



UNIVERSITY OF ILLINOIS SYSTEM

DOD R&D EXPENDITURES, FY2019

URBANA-CHAMPAIGN: \$50.4 MILLION | UIC: \$8.08 MILLION

*Source: FY2019 NSF HERD Survey

The U of I System is the state's leading recipient of DOD research funds. The University is prepared to support DOD's research, development, test and evaluation (RDT&E) portfolio at the highest levels, thanks to the construction of a **Sensitive Compartmented Information Facility (SCIF)**, an enclosed area within Urbana's Research Park to process classified information.

It is imperative that DOD—even in a constrained funding environment—invests in the foundational science and technologies to confront looming challenges. U of I System research supports current Department-wide research and technology priorities under the 2018 National Defense Strategy, including hypersonics, artificial intelligence, autonomy, next-generation wireless (5G), cybersecurity, and quantum, and explores long-term research questions to anticipate the military's future needs. The U of I System encourages Congress to support sustained and robust funding for the 6.1, 6.2, and 6.3 science and technology accounts across services.

U.S. Army Research Laboratory

The U of I System has been strengthening its partnership with the **Army Research Laboratory (ARL)**. Both UIC and Urbana are significantly involved in ARL's Open Campus Initiative, specifically the establishment of ARL Central.

ARL recently launched a **Center for UAS Propulsion (CUP)** to convene a community of academic, industry, and government partners around technologies for small engine power for next-generation UAS. Urbana is the academic lead for CUP, in close partnership with UIC. Both universities are engaged in multi-disciplinary research to develop next generation multi-fuel engine architecture, novel batteries, advanced materials research, aerospace propulsion, supercomputing aided simulations, advanced control architecture and algorithms, and power optimization.

Both Urbana and UIC were selected to receive awards from ARL through its **Internet of Battlefield Things (IoBT)** program. Urbana was selected to lead a \$25M initiative to develop the scientific foundations of next-generation IoBTs, designed to enable predictive battlefield analytics and services. The IoBTs will connect soldiers with smart technology in armor, radios, weapons and more to give troops a better understanding of battlefield situations and help assess risks.



ARL awarded a grant to UIC in 2016 to develop a set of tools to validate experimental data that simulates diesel engine operating conditions of in-field ignition delays and excessive harmful pre-mixed burning. The **Army Research Office (ARO)** sponsors diverse projects at Urbana in catalysis, surface science, and engineering the optical properties of materials.

DOD-Supported Projects at Urbana-Champaign

The **Defense Advanced Research Projects Agency (DARPA)** has funded several cutting-edge U of I projects. For instance:

- Through its KAIROS program, DARPA has [provided](#) \$12.3M to support an Urbana-led project, named **RESIN—Reasoning about Event Schemas for Induction of kNowledge**, which seeks to create a framework for the next generation of event understanding systems, with an ambitious goal: being able to provide a comprehensive understanding of evolving situations, events, and trends.
- DARPA is [providing](#) \$10M for two projects for research on **human performance optimization within U.S. war fighters** at the Beckman Institute for Advanced Science and Technology.

U.S. Department of Defense (DOD)

FOR FY2021,
THE U OF I SYSTEM
REQUESTS
\$2.759 BILLION FOR
6.1 BASIC RESEARCH

DOD S&T, Basic Research (6.1)

FY2021 PBR = \$2.319B

FY2020 = \$2.603B

FY2019 = \$2.619B

FY2018 = \$2.343B

FY2017 = \$2.276B

FY2016 = \$2.309B

FY2015 = \$2.278B

DARPA

FY2021 PBR = \$3.6B

FY2020 = \$3.458B

FY2019 = \$3.432B

FY2018 = \$3.072B

FY2017 = \$2.889B

FY2016 = \$2.89B

Appropriations Bill: Defense

Agency: U.S. Department of Defense

Questions? Contact:

Paul Weinberger

Director of Federal Relations
paulw3@uillinois.edu

Melissa Haas

Associate Director of
Federal Relations
mshaas@uillinois.edu



U.S. Department of Defense (DOD)

