

# **IWBBIO** 2018

INTERNATIONAL WORK-CONFERENCE ON  
BIOINFORMATICS AND  
BIOMEDICAL ENGINEERING

# PROGRAM

25-27 April, 2018  
Granada (SPAIN)



# IWBBIO 2018 Short Program

Wednesday, April 25, 2018		
8:00-8:30	<b>REGISTRATION DESK</b> <i>(start at 8h but it is opened during all the conference)</i>	
8:30-10:00	<b>Session A.1: Next generation sequencing and sequence analysis (Part. I)</b>	<b>Session B.1: Biomedical image analysis</b>
10:00-10:30	<b>COFFEE BREAK</b>	
10:30-11:30	<b>OPENING PLENARY LECTURE.</b> <b>Prof. Dr. Luis Rueda</b>	
11:30-12:45	<b>Session A.2: Bioinformatics for healthcare and diseases</b>	<b>Session B.2: Biomedical Engineering (Part. I)</b>
12:45-13:30	<b>Session A.3: Computational proteomics</b>	<b>Session B.3: High-throughput bioinformatic tools for medical genomics</b>
13:30-15:00	<b>LUNCH &amp; COFFEE</b>	
15:00-16:30	<b>Session A.4: Interpretable models in biomedicine and bioinformatics</b>	<b>Session B.4: Drug Delivery System Design Aided by Mathematical Modelling and Experiments</b>
16:30-17:00	<b>COFFEE BREAK</b>	
17:00-18:00	<b>PLENARY LECTURE.</b> <b>Dr. Anagha Joshi</b>	
18:00-19:30	<b>Session A.5: Computational systems for modelling biological processes</b>	<b>Session B.5: Healthcare and diseases</b>

## NOTES:

- All **Sessions A** will be held in Salón de Grados, Edificio Mecenas (just 25 meters from the Facultad de Ciencias).
- All **Sessions B** will be held in Salón de Grados, Facultad de Ciencias.
- The **Poster Sessions** will be held in the Hall of Facultad de Ciencias.
- **Social event (departure):** Buses will be at the main entrance of Hotel Granada Center (26<sup>th</sup> April at 20:00 for the Gala Dinner at Hotel Alhambra Palace and 27<sup>th</sup> April at 16:30 for the visit to Alhambra).

**Thursday, April 26, 2018**

8:00-8:30	<p align="center"><b>REGISTRATION DESK</b> <i>(start at 8h but it is opened during all the conference)</i></p>	
8:30-10:00	<p><b>Session A.6: Little-big data. Reducing the complexity and facing uncertainty of highly underdetermined phenotype prediction problems</b></p>	<p><b>Session B.6: Biomedical image analysis</b></p>
10:00-10:30	<p align="center"><b>COFFEE BREAK</b></p>	
10:30-11:30	<p align="center"><b>PLENARY LECTURE.</b> <b>Prof. Dr. FangXiang Wu</b></p>	
11:30-12:45	<p><b>Session A.7: Computational genomics (Part. I)</b></p>	<p><b>Session B.7: Challenges in smart and wearable sensor design for mobile health</b></p>
12:45-13:30	<p><b>Session A.8: Next generation sequencing and sequence analysis (Part.II)</b></p>	
13:30-15:00	<p align="center"><b>LUNCH &amp; COFFEE</b></p>	
15:00-16:30	<p><b>Session A.9: Computational systems for modelling biological processes</b></p>	<p><b>Session B.9: Biomedical Engineering (Part.II)</b></p>
16:30-17:00	<p align="center"><b>COFFEE BREAK</b></p>	
17:00-18:00	<p align="center"><b>PLENARY LECTURE.</b> <b>Prof. Dr. Jiayin Wang</b></p>	
18:00-18:45	<p><b>Session A.10: Bioinformatics tools to integrate omics dataset and address biological question</b></p>	<p><b>Session B.10: Biomedical Engineering (Part.III)</b></p>
18:45-19:45	<p align="center"><b>Session A.11/B.11: Poster Session.</b></p>	
20:00	<p align="center"><b>Gala Dinner at Hotel Alhambra Palace</b></p>	

**Friday, April 27, 2018**

8:00-8:30	<b>REGISTRATION DESK</b> <i>(start at 8h but it is opened during all the conference)</i>	
8:30-10:00	<b>Session A.12: Generation, Management and Biological Insights from Big Data</b>	<b>Session B.12: Challenges and advances in measurement and self-parametrization of complex biological systems</b>
10:00-10:30	<b>COFFEE BREAK</b>	
10:30-11:30	<b>PLENARY LECTURE.</b> <b>Prof. Dr. Joaquin Dopazo</b>	
11:30-12:45	<b>Session A.13: Modelling biological and biomedical processes</b>	<b>Session B.13: Biomedical Engineering (Part. IV)</b>
12:45-14:00	<b>Session A.14: Computational genomics (Part. II)</b>	<b>Session B.14: Biomedicine/ Bioinformatics for healthcare and diseases</b>
14:00-16:30	<b>FREE TIME</b>	
16:30	<b>Visit to the Alhambra</b>	

