ODU – Virginia Institute for Spaceflight & Autonomy (VISA)

Overview

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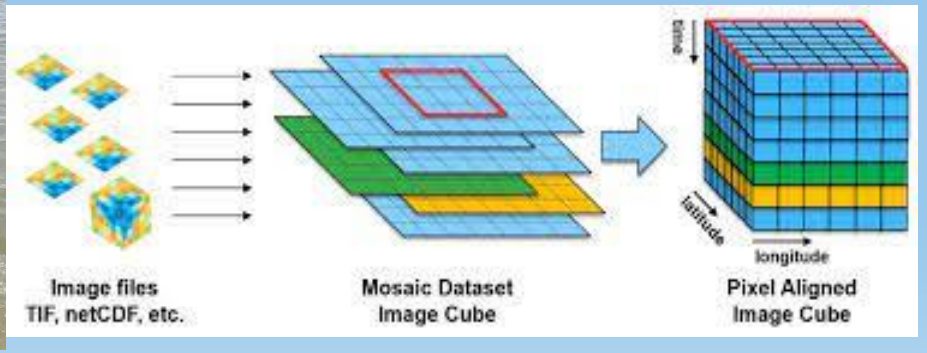
Background

ODU

- The **Virginia Institute for Spaceflight & Autonomy**, was established by the Virginia General Assembly (2019)
- It is a business unit within the Office of Research at Old Dominion University :
  1. Grow the spaceflight and autonomy sectors across the Commonwealth.
  2. Be the hub to leverage Virginia's world-class assets in spaceflight, autonomous systems, modeling and simulation and data science to solve real-world problems
  3. Collaborate with faculty and peer Centers to support, industry and government



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Activities

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- VISA Participates in two types of Activities – Direct Applied R&D & Economic Development
- Direct Applied Research Activities
  - Develop proposals to government, military and industrial sponsors
  - About $1M to $1.5M/year is typical and reflects available personnel
  - Can leverage faculty to grow if necessary
- Economic Development Activities
  - Work closely with state level organizations
    - Hampton Roads Alliance
    - Hampton Roads Executive Roundtable
    - Virginia Economic Development Partnership (VEDP)
    - Virginia Innovative Partnership Corporation (VIPC)
    - Virginia Aerospace Business Association and others
  - Contribute or Lead Region-Level proposals
    - GoVirginia, EDA Tech Hub-NEXUS, NSF-Engines etc.

