

EDITORIAL

Editorial policy on computational, simulation and/or robotic papers

Experimental biology is a dynamic and rapidly evolving area of research. Consequently, new techniques and concepts are constantly appearing. As this occurs, *The Journal of Experimental Biology* (JEB) also adapts to keep pace as we see manuscript submissions increasingly using new approaches to better understand the mechanisms that underlie organismal function and diversity. In recent years, two such approaches have begun to play an ever more prominent role in submitted papers: computational studies [including computational fluid dynamics (CFD), mathematical modelling and simulations] and robotics (including mechanical modelling). Both of these approaches offer valuable new insights into organismal function that often cannot be obtained using more classical experimental approaches. Both computational and robotic ‘organisms’ offer the prospect of generating motions and of conducting manipulations that would be impossible in living entities. As a result, simulations, mathematical models and robotic devices allow testing of hypotheses about how animals work that are providing significant new insights, and JEB is committed to supporting these new areas of investigation.

However, an increasing number of submitted manuscripts consist solely of computational or robotic data and do not contain a direct relevance to experimental biology, which is the main subject of our journal. In the past, JEB has reviewed and accepted papers that are solely computational, but the considerable increase in submissions of this kind, and the fact that some submitted papers have relatively little direct reference to experimental biology *per se*, dictates a clarification to our editorial policy.

Papers submitted to JEB that contain substantial computational or robotic data should *also* contain experimental biological results that fulfill at least one of the following criteria: (1) experimental data are included that help to validate the presented CFD, mathematical simulation or robotic results and/or (2) new data on organismal function are presented that serve to generate hypotheses that are then tested using CFD calculations, mathematical models or robotic devices. Thus, papers that emphasize computational, mathematical or robotic approaches should include some new relevant



Rajat Mittal



Jane Wang

experimental biological data; papers that do not include experimental data will not be considered and should be submitted to journals specializing in these topics.

Finally, in direct response to the increase in submissions in this area, JEB has appointed two new Editorial Advisory Board members to assist the journal editors in the review of papers with significant computational or robotic components: Rajat Mittal is Professor of Mechanical Engineering at The Johns Hopkins University, USA and is interested in computational fluid dynamics, the fluid dynamics of locomotion (swimming and flight), biomimetics and bio-inspired engineering; Jane Wang is Professor of Physics and Mechanical and Aerospace Engineering at Cornell University, USA and works on the aerodynamics of insect flight, computational fluid dynamics and hydrodynamic interactions. We extend a warm welcome to them both.

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