**Salón De Grados.**  
**SESSIONS A**  
**Edificio Mecenas**

**Salón De Grados.**  
**SESSIONS B**  
**Facultad de Ciencias**

**Hall**  
**POSTER SESSIONS**  
**Facultad de Ciencias**

**MAIN**  
**ENTRANCE**

**HOTEL**  
**GRANADA**  
**CENTER**



# IWBBIO 2018 FULL PROGRAM

Wednesday, April 25, 2017

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## Session A.1: Next generation sequencing and sequence analysis (Part.I)

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*Chairman: Dr. Fostier Jan and Dr. Li Liu*

New features and recipes for simulating structural mutations with BAMSurgeon  
*Adam Ewing*

Quality Assessment of High-Throughput DNA Sequencing Data via Range Analysis  
*Ali Fotouhi, M. Oguzhan Kulekci and Mina Majidi*

A BLAS-based Algorithm for Finding Position Weight Matrix Occurrences in DNA sequences on CPUs and GPUs

*Jan Fostier*

Estimating the distributions of Micro-Satellite Instability from next generation sequencing data

*Xuan Feng, Huan Hu, Zhongmeng Zhao, Xuanping Zhang, Yu Geng, Xiao Xiao and Jiayin Wang*

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## Session B.1: Biomedical image analysis

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*Chairman: Dr. Yoshihiro Ishikawa and Dr. Arvydas Palevicius*

Stochastic geometry for automatic assessment of Ki-67 index in breast cancer preparations

*Marek Kowal, Marcin Skobel, Jozef Korbicz and Roman Monczak*

Detection methods of static microscopic object

*Libor Hargas, Zuzana Loncova, Dusan Koniar, Frantisek Jabloncik and Jozef Volak*

Contrast enhancement methods for images from the light microscope

*Frantisek Jabloncik, Libor Hargas, Dusan Koniar and Jozef Volak*

Quantitative ultrasound of tumor surrounding tissue for enhancement of breast cancer diagnosis

*Ziemowit Klimonda, Katarzyna Dobruch-Sobczak, Hanna Piotrkowska-Wroblewska, Piotr Karwat and Jerzy Litniewski*

A Texture Analysis Approach for Spine Metastasis Classification in T1 and T2 MRI

*Mohamed Amine Larhmam, Saïd Mahmoudi, Stylianos Drisis and Mohammed Benjelloun*

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**PLENARY LECTURE:****Prof. Luis Rueda**

Professor, School of Computer Science, Pattern Recognition and Bioinformatics Lab, Windsor Cancer Research Group, University of Windsor

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**Session A.2: Bioinformatics for healthcare and diseases**

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*Chairman: Dr. Adam Ewing and Dr. Pedro J. Sola-Campoy*

PlasmidID: a mapping based tool for plasmid identification, annotation, classification and representation. Application as high-risk strains plasmid detection.

*Pedro J. Sola-Campoy, Sara Monzon, Maria Perez-Vazquez, Belen Aracil, Jose Campos, Jesus Oteo and Isabel Cuesta*

Case-based reasoning systems for medical applications with improved adaptation and recovery stages

*Xiomara Blanco, David Bastidas, Camilo Piñeros and Diego Peluffo*

Detecting Cancer-Associated Epistatic Gene Variants in Lung Adenocarcinoma

*Jaume Sastre Tomas, Jairo Rocha, Alexander Damia Heine Suñer and Emidio Capriotti*

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**Session B.2: Biomedical Engineering (Part. I)**

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*Chairman: Dr. Inmaculada Mora Jimenez and Dr. Libor Hargas*

Arterial graft made from cultured cell-layers

*Yoshihiro Ishikawa*

Composite Piezoelectric Material for Biomedical Micro Hydraulic System

*Arvydas Palevicius, Giedrius Janusas, Elingas Cekas and Yatinkumarrajeshbhai Patel*

Potentiometric Screen-Printed Sensors for Wireless Monitoring of Wound Healing

*Andrzej Peplowski, Daniel Janczak, Lukasz Gorski, Michal Zbiec, Dariusz Obrebski and Malgorzata Jakubowska*

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**Session A.3: Computational proteomics**

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*Chairman: Dr. Erzsébet Fichó and Dr. Sabrina Silveira*

Fighting fire with fire: computational prediction of microbial targets for bacteriocins

*Edgar Duarte Coelho, Joel Arrais and Jose Luis Oliveira*

When intrinsically disordered proteins are ordered

*Erzsebet Ficho, Istvan Simon and Balint Meszaros*



A graph-based approach for querying protein-ligand structural patterns  
*Renzo Angles and Mauricio Arenas*

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**Session B.3: High-throughput bioinformatic tools for medical genomics**

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*Chairman: Dr. Gonzalo Claros and Dr. Javier Perez Florido*

NearTrans can identify correlated expression changes between retrotransposons and surrounding genes in human cancer

*Rafael Larrosa Jimenez, Macarena Arroyo, Rocio Bautista, Carmen Maria Lopez-Roriguez and M. Gonzalo Claros*

