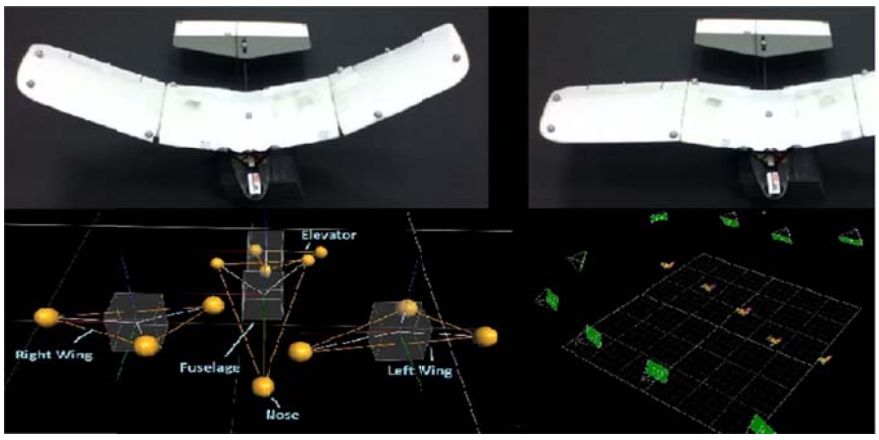
Project Title: Development of Micro Aerial Vehicles (Control and Navigation)

Adviser: Prof. Soon-Jo Chung (Aerospace Engineering)

Project Description: The research objective of this student project is to develop novel robotic micro aerial vehicles, which can effectively mimic the key mechanisms of highly adaptive and agile avian flight. There are two research thrusts. First, we are attempting to integrate the biological principles with flight mechanics and controls by constructing integrated dynamic models of central pattern generators (CPGs) and nonlinear flight dynamics. This is a highly multidisciplinary research that involves unsteady aerodynamics, flight mechanics, flight controls, and experimental validation with MAVs with the Vicon motion tracking system. We will explore both flapping and fixed wing aircraft. The highly maneuverable MAVs, equipped with intelligent sensors, push the boundaries for intelligence, surveillance, and reconnaissance operations in hazardous environments.



Student background and expected research activities:
We are looking for a motivated student with an interest in dynamics, control, and robotics with good programming skills.

Points of Contact
Soon-Jo Chung, sjchung@illinois.edu
Funding: Air Force Office of Scientific Research (AFOSR) and Office Naval Research (ONR)