Combining sensory information for flexible behaviors at high speeds

Prof. Jessica Fox

Case Western Reserve University, Cleveland, Ohio, USA

The field of neuroethology has established a long tradition of using the principles of neurobiology and animal behavior to understand how animal nervous systems function to perform natural behaviors in a natural environment. In my lab, we take a neuroethological approach to study the integration of sensory information for fly flight. Flies possess specialized mechanosensory organs known as halteres that are essential for stable, controlled flight. Research in my lab has explored how flies take in information through their halteres and combine it with visual information to guide head and wing movements for flight. We also have shown that many flies use their halteres for diverse behaviors, including gravity sensing and takeoff. Our research has helped explain how flies are able to carry out high speed, three-dimensional flight maneuvers, and how these adaptations have aided them in other behaviors as well.