Meta-Alignment : Combining sequence aligners for better results

*Beat Wolf, Pierre Kuonen and Thomas Dandekar*

Exploiting in-memory Systems for Genomic Data Analysis

*Zeeshan Shah, Mohamed El-Kalioby, Tariq Faquih, Mostafa Shokrof, Shazia Subhani, Ashiq Anjum and Mohamed Abouelhoda*

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**Session A.4: Interpretable models in biomedicine and bioinformatics**

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*Chairman: Dr. Alfredo Vellido, Dr. Sandra Ortega-Martorell, Dr. Alessandra Tosi, Dr. Iván Olier Caparroso*

Metastasis of cutaneous melanoma: risk factors, detection and forecasting

*Iker Malaina, Leire Legarreta, M<sup>a</sup> Dolores Boyano, Jesus Gardeazabal, Carlos Bringas, Luis Martinez and Ildefonso M. de La Fuente*

Graph Theory Based Classification of Brain Connectivity Network for Autism Spectrum Disorder

*Ertan Tolan and Zerrin Isik*

On the use of Betweenness Centrality for selection of plausible trajectories in Qualitative Biological Regulatory Networks

*Muhammad Tariq Saeed, Jamil Ahmed and Amjad Ali*

Detect and Predict Melanoma utilizing TCBR and Classification of Skin lesions in a Learning Assistant System

*Sara Nasiri, Matthias Jung, Julien Helsper and Madjid Fathi*

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**Session B.4: Drug Delivery System Design Aided by Mathematical Modelling and Experiments**

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*Chairman: Ph.D cand Kristinn Gudnason, Prof. Fjola Jonsdottir, Prof. Emeritus Sven Sigurdsson and Prof. Mar Masson*

Controlling drug delivery from multi-layer polymeric coated capsules

*Giuseppe Pontrelli, Elliot Carr, Badr Kaoui, Marco Lauricella and Sauro Succi*

Drug diffusion properties of hydrogels: numerical and experimental studies

*Svetlana Solodova, Andreia Pimenta, Kristinn Gudnason, Ana Paula Serro, Fjola Jonsdottir, Sven Sigurdsson and Mar Masson*

Numerical evaluation of skin sub layer properties

*Berghthora Snorraddottir, Kristinn Gudnason, Fjola Jonsdottir, Sven Sigurdsson and Mar Masson*

Modelling the Release of Moxifloxacin from Plasma Grafted Intraocular Lenses with Rotational Symmetric Numerical Framework

*Kristinn Gudnason, Fjola Jonsdottir and Sven Sigurdsson*

## PLENARY LECTURE:

**Dr. Anagha Joshi**

Bioinformatics Group Leader, Developmental Biology Division,  
The Roslin Institute, University of Edinburgh, UK

### Session A.5: Computational systems for modelling biological processes

*Chairman: Dr. Giuseppe Pontrelli and Dr. Alexander Saltykov*

The binding of agonists to the NOP receptor revealed in silico” by Multi-flexible docking and QM/MM.

*Stefano Della Longa and Alessandro Arcovito*

Computational study on peptide conformations of  $\mu$ -conotoxins using molecular dynamics and computer visualization methods

*Ajay Abisheck Paul George, Astrid Maas, Diana Imhof, Nils Lichtenberg, Raphael Menges and Kai Lawonn*

Predicting Disease Genes from Clinical Single Sample-Based PPI Networks

*Ping Luo, Li-Ping Tian, Bolin Chen, Qianhua Xiao and Fangxiang Wu*

Classification of cardiovascular pathologies in artificial signals of a lumped parameter model using a naive Bayes algorithm

*Stefan Krickl, Manuel Debic and Stefan Bernhard*

Putative oxidative folding pathways of the disulfide rich inhibitory peptide Tridegin

*Ajay Abisheck Paul George, Arijit Biswas, Monica Sudarsanam and Diana Imhof*

Red Blood Cell Model Validation in Dynamic Regime

*Alzbeta Bohinikova, Kristina Kovalcikova, Martin Slavik, Ivan Cimrak and Isabelle Mazza Guimaraes*

### Session B.5: Healthcare and diseases

*Chairman: Dr. Hissam Tawfik and Dr. Vitaly Belik*

Chard (Beta Vulgaris Var. Cicla) Extract Modulates Zinc Status, Glucose Level and Antioxydant Values in Diabetic Rats Fed Zinc Deficiency Diet

*Zine Kechrid and Malika Hamdiken*

The prognostic value of clinical variables for the treatment response in rheumatoid arthritis

*Alexander Platzner, Daniela Sieghart, Farideh Alasti, Guenter Steiner and Josef Smolen*

Exploring In-Game Reward Mechanisms in Diaquarium – A Serious Game for Children with Type 1 Diabetes

*Ida Charlotte Rønningen, Eirik Årsand and Gunnar Hartvigsen*

The PERSON project: A brain computer interface serious game for neurorehabilitation

*Alfonso Monaco, Nicola Amoroso, Roberto Bellotti, Paolo Da Pelo, Domenico Diacono, Gianluca Sforza and Sabina Tangaro*

