C4I & Cyber Center Overview

Dr. Paulo C. G. Costa – Director

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https://c4i.gmu.edu

VOLGENAU SCHOOL MASON ENGINEERING

Where Innovation Is Tradition

GEORGE MASON UNIVERSITY

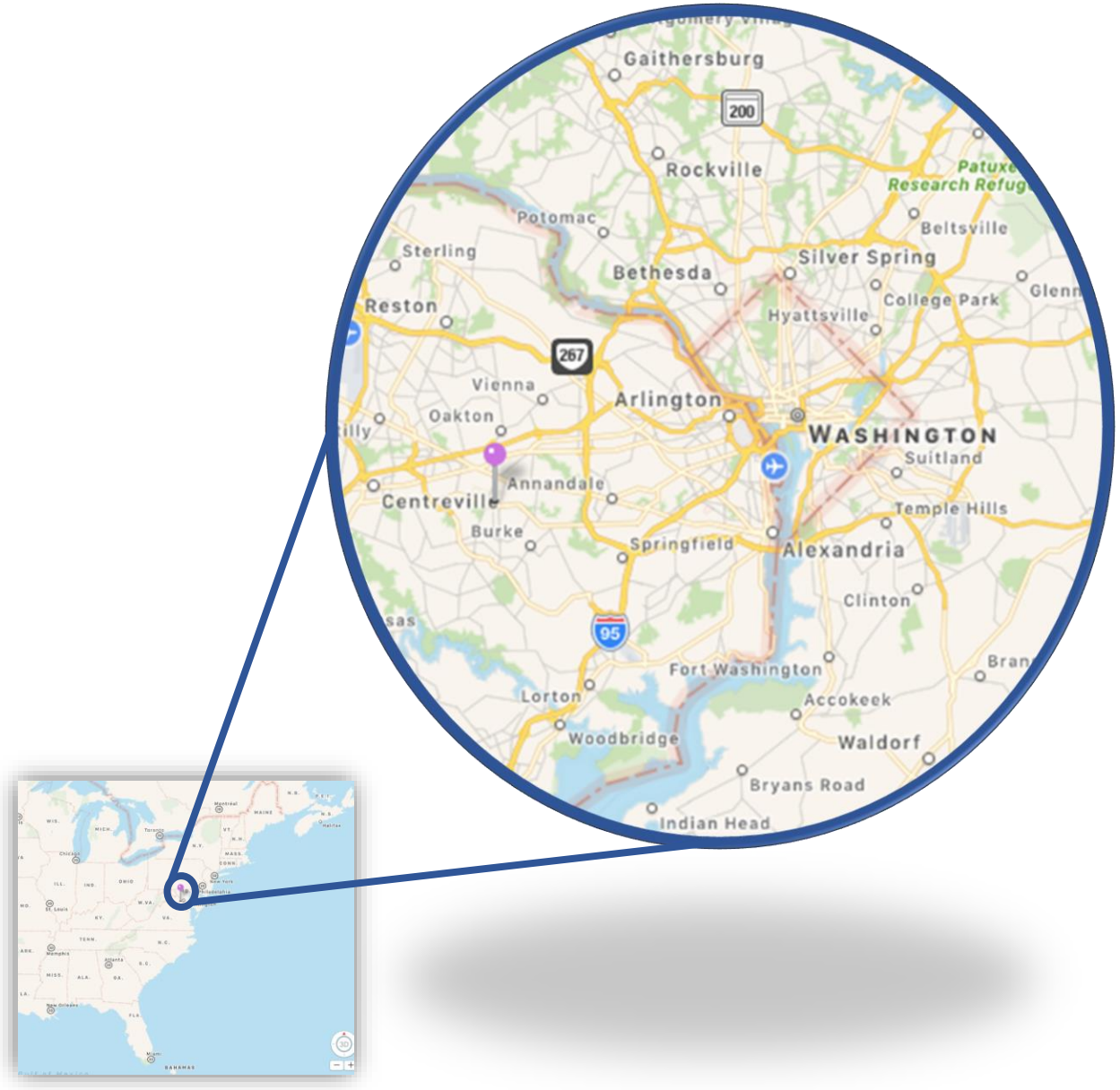
CENTER OF EXCELLENCE IN
COMMAND, CONTROL, COMMUNICATIONS,
COMPUTING, INTELLIGENCE, AND CYBER

