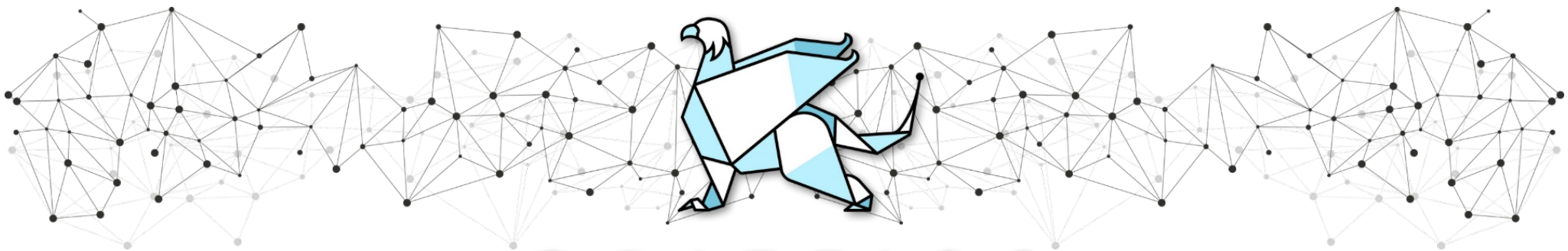


# **Research Collaborations:**

## **Griffiss Institute and the Air Force Research Laboratory**

**Michael Feng (Griffiss Institute), Ryan Toner (AFRL)**  
**Friday, May 16 | 10:00-10:50AM | Wallace Library, Room 3430**

# **Welcome! Please take a seat.**



# GRIFFISS

I N S T I T U T E

From STEM to Startup – *You belong here!*





# Why Griffiss Institute?

## A Synergistic Mission

The Griffiss Institute aims to develop the next generation of STEM talent to strengthen U.S. national security and create economic opportunity for our region, state, and nation.

We elevate **TALENT**  
We empower **INNOVATION**  
We enable **EXPERIENCE**

## A Legacy of Science in Service

Griffiss Institute is a nonprofit organization that has dutifully served country and community since 2002, inspiring STEM into service through technology transfer and talent development programming as a designated DoD Partnership Intermediary.

## A Recognized Leader

Two-time Business of the Year Award winner and Federal Laboratory Consortium National STEM Award 2023 – shared with AFRL.



