



GRADUATE PROGRAMS

ist.psu.edu/grad



Penn State's College of Information Sciences and Technology (IST) offers both a Ph.D. in informatics and a residential Master of Science program. As a graduate student in the college, you'll receive multidisciplinary training that prepares you to address complex issues grounded in society's use of information and technology. For instance, you will collaborate with our world-class faculty to examine how mobile apps can support medical care for refugees, design AI methods to create robot-written textbooks, develop novel techniques to assure software security, and work with NASA researchers to track solar storms using Twitter. Whether your background is in engineering, mathematics, statistics, computer science, cognitive or social science, or the arts and humanities, you will find a home to support your research interests and academic goals in the College of IST.

RESEARCH OPPORTUNITIES

Our faculty hail from a variety of academic backgrounds and are research leaders in the fields of artificial intelligence and cognition, big data analytics and informatics, human-computer interaction, machine learning and data sciences, data privacy and security, and socio-technical systems. Collaborative research activities both within and beyond our college is a hallmark of our research.

The faculty lead or participate in several interdisciplinary Ph.D. training programs—such as the Biomedical Data Sciences Predoctoral program and the Bioinformatics and Genomics program funded by the NIH, and the Big Data Social Sciences program funded by the National Science Foundation—which offer additional training opportunities for Ph.D. students in Informatics.

Beyond the strengths of the College of IST community, you will benefit from the broader research infrastructure and support of Penn State, a Research I university with research expenditures totaling \$927 million in 2017; IST's portion of these expenditures was \$8.4 million.

COLLABORATIVE RESEARCH PROJECTS

- 1.** IST and PSU Computer Science are collaborating with UCSD, UCLA, USC, Stanford, MIT, and University of Pittsburgh to study the integration of computer vision into prosthetics for visually impaired people (NSF).
- 2.** IST researchers and journalism scholars are building machine learning solutions to detect fake news, and study socio-technological aspects of its propagation and susceptibility (NSF).
- 3.** IST, CMU, and University of Rwanda are collaborating to study how low-cost Internet of Things devices can deliver data to both local decision makers and global big data platforms (NSF).
- 4.** IST researchers and colleagues from psychology and statistics, with domain experts from many other disciplines, are developing models of objects, concepts, aesthetics and emotions in big visual data (Bill and Melinda Gates Foundation, NSF).
- 5.** IST and Biobehavioral Health scientists are creating predictive models of individual and population health outcomes, using behavioral, biomedical, clinical, and environmental data to address issues in public health, personalized interventions, and healthcare delivery (NIH).
- 6.** Cross-disciplinary IST scientists are exploring algorithmic fairness in hiring decisions that are assisted by artificial intelligence, working toward bias recognition and mitigation procedures and technologies for both human decision-makers and the algorithms they use (NSF).

FUNDING FOR GRADUATE STUDIES

Ph.D. students in the College of IST are guaranteed funding for their first and second semesters in the form of research assistantships, teaching assistantships, or fellowships. Most Ph.D. students receive assistantships for the entirety of their graduate studies. Graduate assistantships include a stipend sufficient to cover living expenses, full tuition coverage, and health benefits.

CAREER PLACEMENT

As an IST Ph.D. student, you'll engage in cutting-edge research that can be a springboard for a successful research career in academia or the private sector. Many of our Ph.D. graduates hold faculty positions or conduct post-doctoral research at leading universities, including Harvard, Columbia, Michigan State, Syracuse, and University of Illinois. Others have prestigious positions in the private sector working for high-profile companies, such as Google, Facebook, Microsoft, Adobe, IBM, and PayPal.

As an IST M.S. student, you'll be prepared for advanced career opportunities both in industry and as preparation for doctoral studies. Recent M.S. graduates now hold executive positions at global tech leaders such as Google and Microsoft, or have continued on to doctoral programs at institutions such as Carnegie Mellon University, University of Washington, and University of Colorado.

LEARN MORE

Explore our programs and start your application at ist.psu.edu/grad

CONTACT GRADUATE PROGRAMS

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PennState
College of Information
Sciences and Technology



RECENT DISSERTATION TOPICS

- **Advanced Reverse Engineering Techniques for Binary Code Security Retrofitting and Analysis**; adviser Dinghao Wu
- **Aesthetic and Affective Applications of Visual Features and Physical Property Analysis of Plant Stomata Through Active Surfaces**; adviser James Z. Wang
- **Battling Cyber Attacks with Software Crash Diagnosis**; adviser Peng Liu
- **Data-Driven Asset Mapping in Participatory Community Building with Urban Refugees**; adviser Carleen Maitland
- **Detection and Prevention: Toward Secure Mobile Robotic Systems**; adviser Peng Liu
- **Globally Coordinated Local Learning Algorithms for Continuously Adaptive Neural Systems**; adviser C. Lee Giles
- **Policies, Standards, and Practices: An Analysis of the Current State of Organizational Security at Universities and Corporations**; adviser Donald Shemanski
- **Supporting Information Seeking and Sensemaking in Issue-Based Knowledge Crystallization**; adviser Guoray Cai
- **The Generative Effect of Expertise and Articulation work in Organic ICT based Collaborative Communities of Practice**; adviser Andrea Tapia
- **The Role of Boundary Institutions in Rwandan Innovation Hub Operations**; adviser Carleen Maitland
- **Towards Secure Solutions for Cloud Applications**; adviser Anna Squicciarini
- **Understanding and Supporting Curation in the Software Developer's Community**; adviser John M. Carroll