PennState College of Engineering NEWS

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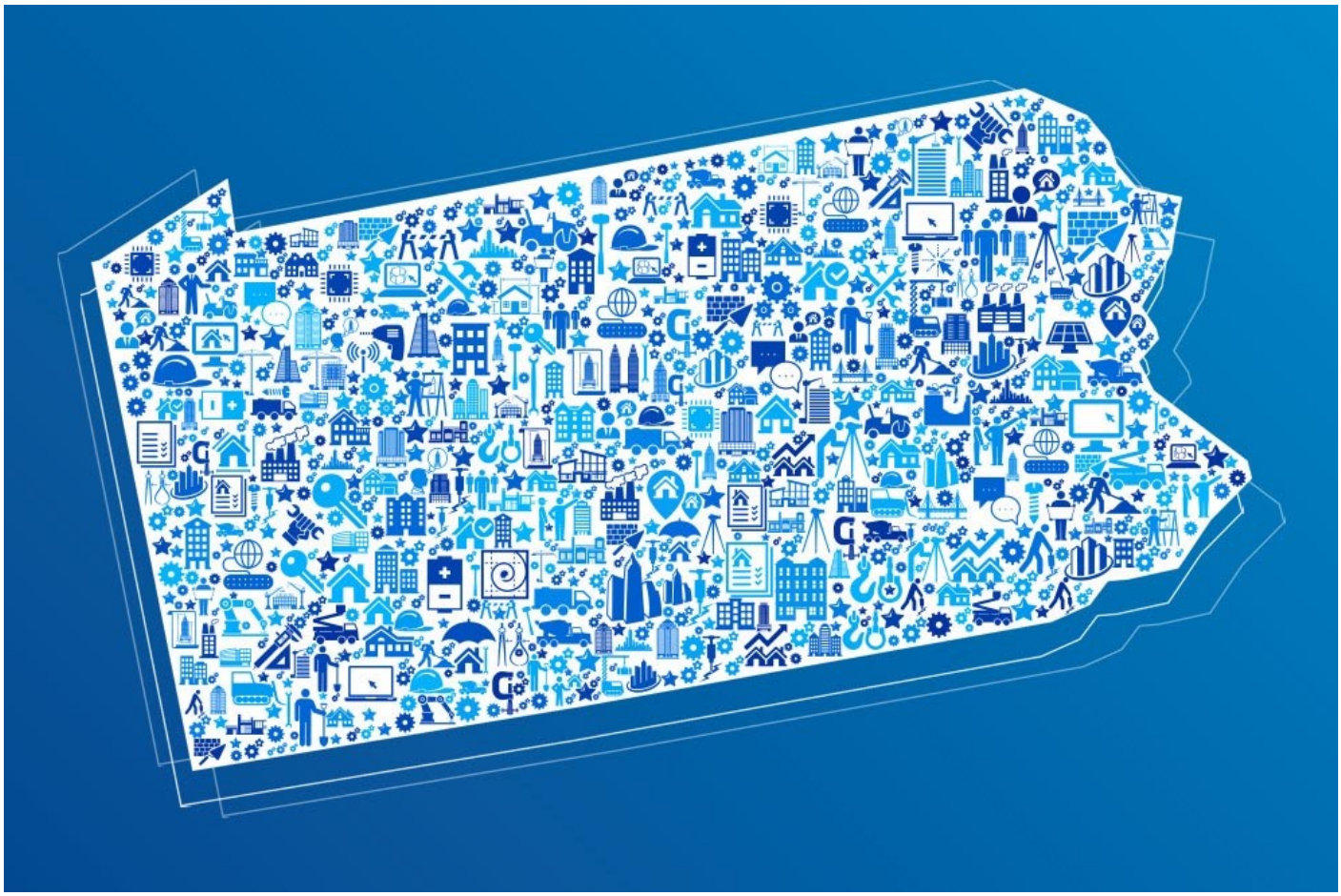

The Manufacturing Pennsylvania Innovation Program brings the state to the forefront of manufacturing innovation to lead change and keep the state competitive. IMAGE: ISTOCK/@BUBAONE

Industrial engineering receives funding to revolutionize PA manufacturing

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By Miranda Buckheit

UNIVERSITY PARK, Pa. — Five faculty research projects in the Penn State Harold and Inge Marcus Department of Industrial and Manufacturing Engineering have received funding from the **Manufacturing PA Innovation Program** to leverage their knowledge to improve Pennsylvania's manufacturing industry.

