

How do Flies Fly?

Dickinson Lab



Johan Melis



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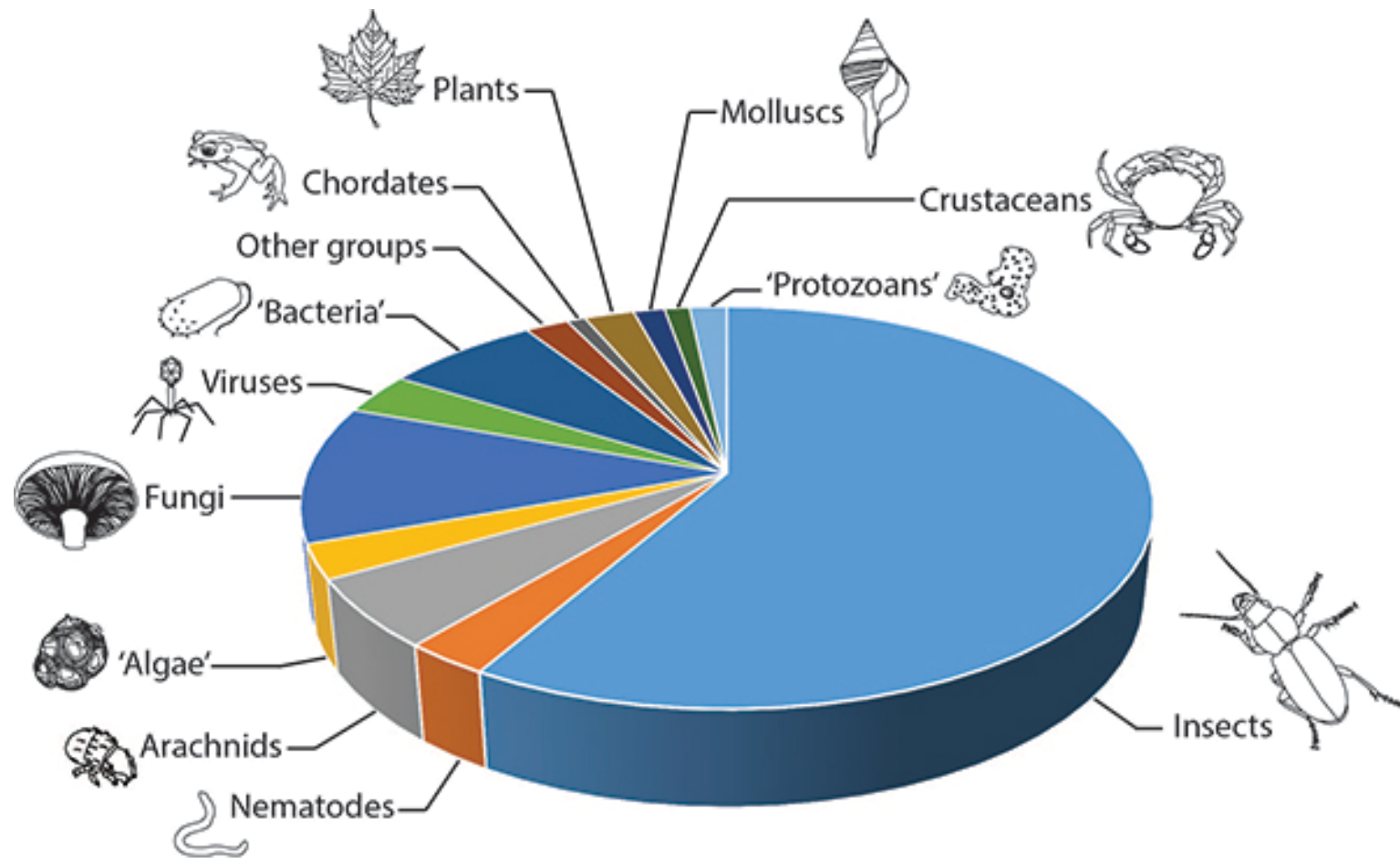
Kellan Morse



Active flight evolved 4 times.



