



INSTITUTE OF APPLIED ENGINEERING

UNIVERSITY OF SOUTH FLORIDA

AD VERITATEM VELOCITER



One USF



"Preeminent State Research University"

R1 Institution (1 of 146)

American Association of Universities (1 of 71)

Top Tier Research Institutions (1 of 56)



USF

COLLEGE OF
ENGINEERING



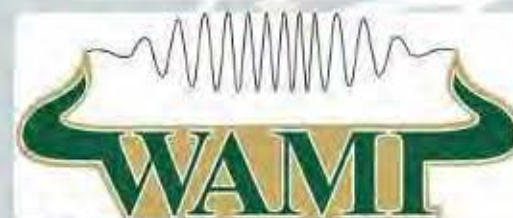
UNIVERSITY OF
SOUTH FLORIDA
College of MARINE SCIENCE



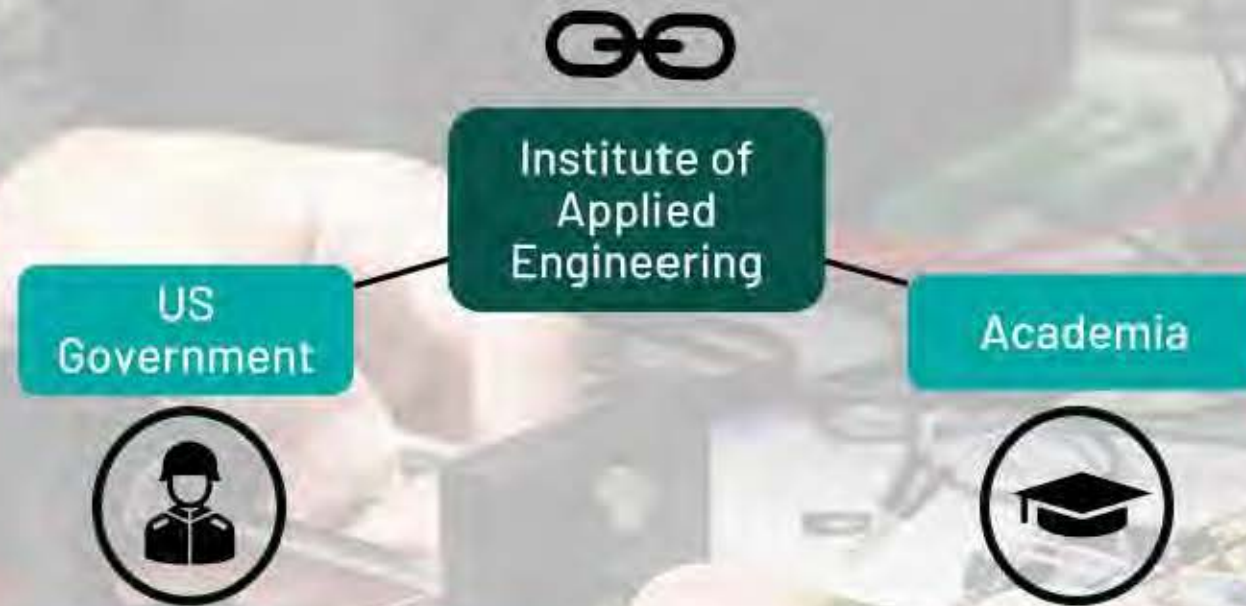
College of Arts
and Sciences



MUMA
COLLEGE OF BUSINESS
UNIVERSITY OF SOUTH FLORIDA

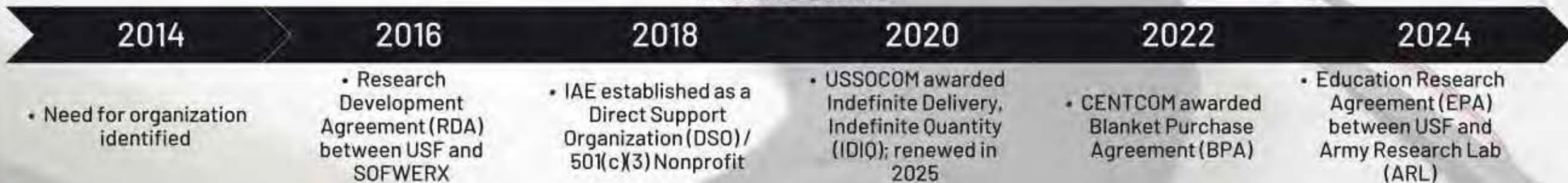


Institute of Applied Engineering (IAE)