Abnormal conditions delay effective age as predicted by gut microbiome composition in piglets

*Vitaly Belik, Adrian Pacheco, Ramon Xulvi-Brunet and Robert Pieper*

Cytotoxicity of Secnidazole cocrystals on cells infected with *Trypanosoma cruzi*

*Carolina Barrientos-Salcedo, Micheel Merari Vichi Ramirez, Edgar Lopez Lopez and Catalina Soriano-Correa*

Thursday, April 26, 2017
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**Session A.6: Little-big data. Reducing the complexity and facing uncertainty of highly underdetermined phenotype prediction problems**

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*Chairman: Dr. Juan Luis Fernandez-Martinez*

Know-GRRF: Domain-Knowledge Informed Biomarker Discovery with Random Forests

*Xin Guan and Li Liu*

Developing a system biology framework to explore dynamic regulations of myeloma cancer by integrating experimental data and mathematical modeling techniques

*Le Zhang*

Sampling defective pathways in phenotype prediction problems via the Fisher's ratio sampler

*Ana Cernea, Juan Luis Fernandez-Martinez, Enrique J. Deandres-Galiana, Francisco Javier Fernandez Ovies, Zulima Fernandez-Muñiz, Oscar Alvarez Machancoses, Leorey Saligan and Stephen T. Sonis*

Sampling defective pathways in phenotype prediction problems via the Holdout sampler

*Juan Luis Fernandez-Martinez, Ana Cernea, Enrique J. Deandres-Galiana, Francisco Javier Fernandez-Ovies, Oscar Alvarez-Machancoses, Leorey Saligan and Stephen T. Sonis*

Comparison of different sampling algorithms for phenotype prediction

*Ana Cernea, Juan Luis Fernandez Martinez, Enrique J. Deandres-Galiana, Francisco Javier Fernandez Ovies, Zulima Fernandez-Muñiz, oscar alvarez-Machancoses, Leorey Saligan and Stephen T. Sonis*

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**Session B.6: Biomedical image analysis**

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*Chairman: Dr. Daniela Purcea and Dr. Juan Manuel Galvez*

FLIR vs SEEK in Biomedical Applications of Infrared Thermography

*Ondrej Krejcar and Ayca Kiritat*

Advances in homotopy applied to object deformation

*Jose Alejandro Salazar-Castro, Lilian Dayana Cruz Cruz, Diego Hernan Peluffo-Ordoñez and Ana Umaquina*

Thermal Imaging for Localization of Anterior Forearm Subcutaneous Veins

*Ondrej Krejcar and Orcan Alpar*

Detection of Irregular Thermoregulation in Hand Thermography by Fuzzy C-Means

*Ondrej Krejcar and Orcan Alpar*

Medical Image Analysis with Handcrafted or Non-Handcrafted Texture Descriptors: a performance evaluation

*Joke Badejo and Emmanuel Adetiba*

Parametric variations of anisotropic diffusion and Gaussian high-pass filter for NIR image preprocessing in vein identification

*Ondrej Krejcar and Ayca Kirimtat*

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## PLENARY LECTURE:

### Prof. FangXiang Wu

P.Eng, SMIEEE Professor, Division of Biomedical Engineering,  
 Prof. Dept. Mechanical Engineering, College of Engineering,  
 University of Saskatchewan, SK Canada

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#### Session A.7: Computational genomics (Part. I)

*Chairman: Dr. Abraham Korol and Dr. Manuel Rodríguez Maresca*

Models of multiple interactions from collinear patterns

*Leon Bobrowski and Pawel Zabielski*

Identification of the Treatment Survivability Gene Biomarkers of Breast Cancer Patients via a Tree-Based Approach

*Ashraf Abou Tabl, Abed Alkhateeb, Luis Rueda, Waguih Elmaraghy Elmaraghy and Alioune Ngom*

Workflows and service discovery: A mobile device approach

*Ricardo Holthausen, Sergio Diaz-Del-Pino, Esteban Perez-Wohlfeil and Oswaldo Trelles*

Analyzing the differences between reads and contigs when performing a taxonomic assignment comparison in metagenomics

*Pablo Rodriguez-Brazzarola, Esteban Perez-Wohlfeil, Sergio Diaz-Del-Pino, Ricardo Holthausen and Oswaldo Trelles*

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#### Session B.7: Challenges in smart and wearable sensor design for mobile health

*Chairman: Dr. Natividad Martínez Madrid, Dr. Juan Antonio Ortega and Dr. Ralf Seepold*

Reconstruction of equivalent electrical sources on heart surface

*Mikhail Kramm, Ralf Seepold, Galina Zhikhareva, Oleg Bodin, Anton Chernikov, Jana Kuprijanova and Natalija Zhuravleva*

WearIT - A Rapid Prototyping Platform for Wearables

*Isabel Leber and Natividad Martinez Madrid*

A review of health monitoring systems using sensors on bed or cushion

*Simone Orcioni, Massimo Conti, Natividad Martinez Madrid, Maksym Gaiduk and Ralf Seepold*

