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Advances in Autonomy Flying High at Latest JIFX

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MC2 Taylor Vencill | April 3, 2020



Watch Video At: <https://youtu.be/5M7Vg-VFtBA>

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The latest iteration of the Joint Interagency Field Experimentation 20-2 (JIFX) program, held March 2-6 at the Naval Postgraduate School Field Lab at Camp Roberts, provided another opportunity for the university to build closer ties with military, academia and the private sector. Autonomy was a key focal area of this event, and it's use in the field is changing the game for military tactics and mission execution.

Experts in autonomy, as well as other various DOD-relevant domains, attend JIFX to work on projects that have the potential to directly affect the warfighter. Each event gives participating groups the opportunity for collaboration across different communities and gives industry a first-hand exposure to military requirements.

"About a third of the people [at JIFX 20-2] are here for their first time," said Dr. Ray Buettner, JIFX director and NPS associate professor of Information Sciences. "They get exposed to all of the services and their requirements, and the services get exposed to new industry folks that are developing new solutions. We are seeing new technologies that haven't necessarily been exposed to the government before."

Collaborative experimentation is a common sight at JIFX, and companies on the leading edge of autonomy research showed up in numbers to put their projects to the test to see how they performed in the field. One such company was Autonodyne, which brought its advanced common control station paired with Pison Technology's gesture-based autonomy. Pison has developed a wrist-wearable neuromuscular sensing system which allows hands-free, gesture-based control for electronics devices that was paired with Autonodyne's multi-mission control system.

“Autonomy is vitally critical for mission success,” said Nathan Titus, Director of Government Programs for Autonodyne. “Having autonomy in there to look at things like flight path, obstacles and weather, then be able to alert the human to what is going on allows the operator to focus more on the mission execution.”

“Coming out here allows us to bring our equipment to show how we can interact with our multi-mission, direct flight vehicles, ten at a time, with one iPad or attack controller,” said Titus. “We also want to control multiple dissimilar vehicles. We’re talking ground control, ground vehicles, fixed wing vehicles, hex copters, quadcopters of different sizes, all with one controller; and sending different missions to those individual vehicles.”

While experimentation is in the name, it is not the sole mission of the week-long event. Industry participants showcase their capabilities to attending DoD agencies to allow a better visual on how their product can benefit the military, all the while receiving constructive feedback.

“We want to have a human in the loop as much as possible to make sure our technology serves a real purpose,” said Nathan Yu, Pison Technology Product Manager. “The positive and negative feedback is definitely driving our technology in the right direction to hone in on the areas that we should be focusing on.”

“We’re lucky enough to have a bunch of operators and representatives from various branches of the service, with different motivations, who are giving us real-world input,” added Steve Jacobs, Chief Executive Officer of Autonodyne.

The JIFX event is inherently unique due to the multi-institutional, semi-structured learning environment that fosters collaboration across different communities – academic, military and commercial.

“Our experience has been outstanding,” said Titus. “The collaboration between ourselves and the different government agencies and vendors is a unique situation that we don’t see anywhere else.”