C4I & CYBER CENTER

About C4I & Cyber Center of Excellence

Location

The C4I & Cyber Center is located at the Fairfax Campus of George Mason University in the greater D.C. area, home of numerous Government Agencies and Industry Contractors. Mason is the largest university in Virginia, with 39K students



Mission

To perform advanced research in defense, intelligence, and security-related applications in IT and Cyber; bridging cultural gaps and aligning requirements between government, industry, and academia.

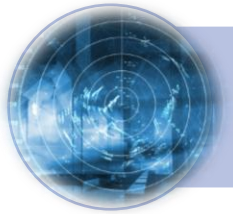
Vision

Serve as a multi-disciplinary hub connecting faculty and researchers wanting to work on areas related to the Center's mission and be widely recognized as a premier source of knowledge and innovation to military and civilian authorities.

C4I & Cyber Goals

Provide an intellectual base for the C4I & Cyber area

Integrate theories and results across disciplines for more understanding at the systems level



Impact the synthesis and analysis of C4I & Cyber systems

Bridge cultural gaps among government, industry and academia in C4I & Cyber

Research Focus

Sensing & Fusion

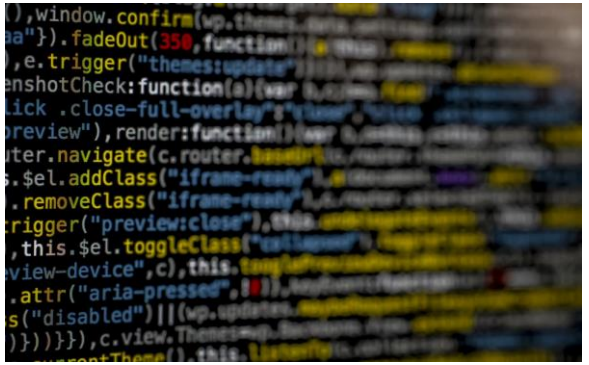
Command Support

Communications and Signal Processing

Information System Architectures

Modeling and Simulation

Distributed Education and Training



C4ISR & Cyber (civilian and dual use)

Leadership Team

Dr. Harry L. Van Trees
Director Emeriti

Dr. J. Mark Pullen
Director Emeriti

Dr. Paulo C. G Costa
Director

Dr. Kathryn B. Laskey
Associate Director

Dr. Linton Wells II
Executive Advisor

Advisory Group

Dr. Linton Wells II
Chair

Ms. Deborah Dunie
DBD Insights

Dr. Gilliam Duvall
Data Security Strategies, LLC

Lt. Gen. (Ret) Robert Elder
USAF, George Mason University

Mr. James L. Griggs, Jr.
AFCEA

RADM Jan Hamby
USN (ret) & College of Information and Cyber, National Defense University

Dr. Daniel T. Maxwell
KaDSci, US Army ret

CAPT Leslie J (Jake) Schaffner
USN (ret)

Maj. Gen (Ret) Robert Wheeler
USAFF & Strategic Consulting Unlimited, LLC

Faculty

- Dr. Leonard Adelman
- Dr. Alexandre Barreto
- Dr. Kuo-Chu Chang
- Dr. Thomas Clemons
- Dr. Kenneth Comer
- Dr. Zoran Duric
- Dr. Michael Hieb
- Dr. Karla Hoffman
- Dr. Edward Huang
- Dr. Liling Huang
- Dr. Andrew Loerch
- Dr. Shou Matsumoto
- Dr. Walter Powell
- Dr. Arthur Pyster
- Dr. Ali Raz
- Dr. Sanjeev Setia
- Dr. Robert Simon
- Dr. Girum Urgessa
- Maj.-Gen. Robert Wheeler
- Dr. Liz White
- Dr. Duminda Wijesekera
- Dr. Bo Yu