# INNOVARE ADVANCEMENT CENTER

## A D E F E N S E T E C H E C O S Y S T E M



IP  
TRANSLATION  
TO  
PRACTICE

STEM OUTREACH  
+  
TALENT  
DEVELOPMENT

**15,838**

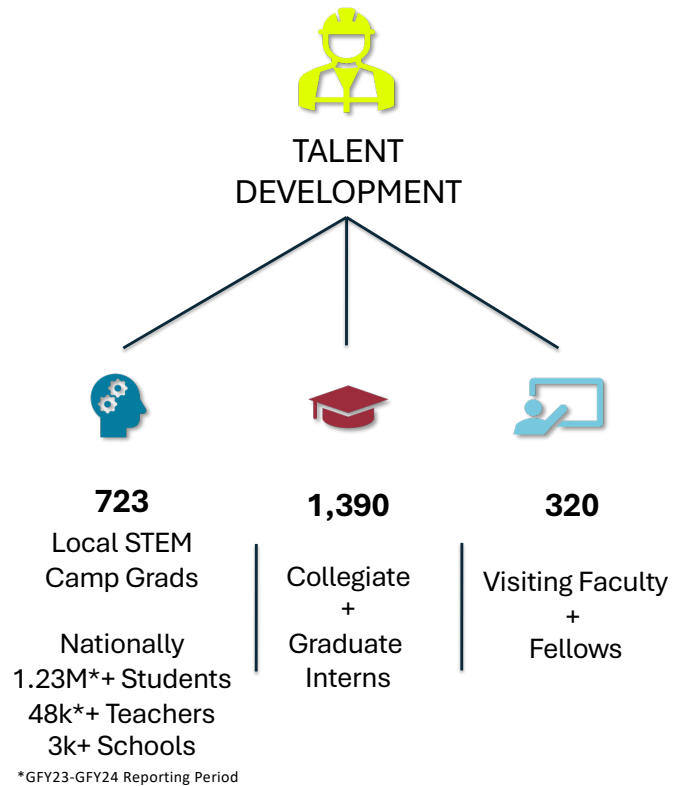
Unique Guests  
+ Residents

OPEN INNOVATION  
HUB FOR DEFENSE  
INSPIRED R&D



**GRIFFISS**  
INSTITUTE 

Reporting Period | July 2020 – May 2024



# Talent Development

Preparing Technical Talent for Defense Industrial Base Service



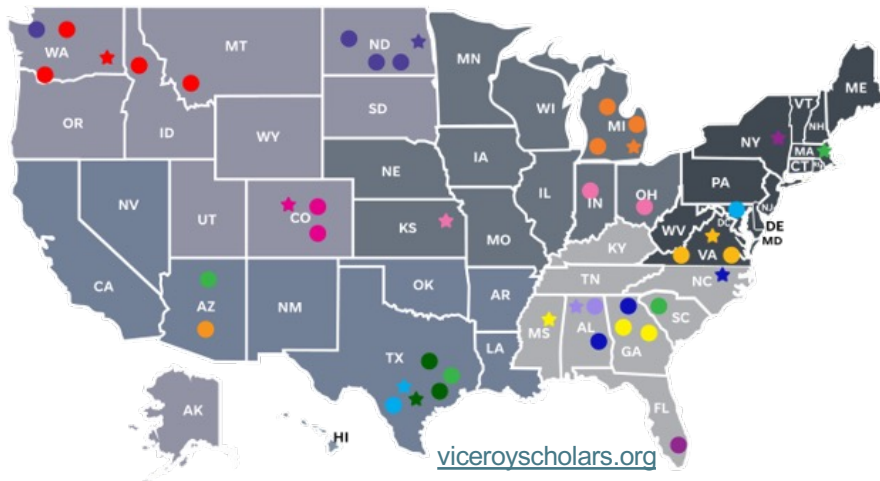




## Virtual Institutes for Cyber and Electromagnetic Spectrum Research and Employ

**WHY:** More than 27,000 cyber-spectrum positions remain open within DoD. Need to enhance the talent pipeline of mission-capable ROTC and civilian graduates to solve future national security challenges.

**HOW:** Augment traditional college curricula by providing hands-on, experiential learning and internship opportunities uniquely tailored to match the critical cyber-spectrum workforce demands of the Armed Services, Department of Defense, and our Defense Industrial Base partners.



### 2024 National Impact

- Over 1,008 VICEROY Scholars enrolled at Virtual Institutes
- 2024 Local Impact 39 MAVEN interns & 5 graduate assistants at Griffiss Institute and AFRL/RI
- 38 additional students participating in experiential internships at DoD locations nationwide

### Congressional Requirements

- Practical Instruction/Experience
- Strategic Foreign Languages
- Mathematical Foundations for Cryptography
- Data Science
- Develop early Cyber Interest
- More Cyber Instructors

Objective of driving increases in DoD workforce through:

- Encumbrance of \$5M in direct student support to incentivize participation, create equity of opportunity, and enhance geographic mobility.





# INFORMATION INSTITUTE®

## A Virtual Research Hub

This government-university partnership fosters collaborative research in key information technology areas relevant to the Air Force.

7

### STAFFING

42 Visiting Researchers  
24 Students  
8 Sabbatical, Post-Docs  
37 Advisors  
44 Research Topics

### DEMOGRAPHICS

- 40 Universities
  - 25 States
  - National Reach

### EPA's

(Educational Partnership Agreements)  
128 Member  
Colleges & Universities  
Across the U.S.  
including Puerto Rico

### BEST PAPER AWARDS

#### DR. HISHAM A. KHOLIDY



"A NOVEL BLOCKCHAIN APPROACH FOR CONTINUOUSLY AUTHENTICATING UAV'S TO ACHIEVE ZERO TRUST PRINCIPLES IN 5G-ENABLED UAV'S"

THE NORDIC E-INFRASTRUCTURE COLLABORATION CONFERENCE (NELC 2024)

TALLINN, ESTONIA MAY 27-29

#### DR. JAVAD MOHAMMADI



"TOWARDS RELIABLE AI-BASED ENERGY SYSTEM OPTIMIZER"

