14th International Conference on

Bioinformatics and Computational Biology (BICOB 2022)

PROGRAM

March 22, 2022

Virtual Conference Online

Sponsored by

International Society for
Computers and Their Applications

278 Mankato Ave. #220
Winona, MN 55987
E-mail: isca@isca-hq.org; website: www.isca-hq.org

14th International Conference on **Bioinformatics and Computational Biology** (BICOB 2022)

SPONSOR

International Society for Computers and Their Applications (ISCA)

General Chair: **Oliver Eulenstein, Iowa State University, USA**

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Tamer Aldwairi, Temple University, USA

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Jin Zhang, Washington University in St. Louis, USA

Tuesday, March 22, 2022

All times are in US Central Daylight Time (CDT: UTC−05:00)

8:55 a.m. – 9:00 a.m. **WELCOME By BICOB Organizers**

Oliver Eulenstein, Iowa State University, USA
Hisham Al-Mubaid, University of Houston-Clear Lake, USA
Tamer Aldwairi, Temple University, USA

9:00 a.m. – 10:00 a.m. **KEYNOTE SPEAKER**

Dr. Fahad Saeed
Knight Foundation School of Computing and Information Sciences
Florida International University

Challenges in Proteomics and Neuroscience with High-Performance Data Analytics and Machine-Learning

Session Chair: Dr. Oliver Eulenstein, Iowa State University, USA

10:00 a.m. – 10:05 a.m. 5 MINUTE BREAK

SESSION 1

SESSION TITLE: Cancer Research
Tuesday March 22, 10:05 a.m. – 11:05 a.m.
Session Chair: Oliver Eulenstein (Iowa State University, USA)

1. **Transfer Learning Pre-training Dataset Effect Analysis for Breast Cancer Imaging**
   Chanaka Bulathsinghalage and Lu Liu (North Dakota State University, USA)

2. **Variation of miRNA target sites in the Human Genome**
   Brad V. Bellomo, Helen Piontkivska and Arvind K. Bansal (Kent State University, USA)

3. **Comparative Single-cell RNA-sequencing Cluster Analysis for Traumatic Brain Injury Marker Genes Detection**
   Audra Addison and Tayo Obafemi-Ajayi (Missouri State University, USA)

11:05 a.m. – 11:10 a.m. 5 MINUTE BREAK

SESSION 2

SESSION TITLE: Machine Learning in Bioinformatics I

Tuesday March 22, 11:10 a.m. – 12:30 p.m.
Session Chair: Hisham Al-Mubaid (University of Houston-Clear Lake, USA)

1. **Learning Gene Regulatory Networks using Graph Granger Causality**
   Pranita Patil and Maria Vaida (Harrisburg University of Science and Technology, USA)

2. **Guiding Protein Conformation Sampling with Conformation Space Maps**
   Ahmed Bin Zaman, Kenneth De Jong and Amarda Shehu (George Mason University, USA)

3. **Simple evolutionary algorithm for quantifying how medical history factors predict disease outcomes**
   James Camp and Hisham Al-Mubaid (University of Houston – Clear Lake, Houston, USA)

4. **Analysis of AlphaFold2 for Modeling Structures of Wildtype and Variant Protein Sequences**
   Anowarul Kabir, Toki Tahmid Inan and Amarda Shehu (George Mason University, USA)

12:30 p.m. – 12:40 p.m. 10 MINUTE BREAK

SESSION 3

SESSION TITLE: Bioinformatics

Tuesday March 22, 12:40 p.m. – 2:00 p.m.
Session Chair: Tamer Aldwairi (Temple University, USA)

1. **Identification and Analysis of Alternative Splicing in Soybean Plants**
   Xiangjia Min, Theoni Kasamias, Mykaela Wagner, Atinuke Ogunbayi and Feng Yu (Youngstown State University, USA)

2. **Signed Rearrangement Distances Considering Repeated Genes and Intergenic Regions**
   Gabriel Siqueira, Alexsandro Oliveira Alexandrino, and Zanoni Dias (University of Campinas, Brazil)

3. **A Novel Approach for Mapping Ambiguous Sequences of Transcriptomes**
   Tamer Aldawiri (Temple University), Bindu Nanduri (Mississippi State University, USA), Mahalingam Ramkumar (Mississippi State University, USA) and Andy D. Perkins (Mississippi State University, USA)

4. **Using Topological Data Analysis and RRT to Investigate Protein Conformational Spaces**
   Ramin Dehghanpoor, Fatemeh Afrasiabi, and Nurit Haspel (University of Massachusetts, USA)

2:00 p.m. – 2:10 p.m. 10 MINUTE BREAK

SESSION 4

SESSION TITLE: Machine Learning in Bioinformatics II

Tuesday March 22, 2:10 p.m. – 3:50 p.m.
Session Chair: Oliver Eulenstein (Iowa State University, USA)

1. **SARS-CoV-2 variants classification and characterization**
   Sofia Borgato (Politecnico di Torino, Italy), Marco Bottino (Politecnico di Torino, Italy), Marta Lovino (Universita` degli Studi di Modena e Reggio Emilia, Italy), and Elisa Ficarra (Universita` degli Studi di Modena e Reggio Emilia, Italy)

2. **Interpretable Image Classification Model Using Formal Concept Analysis Based Classifier**
   Minal Khatri (University of Nebraska-Lincoln, USA), Adam Voshall (University of Nebraska-Lincoln, USA), Surinder K. Batra (University of Nebraska Medical Center, USA), Sukhwinder Kaur (University of Nebraska Medical Center, USA), and Jitender S. Deogun (University of Nebraska-Lincoln, USA)

3. **EMG-Based Feature Extraction and Classification for Prosthetic Hand Control**
   Reza Bagherian Azhiri, Mohammad Esmaeili, and Mehrdad Nourani (University of Texas at Dallas, USA)

4. **A Deep Dimensionality Reduction Method based on Variational Autoencoder for Antibody Complementarity Determining Region Sequences Analysis**
   Saeed Khalilian, Mohammad N. Isfahani, Zahra Moti, Arian Baloochestani, Alireza Chavosh, and Zahra Hemmatian

5. **Machine Learning Techniques in Structure-Property Optimization of Polymeric Scaffolds for Tissue Engineering**
   Zigeng Wang, Xia Xiao, Syam P. Nukavarapu, Sangamesh G. Kumbar and Sanguthevar Rajasekaran (University of Connecticut, USA)

3:50 p.m. – 4:00 p.m. Best Paper Award Announcement

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