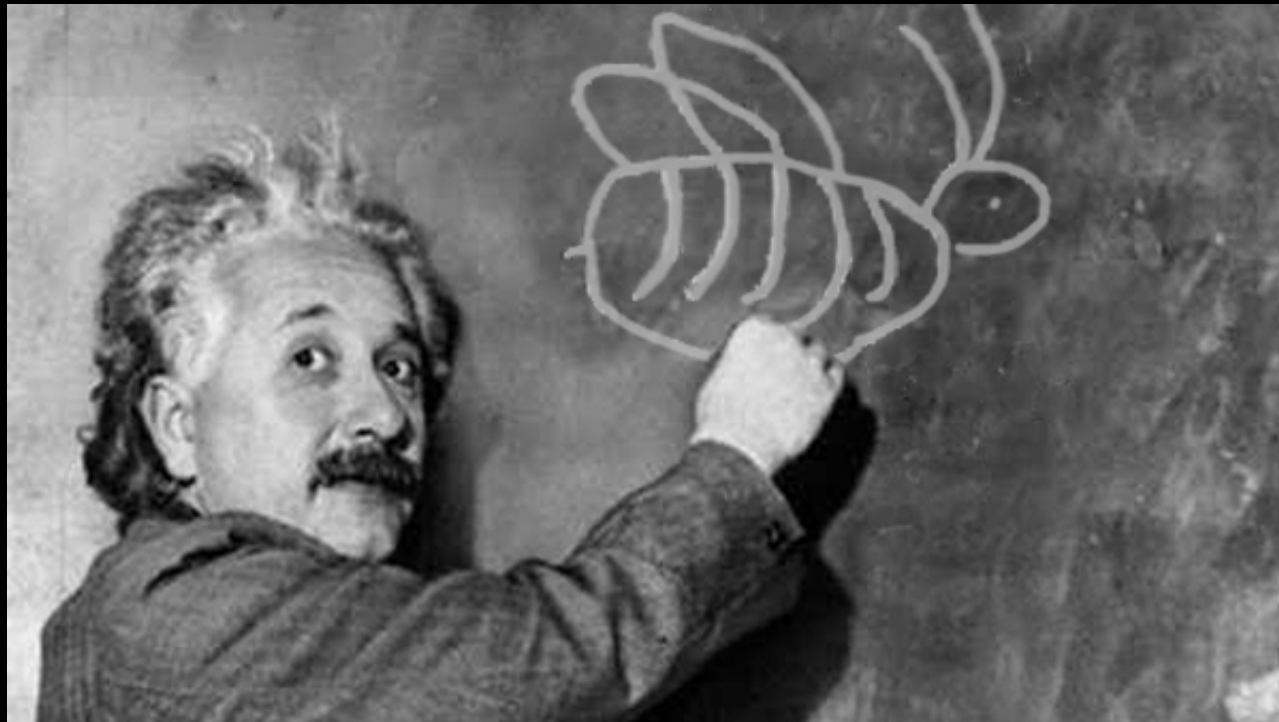
Insects are the most diverse group of animals on earth.



