From: **Cognitive Computation** do-not-reply@springernature.com
Subject: Invitation to review a manuscript for Cognitive Computation from Dr Cutsuridis
Date: 18 November 2024 at 14:54
To: alexander_bates@hms.harvard.edu

Invitation to review "A Complex Network-Based Approach for Detecting and Characterizing Power Neurons in Drosophila"

Dear Dr Bates,

We have received a manuscript for Cognitive Computation that we think falls within your area of expertise. Our reviewers are integral to ensuring we have the highest-quality publication.

We greatly appreciate it if you could let us know if you are available to review by accepting or declining the invitation link below.

Title: A Complex Network-Based Approach for Detecting and Characterizing Power Neurons in Drosophila

Abstract: Background: Connectome analysis investigates the wiring of the brain to understand how brain regions communicate with each other and how brain structure relates to its function. In recent years, researchers have reconstructed the structural connectome of several organisms, the most complex being Drosophila melanogaster. Two research groups have reconstructed the larval and adult connectomes of this organism and have applied network analysis to derive some information about the Drosophila brain and its behavior.
Methods: We aim to continue the work of these two research groups. Specifically, we construct several support networks and define a set of techniques using the main concepts and measures of complex network analysis to extract new knowledge about Drosophila connectomes at both larval and adult stages.
Results: We first conduct an Explorative Data Analysis on the larval and adult connectomes to detect similarities and differences characterizing them. Then, we define the concept of power neurons and illustrate an approach to detect them. Next, we show that they represent a limited set of neurons that are highly interconnected, form a sort of backbone, and are able to strongly influence the Drosophila behavior. Finally, we extract a set of functional patterns that allow us to learn about a variety of features characterizing power neurons.
Conclusions: We show that complex network analysis can allow the extraction of relevant knowledge about connectomes. Furthermore, we show that a very small number of power neurons are capable of strongly influencing all other neurons of the Drosophila brain.

Authors: Giorgio Terracina, Enrico Corradini, Ciro Maccarrone, Federica Parlapiano, Arianna Ronci, Matteo Spiga, Domenico Ursino

We hope to hear from you soon.

Kind regards,

Vassilis Cutsuridis
Editor
Cognitive Computation

Accept or decline this invitation and view due date: https://reviewer-feedback.springernature.com/review-invitation/2dcad8c6-7d0a-4947-815a-87c5705dc668

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If you would like to recommend someone to review instead, please decline and suggest an alternative reviewer.

Reviewing for Cognitive Computation

Cognitive Computation is committed to providing a rapid and fair review process. So, if you decide to accept this invitation, we would hope to receive your report at your earliest convenience.

The editorial board and publishing team of Cognitive Computation are not able to anticipate all potential competing interests, so we ask you to draw our attention to anything that might affect your review, and to decline submissions where it may be hard to remain objective.

Contact vincent.salvo@springernature.com if you need any assistance with this request using this submission ID: b9bf83cf-e01d-456a-9726-d085c0ebb026

The contents of this email are confidential.