

CAREER: Facilitating Autonomy of Robots Through Learning-Based Control

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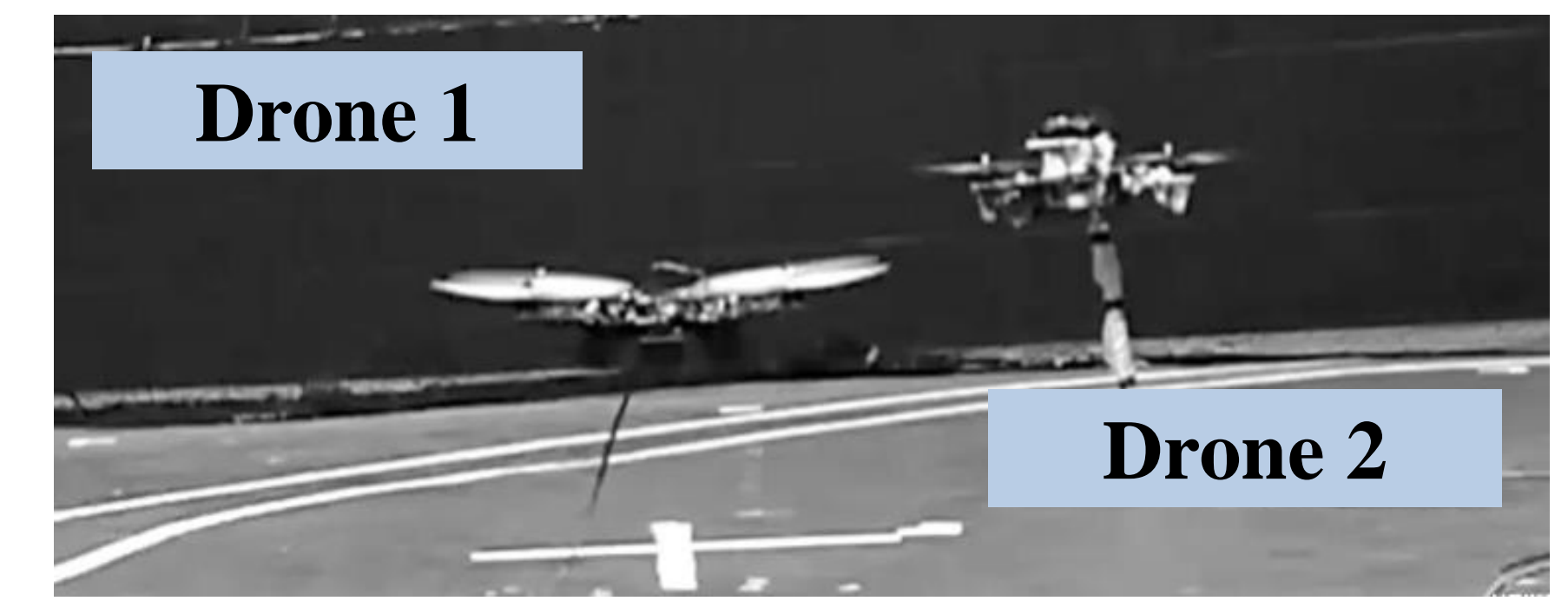
Overview: This project will (1) establish a novel learning-based framework to equip drones with new capabilities of learning from different ones, (2) reduce design efforts in planning and control for each individual drone, (3) unlock current limitations toward mass production of heterogeneous robots, and (4) prepare future workforce for unmanned aerial system industry via educational pathways.