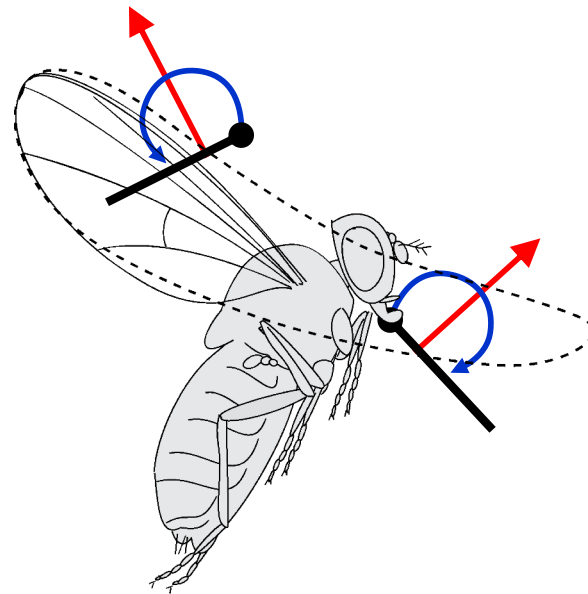
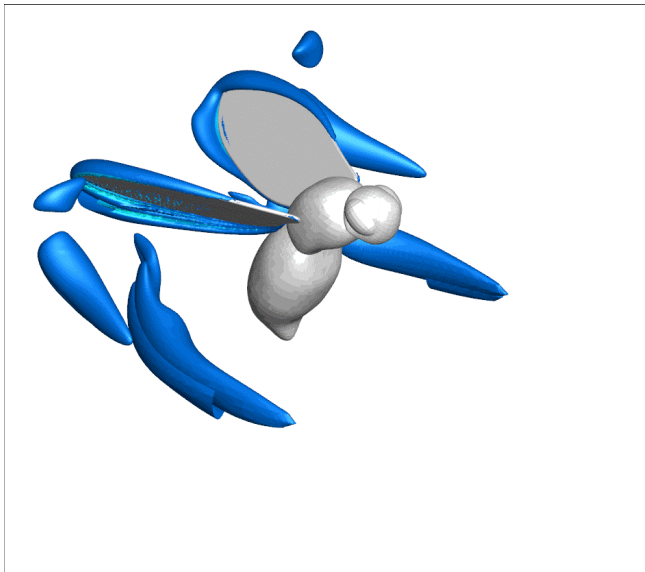
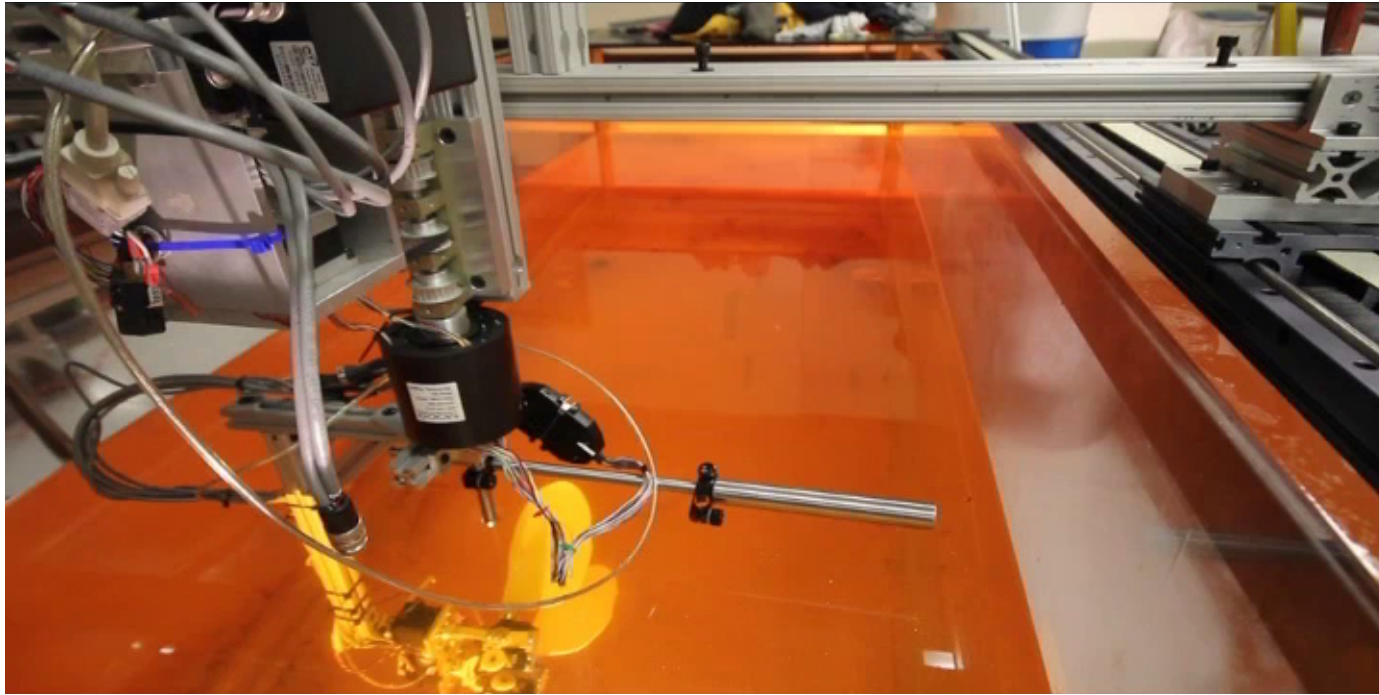


‘An engineer proved a bumblebee cannot fly.’