INFORMS SECURITY CONFERENCE

ARLINGTON, VA JULY 28-30

### TECH TALKS

14 Sessions | 28 Presenters



Dr. Koduvayur Subbalak  
Stevens Institute  
of Technology



Dr. Ying Wang  
Stevens Institute of  
Technology



Dr. Yifan Sun  
Stony Brook  
University



Dr. Lixen Shen  
Syracuse University

RECIPIENT OF THE  
2024 SYRACUSE UNIVERSITY EXCELLENCE  
IN GRADUATE EDUCATION FACULTY  
RECOGNITION AWARD







AIR & SPACE  
**STEM Outreach**

## TO INSPIRE TODAY'S YOUTH TO PURSUE STEM CAREERS WITHIN THE DEPARTMENT OF THE AIR FORCE & SPACE FORCE

### Nationwide Impact Across 45+ Installations:

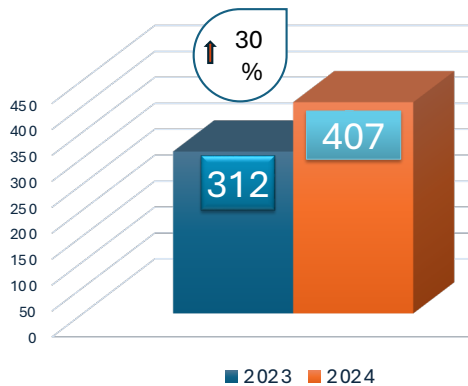
- **531,000+** students engaged in STEM programs
- **18,000+** teachers empowered with STEM resources
- **4,500+** Scientist & Engineer Volunteers contributing expertise to inspire future innovators

Reporting Period | Oct. 2023 – August 2024

### Launch of New Virtual 360° Learning Experience

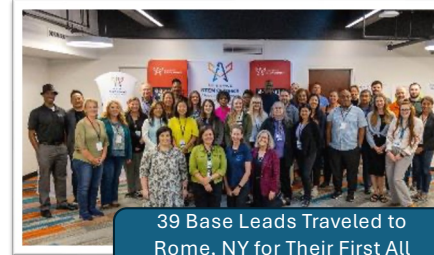
- Piloted in **Innovare Advancement Center Quantum Lab**
- Offering immersive, interactive learning in quantum technology
- Expanding accessibility to cutting-edge STEM education

### Expenditure Requests



### GI Secured \$240K Marketing Package to Amplify K12 STEM Office Initiatives

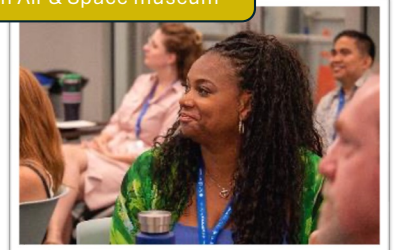
- Strengthening outreach and engagement efforts across schools
- Expanding visibility for K12 STEM programs to inspire the next generation of innovators
- Supporting long-term growth in STEM education opportunities



39 Base Leads Traveled to Rome, NY for Their First All Hands



AFOSR Teachers Workshop  
Smithsonian Air & Space museum



Expanded our team with  
two new virtual staff



## STEM Camp Series & AFRL Challenge Competition

### 20 Local Camps/Clubs Offered Served 313 students

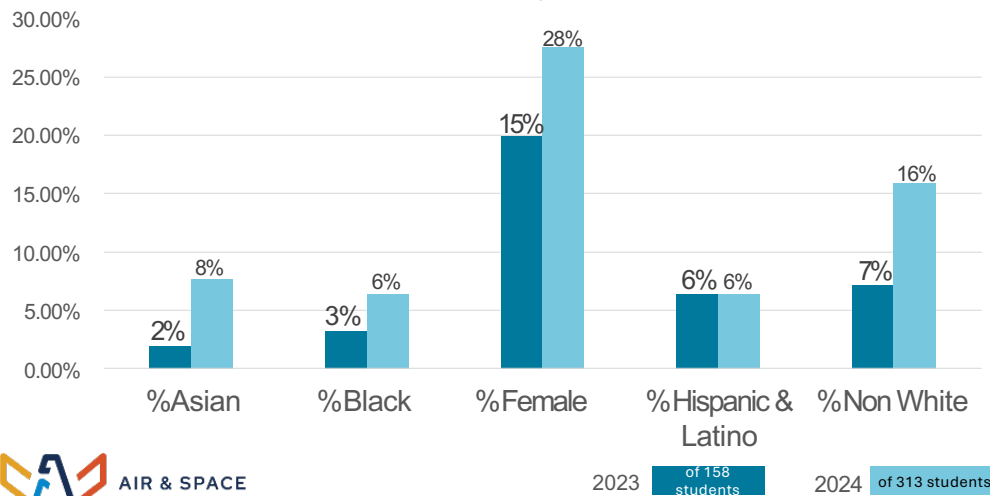
- Added 13 Camps
- Including During School Year
- Introduced Virtual Engineering Club

