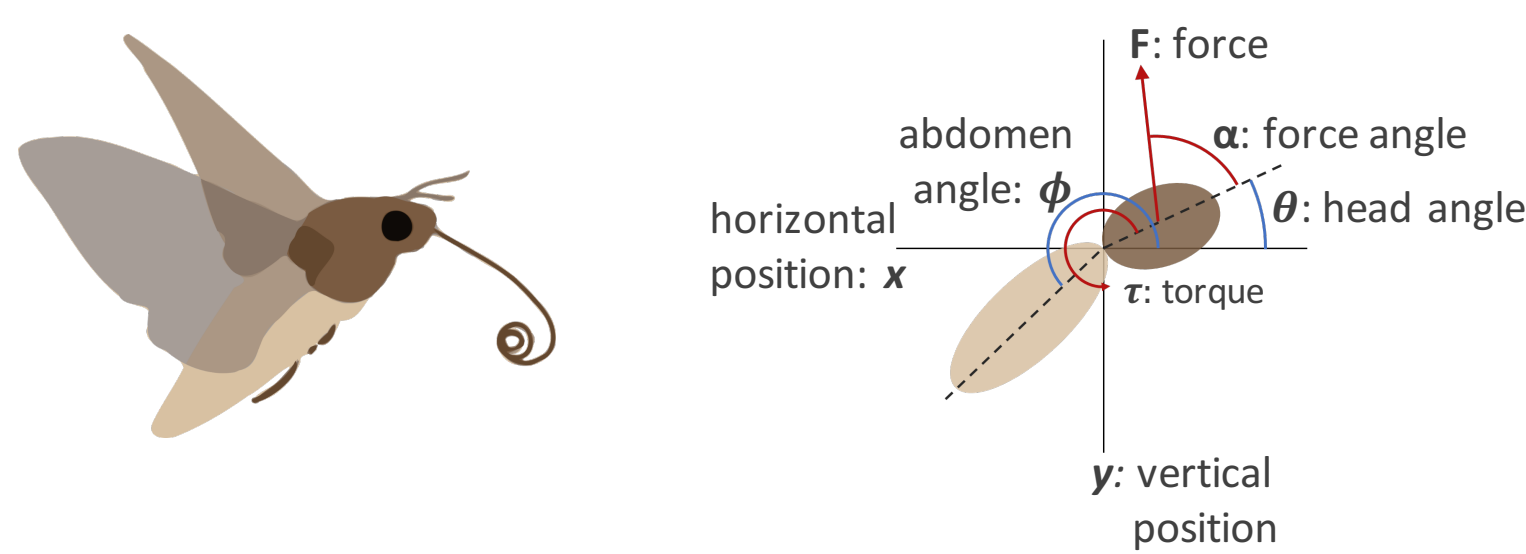


Learning a non-linear controller for insect flight dynamics with a deep neural network

