Special Issue

Artificial Intelligence for Evolutionary Genomics: From Sequences to Systems

Message from the Guest Editors

This Special Issue, *Artificial Intelligence for Evolutionary Genomics: From Sequences to Systems*, highlights cutting-edge AI applications in genome evolution, phylogenomics, and cross-species genomic analyses. We welcome original research articles, reviews, and methodological studies that harness AI for challenges such as sequence alignment, ortholog prediction, phylogenomic inference, evolutionary dynamics, and genomic prediction. Submissions addressing critical challenges, such as model interpretability, scalability for large datasets, and multi-omics integration, are particularly encouraged. By bridging AI and bioinformatics, this Special Issue will accelerate discoveries in molecular evolution, refine comparative genomic methodologies, and pioneer innovative tools for unravelling the genetic foundations of biodiversity. Topics of interest include, but are not limited to, the following:

- AI-based methods for sequence alignment and homology detection;
- ML and DL methods for ortholog/paralog identification;
- Metrics for evaluating phylogenetic classification;
- Frameworks for comparing AI-generated trees or alignments with reference data;
- Tree reconstruction using AI-based models.

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You are invited to contribute a research article, a comprehensive review or a software paper for consideration and publication in Computers (ISSN 2073-431X). Computers is an international, peer-reviewed, open access journal which provides an advanced forum for computer sciences. Computers is published in open access format—research articles, reviews and other contents are released on the Internet immediately after acceptance. The scientific community and the public have unlimited and free access to the content as soon as it is published. We would be pleased to welcome you as one of our authors.

Editor-in-Chief

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