



JIFX
Joint Interagency Field Experimentation



NPS Joint Interagency Field Experimentation 21-3 Update

JIFX Community,

First off, we wanted to extend a big THANK YOU to our amazing JIFX Community for staying engaged and participating in our events while we navigated through a very unique year. The JIFX team was proud to continue to offer an opportunity for the NPS community, private companies and academia to share their technologies and ideas with the Department of the Navy and the Department of Defense throughout the entirety of the global pandemic.

Not only did JIFX 21-3 mark our return to in-person experimentation, but it was also our first distributed event in quite some time with experiments taking place at both the McMillian Field Laboratory at Camp Roberts and the Sea Land Air Military Research (SLAMR) Aquatic Tanks at the Naval Postgraduate School. In my estimation, the event was successful both in execution and in signaling that NPS remains a leader in bringing our students, faculty, and operational force sponsors in dialogue with technology innovators from across industry, government laboratories, and academia.

We had over 200 registered participants from across the nation. Experimenters came from fourteen small businesses, two operational commands, two military research labs, and two academic institutions. Check the next page for the full list of experiments! Our government participation included representatives from the Rapid Reaction Technology Office (RRTO) of USD for R&D, STRATCOM, NORTHCOM, SPACECOM, SOUTHCOM, CENTCOM, SOCOM, AFSOC, NSW, and the Marine Corps Tactical Systems Support Activity (MCTSSA) commander. We also virtually hosted representatives from TRANSCOM, CENTCOM, STRATCOM, AFRL, AFSOC. Finally, NPS Students served as technology assessors and conducted site surveys in preparation for future experiments.

The team is now compiling all the experiment results, the JVAB Cyber Vulnerability Assessments, and the technical assessments to produce the overall event technical report. That report will be available soon through our CAC enabled website found here: [JIFX - Field Experimentation \(CAC\) - Naval Postgraduate School \(nps.edu\)](https://www.nps.edu/field-experimentation-cac)

Our next event will take place August 23 – 27th, check the website at www.nps.edu/fx for more Information. We will begin accepting experiment proposals at the end of June. Please continue to nominate experimenters and technologies to us.

Looking forward to seeing you at future events,

Michael Richardson

Michael Richardson
JIFX Deputy Director



ScanEagle was flown by NPS researchers during this JIFX event.



www.nps.edu/fx



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Exp. Number	Experiment Title	Organization
A-02	Lightweight, Low-Cost Hyperspectral Sensor Integration to Support Urban Air Mobility Operations	Spectrabotics, LLC
A-03	Quantum Systems' Trinity F90+ BVLOS Mission	Insight Up Solutions
A-04	CATNIP	University of Nebraska - Lincoln
A-05	SMART CAM 3D	AFRL/RW
A-08	Aerial Automated Runway Inspection and Safety Scan (AARISS)	GreenSight
A-09	OWL - One Way Lifter	GreenSight
A-13	ASCALON – Video Identification and Tracking through FMV	AFSOC A5RS
A-14	Scan Away	USASOC
A-15	Field Manufacturable Drone Platform for Payload	GLW Technologies LLC
B-01	Multi-Institutional All Domain C2 for UXS	Naval Postgraduate School / COPERS
B-02	AI for Small Unit Maneuver	Autonodyne, LLC
B-04	Vermeer: Augmented Reality UAS Mission planning	Aerocine Ventures, Inc.
B-10	Data Strategy for Unmanned Systems	Naval Postgraduate School
D-02	Terrestrial Point-to-Point 100 Gbps Optical Communication	BridgeComm, Inc.
D-03	Tactical Surveillance and Intelligence Automation at the edge	Gantz-Mountain Intelligence Automation Systems Inc.
E-01	Behavioral Observations Logging Toolkit (BOLT)	U.S. Army CCDC Data & Analysis Center Aberdeen Proving Ground, MD
F-02	Cyber Unattended Ground Sensors	Innovative Algorithms
F-03	Real-time Geo-Registration	Edgybees Inc.
F-04	ISR and Target Vehicle Inspection Utilizing Autonomous Surface Vehicle	Seasats
G-01	Intelligent Human Motion (IHM) Trials	Yotta Navigation Corporation
J-01	AI/ML enabled High Performance Compute data center at the Tactical Edge	TMGcore LLC



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We asked the experimenters how their experiment adapted to each of the JIFX tenants, here's what they had to say!

