

November 01, 2019

Dear Dr. de Souza and Members of the Nature Methods Editorial Board,

Please find enclosed our manuscript entitled “Advancing Computational Biology and Bioinformatics Research Through Open Innovation Competitions” for your consideration for publication in Nature Methods.

Our work highlights three examples in the areas of computational biology and bioinformatics research where the application of open innovation competitions has accelerated the development of computational tools used within these domains. The examples are diverse, ranging from optimization (speed, memory footprint and scaling behavior with problem size) of algorithms to improving models for inference. The techniques used to accomplish these gains range from developing novel computational strategies to low-level optimization, to drawing upon methodologies from data science and machine learning; the range of approaches illustrates the versatility of communities in making significant progress on computational bottlenecks in academic research.

Furthermore, this work highlights how opening scientific problems to the general public offers new opportunities for the discovery of computational methods that are novel to the domain, as well as opportunities to bridge knowledge gaps across domains. We believe this work will bring much-needed exposure to scientific communities of the value of open innovation as a powerful research tool. Thank you for your time and consideration; we look forward to your comments and feedback.

Yours Sincerely,

Andrea Blasco, Michael Endres and Karim R. Lakhani

Harvard Business School

Aravind Subramanian

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Andrew I. Su

The Scripps Research Institute