Project Investigators

- Dr. Paulo Costa
- Dr. Zoran Duric
- Dr. Michael Hieb
- Dr. Liling Huang
- Dr. Kathryn Blackmond Laskey
- Dr. Robert Simon
- Dr. Linton Wells, II
- Dr. Elizabeth White
- Dr. Duminda Wijesekera
- Dr. Bo Yu
- Dr. Arthur Pyster

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Current Status and Accomplishments

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Current Status and Accomplishments

Academic Results

Publications

FY19: 69

FY20: 23

Citations

FY19: 2133

FY20: 1519

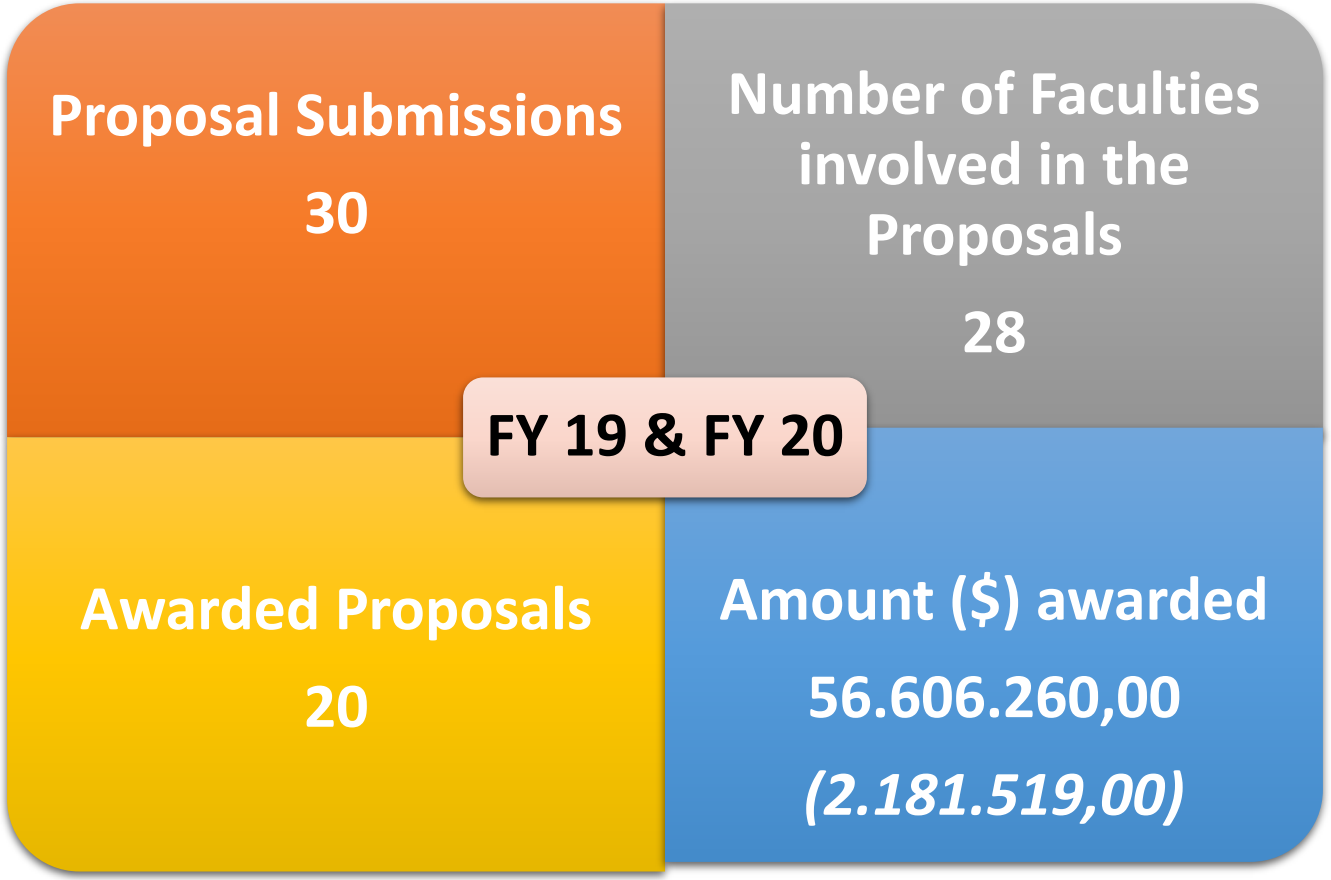
Events & Workshops

AFCEA-GMU C4I Center Symposium

NATO MSG145/C2SIM

STAR-TIDES Tech Demo

Research Activity



Sponsors

DI2E
Defense Intelligence Information Enterprise

DARPA

DEFENSE INFORMATION SYSTEMS AGENCY

SAAB
TECHNOLOGIES

Office of Naval Research
USN
ONR
Science & Technology

DEFENSE THREAT REDUCTION AGENCY
UNITED STATES OF AMERICA

LOCKHEED MARTIN

Raytheon

MARINE CORPS SYSTEMS COMMAND
HEADQUARTERS MARINE CORPS

U.S. ARMY
ERDC
ENGINEER RESEARCH AND DEVELOPMENT CENTER

U.S. DEPARTMENT OF HOMELAND SECURITY