Textile Sensor Platform (TSP)

Development of an textile live ECG

*Thomas Walzer, Christian Thies, Klaus Meier and Natividad Martinez Madrid*

Sensor-mesh-based system with application on sleep study

*Maksym Gaiduk, Bruno Vunderl, Ralf Seepold, Juan Antonio Ortega and Thomas Penzel*

A Wearable Pneumatic Sensor for Non-invasive Continuous Arterial Blood Pressure Monitoring

*Viacheslav Antsiperov and Gennady Mansurov*

New parameter available in phonocardiogram for blood pressure estimation

*Omari Tahar, Ouacif Nadia, Benali Redouane, Dib Nabil and Bereksi-Reguig Fethi*

### **Session A.8: Next generation sequencing and sequence analysis (Part.II)**

**Chairman: Dr. Bobrowski Leon**

CIGenotyper: A machine learning approach for genotyping complex indel calls

*Tian Zheng, Yang Li, Yu Geng, Zhongmeng Zhao, Xuanping Zhang, Xiao Xiao and Jiayin Wang*

Interplay of biological and computational challenges in genome mapping

*Abraham B. Korol*

### **Session A.9: Computational systems for modelling biological processes**

**Chairman: Dr. Iker Malaina, Dr. Jian Shi (tent.) and Dr. Ignacio Larrayoz Roldán (tent.)**

Red blood cell model with different implementation of viscoelastic parameter

*Mariana Ondrusova*

Simulation of Blood Flow in Microfluidic Devices for Analysing of Video from Real Experiments

*Katarina Bachrata, Hynek Bachraty, Martin Slavik, Michal Chovanec, Monika Smieskova and Frantisek Kajanek*

Alignment-free Z-Curve Genomic Cepstral Coefficients and Machine Learning for Classification of Viruses

*Emmanuel Adetiba, Tunmike Taiwo, Marion Adebisi, Joke Badejo, Akanle Matthew and Victor Matthews*

A combined approach of multiscale texture analysis and interest point/corner detectors for microcalcifications diagnosis

*Liliana Losurdo, Annarita Fanizzi, Teresa Basile, Roberto Bellotti, Ubaldo Bottigli, Rosalba Dentamaro, Vittorio Didonna, Alfonso Fausto, Raffaella Massafra, Alfonso Monaco, Marco Moschetta, Ondina Popescu, Pasquale Tamborra, Sabina Tangaro and Daniele La Forgia*

An Empirical Study of Word Sense Disambiguation for Biomedical Information Retrieval System

*Mohammed Rais and Abdelmonaime Lachkar*

### **Session B.9: Biomedical Engineering (Part.II)**

**Chairman: Dr. Michael Sadovsky**

Trabecular Bone Score in overweight and normal-weight young women

*Abdel-Jalil Berro, Marie-Louise Ayoub, Antonio Pinti, Ahmaidi Said, Georges El Khoury, Cesar El Khoury, Eddy Zakhem, Bernard Cortet and Rawad El Hage*

Sarcopenia and hip structure analysis variables in a group of Lebanese postmenopausal women

*Riad Nasr, Eric Watelain, Antonio Pinti, Ghassan Maalouf, Abdel-Jalil Berro, Abir Alwan, Cesar Al Khoury, Ibrahim Fayad, Rawad El Hage and Hayman Saddik*

Feet Fidgeting Detection Based on Accelerometers Using Decision Tree

*Julien Esseiva, Maurizio Caon, Elena Mugellini, Omar Abou Khaled and Kamiar Aminian*

Engineered Surfaces for Enhanced Gene Transfer

*Michael Schrlau*

Aging Effect on the Pelvis to Head Attenuation of Upper Body Rotation during Walking

*Hyeonmin Jeon, Jaehoon Heo, Euibum Choi and Gwang Moon Eom*

## **PLENARY LECTURE:**

**Prof. Jiayin Wang**

Professor, Department of Computer Science and Technology, Xi'an Jiaotong University (China)

### **Session A.10: Bioinformatics tools to integrate omics dataset and address biological question**

**Chairman: Dr. Domenica Scumaci and Dr. Ignacio Rojas**

Detecting differentially methylated regions by enrichment analysis

*Jordi Martorell-Marugan and Pedro Carmona-Saez*

Explorative Analysis of Differential Expression in the Clinical Context

*Milena Kraus, Guenter Hesse, Tamara Slosarek, Marius Danner, Ajay Kesar, Akshay Bhushan and Dr. Matthieu-P. Schapranow*

Constructing a quantitative fusion layer over the semantic level for scalable inference  
*Andras Gezsi, Bence Bruncsics and Peter Antal*

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**Session B.10: Biomedical Engineering (Part.III)**

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*Chairman: Dr. Antonio Pinti*

Matching Confidence Masks with Experts Annotations for Estimates of Chromosomal Copy Number Alterations

*Jorge Munoz, Yuriy Semenovich, Tatiana Popova and Janette Perez*

Augmented Visualization and Touchless Interaction with Virtual Organs

*Lucio Tommaso De Paolis*

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**Session A.11/B.11: Poster Session**

