



Zenith

INTERNATIONAL PHD PROGRAM IN NEUROSCIENCE

FRIDAY, 26 MARCH 2021
AT 5:00 PM (CET)

PAVAN RAMDYA
EPFL
LAUSANNE, SWITZERLAND



ZENITH SEMINARS

REVERSE-ENGINEERING *DROSOPHILA* ACTION SELECTION AND MOVEMENT CONTROL

A shared goal of neuroscience and robotics is to understand how systems can be built to move effectively through the world. However, state-of-the-art algorithms for selecting and executing limbed behaviors in robots are still quite primitive compared with those used by animals. To inform robotic control approaches, we are investigating how the fly, *Drosophila melanogaster*, controls complex limb movements. I will discuss how we are combining 2-photon imaging of the ventral nerve cord in behaving *Drosophila* with physics-based simulations and neural network modeling to uncover how flies generate flexible behaviors.

Pavan Ramdya, Firmenich Next Generation Chair of Neuroengineering, is the Director of the Neuroengineering Laboratory at EPFL in Lausanne, Switzerland. Dr Ramdya received his PhD in Neurobiology from Harvard University and then performed postdoctoral work in robotics and neurogenetics. His laboratory aims to draw inspiration from animals in order to design more intelligent robotic controllers. To accomplish this, they use computational, engineering, genetic, and microscopy approaches to investigate how neural population dynamics, biomechanics, and gene expression sculpt limb-dependent behaviors in *Drosophila melanogaster*. In recognition of his work, he has been awarded an HFSP Career Development Award, a Swiss National Science Foundation Eccellenza Grant, the UNIL Young Investigator Award in Basic Science, and is a member of the FENS-Kavli Network of Excellence.

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