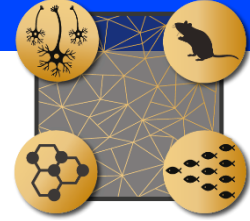




Zenith

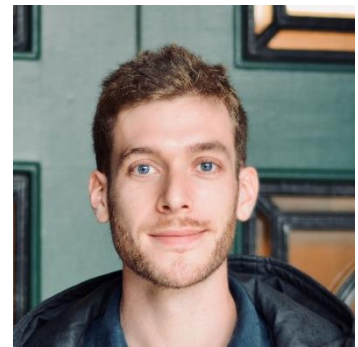
INTERNATIONAL PHD PROGRAM IN NEUROSCIENCE

In collaboration with SmartNets



WEDNESDAY, 25 MAY 2022
AT 5:00 PM (CET)

JONATHAN BOULANGER-WEILL
HARVARD UNIVERSITY, MA, USA
INSTITUT DE LA VISION, PARIS, FRANCE



ZENITH SEMINARS

TOOLS FOR HIGH THROUGHPUT FUNCTIONAL CONNECTOMICS IN ZEBRAFISH LARVA

The primary goal of my work is to pair structural and functional imaging to uncover the organizational logic of brain networks. In a joint effort involving the Lichtman and Engert labs I have focused on the anterior hindbrain circuitry which performs evidence accumulation in zebrafish larva (Bahl and Engert, 2020). Three neuronal populations are responsible for this process, but their synaptic inter-connectivity remains to be deciphered. Over the past years I have developed tools to perform neuronal recordings of thousands of neurons in this region, identify their functional and neurotransmitter type and perform rapid tissue processing of the same animal for X-ray micro computed tomography (CT) and serial electron microscopy (EM). We are currently finalizing the pipeline to match neurons across these datasets by applying machine vision and point-cloud matching algorithms for segmentation and registration. This work will provide a toolbox to perform automated structure-function analysis at synaptic resolution in vertebrate brain networks comprising thousands of neurons.

Jonathan Boulanger-Weill is currently doing a post-doc with Filippo del Bene at the Institut de La Vision in Paris. Previously he was a postdoctoral researcher at Harvard University in a collaboration between the Lichtman and Engert labs. He did his PhD in the Sumbre Lab at Ecole Normale Supérieure, Paris.

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