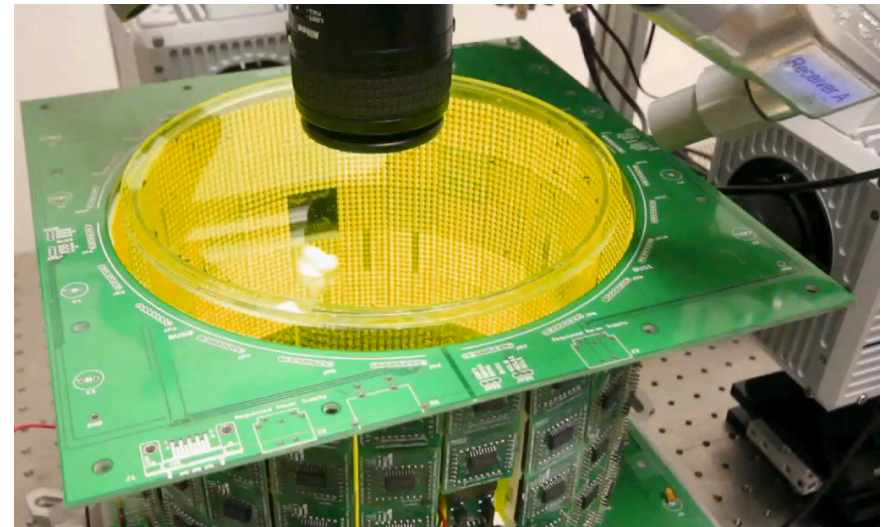
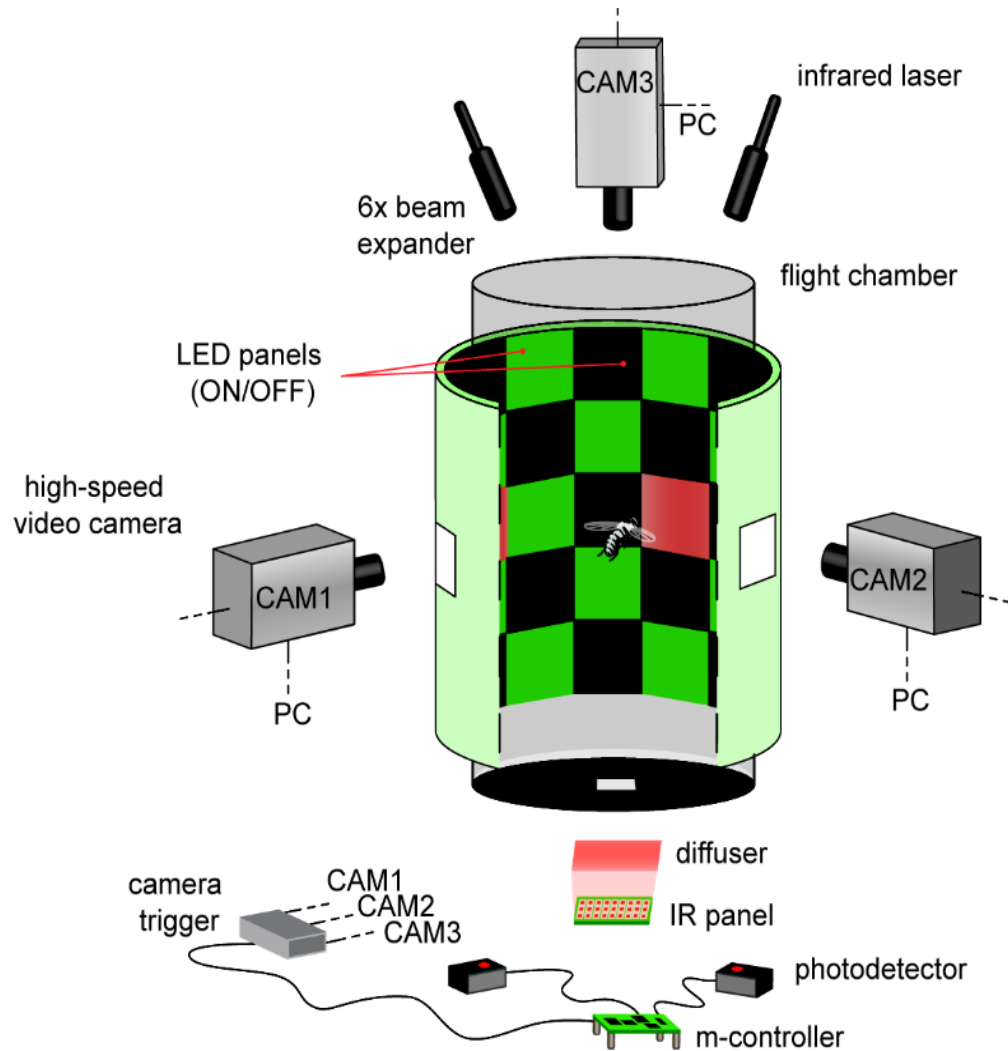
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