

CPS: Medium networked or

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Abstract

This project seeks to develop technologies for aerial deployment of wireless sensors. We aim to create fully functional, battery-free microflutters that communicate with each other to self-organize and coordinate their descent, enabling precise deployment of wireless sensor networks over large spatial scales.

Origami Microflutters

Using wind to disperse microflutters that fall like seeds and leaves can help automate large-scale sensor deployments. Here, we present battery-free microflutters that can change shape in mid-air to vary their dispersal distance.

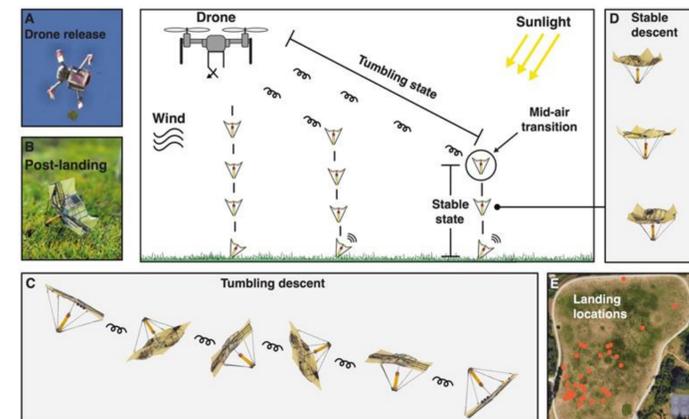


Figure 1: Conceptual diagram show origami microflutters changing their shape in mid-air to alter their falling behavior and achieve varied sensor dispersal distances.

Our first work used an onboard actuator powered by a solar cell to trigger shape changes

