

## Preface

Welcome to the 2021 IEEE International Conference on Bioinformatics and Biomedicine (IEEE BIBM 2021) being held online due to the COVID-19 situation from December 9-12, 2021. On behalf of the IEEE BIBM 2021 Organizing Team, we would like to thank you for your participation and hope you enjoy the conference.

Bioinformatics and biomedicine research is fundamental to our understanding of complex biological systems, impacting on science and technology in fields ranging from agricultural and environmental sciences to pharmaceutical and medical sciences. This type of research requires close collaboration among multidisciplinary teams of researchers in computer science, statistics, physics, engineering, life sciences and medical sciences, and their interfaces. The IEEE International Conference on Bioinformatics and Biomedicine aims to provide an open and interactive forum to catalyze the cross-fertilization of ideas from these disciplines and to bridge gaps in our knowledge.

The IEEE BIBM 2021 promises to provide great scientific quality and to have a broad impact, with world renowned scientists as keynote speakers and invited speakers, contributed talks at a highly competitive acceptance rate, special issue publications in high-caliber scientific journals, and a broad participation of the research communities serving on the Program Committee and the organizing committees for workshops, tutorials, and posters. The scientific program highlights five themes to provide breadth, depth, and synergy for research collaboration: (1) genomics and molecular structure, function, and evolution; (2) computational systems biology; (3) medical informatics and translational bioinformatics; (4) cross-cutting computational methods and bioinformatics infrastructures, and (5) healthcare informatics, which includes approximately 20 topics.

Since its inception in 2007, the BIBM conference has been growing both in size and global reach, from 136 main conference paper submissions in 2007 to 572 paper submissions in 2020. This year we received 727 research paper submissions from a total of 3280 authors and co-authors from 52 countries. The 398 Program Committee members from 26 countries accepted 143 regular research papers (19.6%) and 146 short papers (20.0%). In addition to three keynote speeches from preeminent scientists and contributed talks from the accepted regular papers, the conference will feature 24 workshops and 40 posters on topics relevant to bioinformatics and biomedicine. To broaden the reach of the scientific work presented at the conference, accepted research papers, workshop papers and poster abstracts are published in this IEEE Conference Proceedings.

We wish to thank all authors who submitted papers and participated in the conference. Our appreciation goes to the 420+ researchers who served on the Organizing and Program Committees for their dedication and reviewing effort. Finally, we would like to acknowledge the funding support from National Science Foundation, IEEE Technical Committee on Computational Life Science (IEEE-TCCLS). We would like to specially encourage the active participation of early career researchers and graduate students in future BIBM conferences as a training opportunity for the next generation of scientists and engineers.

### Conference Chairs

Yidong Chen, UT Health San Antonio, USA

Edward Dougherty, Texas A&M University, USA

**Program Chairs**

Yufei Huang, U. Pittsburg Medical Center, USA

Lukasz Kurgan, Virginia Commonwealth University, USA

Feng Luo, Clemson University, USA

**Workshop Co-Chairs**

Andrzej Kloczkowski, Ohio State University, USA

Yaohang Li, Old Dominion University, USA