

Postdoctoral Position in High-Resolution Retinal Imaging, Eyetracking, and Visual Psychophysics at the University of Rochester

A postdoctoral position is available in the Active Perception Laboratory (<https://aplab.bcs.rochester.edu/index.html>) at the University of Rochester to study the links between retinal anatomy, eye movements, optics, and visual perception. The position will be supervised by Dr. Martina Poletti and Dr. Michele Rucci.

We are particularly interested in recruiting candidates who would like to combine high-resolution retinal imaging with visual psychophysics. The project will use adaptive optics scanning light ophthalmoscopy (AOSLO) to characterize retinal structure and perform AOSLO-based psychophysics, with the goal of understanding how retinal anatomy, optical factors, and fine-scale oculomotor behavior jointly shape visual performance. The work will also involve high-precision eyetracking with the laboratory's digital Dual Purkinje Image eye tracker, gaze-contingent stimulus control, and fine-scale mapping of acuity and other visual functions across the foveola.

Research in the laboratory focuses on vision as an active process. We study how visual functions unfold in the presence of normal and abnormal eye movements, how the visual system uses the spatiotemporal modulations generated by behavior, and how fine-scale properties of the eye and retina contribute to perception. The successful candidate will have the opportunity to work at the intersection of retinal imaging, visual psychophysics, oculomotor control, optics, and computational analysis.

The laboratory is equipped with a unique array of tools, many developed in-house, for studying active vision (<https://aplab.bcs.rochester.edu/facilities.html>). Relevant approaches include AOSLO imaging and stimulation, high-resolution eye tracking, retinal stabilization and gaze-contingent display control, precise measurements of fixational eye movements, computational modeling, and psychophysical mapping of visual function at the foveal scale.

The ideal candidate will have a strong interest in vision science and a background in one or more relevant areas, such as visual neuroscience, ophthalmic imaging, adaptive optics, optics, psychophysics, eye tracking, computational modeling, signal processing, or biomedical engineering.

Experience with AOSLO, retinal imaging, eye tracking, MATLAB/Python programming, image analysis, or human psychophysics is desirable but not required. Motivation, independence, strong quantitative skills, and the ability to work well in a collaborative team are essential.

The University of Rochester offers a highly collaborative and stimulating research environment, with exceptional opportunities for training and interaction in vision science, neuroscience, optics, ophthalmology, and engineering. The Active Perception Laboratory is part of the Center for Visual Science and the Department of Brain and Cognitive Sciences, with close connections to the Flaum Eye Institute, the Institute of Optics, and the Department of Neuroscience.

To apply, please send a curriculum vitae, a brief statement of research interests and accomplishments, and the names of two references to Dr. Martina Poletti (martina_poletti@urmc.rochester.edu)