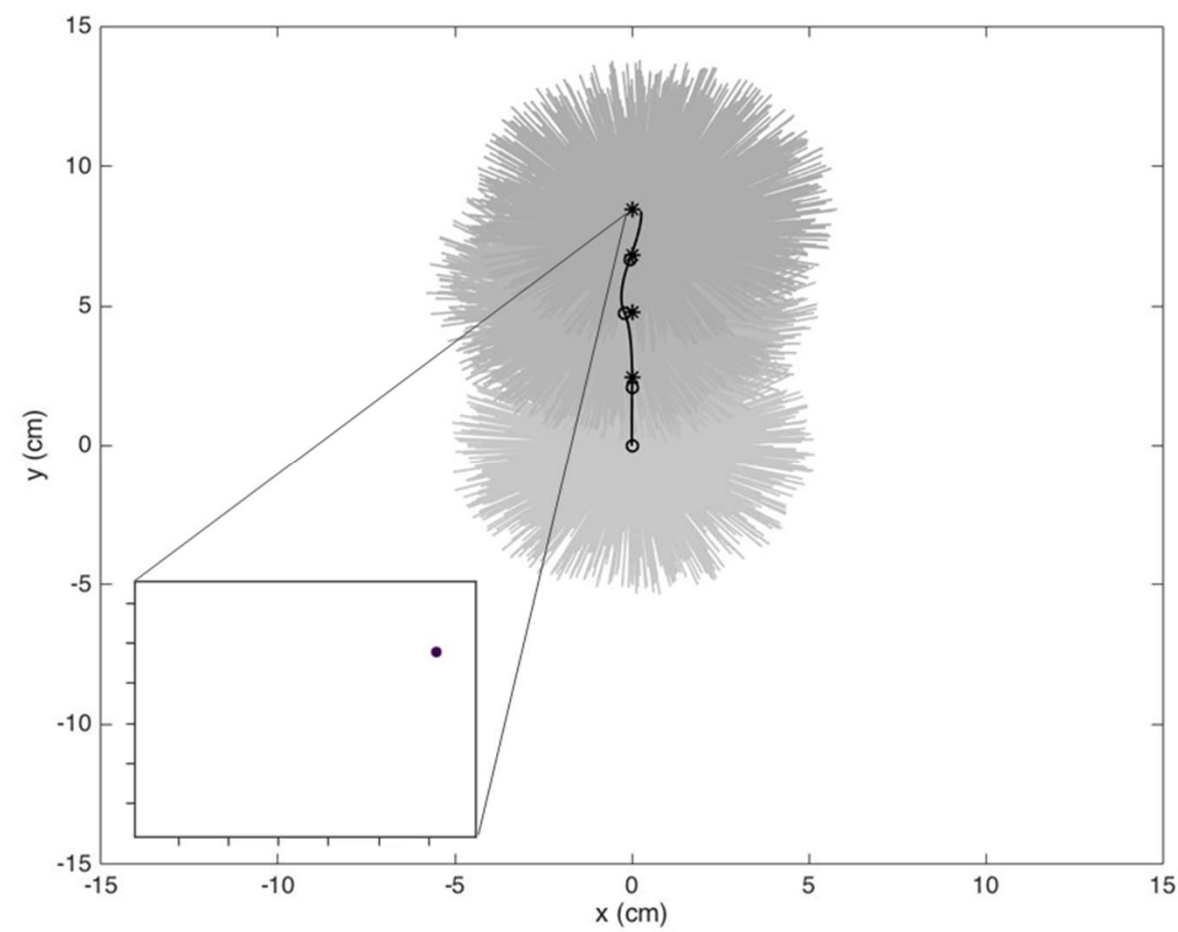


Methods

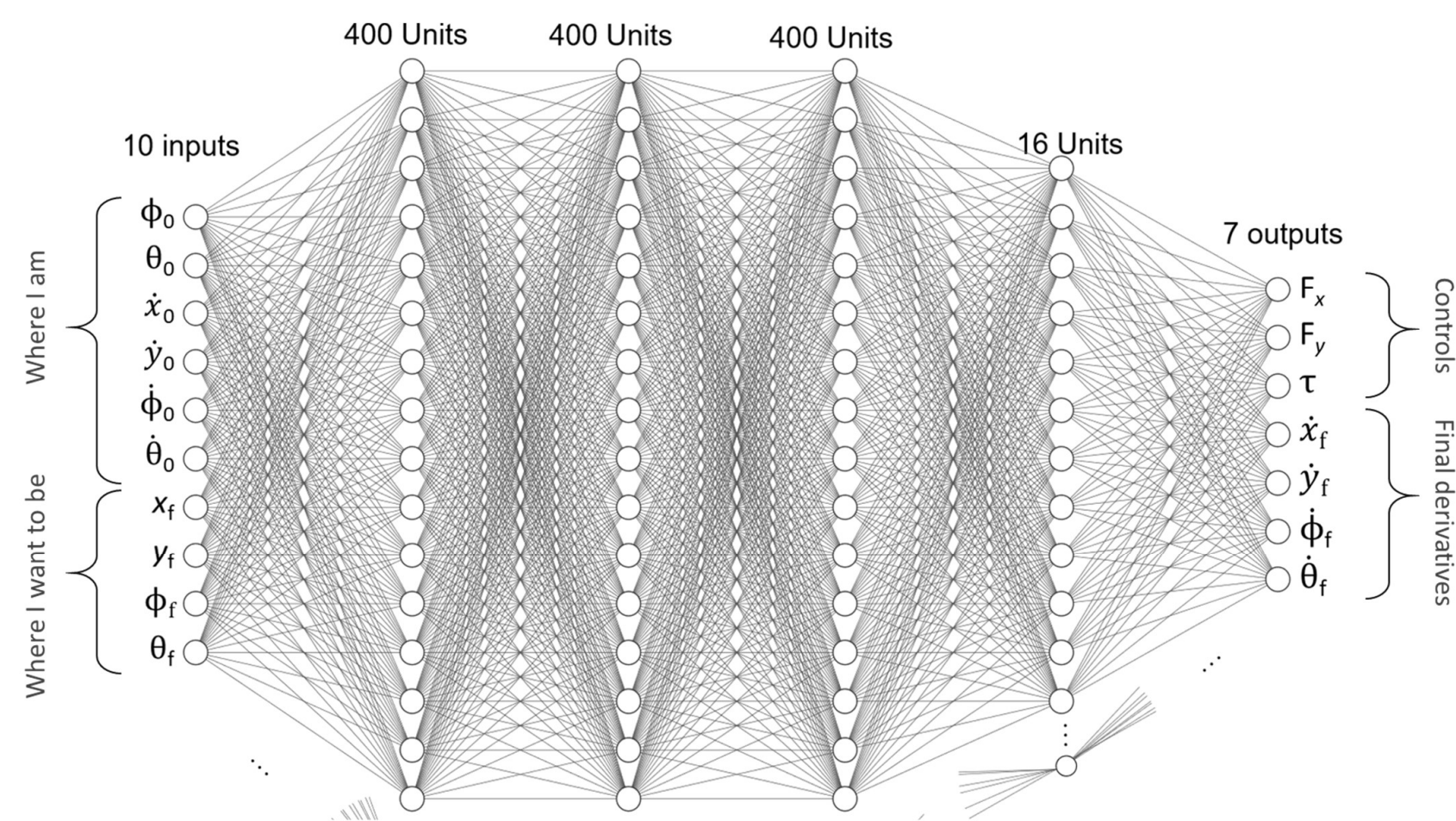
Build a virtual moth

Jorge Bustamante

Question: What is the temporal pattern of forces required to follow a complex trajectory? If I know where I am, and where I want to go, how do I get there?



