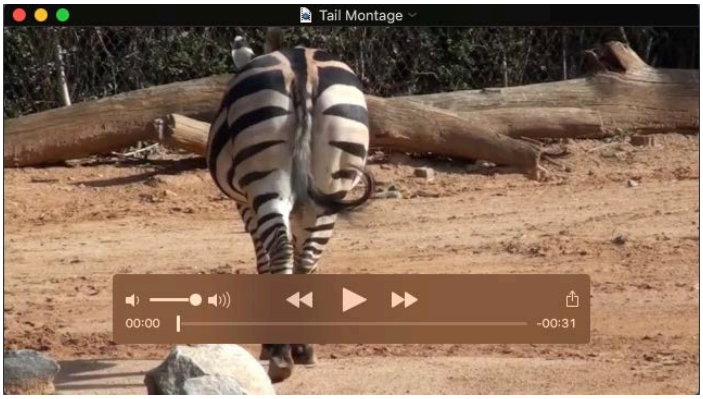
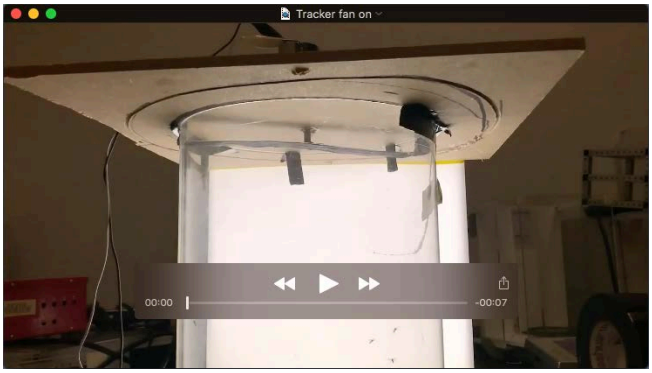
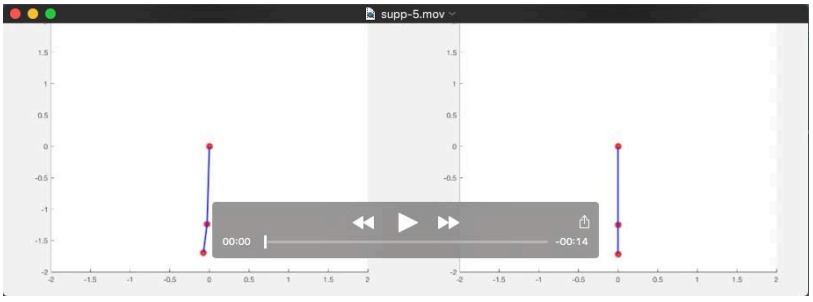



**Movie 1.** Zebra, horse, giraffe, and elephant swishing their tails in real time.




**Movie 2.** Mosquitoes flying in real time in the mammal tail simulator, with tracks.




**Movie 3.** Matlab simulations of the elephant tail swat and the dynamic model.

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**Table S1.** Measured data and calculated variables from filmed animals. Standard deviations are reported for the frequency, tip speed, and amplitude. The tail velocity and amplitude are not reported for the giraffe.

Click here to Download Table S1

**Table S2.** Best fit equations for the tail swishing data for each mammal. The amplitude is given in degrees. Two fits are given for the elephant because two sets of data are used.

| Animal | Fit | $R^2$ |
|---|---|---|
| Elephant | $\theta = 8.06\sin(4.07t - 0.58)$ | 0.73 |
| Elephant | $\theta = 13.1\sin(4.02t - 4.7)$ | 0.89 |
| Zebra | $\theta = 20.6\sin(6.03t + 2.3)$ | 0.84 |
| Horse | $\theta = 38.4\sin(3.43t - 1.3)$ | 0.37 |
| Greyhound | $\theta = 44.2\sin(11.4t + 3.6)$ | 0.23 |
| Irish Setter | $\theta = 51.5\sin(9.5t + 2.7)$ | 0.46 |
| Mixed Breed | $\theta = 58.7\sin(15.1t - 2.4)$ | 0.42 |
| Chihuahua | $\theta = 52.3\sin(17.9t + 1.7)$ | 0.24 |
| Retriever | $\theta = 40.9\sin(14.4t - 0.04)$ | 0.58 |
| Rottweiler | $\theta = 49.6\sin(15.7t + 3.8)$ | 0.94 |
| American Staffordshire | $\theta = 47.0\sin(15.2t - 3.7)$ | 0.31 |
| Pitbull | $\theta = 43.2\sin(15.7t + 0.26)$ | 0.41 |