RDECOM CERDEC
CONQUEST OF DARKNESS
NIGHT VISION & ELECTRONIC SENSORS DIRECTORATE

UNITED STATES JOINT FORCES COMMAND
USJFCOM

Industry Partners

Affiliate Centers and Laboratories

RARE Lab
The Radar and Radio Engineering Lab ..

5G Innovation Laboratory

Rapid Prototyping Research Center

GMU Center for Resilient & Sustainable Communities

Sensor Fusion Lab

EClab

Dr. Kenneth De Jong

Dr. Sean Luke

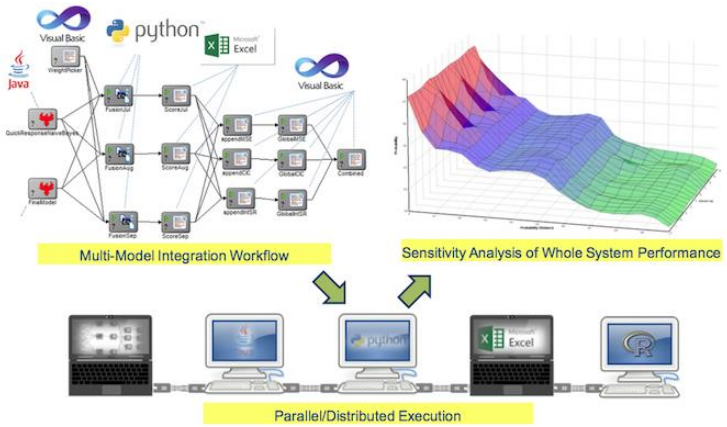
Learning Agents Center

Learning Agents Center

Center for Secure Information Systems

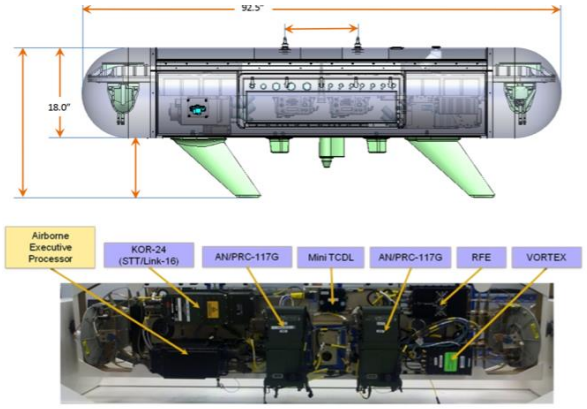
Center for Secure Information Systems

Recently Concluded Projects



Semantic Testbed for Inference Enterprise Multi-Modeling

An inference enterprise model uses available information about an inference enterprise to predict performance of the enterprise.



SmartNode Pod

is designed to establish battlefield interoperability and is to be flown on either manned or unmanned aircraft to establish an airborne hub that will increase ranges for communications as well as networks.

