

10th International Conference on
**Bioinformatics and Computational
Biology (BICOB 2018)**

PROGRAM

March 19–21, 2018

Flamingo Hotel
Las Vegas, Nevada, USA

Sponsored by



International Society for
Computers and Their Applications

P. O. Box 1124
Winona, MN 55987

Phone: (507) 458-4517; e-mail: isca@isca-hq.org; website: www.isca-hq.org

10th International Conference on Bioinformatics and Computational Biology (BICOB 2018)

SPONSOR

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Schedule at a Glance

	8:45am – 9:00am	Conference opening (Red Rock 6)
Monday, March 19	9:00am – 10:00am	Keynote (Red Rock 6)
	10:30am – 12:00pm	Session 1A (Valley of Fire 1&2)
	<i>12:00-1:30pm Lunch break (on your own)</i>	
	1:30pm – 3:00pm	Session 1B (Valley of Fire 1&2)
	3:30pm – 5:30pm	Session 1C (Valley of Fire 1&2)

Tuesday, March 20	9:00am – 10:00am	Keynote (Red Rock 6)
	10:30am – 12:00pm	Session 2A (Valley of Fire 1&2)
	<i>12:00-2:00pm Conference Luncheon and Best Paper Award (Red Rock 7&8)</i>	
	2:00pm – 3:30pm	Session 2B (Valley of Fire 1&2)
	4:00pm – 5:30pm	Session 2C (Valley of Fire 1&2)

Wednesday, March 21	8:30am – 10:00am	Session 3A (Valley of Fire 1&2)
	10:30am – 12:00pm	Session 3B (Valley of Fire 1&2)

Monday, March 19, 2018

8:00 a.m. – 3:30 p.m.

**REGISTRATION – Coffee, tea, pastries –
Red Rock Registration Desk**

8:45 a.m. – 9:00 a.m.

**General Chair, BICOB 2018
Program Co-Chair, BICOB 2018
Program Co-Chair, BICOB 2018
General Chair, CATA 2018
Program Chair, CATA 2018**

**WELCOME – Red Rock 6
Oliver Eulenstein, Iowa State University, USA
Hisham Al-Mubaid, University of Houston-Clear Lake, USA
Qin Ding, East Carolina University, USA
Les Miller, Iowa State University, USA
Gordon Lee, San Diego State University, USA**

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

**Dr. Rajender Singh Chhillar
Maharshi Dayanand University, India**

**An Optimized Testing Technique for Test Data Generation Using Fusion of
UML Diagrams and Genetic Algorithms**

Location: Red Rock 6

Session Chair: Gordon Lee (San Diego State University, USA)

10:00 a.m. – 10:30 a.m. COFFEE BREAK

SESSION 1A

GENOMICS

Monday March 19, 10:30 a.m. – 12:00 p.m., Valley of Fire 1&2
Session Chair: Elena Y. Harris (California State University, Chico, USA)

- 1. RepCalc: a Tool for Calculating Transposable Element Density within the Genome**
Tamer Aldwairi, Benjamin Elam, Federico Hoffmann and Andy Perkins
(Mississippi State University, USA)
- 2. Practical Space-efficient Linear Time Construction of FM-index for Large Genomes**
Elena Y. Harris (California State University, Chico, USA)
- 3. Global optimization approach for circular and chloroplast genome assembly**
Sebastien Francois, Rumen Andonov, Dominique Lavenier (Univ Rennes, France) and
Hristo Djidjev (Los Alamos National Laboratory, USA)
- 4. Adjusted Likelihood-Ratio Test for Variants with Unknown Genotypes**
Ronald Nowling and Scott Emrich (University of Notre Dame, USA)

12:00 p.m. – 1:30 p.m.