### Launched Volunteer Program

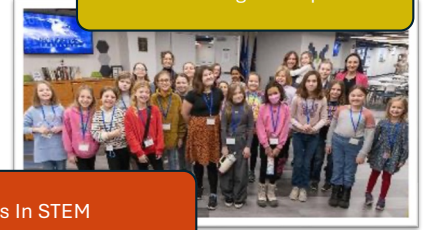
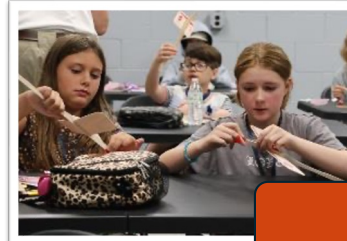
- 2 high-school aged volunteers
- 2 volunteers from local

Reporting Period | Oct. 2023 – August 2024

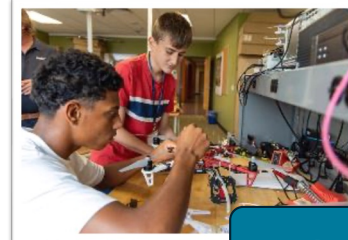
YoY Demographics



AFRL Challenge Competition



Girls In STEM



Drone & Robotics





**Recruit | Cultivate | Develop | Expand**

## Research topics include:

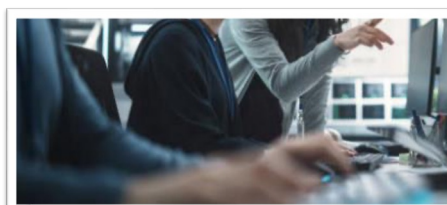
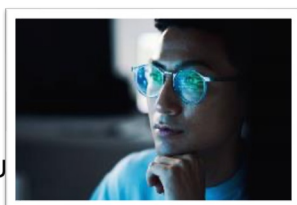
- Cyber Security
- Machine Learning
- Artificial Intelligence
- Internet of Things
- Small Uncrewed Aircraft Systems
- Neuromorphic Computing
- Trusted Software
- Quantum Information Sciences

**7 Potential AFRL  
Hires from 2024  
cohort**

**3 Confirmed  
AFRL Hires from  
2024 cohort**

- 10 from RI Intern
- 1 from RI Co-Op
- 2 from NEATEC program
- 1 from NORDTECH

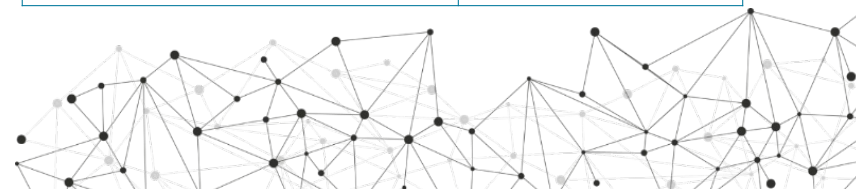
**GRIFFIN**  
INSTITUTE



**NEATEC**

**NORDTECH**  
Northeast Regional Defense Technology Hub

	FY24 Numbers
Ri Intern Total Applications	645
RIB Summer Interns Hired	21
Project Funded Interns Hired	51
RI Intern universities represented	51
RI Co-Op Interns Hired (2024)	7
Foreign Nationals Hired	3
NEATEC Interns Hired	6
NORDTECH Interns Hired	2
YARC (Yuba Applied Research Center) Interns Hired	2
Total Female Interns Hired	16
Extensions Provided	14
Rehires from Previous years	14





**VICEROY Lead Virtual Institutes:**

Mississippi State  
Virginia Tech  
SUNY Albany  
Washington State  
Northeastern University  
University of Detroit Mercy  
North Carolina Agricultural and Technical State University  
North Dakota State University

Texas A & M University  
University of Colorado Colorado S.  
University of Kansas  
University of Texas at San Antonio  
University of Alabama in Huntsville

