16th International Conference on

Bioinformatics and Computational Biology (BICOB 2024)

PROGRAM

March 18 – 19, 2024

Holiday Inn Downtown-Superdome

New Orleans, Louisiana, USA

Sponsored by

International Society for Computers and Their Applications

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Program at a Glance

Monday 3/18	7:30 am - 8:45 am	**Registration and Breakfast (Coffee and Pastry)**
	8:45 am – 9:00 am	**Opening**
	9:00 am –10:00 am	**Keynote I: (***Common to both conferences***)** *BICOB'24 Keynote: Application of high-throughput sequencing to answer basic biological questions on RNA polymerase II activity. Keynote Speaker: Sing-Hoi Sze, TAMU. 9:00am Monday March 18 2024 {US Central daylight saving time}*
	10:00 am – 10:30 am	Break
	10:30 am -12:00 pm	**Session 1:** Paper ID: 8 Paper ID: 5 Paper ID: 1 Paper ID: 21
	12:00 pm – 1:30 pm Conference Luncheon (sponsored by the conference)	
	1:30 pm – 3:00 pm	**Session 2:** Paper ID: 16 Paper ID: 18 Paper ID: 19
	3:00 pm – 3:30 pm	Break
	3:30 pm – 5:30 pm	**Session 3:** Paper ID: 17 Paper ID: 20 Paper ID: 7 Paper ID: 14

Tuesday 3/19	8:00 am – 9:00 am	**Registration and Breakfast (Coffee and Pastry)**
	9:00 am – 10:00 am	**Keynote II: (Common to both conferences)**
	10:00 am – 10:30 am	Break
	10:30 am – 12:30am	**Session 4:** *TBA*
	12:30 pm	**Conference ends**

16th International Conference on
Bioinformatics and Computational Biology
(BICOB 2024)

SPONSOR

International Society for Computers and Their Applications (ISCA)

General Chair: **Hisham Al-Mubaid, University of Houston-Clear Lake, USA**

Program Chairs: **Oliver Eulenstein, Iowa State University, USA**
Tamer Aldwairi, Temple University, USA

Publicity Chair: **Nurit Haspel, University of Massachusetts Boston, USA**

International Program Committee

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Sing-Hoi Sze, Texas A&M University, USA

Ugo Vaccaro, University of Salerno, Italy

Bartek Wilczynski, Institute of Informatics, University of Warsaw, Poland

Jianxin Wang, Central South University, China

Jin Zhang, Washington University in St. Louis

Filip Jagodzinski, Western Washington University

Ka-Chun Wong, City University of Hong Kong, Hong Kong

Tim Prangemeier, Technische Universität Darmstadt, Germany

Evaldo Costa, Dell Technologies, Brazil

All times are in US Central Daylight Time

7:30 a.m. – 8:45 a.m.   **Registration and Breakfast (Coffee and Pastry)**

8:45 a.m. – 9:00 a.m.   **WELCOME By BICOB Organizers**

Hisham Al-Mubaid, University of Houston-Clear Lake, USA

Oliver Eulenstein, Iowa State University, USA

Tamer Aldwairi, Temple University, USA

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

Dr. Sing-Hoi Sze
Texas A&M University

Application of high-throughput sequencing to answer basic biological questions on RNA polymerase II activity

Location: in Bayou Ballroom A
Session Chair: Dr. Hisham Al-Mubaid, Univ. Houston-Clear Lake, USA

10:00 a.m. – 10:30 a.m. 30 MINUTE BREAK

SESSION 1	**SESSION: Genes, Proteins and Disease**

SESSION: Genes, Proteins and Disease
Monday March 18, 10:30 a.m. – 12:00 p.m, in Bayou Ballroom B
Session Chair: Bander Almalki (Univ. of Delaware, Delaware, USA)

1. **TMHC-MSAT: Accurate Prediction of Inter-Helical Residue Contacts in Transmembrane Proteins Using MSA Transformer**
   Bander Almalki and Li Liao (University of Delaware, Delaware, USA)

2. **COVID-19 Epidemic Model Including Unreported Cases and Environmental Fluctuations**
   Fathalla Rihan (United Arab Emirates University, UAE)

3. **SSA: a novel method for Single-cell and Spatial transcriptomics Alignment**
   Bang Tran (California State University, USA), Dao Tran (Auburn University, USA), and Tin Nguyen (Auburn University, USA)

4. **Disease Clustering with Process Annotations from Gene Ontology**
   Drew Brady and Hisham Al-Mubaid (University of Houston – Clear Lake, USA)

12:00 pm – 1:30 pm Conference Luncheon (Common to both)

SESSION 2

SESSION: ML & Deep Learning in Bioinformatics
Monday March 18, 1:30 p.m. – 3:00 p.m., in Bayou Ballroom B
Session Chair: Yanqing Ji (Gonzaga University, USA)

1. **Machine Learning-Based Automated Detection of ADHD Using Heart Rate Variability Data**
   Yanqing Ji (Gonzaga University, USA), Janet Zhang-Lea (Gonzaga University, USA) and John Tran (University of California San Francisco Fresno, USA)

