Pop-out in visual search of moving targets in the archer fish

Mor Ben-Tov, PhD candidate
Life Sciences Department, Ben-Gurion University of the Negev, Be’er-Sheva, Israel

Visual search, the ability to find an object of interest against a background, needs to be accurate and fast to ensure survival. In mammals, this led to the development of a parallel search mode, pop-out, which enables fast detection times independent of the number of distracting objects. Although it may be beneficial to most animals, pop-out behavior has been observed only in mammals, where its neural correlates are found in the primary visual cortex as contextually modulated cells that encode aspects of saliency. We studied the archer fish, an animal with a remarkable hunting strategy to shoot down prey found on foliage above the water level, and tested how it performs a visual search task. I will describe our recent findings of pop-out visual search in the archer fish and discuss possible implications about universality of visual search among vertebrates.
About the Lecturer

Mor Ben-Tov started her academic career as a B.Sc. student in the Biomedical Engineering Department at Ben-Gurion University. In her fourth year she entered the direct track towards a M.Sc. degree. In her M.Sc. thesis, Mor worked under the supervision of Prof. Amir Karniel and Dr. Shelly Levy-Tzedek from the Biomedical Engineering Department and focused on computational motor control. Mor is currently a PhD student in the Life Sciences Department at BGU in the lab of Prof. Ronen Segev, where she is working on the visual system. In the end of this year she will start her postdoc at Duke University where she will work with Prof. Richard Mooney on vocal learning in songbirds. Mor received several prizes for excellence in research, which includes the Prize for Excellence in Brain Science Research from the President of Israel, the Fulbright postdoctoral Fellowship and the ELSC postdoctoral Fellowship from the Hebrew University.