**VICEROY Virtual Institutes:**

Augusta University  
Clark Atlanta University  
Old Dominion University  
Norfolk State University  
Florida International University  
Montana State University  
University of Idaho  
Central Washington University  
Northern Arizona University  
University of Houston  
University of South Carolina  
University of Arizona  
Macomb Community College  
Oakland Community College  
Washtenaw Community College  
Kennesaw State University  
Tuskegee University  
Minot State University

North Dakota University System  
Bismarck State College  
City University of Seattle  
Texas A & M of San Antonio  
Prairie View A & M University  
University of Colorado Boulder  
University of Colorado Denver  
Ohio State University  
Purdue University  
San Antonio College  
Alabama A&M

**VICEROY Envoy Internship locations:**

Keyport NUWC, WA  
Eglin AFB, FL  
Keesler AFB, MS  
Navy Research Lab (NRL), Washington DC  
Wavelength/JBSA, TX  
Air Force HNC CY, TX  
NIWC PAC, CA

**Air & Space STEM Outreach Supported Bases:**

K12 STEM Office, WPAFB, OH  
AFOSR S&T, VA  
AFOSR Business Integration, VA  
Altus AFB, OK  
Andrews - Joint AFB, MD  
Arnold AFB, TN  
Barksdale AFB, LA  
Beale AFB, CA

Buckley SFB, CO  
Charleston, Joint Base, SC  
AFRL/RQ, Edwards AFB, CA  
412th Test Wing, Edwards AFB, CA  
Eglin AFB, FL  
Goodfellow AFB, TX  
Grand Forks AFB, ND

Hanscom AFB, MA  
Hill AFB, UT  
Holloman AFB, NM  
Lackland AFB, TX  
Langley AFB, VA  
Little Rock AFB, AK  
Los Angeles AFB, CA

Luke AFB, AZ  
Maxwell AFB, AL  
McConnell AFB, KS  
Patrick AFB, FL  
Peterson SFB, CO  
AFRL/RI, NY  
Schriever SFB, COG

Scott AFB, IL  
Seymour Johnson AFB, NC  
Tinker AFB, OK  
Tyndall AFB, FL  
USAFA, CO  
Vance AFB, OK  
Vandenberg AFB, CA

Warner-Robins AFB, GA  
Whiteman, AFB, MO  
106th Rescue Wing, NY AN

**LEGACY Sites:**

Air Force Academy, CO  
AFOSR, VA  
K12 STEM Office, WPAFB, OH  
Eglin AFB, FL  
Hill AFB, UT