"We are pleased to be fulfilling our mission as Pennsylvania's land-grant university to support companies in the commonwealth," said Ling Rothrock, interim department head. "Each of the projects allow the researchers to not only address real-world problems, but also disseminate knowledge that is valuable to their research areas."

Utilizing the talents of scientists and engineers from Pennsylvania's higher education institutions, the Pennsylvania Department of

Community and Economic Development **notes** that the Manufacturing PA Innovation Program keeps Pennsylvania a "national and international leader in manufacturing and achieves the full economic potential for good well-paying manufacturing jobs."

The program is a collaboration of Pennsylvania's seven engineering research institutions: Carnegie Mellon University, Drexel University, Lehigh University, Penn State, Temple University, University of Pennsylvania and University of Pittsburgh.

According to the Manufacturing PA Innovation Program, this network of universities brings Pennsylvania to the forefront of manufacturing innovation to lead change, create improved manufacturing jobs and to assist existing companies within the state with the modernization of their products, productivity and materials.

The grants were awarded to the following teams:

- Andris Freivalds, Lucas Professor of Industrial Engineering, and Robert Voigt, professor of industrial engineering, for "Multiple Core Assembly Production Improvement and Enhancement." The researchers aim to improve the core production and assembly process for metal casting that will enable the production of highly complex, casting shapes with increased assembly production, reduced scrap, improved casting quality and improved ergonomics at the **Benton Foundry** in Benton.
- Edward De Meter, professor of industrial engineering, and Saurabh Basu, assistant professor of industrial engineering, for "Enabling AFM Process Analysis for Advanced Technology Development." In collaboration with **Extrude Hone Corporation** in Irwin, the duo will develop computational fluids dynamics and process analysis framework for the abrasive flow machining process.
- Ling Rothrock, professor of industrial engineering; Chris McComb, assistant professor in the School of Engineering Design, Technology, and Professional Programs; and Matt Parkinson, professor in the School of Engineering Design, Technology, and Professional Programs; for "Human Error Reduction in Mack Truck Operations." The team, in collaboration with **Mack Trucks** of Lehigh Valley, aims to reduce the amount of human errors for the company's conventional assembly area.
- Hui Yang, associate professor of industrial engineering, for "Low-Volume and High-Mix Manufacturing Quality Control." Yang, in collaboration with **Argolytics**, will design and develop sensor-based statistical quality control methods for advanced manufacturing. The developed software toolbox will be evaluated and validated with real-world data from additive manufacturing, biomanufacturing and precision machining.
- Guha Manogharan, assistant professor of mechanical engineering and industrial engineering, and Hongtao Sun, assistant professor of industrial engineering, for "Advanced Manufacturing of Ceramics for PA Industries." The duo, in collaboration with **Exone**, aims to help position Pennsylvania ceramics industries as global and national leaders in the manufacturing of advanced nuclear materials. The carefully developed program will help advance the ceramics industry and supply chain for advanced manufacturing of next-generation ceramics with applications of energy and other high-temperature scenarios.

The Harold and Inge Marcus Department of Industrial and Manufacturing Engineering (IME) at Penn State hosts 42 full-time and courtesy faculty members researching varying topics such as operations; human factors and ergonomics; operations, services and analytics; and manufacturing. To learn more about IME and how you can get involved, visit **ime.psu.edu**.

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