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Working w/ VISA

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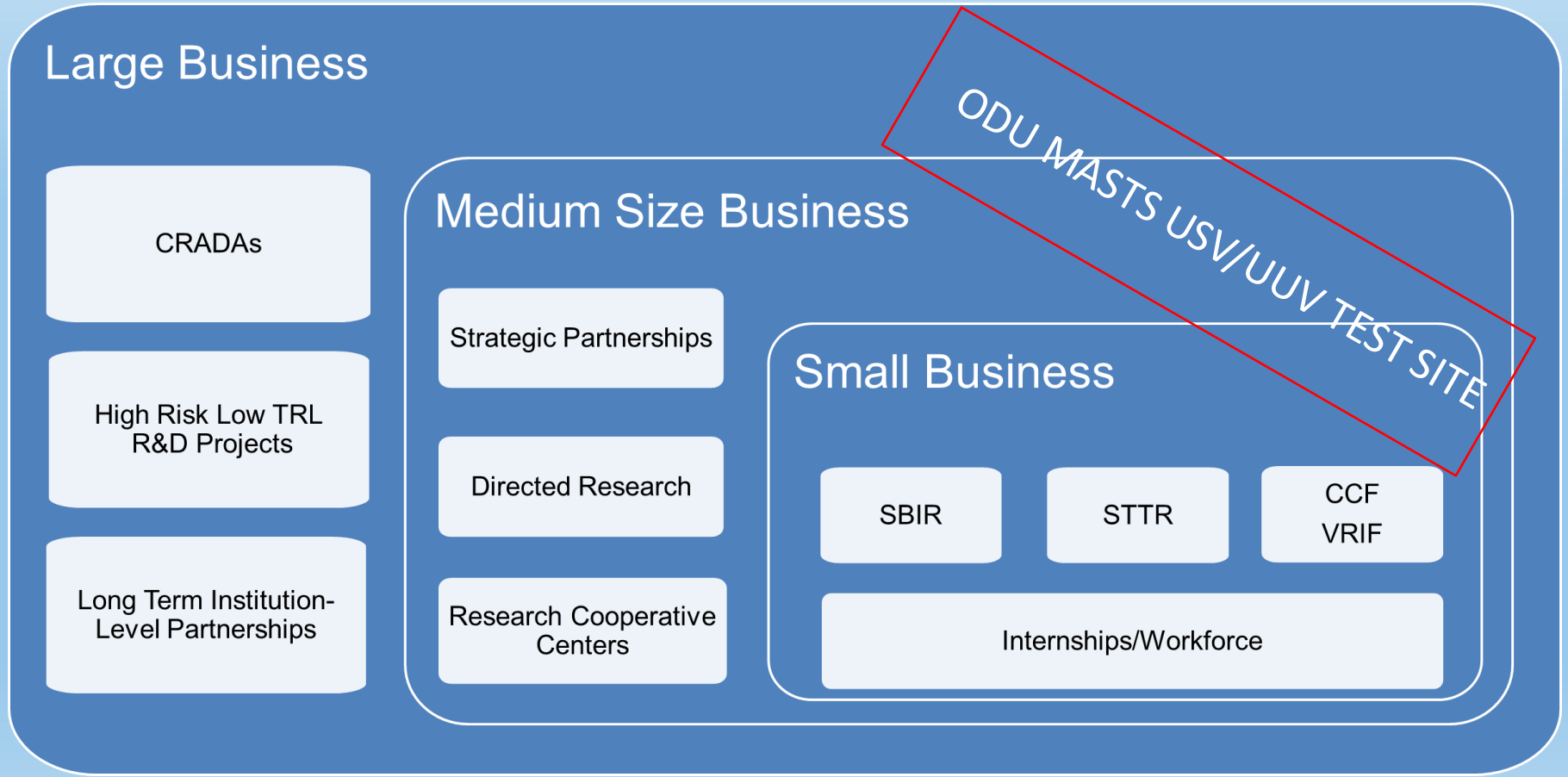

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MASTS

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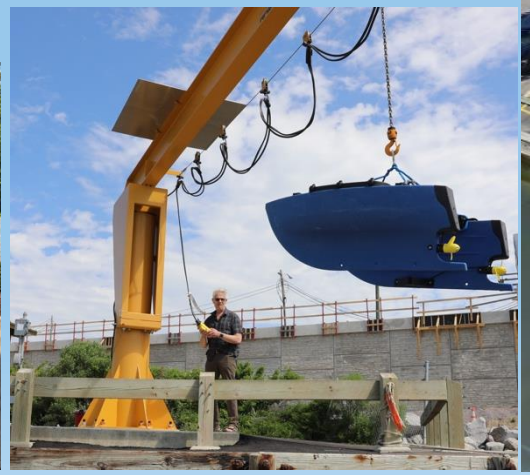
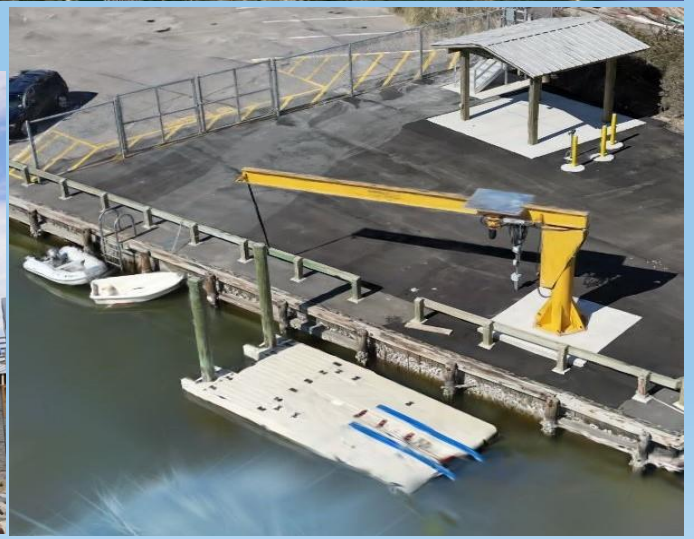
- Maritime Autonomous Systems Test Site (MASTS) Collaboration with the City of Norfolk, MASTS provides an easy to access, controlled area to allow researchers and industry partners to launch and monitor unmanned surface or underwater vehicles.
- Located in Willoughby Bay, adjacent to the existing public boat ramp. Strategic access to protected, riverine, ocean water.
- ½ ton capacity crane for launching larger USVs/UUVs
- Electrical service (100 Amp), equipment & battery charging
- Fresh water; clean up equipment post-testing
- 18-foot chase vessel





