The ecology and sensory biology of the world’s most dangerous animal

Organismal sensory systems mediate a variety of critical ecological processes, including reproduction, foraging, and disease development. Behavior ultimately controls many of these interactions, but rarely do ecological studies consider the behavioral and neural mechanisms underlying those interactions. Conversely, evolution has sculpted sensory systems based on their ecological environment, but many neurobiological studies often lack a natural history framework. Here, in this talk, I will focus our recent work on the Aedes aegypti mosquito, an important disease vector. Characterizing the neural bases of behavior at different life-history stages (larval, adult sugar-seeking, host-locating, and oviposition) provides opportunities for understanding how neural circuits have been shaped by the sensory environment.

Further, I will argue that such an understanding can lead to new interventions and tools for mosquito control.