

Collaborative Research: NRI: FND:

# Flying Swarm for Safe Human Interaction in Unstructured Environments

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## Challenge

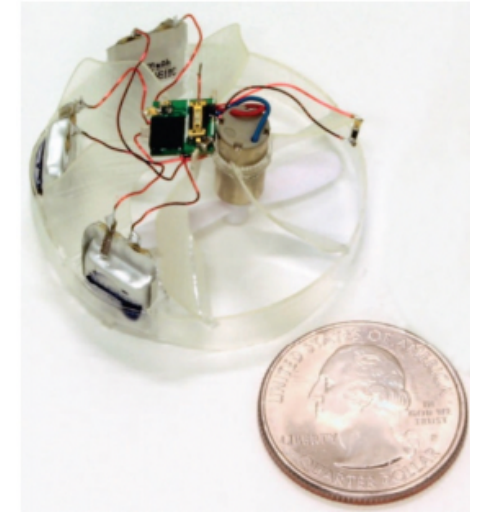
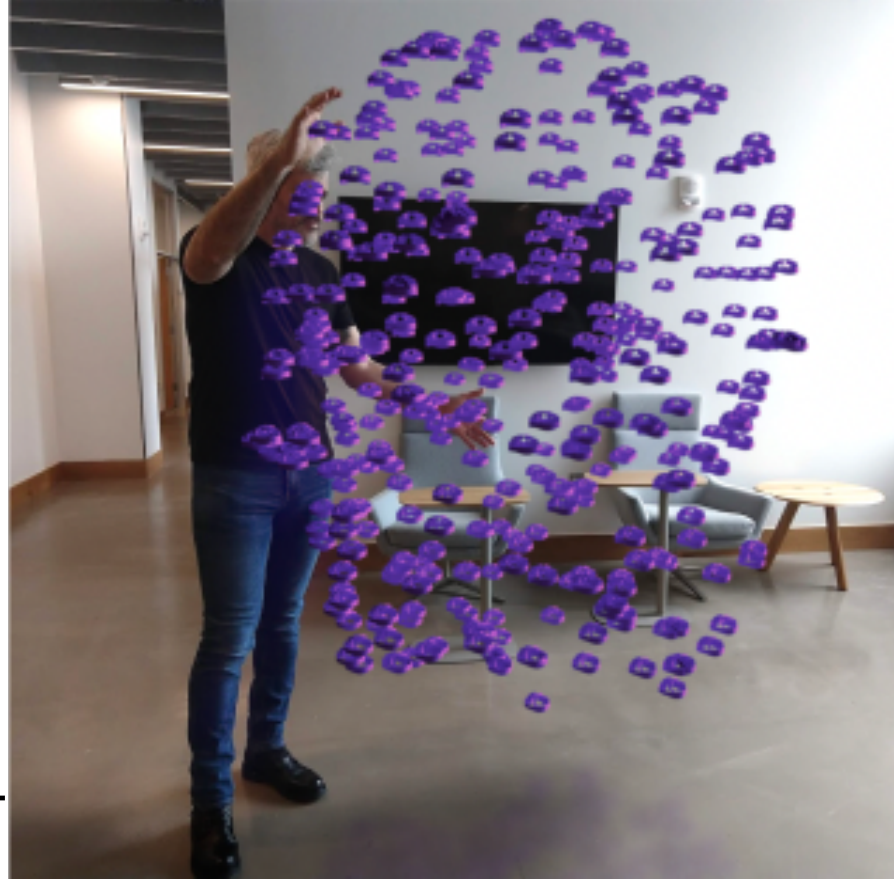
- Safe human-UAV swarm proximal interaction

## Solution

- Very Small (safe) UAV
- UAV-to-UAV sensing/comms
- 200 UAV swarm algorithms

## Intellectual Merit:

- Control for resource-constrained (small) single motor flyer.
- Local algorithms for swarm path planning
- Wake control to enable tighter swarms
- Development human-swarm interaction for conglomerate shape control.



## Broader impact:

- Low-cost design makes more accessible (open sourced)
- Safer designs increase public safety.

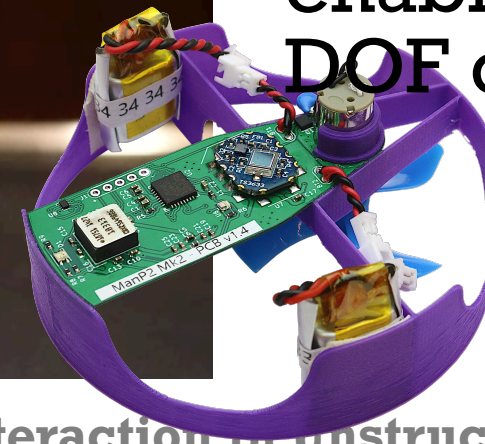
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# Trajectory Control of ManP2



Station keeping  
(multiple trials shown)

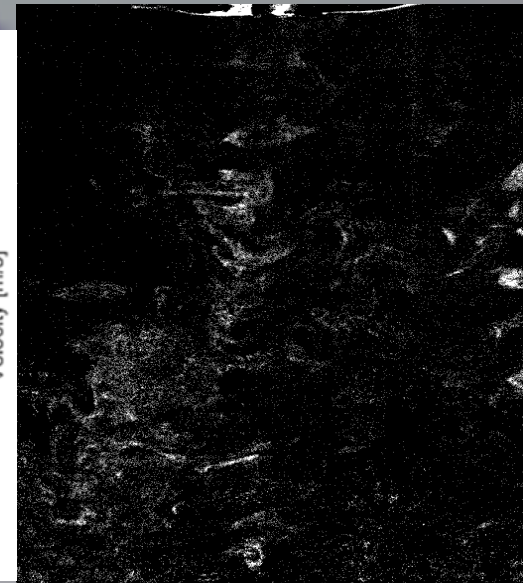
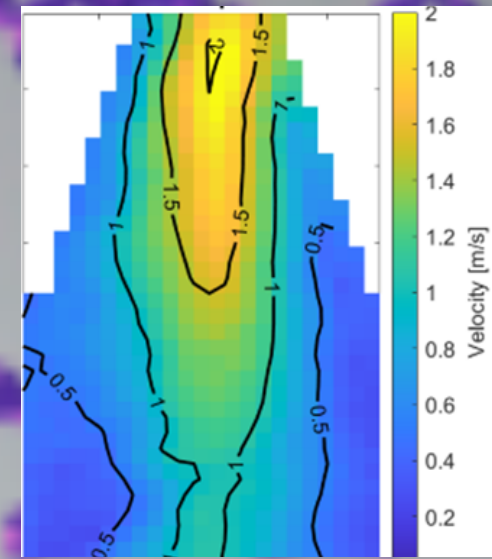
- Single motor flyer
- External localization
- Offset motor enables full XYZ DOF control



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# Work in progress

- Local sensing and communication
- Wake analysis
- Future Work
  - path planning and control
  - modified wake design models
  - integrated landing charging



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