

RITA RESEARCH INSTITUTE FOR **Tactical Autonomy** Howard University

CAPABILITIES BRIEF

2025



UNCLASSIFIED

WHO WE ARE



HOWARD
UNIVERSITY

UNCLASSIFIED
<https://rita.howard.edu>

2 RITA

RESEARCH INSTITUTE FOR TACTICAL AUTONOMY AT HOWARD UNIVERSITY

Established in 2023, the Department of Defense (DoD) **Research Institute for Tactical Autonomy**, University Affiliated Research Center (UARC) is the 15th UARC and the first sponsored by the Department of the Air Force. Led by **Howard University**, the center operates as a consortium of nine universities focused on advancing applied research, development, testing, and evaluation for new and existing DoD capabilities, while also expanding the workforce in the field of tactical autonomy.



OUR MISSION

The mission of the **Research Institute For Tactical Autonomy (RITA)** is to develop partnerships between academia, government, and industry to solve real-world tactical autonomy challenges and problems that are critical to our national security through systematic research and development.



FOCUS AREAS

TRUST IN MISSION AUTONOMY

Enable a reliable shared understanding in autonomous systems (AS) within contested, degraded, and operationally limited (CDO) environments. Providing cross-domain trust in autonomous systems at scale.



COLLABORATION BETWEEN PLATFORMS

Enhance collaboration amongst a family of systems/platform (e.g. NGAD and CCAs). Address interoperability, reliability, composability, complexity, and adaptability for cross-domain solutions in CDO environments



HUMAN-MACHINE TEAMING

Advance the deployment and maneuverability human-machine teams in CDO environments. Jointly advance and mature AS technology and calibrate human-machine trust across all components of the national security enterprise

OUR OBJECTIVE

PIONEER TRANSFORMATIVE RESEARCH AND INNOVATIONS IN AUTONOMY

Bridging theoretical exploration with practical applications, thereby driving progress in technology, security, and sustainable development;

ESTABLISH ESSENTIAL RESEARCH AND DEVELOPMENT CAPABILITIES

for the Department of Defense to deliver operationally relevant autonomy by catalyzing community growth involving AI and autonomy research organizations;

ACCELERATE RITA RESEARCH AND DEVELOPMENT

by rapidly transferring its research to seed a unique science, research, and development ecosystem of small and large businesses, academia, and the Department of Defense;

TRANSFORM AI AND AUTONOMY PRACTICE

throughout the government by creating innovative techniques, technologies, models, and tools that address critical challenges to meet mission outcomes

GROW THE AVAILABLE POOL OF SCIENTISTS AND ENGINEERS

to support the Defense Department and establish a source of organic technical and operational excellence.



UNCLASSIFIED

WHAT WE DO

Research, Development, Test
& Evaluation Capabilities



HOWARD
UNIVERSITY

UNCLASSIFIED
<https://rita.howard.edu>

6 RITA

OUR EXPERTISE

In-house capabilities and fostering DoD relationships that allows RITA to:

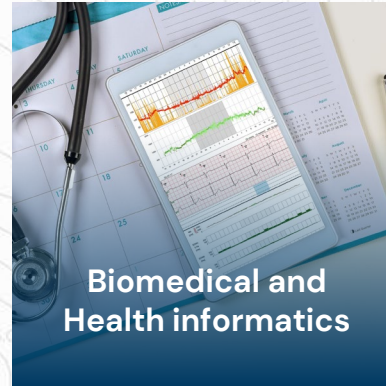
- Bring the classroom, lab, and research closer to the battlespace
- Keep material cost low by leveraging testing conducted by others
- Create a sustainable environment of innovation



**Advanced Control
and Intelligent
Systems**



**Aviation and Aerospace
Technologies**



**Biomedical and
Health Informatics**



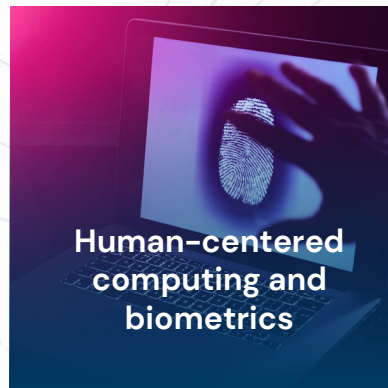
**Cognitive Radio
Networks and
Wireless
Communication**



