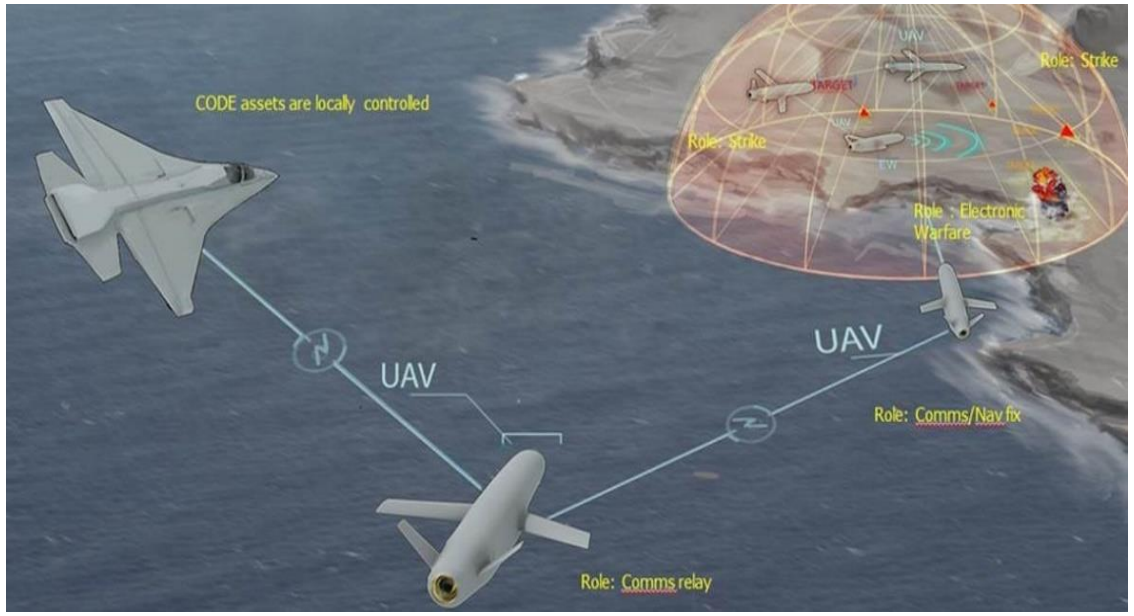
AI-Driven Drone Swarms Pose Multiple Security Threats to US Military

Andy Pierucci // Utah State University

Introduction



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Project Overview

- Artificial intelligence (AI) driven drone swarms present serious threat to the US military
- Advances in AI technology in the next five to ten years will expand drone capabilities, strategies, and tactics
- AI driven drone swarms will be more valuable for offensive purposes and even harder to defend against

Nagorno-Karabakh

Armenia's Pearl Harbor

Methods

- Research question-driven approach
- Utilizing the 4R Resilience Framework

Findings

- US Armed Forces are vulnerable to threats posed by AI drone swarms
- The US lacks sufficient countermeasures
- China outpacing the US

MATERIAL SYSTEMS

redundancy

diversity

variety

disparity

resource base

flexibility & elasticity

upgradeable

adaptable

premeditated shock absorbers

balance

alignment of purpose

planning

communication

trusted sources of information

resource mobilization

self-organization

institutional memory

cross-training

ritualized ingenuity

trust

HUMAN GOVERNANCE OF SYSTEMS

US Air Force, Army, & Marine Corps

US Navy

Conclusion

- AI driven drone swarms–a potential Achilles heel for US armed forces
- Increased DOD investments in AI enabled drone technologies and countermeasures
- Accelerated development of US military AI enabled drone strategies and tactics

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For More Information:

- Visit https://www.usu.edu/cai/
- See "Artificial Intelligence and National Security" by the Congressional Research Service, November 10, 2020, https://fas.org/sgp/crs/natsec/R45178.pdf
- See "Artificial Intelligence, Drone Swarming and Escalation Risks in Future Warfare" https://www.tandfonline.com/doi/abs/10.1080/03071847.2020.1752026?scroll=top&needAccess=true&journalCode=rusi20

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