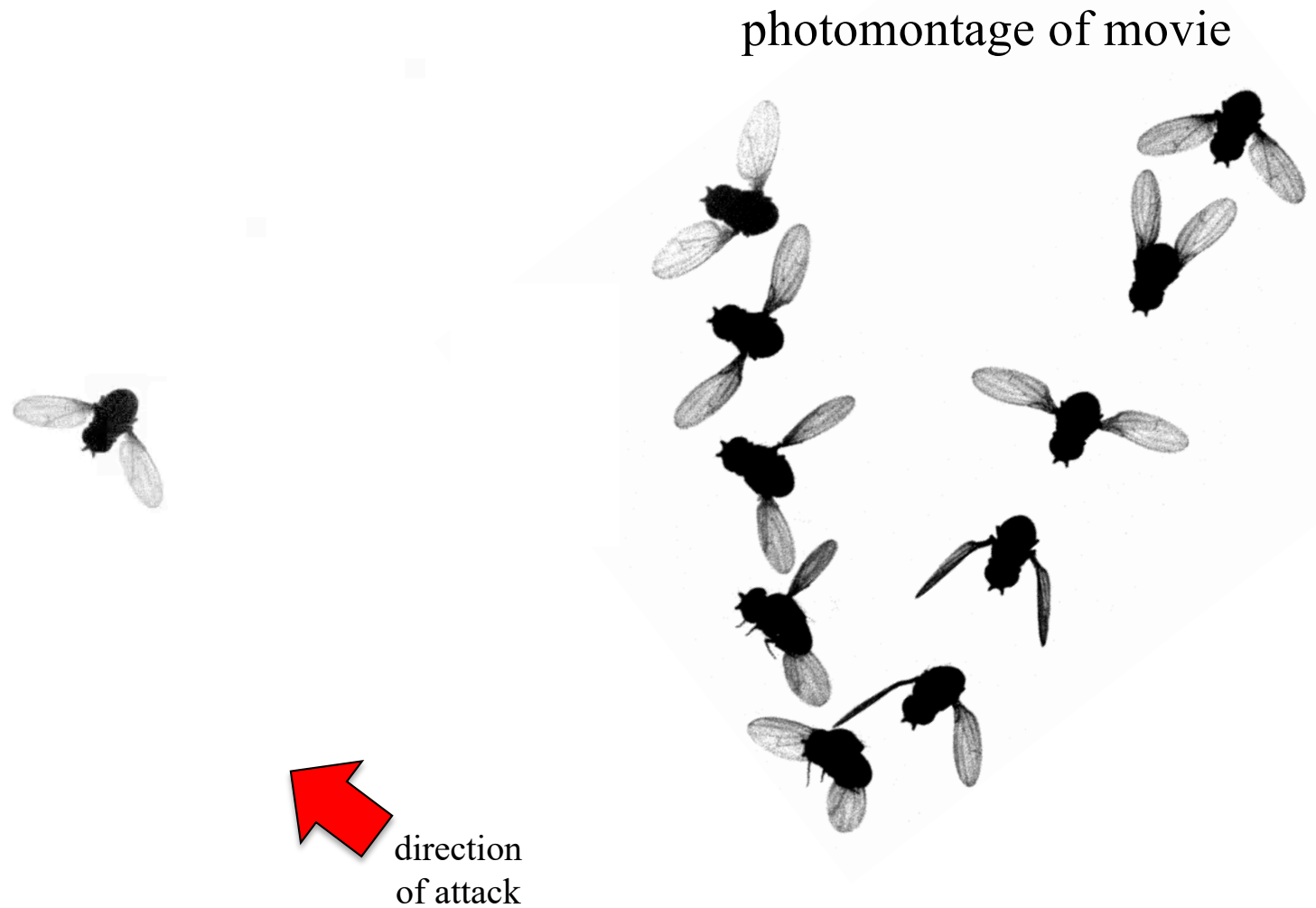
Insect wings create a leading edge vortex.