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Sample Project - NATS

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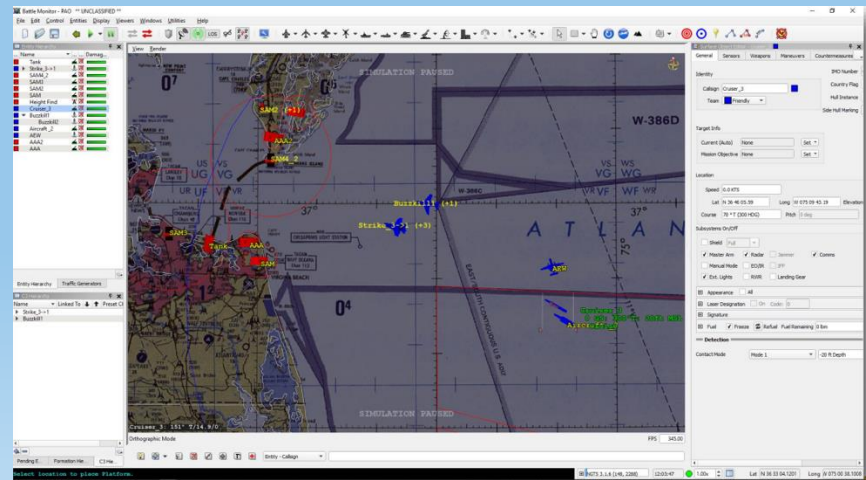
- VISA has been awarded several projects by the US Navy Carderock to support the development of a sophisticated simulation environment to test US Navy autonomous solutions (ABL/CARACaS/Others)
- Supports USV/UUV/UAV test and evaluation
  - Includes a sophisticated maritime agent behavior model that complies with COLREGS
- As a comprehensive composable agent-based simulation, the system has numerous uses in both military and civilian applications



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Sample Project
Avian Deterrence

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- NOAA awarded VISA a project to support aquaculture, specifically targeting surface oyster farms
  - In collaboration with VIMS (William & Mary)
- Hazards due to birds roosting on surface oyster farms
- Test AI-driven counter-measures
  - Sonic-Net
  - Autonomous USV + water jet

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Sample Project
Medical Package Delivery

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- DOT SMART Grant Phase 1 Award, partnering with Riverside Health, DroneUp, VIPC and ANPDC
- Demonstrate routine medical prescription/supplies delivery on the Eastern Shore including Tangier Island
- Tangier Island Demo
  - Riverside Shore Memorial Hospital to Tangier and back
  - Conducted under approved Part 107 BVLOS Waiver (Altitude, ~185’ AGL, Speed ~70 mph)

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Sample Project
Medical Package Delivery

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YouTube Video: https://www.youtube.com/watch?v=aHBSRU5oduE

Date of Flight: June 26, 2024

Location: From Riverside Shore Memorial to Riverside Clinic on Tangier Island and back

Flight Altitude: 185 AGL

Ground Speed: 70mph

Flight time one direction ~15min

**Flights were conducted in accordance with FAA BVLOS Waiver. NOTE: The medical supplies carried to, and the blood samples carried back, were uncompensated and for test, training, and demonstration purposes only.

VISA Points of Contact

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