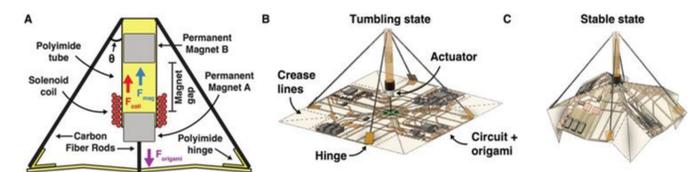
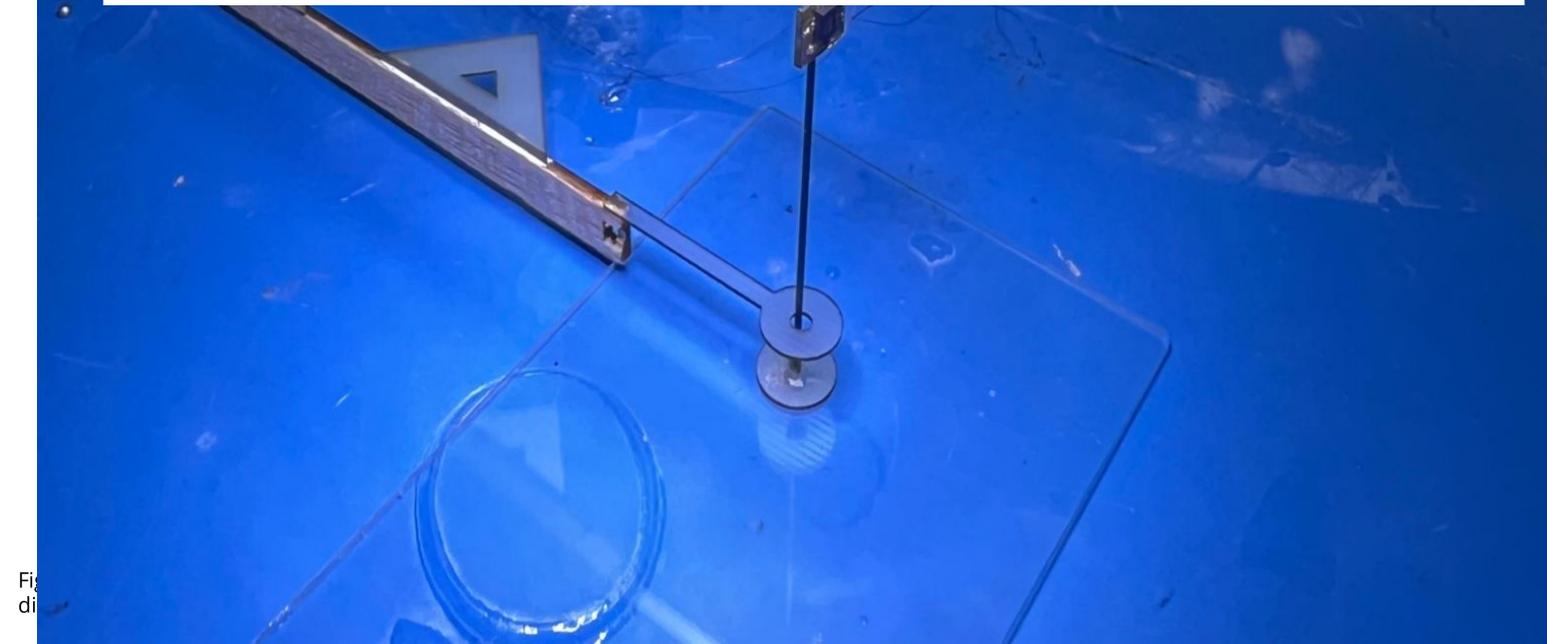
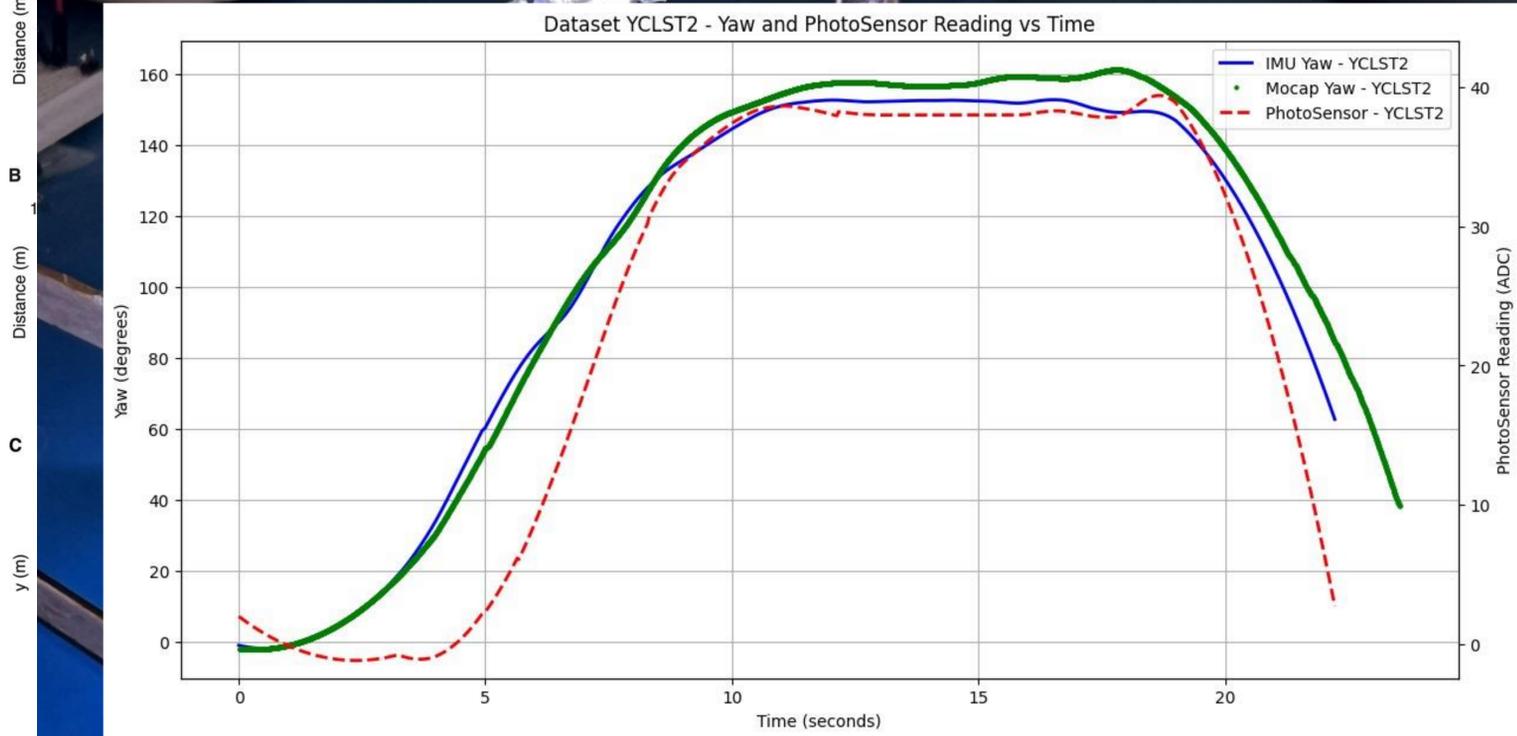
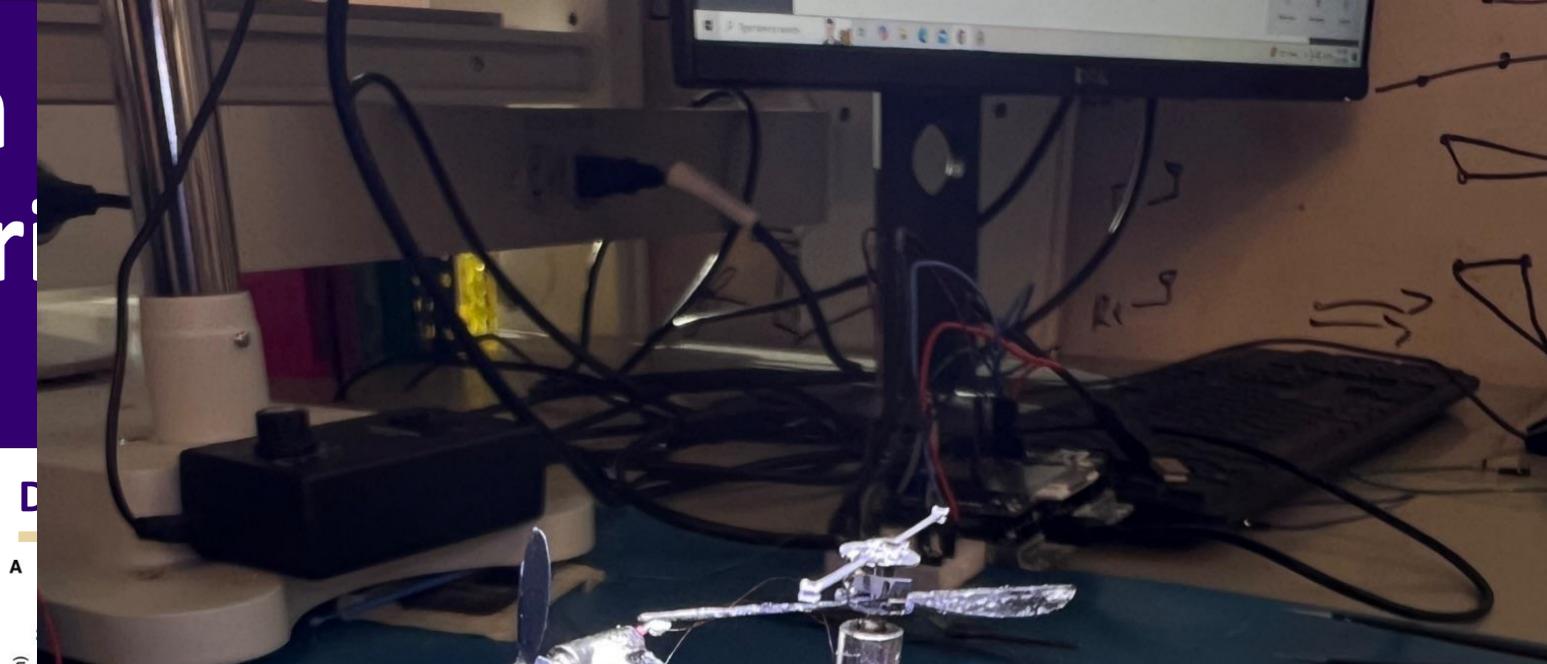