Challenge: Extensive efforts before flying a new drone



Key Outcomes:

- Learn trajectory tracking and disturbance suppression from different drones

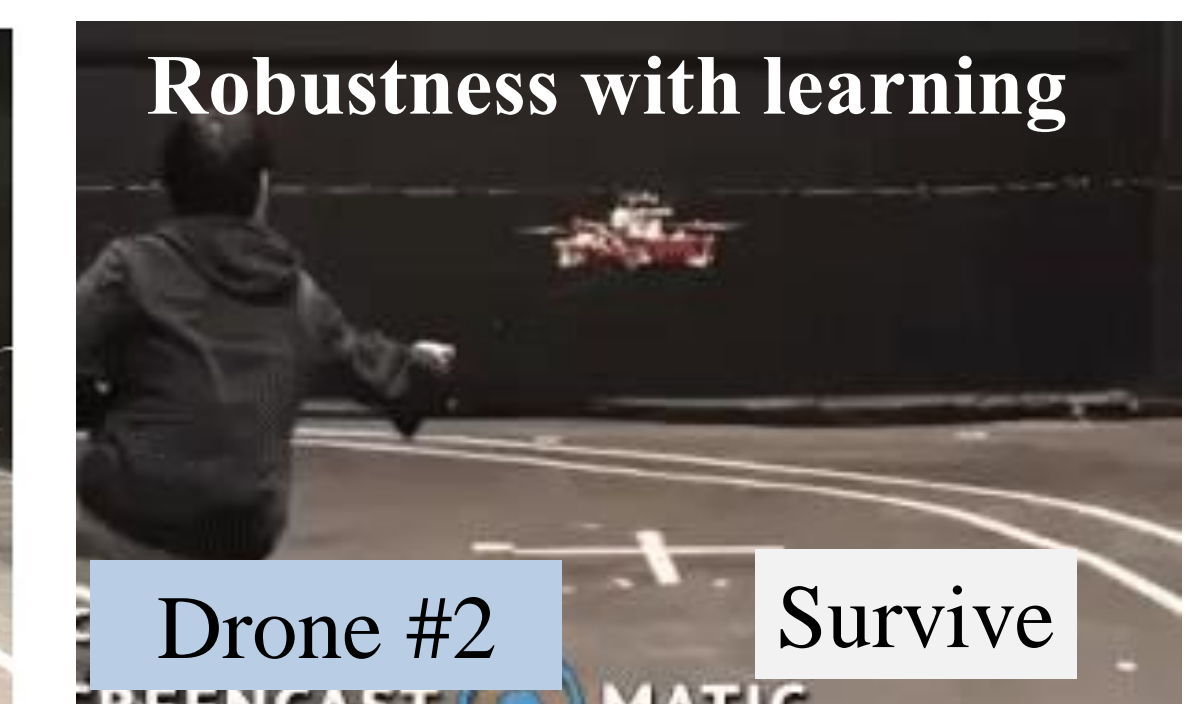
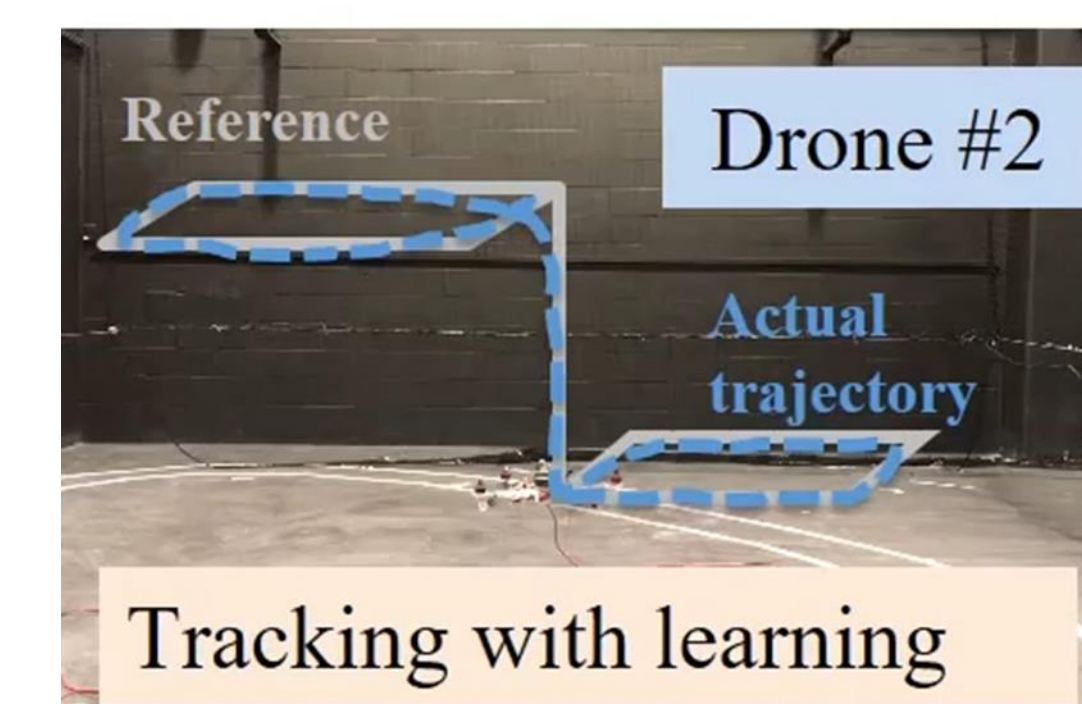
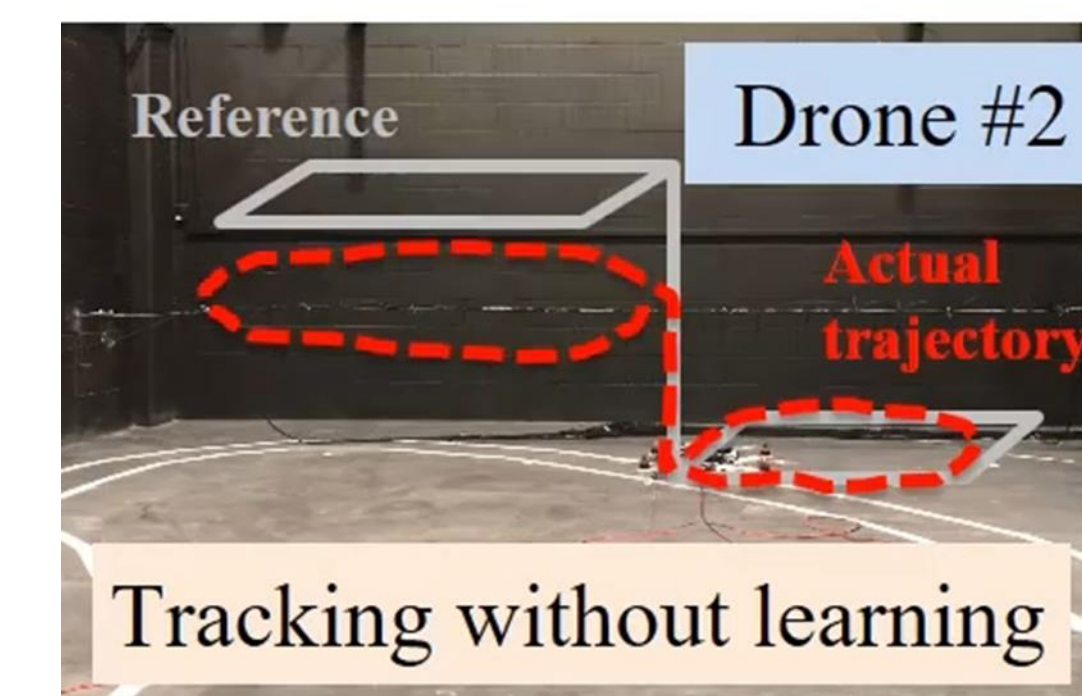


Solution:

- A learning framework that can enable the newly built drone to learn from existing drones despite their **different** dynamics and platforms

Scientific Impact:

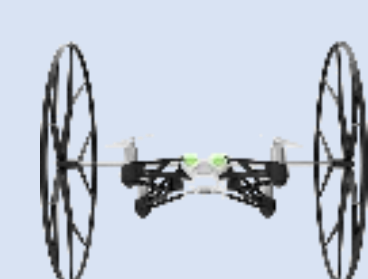
- It is expected to build a fundamental understanding of learning among heterogeneous drones
- This approach to design of planning and control will significantly reduce the design, test, evaluation, and certification of drones that are uniquely customized for applications in their own operating environment.



Broader Impact



Promote mass application of heterogeneous drones



Internship, lab sessions, & drone race



Prepare future workforce for drone industry