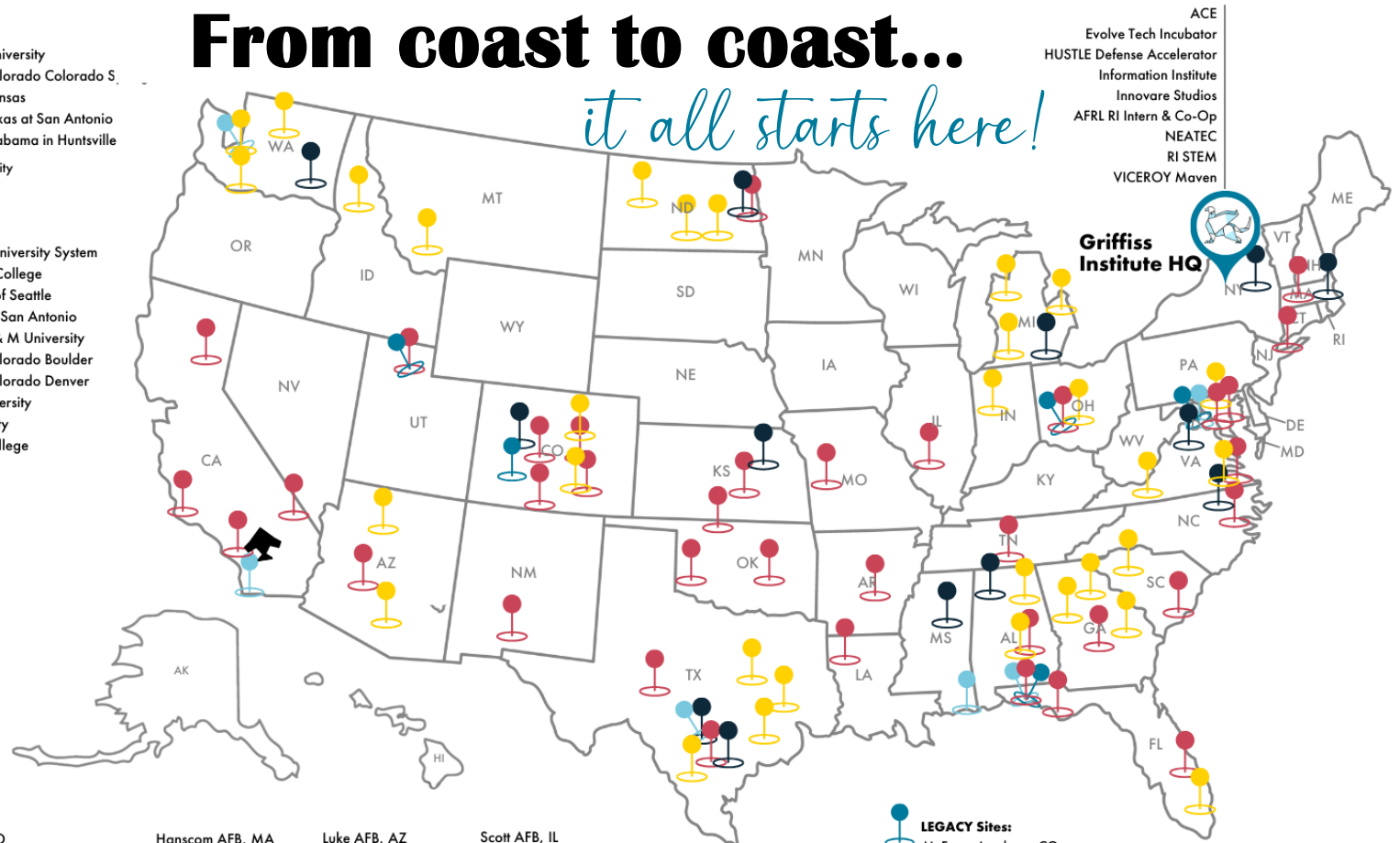
**B3K Aerospace & Innovation Hub**

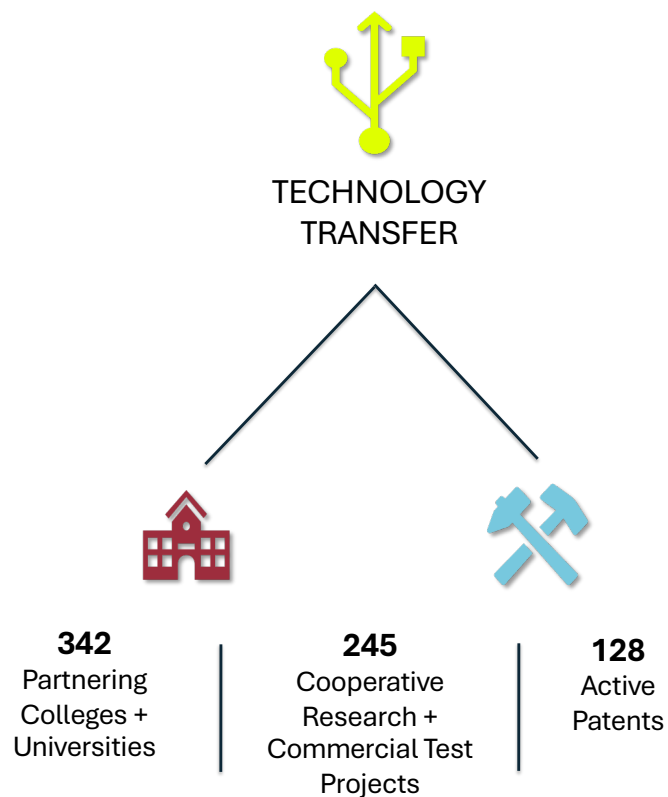
**GRIFFISS**  
INSTITUTE

Reporting Period | 2019 – May 2024

# From coast to coast...

*it all starts here!*





# Technology Transfer

DOD Partnership Intermediary

**AFRL**  
Information Directorate



**GRIFFISS**  
INSTITUTE





**52**  
New Tech  
Startups

**20**  
New Incubator  
Clients

**3**  
Startups in  
Residence

Reporting Period | 2020 - 2024

# Tech Translation

Defense Technology Studio



**INNOVARE  
STUDIOS**  
EMERGE • ELEVATE • EVOLVE

**HUSTLE**  
DEFENSE ACCELERATOR

**nationalgrid**

**NEW YORK  
STATE OF  
OPPORTUNITY** | **Empire State  
Development**

**EVOLVE**  
TECH INCUBATOR

**IONQ**



**ORION**  
OPEN-ARCHITECTURE RESILIENT IOT  
FOR OPERATIONAL NETWORKS



**ACCESSIBLE  
AUTOMATION**

Reporting Period | 2020 - 2024

**20 Companies Served | \$1,500,000 Invested | 1.9x Follow on Funding | 3 Relocations**

**GRIFFISS  
INSTITUTE**



# What is Innovation & Partnerships

(I&P)?

1 Tech Transfer & Transition

2 Internal Tech Scouting

3 External Tech Scouting

4 HUSTLE Defense Accelerator

5 NIST CivX

6 Reactive Projects



# Internal Tech Scouting

Intellectual Property Support for AFRL/RI  
Providing guidance and resources to support IP development.

## Patent Applications

Facilitating the identification and reporting of new innovations.