**Computational
sciences and
data analysis**



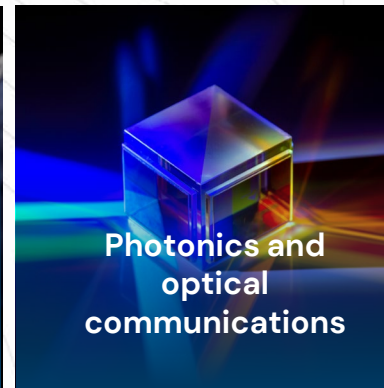
**Cybersecurity and
Network Security**



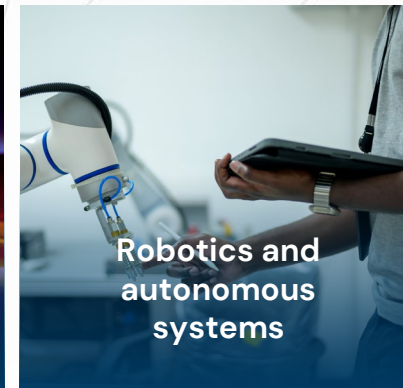
**Human-centered
computing and
biometrics**



**Machine learning and
artificial intelligence**



**Photonics and
optical
communications**



**Robotics and
autonomous
systems**

OUR PROCESS

1

INVESTIGATIVE RESEARCH

- Updateable AI models to enable tactical autonomy.
- Tactical/real-time trust estimates.
- Enhance multi-domain situational awareness.
- Reduce cognitive workload.
- Enable force protection.

2

HARDWARE/SOFTWARE (HW/SW) RESEARCH, DEVELOPMENT, AND ASSESSMENT

- Support cyber defense.
- Augment logistics.
- Automate maneuverability and mobility
- Interoperability, composability, adaptability between various autonomous agent

3

MISSION LEVEL ANALYSIS OF AUTONOMOUS SYSTEMS

4

TEST, EVALUATION, VALIDATION & VERIFICATION (TEV/V)

Test with the Speed of Innovation

The purpose of our strategic research partnerships is to develop and demonstrate autonomous technologies that will advance national security priorities and support various Department of Defense autonomous systems missions. We are particularly interested in delivering tactical autonomy research products in several key areas:

OUR RESEARCH

Tapping into RITA's Strong Research Foundation
and Academic Thrust

200+

Autonomy and National Security
Relevant Dissertations/Theses
over the past 5 years.

- Applying RITA's strong research foundation to national security problems
- Applicable research for autonomous systems and
- Cutting-edge work in ethical AI and diversity in data sets
- Multiple flight/testing hours for autonomous systems
- Physical/Natural sciences and autonomy

OUR ACADEMIC REACH

25+

Active RITA UARC task order projects in year two



55+

Associated research labs and centers



90+

Autonomy related research doctorates



40K+

Students enrolled



\$155M

Consortium universities combined executed research



RITA boasts of more than 55 associated research labs and centers, specializing in key domains that enhance national capabilities. These include:

- Research Autonomous Technologies Labs
- Interdisciplinary Data Science Labs
- Affective Biometrics Laboratory
- Aerodynamics Research Laboratory
- HPC Modernization Program
- Data Analysis and Visualization Labs
- Aerospace Education, Research and Innovation Center
- Raytheon Skyler Radar
- Classified Research Facilities (2025)

OUR PARTNERS



AIR FORCE RESEARCH LABORATORY (AFRL)

Alignment with the warfighter, use tactical doctrine to inform but not constrain the research.



OFFICE OF THE UNDER SECRETARY OF DEFENSE FOR RESEARCH AND ENGINEERING, OUSD (R&E)

Alignment with the mission, establish routine engagement with the operator to give PIs a better understanding of actions taken by the operator.



NATIONAL RECONNAISSANCE OFFICE (NRO)

Alignment with identified needs, leverage strategic documentation to understand the long-term demand signals from the national level down to the campaign level. (e.g. National Strategy, COCOM Gaps and integrated priority list, DoD research strategies.)



UNCLASSIFIED

RITA HQ STAFF



HOWARD
UNIVERSITY

UNCLASSIFIED
<https://rita.howard.edu>

RITA LEADERSHIP



SONYA T. SMITH

Executive Director



DONNELL WALTON

Deputy Director



REBECA PANNICK

Director of Finance



D. ANTHONY SPANN

Chief of Security/FSO



JAMESE SIMS

Chief Scientist



LESHELL HATLEY

Director of Programs

UNCLASSIFIED

NEXT STEPS



HOWARD
UNIVERSITY

UNCLASSIFIED
<https://rita.howard.edu>

PARTNER WITH RITA

RITA HQ staff can help facilitate initial interactions to get your next Autonomy efforts started

RITA has an Indefinite Delivery Indefinite Quantity (IDIQ) Task Order type contract with the Air Force Research Laboratory

STAGE 1

**PLANNING AND
CAPABILITIES BRIEF**

STAGE 2

**POA GENERATION &
COMMUNICATION**

STAGE 3

**WHITE PAPER SUBMISSION
& REVIEW**

STAGE 4

**RFPP & AWARD
PROCESS**



UNCLASSIFIED

THANK YOU FOR YOUR INTEREST

Contact us:

Sonya T. Smith Ph.D.

Executive Director

Sonya.Smith@RITA.Howard.edu

202.957.7425

 rita.howard.edu



UNCLASSIFIED