LUNCH BREAK ON YOUR OWN

SESSION 1B**GENES AND GENE-DISEASE APPLICATIONS**

Monday March 19, 1:30 p.m. – 3:00 p.m., Valley of Fire 1&2
Session Chair: Xiaoqiu Huang (Iowa State University, USA)

- 1. Computing Gene-Disease Associations Efficiently**
Kamal Taha (Khalifa University, UAE)
- 2. Searching Jointly Correlated Gene Combinations**
Yuanfang Ren (University of Florida, USA), Ahmet Ay (Colgate University, USA), Travis Gerke (Moffitt Cancer Center, USA) and Tamer Kahveci (University of Florida, USA)
- 3. Analysis of Human Genes with Multiple Functions**
Hisham Al-Mubaid (University of Houston-Clear Lake, USA)
- 4. Selection of Informative Genomic Regions for Closely Related Isolates and Construction of their Phylogeny**
Anindya Das and Xiaoqiu Huang (Iowa State University, USA)

3:00 p.m. – 3:30 p.m. COFFEE BREAK

SESSION 1C**DATA-DRIVEN MODELING**

Monday March 19, 3:30 p.m. – 5:30 p.m., Valley of Fire 1&2
Session Chair: Jane Synnergren (University of Skövde, Sweden)

- 1. A Data-driven Biomarker Computational Model for Lung Disease Classification**
David Gnabasik and Gita Alagband (University of Colorado Denver, USA)
- 2. A Multiscale Model Explains the Circadian Phase Dependent Firing Pattern Variations in Suprachiasmatic Nuclei and the Occurrence of Stochastic Resonance**
Shiju S and K Sriram (Indraprastha Institute of Information Technology-Delhi, India)
- 3. cMutant: A Web Server and Compute Pipeline for Exploring the Effects of Amino Acid Substitutions via Rigidity Mutation Maps**
Hunter Read, Kyle Daling, Connor Freitas and Filip Jagodzinski (Western Washington University, USA)
- 4. Integration of Biomedical Big Data Requires Efficient Batch Effect Reduction**
Jane Synnergren, Nidal Ghosheh (University of Skövde, Sweden) and Pierre Dönnés (SciCross, Sweden)
- 5. Predicting Pathways from Untargeted Metabolomics Data**
Daniel Salinas, Brendan Mumey and Ronald June (Montana State University, USA)

Tuesday, March 20, 2018

8:00 a.m. – 3:30 p.m.

**REGISTRATION – Coffee, tea, pastries –
Red Rock Registration Desk**

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

**Dr. Dan Gusfield
University of California, Davis, USA**

Integer Linear Programming in Computational and Systems Biology

Location: Red Rock 6

Session Chair: Hisham Al-Mubaid (University of Houston-Clear Lake, USA)

10:00 a.m. – 10:30 a.m. COFFEE BREAK

SESSION 2A

MACHINE LEARNING APPLICATIONS IN BIOINFORMATICS

Tuesday March 20, 10:30 a.m. – 12:00 p.m., Valley of Fire 1&2

Session Chair: Usman Roshan (New Jersey Institute of Technology, USA)

- 1. Automated Biomedical Text Classification with Research Domain Criteria**
Mohammad Anani and Indika Kahanda (Montana State University, USA)
- 2. The Flashing-Decision-Trees: Towards an Intelligent Seizure Prediction System**
Arwa Al-Rubaian (King Saud University, Saudi Arabia) and Ghada Badr (IRI, Egypt)
- 3. K-means-based Feature Learning for Protein Sequence Classification**
Paul Melman and Usman Roshan (New Jersey Institute of Technology, USA)
- 4. Protein Mutation Stability Ternary Classification using Neural Networks and Rigidity Analysis**
Richard Olney (Western Washington University, USA), Aaron Tuor (Pacific Northwest National Laboratory, USA), Filip Jagodzinski (Western Washington University, USA) and Brian Hutchinson (Western Washington University, USA)

**12:00 p.m. – 2:00 p.m. CONFERENCE LUNCHEON
AND BEST PAPER AWARD**

LOCATION: Red Rock 7&8

SESSION 2B**PROTEIN AND DISEASE APPLICATIONS**

Tuesday March 20, 2:00 p.m. – 3:30 p.m., Valley of Fire 1&2
Session Chair: Fathalla Rihan (UAE University, UAE)