Failure is Success

"The challenging field environment allowed us to push our system to fail in ways that we couldn't inside the lab."

A-04: CATNIP, University of Nebraska, Lincoln



J-01: TMGCore tested their portable data center's ruggedness by placing it on a HMMWV at Camp Roberts.

Austere by Design

"From the heat and the dust in the equipment to the operator fatigue, the austere design of JIFX ensured that we were operating and testing completely in a real-world field environment."

A-04: CATNIP, University of Nebraska, Lincoln

Develop Now

"We upgraded our software in the field to make improvements"

D-03: Tactical Surveillance and Intelligence Automation at the Edge, Gantz-Mountain Intelligence Automation Systems



B-04: A Vermeer researcher puts their autonomous systems augmented reality controller through its paces.

Collaboration is Expected

"Collaboration with government stakeholders provided Yotta insights and ideas into the need and wants for the US military."

G-01: Intelligent Human Motion (IHM) Trials, Yotta Navigation Corporation



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Integrated Experiment

On Thursday of the JIFX 21-3 event, we conducted an Integrated Experiment to allow experimenters the opportunity to participate in a fictional but applicable real-life scenario with their technologies. The experiment centered around a border protection scenario using the southern border of the McMillan Field Laboratory at Camp Roberts as the protected asset. Using multiple technologies, the JIFX experimenters were able to identify an unidentified border crossing, track the person of interest across the border, identify any hazardous substances that the personnel was carrying, and prepare the airstrip for a fictional interdiction team's landing, all while tracking the scenario progress through the COPERS Common Operating Picture Tool.



A-04: University of Nebraska, Lincoln's CATNIP deploys sensors along the border of the McMillan Field Laboratory



F-02: Innovative Algorithm's Seismic Sensor identifies a person of interest crossing the border



D-03: Gantz-Mountain conducted automated object detection and classification using both long-range and thermal cameras



B-01: COPERS brings Scan Eagle's cursor on target data to the Technical Operations Center (TOC) at the McMillan Airfield



A-02: Spectrabotics used their hyperspectral sensor to classify the powdered material that was dropped by the person of interest



A-08: Greensight's ARISS survey's the airstrip prior to the interdiction team's insertion.



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Sea Land Air Military Research (SLAMR)

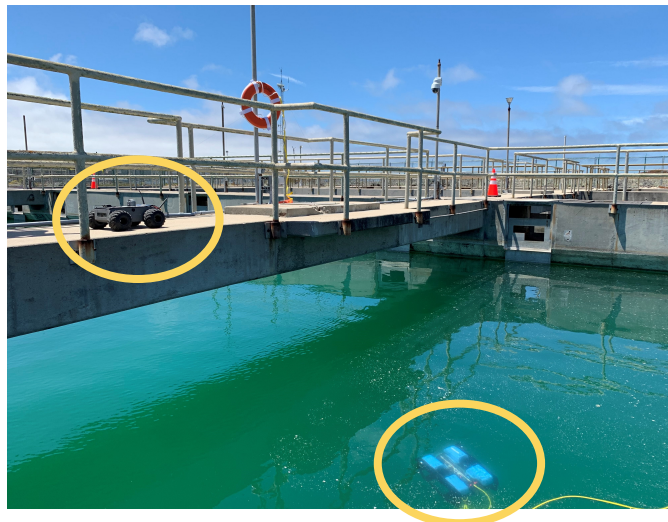
JIFX 21-3 hosted three experiments at the new SLAMR aquatic research facility located at the Naval Postgraduate School in Monterey, CA.



J-01: TMGCore's portable data center delivered computing capabilities at both Camp Roberts and the SLAMR site



F-04: SeaSats deploy their unmanned surface vehicle with persistent ISR capabilities to detect a vessel of interest.



B-02: Autonodyne operates an Unmanned Undersea Vehicle and an Unmanned Ground Vehicle with their common controller.