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*Chairman: Dr. Fernando Rojas, Dr. Daniel Castillo Secilla, Dr. Juan Manuel Galvez and Dr. Ignacio Rojas*

Presence of stochastic resonance in isolated mouse heart

*Alberto Peña-Romo and Jesus Rodriguez-Gonzalez*

Computer Model of Conditional-Reflex Training in a Probably-Organized Environment

*Alexander Saltykov*

Bioinformatics Analysis of a Subtype of Glioblastoma Responding to Bevacizumab Treatment

*Jian Shi*

Bioinformatic analysis of selected aptamer sequences allows the identification of RNA tools for the functional analysis of West Nile virus genomic RNA elements

*Cristina Romero-Lopez, Beatriz Berzal-Herranz and Alfredo Berzal-Herranz*

Design of genus-specific probes and primers for detection and identification of viral DNA in environmental samples using next-generation sequencing method

*Andrey Ayginin, Anna Speranskaya, Alina Matsvai, Vladimir Dedkov, Marina Safonova, Ekaterina Pimkina, Dmitry Shagin, Mikhail Markelov, German Shipulin and Kamil Khafizov*

Main features and evaluation of different workflows for differential gene expression studies through RNA-Seq samples

*alvaro Perez Sala and Ignacio M. Larrayoz Roldan*

Numerical study of the hemodynamic parameters of Y-bypass graft at rest and exercise state

*Alireza Rostami, Ghassem Heidarinejad, Hamidreza Babakhani and Mohsen S Tabatabaei*

Numerical study of the effect of stenosis on the hemodynamic parameters in branch of LAD coronary using 0D/3D coupling method

*Alireza Rostami, Ghassem Heidarinejad, Hamidreza Babakhani and Mohsen S Tabatabaei*



Comparison of the hemodynamic parameters of sequential parallel and cross configurations of coronary artery in the rest state

*Alireza Rostami, Ghassem Heidarinejad, Hamidreza Babakhani and Mohsen S Tabatabaei*

Impedance Analysis of Different Shapes of the Normal and Malignant White Blood Cells

*Sameh Sherif*

Effects of external voltage in the dynamics of pancreatic beta-cells: implications for the treatment of diabetes.

*Ramon Enrique Ramayo Gonzalez, Jose Radames Ferreira Da Silva and Romildo Albuquerque Nogueira*

Improved determination of hydration structure facilitates correct prediction of drug binding

*Csaba Hetenyi, Istvan Horvath, Monika Balint and Norbert Jeszenoi*

ISaaC: Identifying Structural relations in biological data with Copula-based kernel dependency measures

*Raghvendra Mall, Hossam Al Meer, Ehsan Ullha, Nasreddine Megrez and Halima Bensmail*

Understanding the process of gut microbiota development

*Alejandra Rey-Mariño, Susana Ruiz-Ruiz, Nuria Jimenez-Hernandez, Javier Pons, Alejandro Artacho and M. Pilar Francino*

Systematic characterisation of enhancer elements in mouse ES cells

*Karla Parussel and Anagha Joshi*

The effect of c-myc monoclonal antibody for gastric cancer cells in vivo and in vitro

*Hu Haixia, Su Yanzhuo, Song Bin and Du Juan*

Density peaks clustering approach to detect rare cell types from single-cell RNA-seq data

*Rashid Mehmood and Rongfang Bie*

Impressive improvement of biocompatibility, surface and mechanical properties of metallic biomaterials under magnetoelectropolishing (MEP)

*Tadeusz Hryniewicz, Ryszard Rokicki and Krzysztof Rokosz*

Kernel conditional embeddings for associating omic data types

*Ferran Reverter, Esteban Vegas and Josep M Oller*

An online viewer of FHR signal for research E-learning and tele-medicine

*Samuel Boudet, Agathe Houze de L'aulnoit, Antonio Pinti, Romain Demailly, Michael Genin, Regis Beuscart, Laurent Peyrodie and Denis Houze de L'aulnoit*

Graphene layers and coatings in biomedical applications

*Lucja Dybowska-Sarapuk, Andrzej Kotela and Malgorzata Jakubowska*

PIKAVIRUS: A Metagenomics Tool for Viral Community Analysis

*Andrea Rubio, Sara Monzon, Pedro J. Sola-Campoy and Isabel Cuesta*

Classification in fMRI studies: in search of brain informative regions.

*Juan E Arco, Paloma Diaz-Gutierrez, Javier Ramirez and Maria Ruz*

SalivaPRINT Toolkit: Development, Challenges and Applications

*Igor Cruz, Eduardo Esteves, Monica Fernandes, Nuno Rosa, Maria Jose Correia and Marlene Barros*

Cardiac Pulse Modeling Using a Modified van der Pol Oscillator and Genetic Algorithms

*Fabian Lopez, Andres Arciniegas, David Esteban Imbajoa Ruiz, Paul Rosero, Pedro Garcia, Andres Eduardo Castro Ospina, Antonio Acosta and Diego Hernan Peluffo-Ordoñez*

Model Reduction in Protein Tertiary Structure prediction via Singular Value Decomposition

*Oscar Alvarez-Machancoses, Juan Luis Fernandez-Martinez, Ana Cernea, Zulima Fernandez-Muñiz and Andrzej Kloczkowski*

Computational Modelling of the Possible Cancer Synergic Treatment Combining Oncolytic Treatment and Induced Immune Cytotoxicity.