Answer: Deep learning + Model Predictive Control

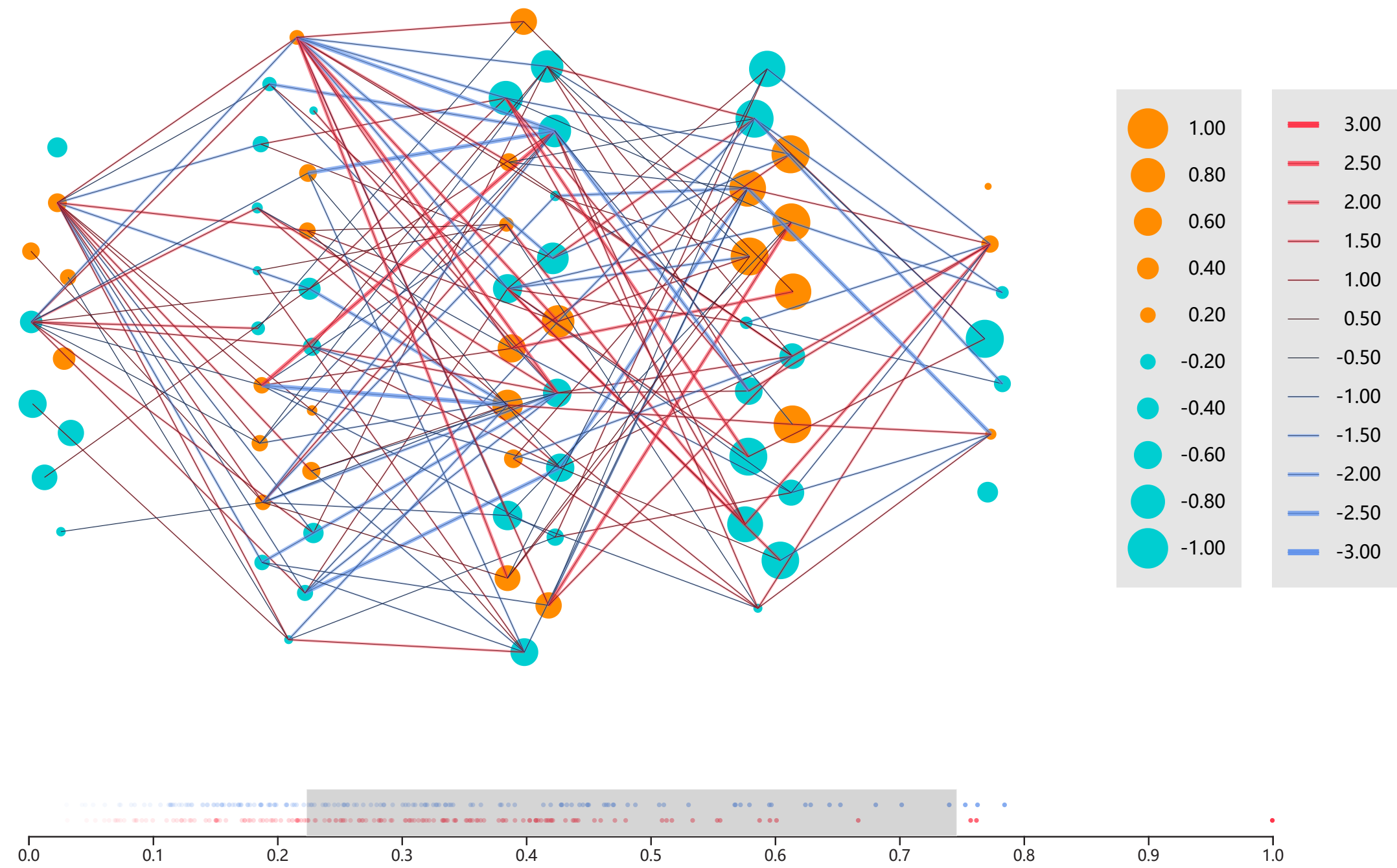


Visualizing neural network architecture

Which model?

FeedforwardNN

phi initial = 0.15
theta initial = -0.34
x final = 0.17
y final = -0.3
phi final = 0.19
theta final = -0.25
initial x velocity = -0.04
initial y velocity = -0.21
initial phi velocity = 0.25
initial theta velocity = -0.31



Interaction techniques