

Abstract Submitted
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Swimming behavior of zebrafish is accurately classified by direct modeling and behavioral space analysis RUOPEI FENG, YANN CHEMLA, MARTIN GRUEBELE, Univ of Illinois - Urbana — Larval zebrafish is a popular organism in the search for the correlation between locomotion behavior and neural pathways because of their highly stereotyped and temporally episodic swimming motion. This correlation is usually investigated using electrophysiological recordings of neural activities in partially immobilized fish. Seeking for a way to study animal behavior without constraints or intruding electrodes, which can in turn modify their behavior, our lab has introduced a parameter-free approach which allows automated classification of the locomotion behaviors of freely swimming fish. We looked into several types of swimming bouts including free swimming and two modes of escape responses and established a new classification of these behaviors. Combined with a neurokinematic model, our analysis showed the capability to probe intrinsic properties of the underlying neural pathways of freely swimming larval zebrafish by inspecting swimming movies only.

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