Figure 2: Solar-powered actuator and microflutter CAD diagram.

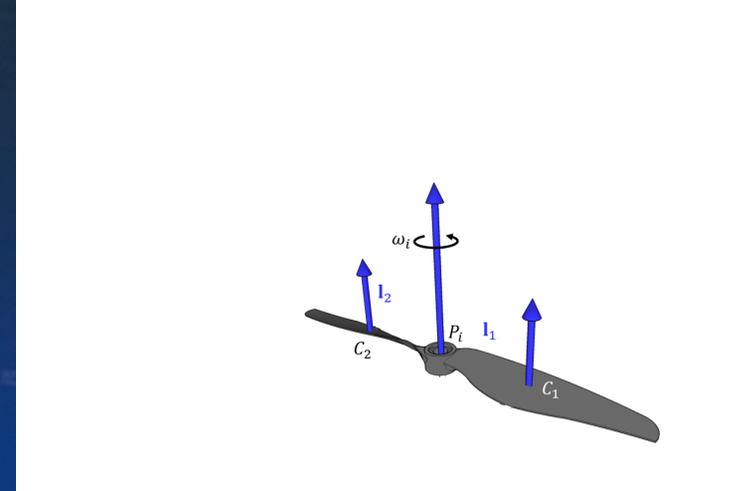
Link to learn more:

origamiflutters.cs.washington.edu



Helicopter: work in progress

We have added a tail rotor to create a complete helicopter with attitude stability.



Low power communication