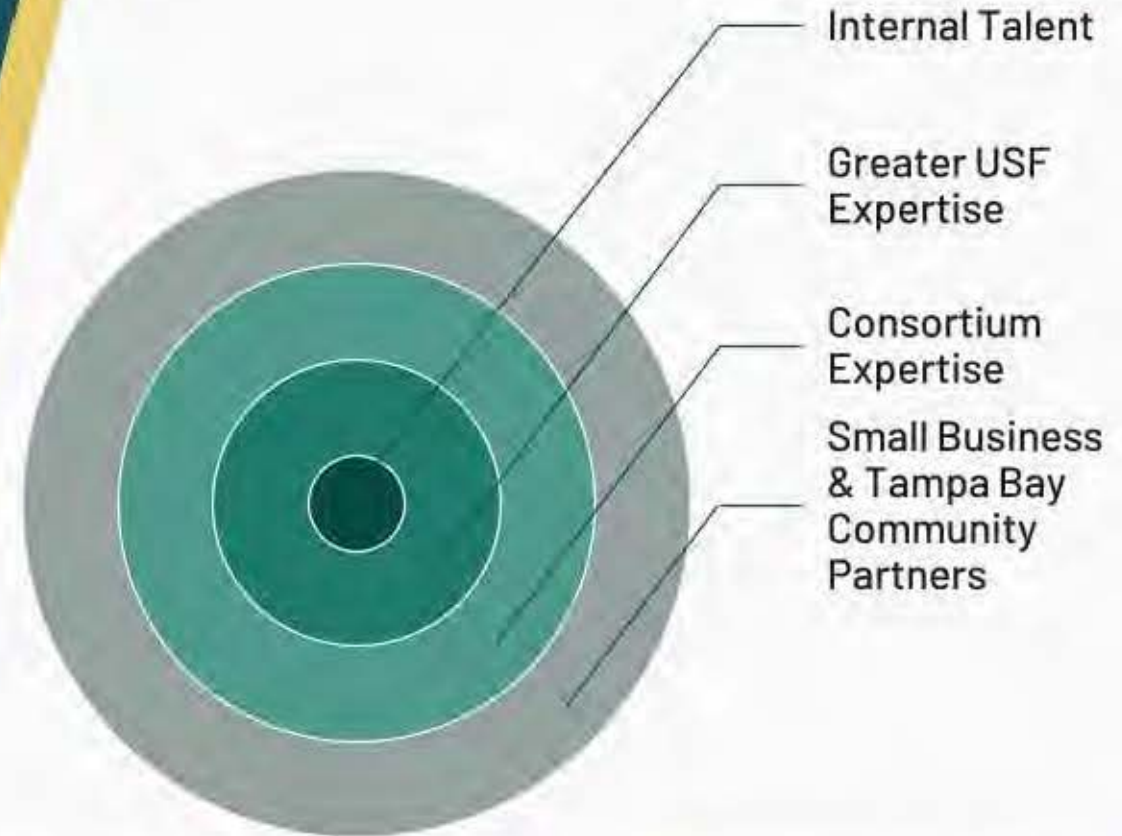
- Link between US Government (DoD, DOE, National Laboratories, OGAs, etc.) and Academia
- Talent pipeline connecting Customers to faculty, engineers, students & University Resources

Timeline



Ecosystem & Capabilities

- FAR compliant contracting; meets/exceeds defense cost accounting standards; maintains Cybersecurity Maturity Model Certification
- SCIF with TS-SCI/SAP & CUI facilities
- Institutional Review Board (IRB) / Human Subjects Research
- Connection across the university to highly skilled talent: faculty, students, full-time engineers, scientists, program managers
- Foster collaboration and connect research opportunities with academic institutions
- Attract high-tech companies to seed the ecosystem



World-class research and development in a multi-disciplinary and integrated approach to provide system-of-systems solutions to meet the challenges of today and tomorrow

Who We Are

Vision: Nexus of innovation connecting academia, industry, and government to enhance national security and the vibrancy of the University of South Florida Community

Mission: Enabling the solution of national security and dual-use interdisciplinary problems by leveraging cutting edge technology, engineering, and domain expertise to consistently deliver innovative, reliable, and sustainable solutions while enabling the workforce of the future

Core Competencies



Our expertise allows us to test and validate the integration within a system of devices/networks. While these seven core competencies reflect the abilities of the internal team, we have strong links with University across well-established and emerging fields such as Transportation, Energy, Nanotechnology, Quantum communications, and Human Performance.

