECE 2025*, Memphis, TN.
- Najafi, A., & Mirzaei, S. (2025). RMCDA: The comprehensive R library for applying multi-criteria decision analysis methods. *Software Impacts*, 24, 100762.
- Osorio, J., & Rabea, M. (2026). Analysis of the tensile strength and corrosion resistance of MIG-TIG double-sided arc welding: An educational study demonstrating hybrid welding. ASEE 2026, Paper No. 54540.
- Pena, J., & Rabea, M. (2026). Study the interface properties by adding silicon carbide/silicon nitride to welded aluminum for manufacturing education. ASEE 2026, Paper No. 53063.
- Placencia, G., Alaei, K., & Pishgar, M. (2025). Approaches for predicting in-hospital sepsis mortality. In *Intelligent Computing: Proceedings of the 2025 Computing Conference*, Vol. 2 (p. 393). Springer Nature.
- Rabea, M., & Fidel, D. (2026). Increase corrosion resistance of aluminum alloys by minimizing surface roughness in face milling. ASEE 2026, Paper No. 447.
- Rojas, J. C., & Mirzaei, S. (2026). Toll station operation optimization: A case study from a Colombian highway concession. *Proceedings of the IISE Annual Conference*, May 16–19, 2026.
- Si, Y., Abdollahi, A., Ashrafi, N., Placencia, G., Pishgar, E., Alaei, K., & Pishgar, M. (2025). Optimized feature selection and advanced machine learning for stroke risk prediction in revascularized coronary artery disease patients. *medRxiv*.
- Si, Y., Fan, J., Sun, L., Chen, S., Pishgar, E., Alaei, K., Placencia, G., & Pishgar, M. (2026). Machine learning-based prediction of mortality in geriatric traumatic brain injury patients. *BioMed Informatics*, 6(2), 17.
- Si, Y., Sun, L., Chen, S., Fan, J., Pishgar, E., Alaei, K., Placencia, G., & Pishgar, M. (2025). Retrospective machine learning approach for forecasting in-hospital death in ICU patients after cardiac arrest. *medRxiv*.
- Truong, B., & Rabea, M. (2026). Teaching properties of dissimilar metals through resistance spot welding for automotive manufacturing. ASEE 2026, Paper No. 54557.
- Vafaei, M., Deng, Z., Jiang, D., Ning, F., & Mostafaei, A. (2025). Anisotropic shrinkage of binder jetted components: Simulation and in situ experimental measurement for validation. *JOM*, 1–12.
- You, S., Lin, B., Xue, J., Hou, G., Li, A., Wang, X., & Jiang, D. (2025). A multi-scale understanding of interlayer sintering mechanism of pure copper fabricated by extrusion-based additive manufacturing. *Powder Technology*, 121899.

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