- 1. Analysis of Energy Landscapes for Improved Decoy Selection in Template-free Protein Structure Prediction**
Nasrin Akhter and Amarda Shehu (George Mason University, USA)
- 2. Myocardial Infarction Detection using Multi Biomedical Sensors**
Mohammad Mahbubur Rahman Khan Mamun and Ali T Alouani (Tennessee Technological University, USA)
- 3. Extracting Co-mention Features from Biomedical Literature for Automated Protein Phenotype Prediction using PHENOstruct**
Morteza Pourreza Shahri and Indika Kahanda (Montana State University, USA)
- 4. Dynamics of Hepatitis C Virus Infection**
Fathalla Rihan and Bassel Rihan (UAE University, UAE)

3:30 p.m. – 4:00 p.m. COFFEE BREAK

SESSION 2C**BIOLOGICAL SEQUENCES AND TRANSCRIPTOME**

Tuesday March 20, 4:00 p.m. – 5:30 p.m., Valley of Fire 1&2
Session Chair: Qiwen Hu (University of Pennsylvania, USA)

- 1. Identifying Translated uORFs based on Sequence Features via Tree-based Algorithms**
Qiwen Hu (University of Pennsylvania, USA) and Steffen Heber (North Carolina State University, USA)
- 2. Scalable Approach to Data Driven Transcriptome Dynamics Modeling**
Alexandr Koryachko, Samiul Haque and Cranos Williams (North Carolina State University, USA)
- 3. IsoRef Improves the Reference-based Transcriptome Assembly Accuracy for RNA-Seq Data**
Xiang Ao, Zicheng Zhao and Shuaicheng Li (City University of Hong Kong, China)
- 4. Exploring Multi-Objective with Protein Sequence Alignment**
Maha Abdelrasoul and Yaohang Li (Old Dominion University, USA)

Wednesday, March 21, 2018*

8:00 a.m. – 11:00 a.m.

**REGISTRATION – Coffee, tea, pastries –
Red Rock Registration Desk**

SESSION 3A

BIOINFORMATICS APPLICATIONS I

Wednesday, March 21, 8:30 a.m. – 10:00 a.m., Valley of Fire 1&2
Session Chair: Filip Jagodzinski (Western Washington University, USA)

- 1. A Two-level Scheme for Quality Score Compression**
Jan Voges (Leibniz Universität Hannover, Germany), Ali Fotouhi (Istanbul Technical University, Turkey), Jörn Ostermann (Leibniz Universität Hannover, Germany) and Oguzhan Kulekci (Istanbul Technical University, Turkey)
- 2. Minimising the Deep Coalescence**
Dawid Dąbkowski and Pawel Gorecki (University of Warsaw, Poland)
- 3. State-of-Art Genomic Data Compression Technology**
Dunling Li and Lin-Ching Chang (The Catholic University of America, USA)
- 4. Computational Prediction of Alternative Metabolic Pathways of Plasmodium Falciparum**
Jelili Oyelade, Itunuoluwa Isewon, Olufemi Aromolaran and Efosa Uwoghiren (Covenant University, Nigeria)

10:00 a.m. – 10:30 a.m. COFFEE BREAK

SESSION 3B

BIOINFORMATICS APPLICATIONS II

Wednesday, March 21, 10:30 a.m. – 12:00 p.m., Valley of Fire 1&2
Session Chair: Jelili Oyelade (Covenant University, Nigeria)

- 1. Identifying Temporal Variation of Transcription in Populations**
Aisharjya Sarkar, Prabhat Mishra and Tamer Kahveci (University of Florida, USA)
- 2. Integrated Metabolic Flux and Omics Analysis of Leishmania major metabolism**
Sushil Shakyawar, Sonia Carneiro (University of Minho, Portugal) and Isabel Rocha (SilicoLife Lda, Portugal)
- 3. A Next Generation Sequencing Approach to Analyze Genes Expression in Breast Cancer Stem Cells**
Anushree Tripathi, Gautam K. Verma, Krishna Misra (Indian Institute of Information Technology Allahabad, India)
- 4. Machine Learning and Sentiment Analysis: Examining the Contextual Polarity of Public Sentiment on Malaria Disease in Social Networks**
Jelili Oyelade, Efosa Uwoghiren, Itunuoluwa Isewon, Olufunke Oladipupo, Olufemi Aromolaran and Kingsley Michael (Covenant University, Nigeria)