FOR FY2021, THE U OF I SYSTEM REQUESTS **\$2.759 BILLION** FOR 6.1 BASIC RESEARCH

DOD S&T, Basic Research (6.1)
FY2021 PBR = \$2.319B
FY2020 = \$2.603B
FY2019 = \$2.619B
FY2018 = \$2.343B
FY2017 = \$2.276B
FY2016 = \$2.309B
FY2015 = \$2.278B

DARPA

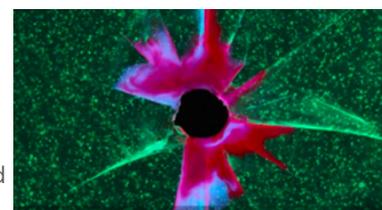
FY2021 PBR = \$3.6B
FY2020 = \$3.458B
FY2019 = \$3.432B
FY2018 = \$3.072B
FY2017 = \$2.889B
FY2016 = \$2.89B

Appropriations Bill: Defense
Agency: U.S. Department of Defense

- **Advanced wireless technology** to support warfighter communications is a major focus. Researchers are developing new low-power and **ultra-compact radio technology** to enable communications through soil, rock and water. Another project will empower individuals to exercise better control over the quality of information they are exposed to on social media. At a national level, the work will help fight adversarial propaganda and help maintain **integrity of critical information** from malicious manipulation. Methods are in development to safeguard the electrical power grid from attacks on its GPS synchronization system.
- Urbana received an \$18.7M grant from DARPA to develop a testbed that will enable validation of new technology for faster response and recovery following an attack on the electric grid. The project, called **Cyber-Physical Experimentation Environment for RADICS**, will leverage expertise, tools and data provided by industry collaborators.

Urbana receives significant funding from the **Air Force Office of Scientific Research (AFOSR)**. In 2015, AFOSR awarded the campus \$4.3M to create a national **Center of Excellence in Self-healing, Regeneration, and Structural Remodeling**.

By developing new chemistries and ways to integrate microcapsules, researchers have created polymers that can re-fill minor damage in paints and coatings (self-protecting), change color when undergoing stress (self-reporting), and re-bond cracks or restore electrical conductivity (self-healing).



In DOD's selection of projects for its FY2019 DOD **Multidisciplinary University Research Initiative (MURI)**, Urbana was a leader or participant in five of the 24 projects that received awards. In 2017, Urbana's **Materials Research Laboratory (MRL)** was part of a consortium that was funded under the MURI program for research centered on additive 3D self-assembly of responsive materials.

DOD's **Defense University Research Instrumentation Program (DURIP)** supports the purchase of major, state-of-the-art equipment that augments current research institutions' capabilities or develops new capabilities to perform cutting-edge defense research and

DOD-Supported Projects at UIC

UIC is currently leading a [\\$3M project](#) funded by DARPA to design, develop, and evaluate a system that will **identify security vulnerabilities in web software**.

With a four-year, [\\$5.25M grant](#) from DOD, UIC researchers are leading a multi-site clinical trial to test the efficacy of a **stem cell-based treatment for eye injuries**.

UIC's Cancer Center has a three-year, \$1.17M DOD grant to develop a [new therapy to treat triple-negative breast cancer](#).

In 2018, UIC received a [\\$2.4 million grant](#) from DOD's Office of Economic Adjustment to support **economic research and resiliency in Illinois' military-connected communities**.

A [three-year grant](#) totaling nearly \$1M from the DOD is funding UIC research on the gene SELENOF and its role in the **development of prostate cancer among black men**.

In 2016, the AFOSR awarded a grant to UIC to study **heat and carrier transport in electronic devices** and their effects in wide bandgap structures including AlGaIn.

Questions? Contact:
Paul Weinberger
Director of Federal Relations
paulw3@uillinois.edu

Melissa Haas
Associate Director of
Federal Relations
mshaas@uillinois.edu