2. **Generalized Deep Learning Models for COVID-19 Detection with Transfer and Continual Learning**
   Richard Annan (University of Tennessee at Chattanooga, USA), Hong Qin (North Carolina A&T State University, USA) and Letu Qingge (University of Tennessee at Chattanooga, USA)

3. **AI-Driven Diagnostics in Ophthalmology: Tailored Deep Learning Models for Diabetic Retinopathy with XAI Insights**
   Krishna Mridha, Ming Wang and Lijun Zhang (Case Western Reserve University, USA)

3:00 p.m. – 3:30 p.m.   30 MINUTE BREAK

SESSION 3

SESSION: Bioinformatics Applications
Monday March 18, 3:30 p.m. – 5:00 p.m., in Bayou Ballroom B
Session Chair: Kannon Hossain (University of Alabama, USA)

1. **TRAPS - A Visual Analytics System for Public Health Surveillance**
   Sujan Ranjan Reddy Anreddy (Mississippi State University, USA)

2. **A simulation study on the sustainability of an ecosystem**
   Christopher Palazzolo, Wenying Feng and Sayed Mansour Hashemipoor (Trent University Durham GTA, Canada)

3. **Case-Studies of Parameter Estimation in the Stochastic Reaction-Diffusion Master Equation**
   Kannon Hossain and Roger B. Sidje (University of Alabama, USA)

4. **Fast Dual-Regularized Autoencoder for Sparse Biological Data**
   Aleksandar Poleksic (University of Northern Iowa, USA)

5:00 p.m. – 5:10 p.m. Best Paper Award Announcement

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

8:00 a.m. – 12:30 p.m.   **REGISTRATION – Coffee, tea, pastries**
Bayou Ballroom FOYER

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

Prof. Narayan C. Debnath, Ph.D., D.Sc.
Founding Dean, School of Computing and Information Technology
And
Head, Department of Software Engineering
Eastern International University, Vietnam

COMPUTATIONAL INTELLIGENCE: APPLICATIONS AND LIMITATIONS

Location: Bayou Ballroom A

10:00 a.m. – 10:30 a.m. COFFEE BREAK: Bayou Ballroom FOYER

*****note: remaining sessions only for CATA-2024*

SESSION 4	**ALGORITHM AND AI - II** Tuesday, March 19, 10:30 a.m. – 12:30 p.m. Session Chair: Dr. Ying Jin, California State University, Sacramento Location: Bayou Ballroom A

1. **Efficient Communication and Navigation for Soccer Robots using a Time Petri net Model**
   Shane Chiovarouand, Madison Bland, and Seung-yun Kim The College of New Jersey)

2. **Artificial Intelligence Usage and Data Privacy Discoveries within mHealth**
   Jennifer Schulte (Dakota State University)

3. **On further improvement of data look-up latency in Residue Class (RC) based Peer-2-Peer networks**
   Indranil Roy, Reshmi Mitra (Southeast Missouri State University), Swathi Kaluvakuri (Enterprise Fleet Management, St. Louis, Missouri), Nick Rahimi (Univ. of Southern Mississippi), and Bidyut Gupta (Southern Illinois University)

4. **Optimizing Time Complexity: A Comparative Analysis of Techniques in Recursive Algorithms - A Case Study with Path Sum Algorithm in Graphs and Binary Trees**
   Jonathan Shields and Thitima Srivatanakul (York College, CUNY)

5. **Rear-end Vehicle Collision Avoidance using Reinforced Learning**
   Nashwan Sebi, Ka C Cheok, and Narendra Kintali (Oakland University)

12:30 p.m. – 1:00 p.m.   LUNCH (*on your own* **)**

SESSION 5

DIGITAL COMPUTING
Tuesday, March 19, 1:00 p.m. – 2:00 p.m
Session Chair: Dr. Ajay Bandi (Northwest Missouri State University)
Location: Bayou Ballroom A

1. **Evaluating the Use of ChatGPT for Parallel Programming with OpenACC**
   Evaldo Costa, Gabriel Silva (UFRJ, Rio de Janeiro, Brazil)

2. **Pseudorandom Binary Generator Based on the Combination of Linear Feedback Shift Registers with Nonlinear Filtering Function**
   Narayan Debnath (International University Vietnam), Andrés Francisco Farías (Universidad Nacional de La Rioja), Germán Antonio Montejano (Universidad Nacional de San Luis), Andrés Alejandro Farías (Universidad Nacional de La Rioja), Ana Gabriela Garis, and Daniel Riesco (Universidad Nacional de San Luis)

3. **Digital Transformation: A Quality Model as a guide to achieve a digital product focused on people**
   Narayan Debnath (International University Vietnam), Mario Gabriel Peralta, Carlos Humberto Salgado, Lorena Baigorria, Daniel Riesco, and Germán Montejano (Universidad Nacional de San Luis)

2:00 p.m.   CONFERENCE ENDS