INSTITUTE FOR PHYSICAL ARTIFICIAL INTELLIGENCE

Purdue University's Institute for Physical Artificial Intelligence (IPAI) bridges computational and physical applications to revolutionize how technology engages with our environment to solve critical problems.

20+
AFFILIATED CENTERS AND LABS

$20M
FROM LILLY ENDOWMENT INC.

FIRST
COMPUTER SCIENCE DEPARTMENT IN THE NATION

> The Institute of Physical AI will link scientists from across Purdue who bring interdisciplinary thinking and problem solving to address issues at the intersection of AI and a variety of critical functions. The application of AI to our physical world, especially in areas of transportation, manufacturing, agriculture and health, will revolutionize the way we live.

Karen Plaut, Executive Vice President for Research

THEMATIC RESEARCH AREAS

We Make.
Supporting physical AI for manufacturing in Indiana and beyond.

We Move.
Translating Purdue's expertise in supply chain, fuels, mechanics, and more to drive new knowledge in autonomous transportation.

We Grow.
Applying expertise in forestry and agriculture to help farmers apply the right amount of nutrients, insecticides and herbicides at the right time and places to protect the environment.

We Thrive.
Integrating bench-to-bedside expertise across health care disciplines to improve digital health care with improving diagnostics and treatment.

THE HARD TECH CORRIDOR

From semiconductors to artificial intelligence, Purdue University, our industry partners, and the State of Indiana are forging a next generation economy focused on high-speed lab-to-market innovations. The partnerships at the heart of the Indiana Hard Tech Corridor, among Purdue University, the Discovery Park District at Purdue, Indiana Economic Development Corporation and Naval Surface Warfare Center Crane Division, attract, develop and retain globally competitive talent. Through these partnerships, IPAI has access to a vast playground to test and deploy physical AI in real-world systems.

PURDUE UNIVERSITY® | Institute for Physical Artificial Intelligence

Advancing to the Forefront

The Institute for Physical AI is a key pillar of Purdue Computes, a major presidential initiative that connects faculty and students from across colleges and disciplines to advance computing to the forefront with unparalleled excellence at scale.

LEARN MORE

IPAI CENTERS AND LABS

Purdue has centers in a wide variety of areas that leverage Purdue's research strengths to provide a foundation for rapid growth in research excellence in physical AI — including open agricultural data, neuromorphic computing, deepfake detection, edge AI systems, smart transportation data, AI-based manufacturing and more.

- Assured Autonomy Innovation Institute (A2I2)
- Autonomous and Connected Systems Initiative
- C-BRIC – Center for Brain-Inspired Computing
- Center for Connected and Automated Transportation (CCAT)
- Center for Resilient Infrastructures, Systems, and Processes (CRISP)
- Center for Science of Information
- Convergence Design Lab
- Data Science Consulting Service
- Digital Agriculture
- Digital Forestry
- Edge AI Lab
- Governance and Responsible AI Lab (GRAIL)
- Institute for Control, Optimization and Networks (ICON)
- Krenicki Center of Business Analytics and Machine Learning
- Media Forensics Integrity Analytics
- Microscopy Image Analysis
- Open Ag Technology and Systems Center
- Purdue Robotics Accelerator
- Research Center for Open Digital Innovation
- Scalable Manufacturing of Aware & Responsive Thin Films (SMART)
- Semantic Forensics (SemaFor)
- Smart Manufacturing Innovation Center at Purdue University
- VIPER (Video and Image Processing Laboratory, a deepfake detection lab)

John Evans, an assistant professor in agricultural and biological engineering, uses remotely operated machinery to monitor crop health. (Purdue University photo/Tom Campbell)

DEVELOPING EMERGING LEADERS

With generous support from the Purdue Office of Research and the Lilly Endowment, IPAI's unique postdoctoral research program connects emerging leaders to world-class experts to advance interdisciplinary research in physical artificial intelligence.

Students conduct AI-related research at the Purdue UAS Research and Test Facility. (Purdue University photo/John Underwood)