*Jose-Antonio Lopez-Valverde*

Using Orientation Sensors to Control a FES System for Upper-Limb Motor Rehabilitation

*Andres F. Ruiz-Olaya, Alberto Lopez-Delis and Adson Ferreira Da Rocha*

A Real-Time Research Platform for Intent Pattern Recognition: Implementation, Validation and Application

*Andres F. Ruiz-Olaya, Gloria Diaz and Alberto Lopez-Delis*

Low data fusion framework oriented to information quality for BCI systems

*Miguel Alberto Becerra Botero, Karla C. alvarez-Uribe and Diego Hernan Peluffo-Ordoñez*

Potential therapeutic target to avoid cetuximab resistance

*Mariama El Baroudi, Jean-Pascal Machiels and Sandra Schmitz*

The roles and mechanisms of celecoxib in gastric cancer NCI-N87 cells

*Song Bin, Du Juan and Su Yanzhuo*

Gene Expression-based Cancer Classification with Handling the Class Imbalance Problem

*Emad Ramadan and Sadam Al-Azani*

Computed Tomography Angiography-based Analysis for the High-risk Intracerebral Hemorrhage Patients by Employing Mathematical Model

*Le Zhang*

Parkinson's Disease Database Analysis and Classification of Stereotactic Coordinates Related to Clinical Outcomes for Deep Brain Stimulation

*Francisco Estella, Esther Lozano, Beatriz Lozano, Elena Santamarta, Antonio Saiz, Fernando Rojas, Ignacio Rojas and Fernando Seijo*

Structural and thermodynamic determinants of HIV-1 inhibition by small proteins targeting gp41

*Samuel Jurado, Mario Cano-Muñoz, Elisabetta Santarossa, Christiane Moog, Bertrand Morel and Francisco Conejero-Lara*

New EHealth Tool to Increase the Adherence of Celiac Patients to the Gluten Free Diet

*Remedios Dominguez-Flores, Ainhoa Vergara-Gomez, Miguel Arevalo-Rodriguez, Carlos Galera-Mayor, Catherine Torgler, Alba Muñoz-Suano and angel Cebolla*

Decreased composite indices of femoral neck strength in young obese women

*Abdel-Jalil Berro, Abir Alwan, Antonio Pinti, Georges El Khoury, Said Ahmaidi, Joseph Matta, Fabienne Frenn, Ghassan Maalouf, Rawad El Hage and Hayman Saddik*

The Study of Complications of Intestinal Obstruction Catheter

*Song Bin, Hu Haixia, Du Juan and Su Yanzhuo*

Anatomic Variation of Celiac Axis Influencing The D2 Radical Resection For Distal Gastric Cancer

*Song Bin, Hu Haixia, Du Juan and Su Yanzhuo*

DB2DB: An enrichment databases approach for medical domain

*Zina Nakhla, Kaouther Nowira and Ahmed Ferchichi*

Clinical study on the treatment of metastatic malignant bowel obstruction with transgastric Intestinal Obstruction Catheter arrangement small intestinal enterostomy

*Song Bin, Hu Haixia, Du Juan and Su Yanzhuo*

Equilibrium and Thermodynamic Studies of Isoniazid Adsorption by Montmorillonite

*Esperanza Carazo, Ana Borrego-Sanchez, Fatima Garcia-Villen, Rita Sanchez-Espejo, Pilar Cerezo, Carola Aguzzi and Cesar Viseras*

An Awareness Environment for Clinical Decision Support in e-Health

*Hissam Tawfik and Obinna Anya*

In depth evaluation of the Fecal Microbiota: A Flexible and Optimized Ion Torrent 16S rRNA Gene-Based Analysis workflow

*Adrià Cereto-Massague, Helena Torrell, Maria Guirro, Lorena Garcia, Adrià Hernández, Lluís Arola and Nuria Canela*

Exploiting Ladder Networks for Gene Expression Classification

*Guray Golcuk, Mustafa Anil Tuncel and Arif Canakoglu*

Molecular Modeling of The Adsorption Of 5-Aminosalicylic Acid on the Kaolinite and Halloysite Nanotube Surfaces

*Ana Borrego-Sanchez, Mahmoud E. Awad, Elisabeth Escamilla-Roa, Esperanza Carazo and C. Ignacio Sainz-Diaz*

Elucidation of microbiota activity by a multi-omic approach

*Maria Guirro, Andrea Costa, Andreu Gual-Grau, Jordi Mayneris-Perrachs, Helena Torrell, Pol Herrero, Nuria Canela and Lluís Arola*