Recording free flight responses to looming stimuli.



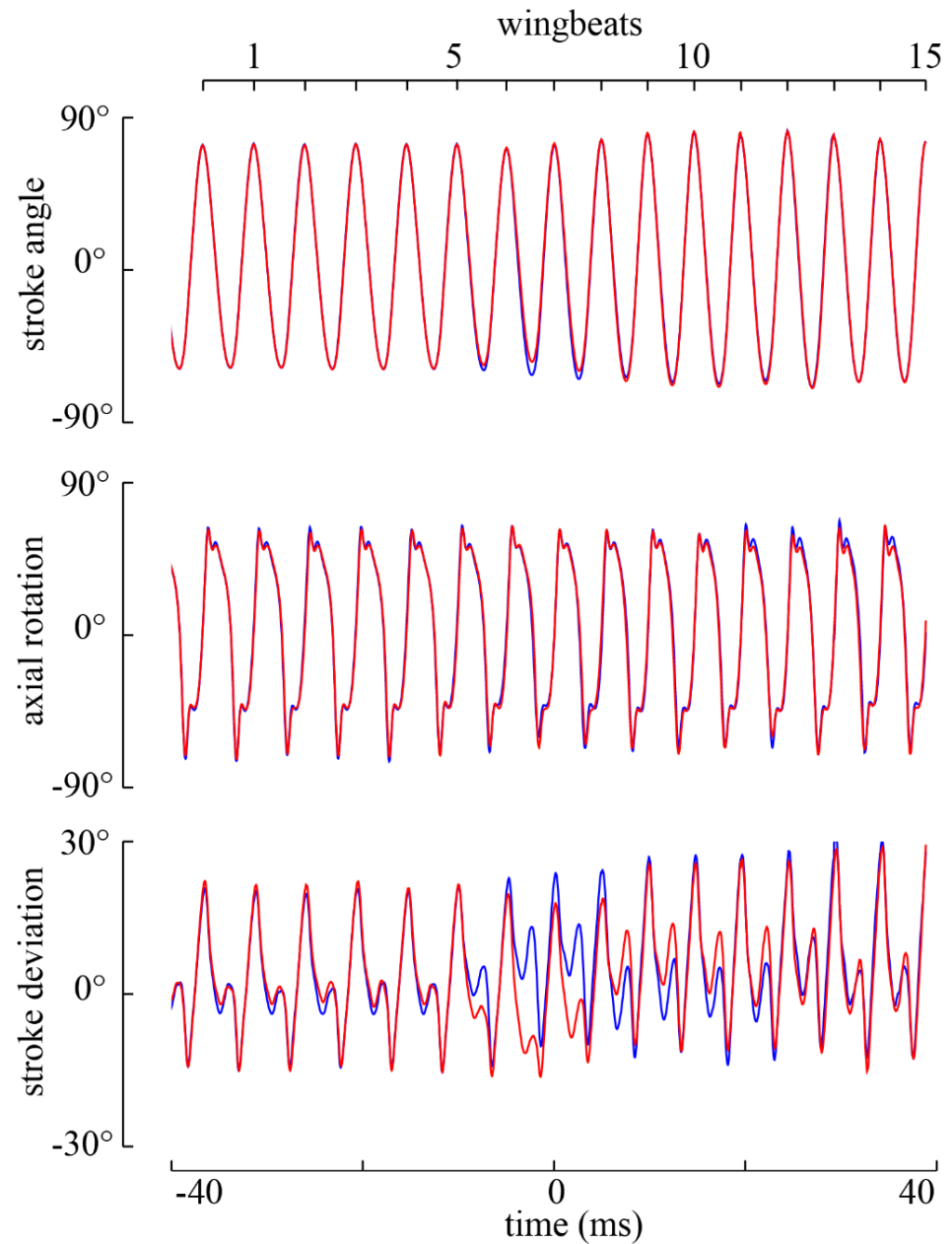
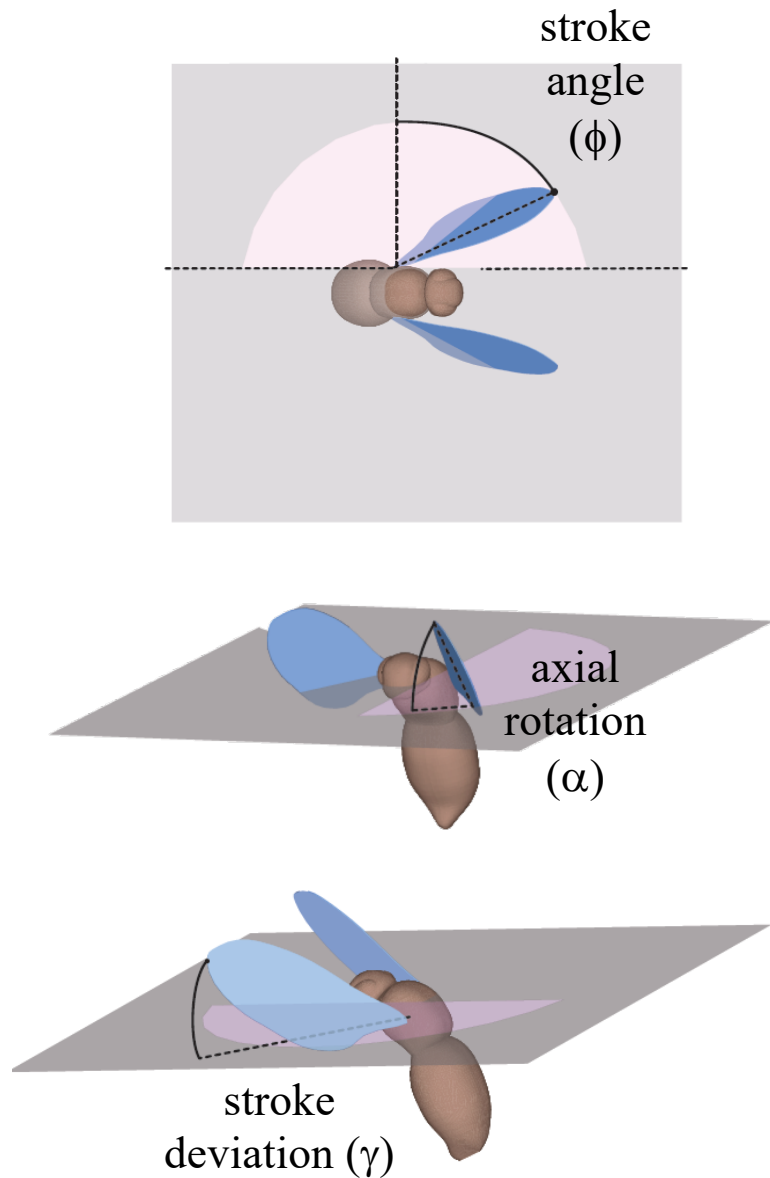
Recording free flight responses to looming stimuli.



