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

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

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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)
	12:00-1:30pm Lunch break (on your own)	
	1:30pm – 3:00pm	Session 1B (Valley of Fire 1&2)
	3:30pm – 5:30pm	Session 1C (Valley of Fire 1&2)

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

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

8:00 a.m. – 3:30 p.m.   **REGISTRATION – Coffee, tea, pastries –**
Red Rock Registration Desk

8:45 a.m. – 9:00 a.m.   **WELCOME – Red Rock 6**
General Chair, BICoB 2018   **Oliver Eulenstein, Iowa State University, USA**
Program Co-Chair, BICoB 2018   **Hisham Al-Mubaid, University of Houston-Clear Lake, USA**
Program Co-Chair, BICoB 2018   **Qin Ding, East Carolina University, USA**
General Chair, CATA 2018   **Les Miller, Iowa State University, USA**
Program Chair, CATA 2018   **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 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 Alaghband (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 Technolgy-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 Dönnes (SciCross, Sweden)

5. **Predicting Pathways from Untargeted Metabolomics Data**
    Daniel Salinas, Brendan Mumey and Ronald June (Montana State University, USA)

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

String and combinatorial problems in bioinformatics and computational 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)

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 University at Hannover, Germany), Ali Fotouhi (Istanbul Technical University, Turkey), Jörn Ostermann (Leibniz University at 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)