JIFX 24 – 3
13 - 17 May 2024
NPS Field Laboratory at Camp Roberts
Event Focus Area: **C5ISR & Countermeasures**

The **C5ISR (Command, Control, Communications, Computers, Cyber, Intelligence, Surveillance, and Reconnaissance)** framework represents a critical foundation for modern military operations. It encompasses the integration of advanced technologies, information systems, and communication networks to enhance situational awareness, decision-making, and operational effectiveness. Countermeasures, on the other hand, are strategies and technologies developed to protect C5ISR systems from a wide array of threats, including cyber attacks, electronic warfare, and physical interferences.

- **Cyber Resilience:** Investigating strategies to enhance the robustness of C5ISR systems against cyber threats, including advanced malware, hacking attempts, and data breaches. This includes the development of intrusion detection and prevention systems, secure communication protocols, and encryption techniques.
- **Signal Processing:** Advancing signal processing techniques for improved data fusion, information extraction, and pattern recognition from various sensors and sources. This includes research into real-time data analytics, machine learning algorithms, and sensor fusion methodologies.
- **Situational Awareness:** Developing tools and systems to enhance commanders' situational awareness through improved data visualization, geospatial intelligence, and integrated decision support systems. This area includes the utilization of augmented reality (AR) and virtual reality (VR) technologies.
- **Communications:** Exploring next-generation communication architectures that provide high data rates, low latency, and secure information sharing. This involves research into 5G and beyond, satellite communication systems, and cognitive radio technologies.
- **Unmanned Systems:** Investigating the integration of unmanned aerial, ground, and maritime systems within the C5ISR framework. This includes autonomous operation, remote sensing, and swarm intelligence.
- **Physical Security:** Developing physical security measures to safeguard C5ISR assets against sabotage, tampering, and physical attacks. This area encompasses access control, anti-tamper technologies, and secure hardware design.
- **Resilient Networks:** Designing resilient communication networks capable of adapting to dynamic and challenging environments, including research into mesh networks, ad hoc networks, and software-defined networking.

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