

# PIONEERING

DIGITAL DEFENSE FOR THE WORLD



**Government and industry throughout the globe rely on CERIAS as an authority on digital safety and security. As the first center of its kind in the world, CERIAS continually sets the standard for cybersecurity research and education.**

Ever-evolving risks to commerce, infrastructure and national security are limited only by the imaginations of bad actors with computers and know-how. As the world's foremost interdisciplinary academic center for cyber and cyber-physical systems, CERIAS has set the bar for research to identify threats, create defenses, and help industry and government erect effective cybercrime barricades.

## A GLOBAL UNBIASED RESOURCE

CERIAS — the Center for Education and Research in Information Assurance and Security — provides impartial cyber knowledge to industry and government around the globe. It comprises 160 researchers addressing pervasive issues of security, privacy, resiliency, trusted and optimized electronics and robotic functions, autonomy and artificial intelligence. CERIAS' world-class faculty, students and industry partners design, build and maintain trusted cybersystems.



Jacqueline Malayter, electrical and computer engineering doctoral student studying wireless and signal processing research. (Purdue University/Vincent Walter)

(ABOVE) Hany Abdel-Khalik, associate professor of nuclear engineering, leads a technology for industrial control systems against both internal and external threats. (Purdue University/Vincent Walter)

## #9

**CYBERSECURITY PROGRAM IN THE U.S.**

*(U.S. News and World Report)*

## 160

**RESEARCHERS FROM**

## 20+

**DISCIPLINES**

## 150+

**RESEARCH PROJECTS**



David Love, the Nick Trbovich Professor of Electrical and Computer Engineering, observing lab wiring topology. (Purdue University/Vincent Walter)

### STAYING AHEAD OF HIGH-SPEED TECHNOLOGICAL PROGRESS

CERIAS research projects range from policies and laws to trusted social and human interactions; secure design and architectures to resilient and autonomous systems; security awareness to incident detection, response and investigation.

- Security hardening of autonomous vehicle controllers and peripherals
- AI-enabled intrusion detection in resource-constrained embedded systems
- Generating interpretable diagnostic explanations for black-box AI systems
- SigStore: a transparent software supply chain storage system
- Secure architectures for digital manufacturing and supply chain systems
- Security of IoT software, firmware, hardware and communications
- Education and workforce development curriculum for industrial systems security
- System events and traffic generation for realistic cyber/cyber-physical experimentation

### A HISTORY OF HABITUAL FIRSTS

CERIAS was among the first organizations to sound a cybersecurity alarm. The world listened. Ever since, industry and government have used cybersecurity tools first conceptualized, created and tested by pioneering Purdue researchers while collaborating with CERIAS R&D. Today, CERIAS continues to set the standards for safe, secure software, trusted and resilient systems, and digital architecture.



Yansi Keim, Purdue Polytechnic Institute doctoral student, preparing for forensic data recovery from hard drives. (Purdue University/Vincent Walter)

### EDUCATING TOMORROW'S CYBER EXPERTS

CERIAS introduced the world's first accredited cybersecurity degree program in 1998, and is one of the NSA/DHS's original Center for Academic Excellence for cybersecurity. Today, Purdue's numerous cybersecurity education programs remain unmatched.

Purdue puts students in real-world situations to face authentic cybersecurity challenges and crises, testing theory and practicing novel strategies.

Purdue's top ranked cybersecurity undergraduate and graduate programs draw expertise from 20 disciplines across eight colleges to provide incomparable education to future cybersecurity leaders.

### STRENGTH THROUGH COLLABORATION

CERIAS' industry partners participate in, and give feedback to, research findings and planned projects, ensuring CERIAS remains at the forefront of commercial technology and can share this expertise with students. Partnership provides early access for industry partners to our research, technology, and our graduates.

CERIAS's industry partners include:

- Boeing
- Cisco
- Eli Lilly and Co.
- General Motors
- Idaho National Laboratory
- Infosys
- Intel
- Lawrence Livermore National Laboratory
- ManTech
- Mastercard
- The MITRE Corp.
- Northrup Grumman
- Pacific Northwest National Laboratory
- Raytheon
- Rolls-Royce
- Salesforce
- Sandia National Laboratories
- Sequoia

CERIAS's strategic government supporters include the National Institute of Standards and Technology and the National Security Agency.