## Disclosures

Assisting with filing and managing patent applications.

## IP Awareness and Protection

Educating stakeholders on safeguarding intellectual property.

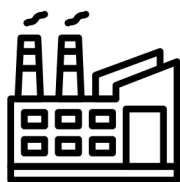
## Commercialization of Patents

Supporting pathways to bring patented innovations to market.

# External Tech Scouting

Proactively Identify Partners for AFRL/RI:

1



Companies

2



Universities

3



Organizations

## Goals:

1) Facilitate meaningful relationships and partnerships

2) Commercialization of patents

GRIFFISS  
INSTITUTE





# HUSTLE

DEFENSE ACCELERATOR

# 202

## What's New?

# 5

Identify specific needs or challenges, form a cohort to address them, and accelerate these companies through targeted curriculum, mentorship, and direct connections with DoD organizations.

1

Multiple Cohorts  
(Goal is 3)

2

5 Companies per  
Cohort

3

Work with Specific  
DoD Orgs

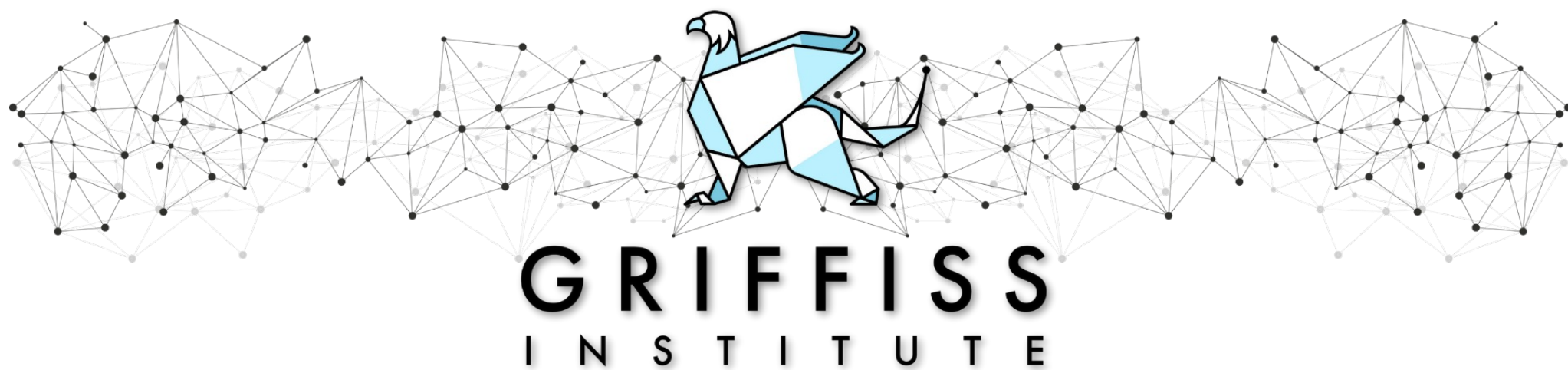


# KEY TAKEAWAY

The Griffiss Institute aims to attract and develop the next generation of STEM talent and defense technologies to strengthen U.S. national security and create economic opportunity for our region, state, and nation.

**We elevate TALENT**  
**We empower INNOVATION**  
**We enable EXPERIENCE**





*Thank You*

[www.griffissinstitute.org](http://www.griffissinstitute.org)