Dear Editor,

We are submitting for your consideration a manuscript entitled “A biomechanical approach to infer size-based functional response in aquatic and terrestrial systems” to be published in *Frontiers in Ecology and Evolution* under the research topic “New Perspectives and Emerging Directions in Predator-Prey Functional Response Research: Hommage to C.S. Holling (1930-2019)”.

Our perspective paper proposes an overview of the potential effects of the physical properties of the medium on functional response, and what we could gain by taking them into account. As an example, we propose a theoretical model that determines the effects of mechanical factors from the medium (i.e., gravity, density and viscosity) on species motion, then the model computed the usual parameters of a functional response (i.e., attack rate and handling time) according to the mechanical features of the medium and predator and prey sizes. The main focus of this perspective paper is to emphasize the strength of this approach, which is to mechanistically infer patterns at the community level using features measured at the individual level and to provide an easy way to validate or falsify hypothesis.

The model has been tested on real data, and gives satisfactory results (especially for attack rate). We also propose ways for future improvements. The novelty of our approach is to derive the functional response from mechanical properties of the medium and predator and prey sizes.

We believe that our approach will be of great interest to a wide range of researchers in ecology, and among them those that focus on predator-prey interactions, food webs, and the relationship between living organisms and their surrounding medium.

Therefore, we hope that you will find our manuscript of interest to *Frontiers in Ecology and Evolution*.

Should the manuscript be accepted, the code used to implement the model will be stored in a public depository (Zenodo) as well as the databases used to test the outputs from the model. During the review process, the code and the databases will be temporarily stored in an archive folder on Github. The link can be found in the “Data availability” section of the manuscript.

Looking forward to hearing from you,

Sincerely yours,

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