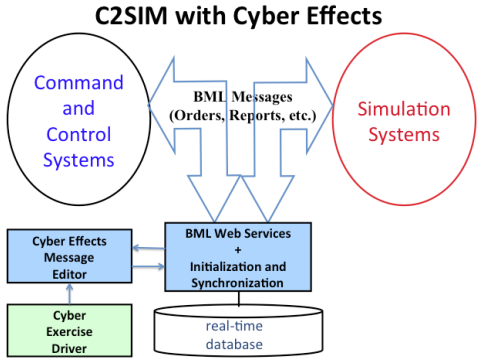
Command and Control Simulation Testbed for International Collaborative Experimentation

Support by our industry partners and staffed as part of our international collaborative research.

Current Projects

STAR-TIDES

STAR-TIDES and Collaborative Community Resilience (CCR) plan to help build individual and community resilience to natural and man-made emergencies while increasing economic and other opportunities in under-served communities.



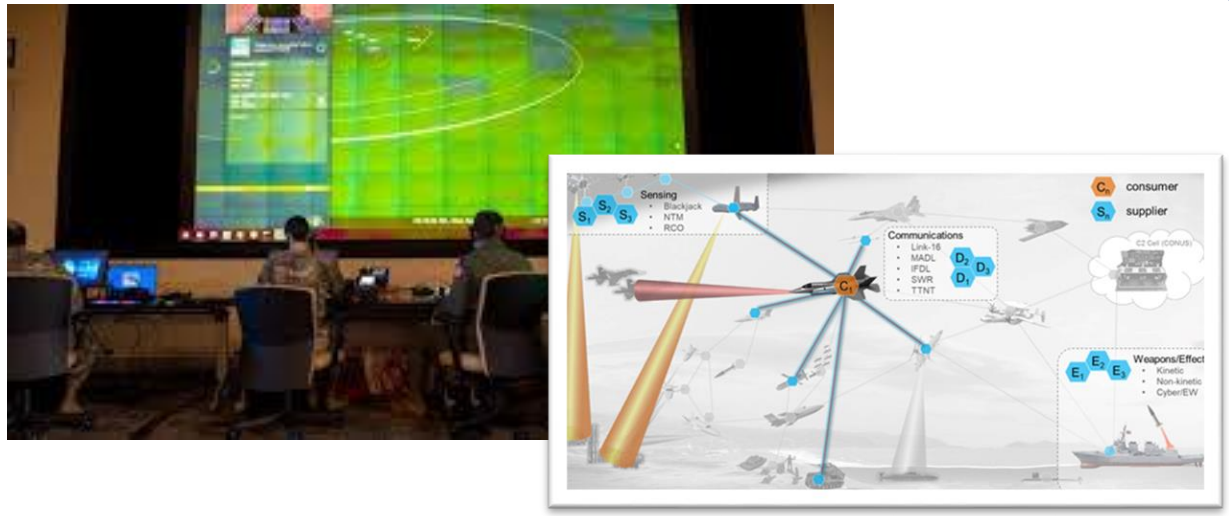
Battle Management Language (BML), NATO MSG145 and C2SIM

C4I & Cyber Center projects have coordinated and supported NATO and SISO projects in Command and Control – Simulation Interoperation (C2SIM).

Current Projects

ARAKNID / ACK Program

The goal of the Adapting Cross-Domain Kill-Webs (ACK) program is to provide a decision aid for mission commanders to assist them with rapidly identifying and selecting options for tasking – and retasking – assets within and across organizational boundaries.



CYMANII
the cybersecurity manufacturing innovation institute

Cybersecurity Manufacturing Innovation Institute (CyManII)

DOE will provide CyManII with $70M in 5 years to create economically viable, pervasive, and inconspicuous cybersecurity in American manufacturing to secure the digital supply chain and energy automation. The Institute is composed of 23 leading universities, 3 National Labs, and 50+ industry partners including CISCO, Schneider Electric, GE, and others. The projected budget is $120M for the 5 years. Mason is a Managing Partner (highest tier) and responsible for the East Cost Satellite Facility of the Institute.

COVID Impact

- ✓Planning workshops;
- ✓Staff and student hiring; and
- ✓Project slowdowns: student coordination & computing.

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Strategic Vision 2021-2026

5-Year Goals

- Growth
  - Expand the annual research expenditures to $4M
  - Duplicate the number of active Project Investigators
- Diversification:
  - Reach a two-fold increase in the current number of funding sources
  - Reach a three-fold increase in number of MOUs