Automated tracking of high speed sequences

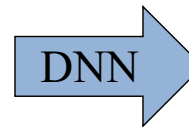


Flies execute maneuvers with subtle changes in wing

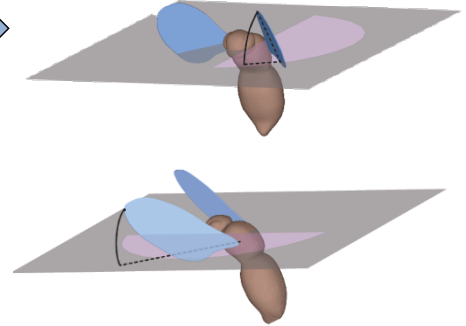
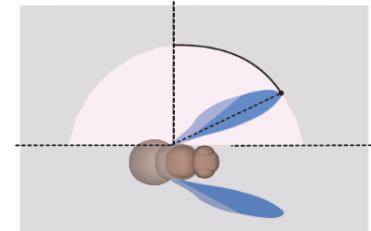


Ideas for project

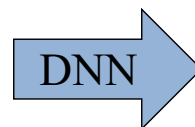
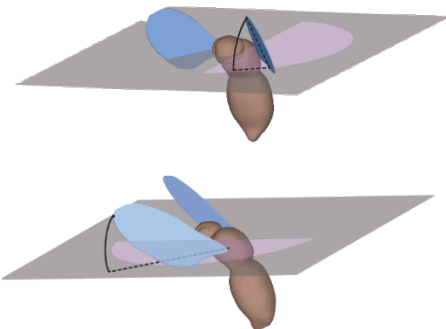
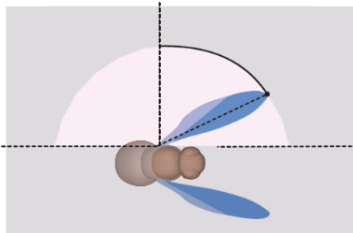
raw image stream



wing kinematics



wing kinematics



body motion