ACADEMIC CONSORTIUM



* Conducted 6-month
Market Analysis study



* Executed a 12 Mo.
Echolocation RE
Mapping R&D Effort



FLORIDA INSTITUTE FOR HUMAN & MACHINE COORDINATION

- * Executing a 48 Mo Virtual Reality Design Workbench R&D Effort
- * A 36 Month Medical R&D Project &
- * Executed a 12 Month R&D Project



* Conducted 6-month
Market Analysis study



- * Completed an Intern Program & 10 Studies on topics including Quantum Tech, Neural Interfaces, Battery Technology, Cybersecurity, and Human Performance



* Executing an 83 Mo
Oceanographic Propagation
R&D Project



- Consortium Member
- Membership Pending
- TCRDF affiliated HBCUs

Rapid access to
top-level, FAR
compliant research
across the Nation

Facilities

14,000 square feet of dedicated lab, experimentation, and test space plus access to facilities across the USF enterprise

University Mall HQ Facility:

- Hosts research and support staff
- Structural and electronic rapid prototyping, RF signal analysis, satellite ground control, servers, etc.
- 4069 sq ft - CUI

Secure Facility:

- Rapid prototyping equipment and server room
- Classified network in place connecting Institute with DoD
- 1900 sq ft - TS/SCI/SAP

Rapid Experimentation Lab:

- Unique, collaborative space to rapidly test concepts
- Wide range of capabilities shaping opportunities
- 8000 sq ft



Facilities are available for customer use and include electronics manufacturing, signal characterization, signal/waveform generators/analyzers circuit board, manufacturing equipment, oscilloscopes, 3D printing, CNC machine, thermal vacuum chamber, wide frequency spectrum analyzer, other test and storage equipment, and more

Project Samples

Hands on Learning and
Development
(Basic Internet of
Things Kit - BisKit)

Internet of Things
Electronic Warfare
Environment

Foundational
Engineering
Applications for
Quantum Technologies

Effects of Oceanic
Propagation on
Lightning-emitted
Broadband and VHF
Signatures

Iridium
Communications
Manager (ICM)
Software Development

Human Augmentation
using AI and LLMs

FOSOV Tactical
Vehicle Analysis

Repetitive, Low-Level
Blast Exposure
(ReBlast)

Limits of Performance
Under Intense
Cognitive Loads

Optimization of Human
Performance
Analyzing Stress
Biomarkers

Biological
Communications /
Storage

Bilateral Influence and
Capability Index

IAE in the Space Domain

- SOCOM and NASA sponsored
- Articulated Reconnaissance and Communications Expedition (ARCE)
- Automated LiDAR Scanning Topography (A-LiST)
- Small Sat Ground Station and Mission Support



IAE Launches smallsats about the Transporter I,
first SpaceX dedicated rideshare mission



Talent Pipeline

- ~800 intern positions filled since 2016
- Sourced from academic institutions around the country
- Cleared workforce of the future
- Summer 2023 Stats
 - 37 students: 35 Undergrad, 2 Grad
 - 27 STEM, 10 non-STEM
- Embedded Engineers and Subject Matter Experts (SMEs)
 - Up to PhD-level support to SOF AT&L



Capable of supporting
Unclassified, CUI,
Classified Programs

Partnering with IAE

IAE as a Subcontractor:

- Engineering Subject Matter Expert support
 - 8000 sq/ft Rapid Engineering Space
 - Research and design of hardware/software
 - Experts in Electrical, Software, Mechanical and Systems engineering
 - Testing of integrated hardware and software
 - Thermal Vacuum Chamber (Space tech)
 - RF Chamber
- NOT just STTRs
- 501(c)3 direct support org to the University

Space Utilization:

- SCIF co-usage
 - Coordination required with Sponsor
- SECRET/Collateral Space
 - Coordination required with Sponsor
- Rapid Engineering Space Support
 - Work along-side our engineers to develop your tech
 - Antenna/Satellite communication capability and testing

Intern Program:

- Access to USF AND non-USF undergrads & grad students
- End-to-end solution providing:
 - Recruitment, Interviews, Onboarding, Orientation
 - Overall administrative management
- Semester based or longer
- STEM and Non-STEM

STTRs:

- R1 Institution to support your STTR
- Align with our Core Competencies:
 - Fill company gap with our core competencies
 - Augment your capabilities with our expertise and testing
- FAR expertise and compliance