Interaction between *Aedes aegypti* CPB1 and viral proteins

*Edgar Lopez Lopez and Carolina Barrientos Salcedo*

Modelling the drug release from intraocular lens material with variable loading times

*Ana Topete, Kristinn Gudnason, Benilde Saramago and Ana Paula Serro*

Predicting Diabetes Mellitus Readmission through an Index Score and Machine Learning Techniques

*Laià Subirats, Xavier Rafael-Palou and Vicent Ribas Ripoll*

Tips for modelling G-protein coupled receptors and design of selective binders: cardio-safe antagonists of hH4R as a test case

*Anwar Rayan*

Characterization of the telomeric transcriptome from *Chironomus* sp. Sequence analyses and structural predictions

*Mercedes Iriarte Cela, Jose Luis Martinez-Guitarte and Mercedes de La Fuente*

A Study of Facial sEMG Measurements between left and right in Healthy Normal Adults -Focused on Ratio comparing smaller value with bigger value and Asymmetry Index

*Tae Han Yook, Jong Uk Kim, Bo Hyun Kim, Min Seop Shin and Kyeong Han Kim*

Assessment of ecotoxicity of atmospheric humic-like substances using the *Vibrio fischeri* bioluminescence inhibition bioassay

*Nora Kovats, Gango Monika, Eszter Horvath, Bettina Eck-Varanka, Katalin Hubai and Gyula Kiss*

Adapting and step by step refinement of the Vegetative Vigour Terrestrial Plant Test for assessing ecotoxicity of aerosol samples

*Katalin Hubai, Eszter Horvath, Bettina Eck-Varanka, Gabor Teke, adam Toth and Nora Kovats*

Experimental Design for Optimizing the Properties An-timicrobial Chitosan Derivatives and Investigation of the Structure Activity Relationship

*P. Sahariah, B.S. Snorraddottir, Martha A. Hjalmarsdottir, Olafur E. Sigurjonsson and M. Masson*

The importance of using quality control samples to apply data processing methods in large fingerprinting metabolomic studies. A practical case with 288 samples of systemic autoimmune diseases.

*Alvaro Fernandez Ochoa, Isabel Borrás Linares, Rosa Quirantes Pine, Marta E Alarcon Riquelme and Antonio Segura Carretero*

Estimation of DNA modification using artificial neural networks, TOP-seq data and genomic context information

*Mantas Sarauskas, Povilas Gibas and Juozas Gordevicius*

Bioinformatic analysis of microbial DNA sequences related to undesirable metabolic activities

*Agustin Lasserrot, Ignacio Rojas and C. Bosch*

Improving Metagenomic Assemblies Through Data Partitioning: a GC content approach

*Fabio Malcher Miranda, Cassio Batista, Artur Silva, Jefferson Moraes, Nelson Neto and Rommel Ramos*

Friday April 27, 2017
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**Session A.12: Generation, Management and Biological Insights from Big Data**

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**Chairman: Dr. Anagha Joshi**

Predicting Tumor-locations in Prostate Cancer Tissue Using Gene Expression

*Osama Hamzeh, Abed Alkhateeb and Luis Rueda*

Concept of a module for physical security of material secured by LIMS

*Pavel Blazek, Kamil Kuca and Ondrej Krejcar*

scFeatureFilter: correlation-based feature filtering for single-cell RNAseq

*Angeles Arzalluz-Luque, Guillaume Devailly and Anagha Joshi*

Analysis of breast cancer data: a comparative study on different feature selection techniques

*Linda Ouerfelli, Kaouther Nouira and Ahmed Ferchichi*

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**Session B.12: Challenges and advances in measurement and self-parametrization of complex biological systems**

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**Chairman: Dipl-Ing. Jan Urban, Ph.D.**

CasANN: Targeted Identification of CRISPR Associated Gene Operons from Next Generation Sequences.

*Corey Hudson, Jerilyn Timlin and Kelly Williams*

Visible Aquaphotomics Spectrophotometry for Aquaculture Systems

*Vladyslav Bozhynov, Pavel Soucek, Antonin Barta, Pavla Urbanova and Dinara Bekkozhayeva*

Resolution, Precision, and Entropy as Binning Problem in Mass Spectrometry

*Jan Urban*

Discrimination between normal driving and braking intention from driver's brain signals

*Efrain Martinez Martinez, Luis Guillermo Hernandez Rojas and Javier Mauricio Antelis Ortiz*

Unsupervised Parametrization of Nano-Objects in Electron Microscopy

*Pavla Urbanova, Norbert Cyran, Pavel Soucek, Antonin Barta, Vladyslav Bozhynov, Dinara Bekkozhayeva, Petr Cisar and Milos Zelezny*

Trends in Online Biomonitoring

*Antonin Barta, Pavel Soucek, Vladyslav Bozhynov, Pavla Urbanova and Dinara Bekkozhayeva*

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## PLENARY LECTURE:

**Prof. Joaquin Dopazo**

Fundacion Progreso y Salud, Clinical Bioinformatics Research  
Area, Sevilla, Spain

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### Session A.13: Modelling biological and biomedical processes

*Chairman: Dr. Sabrina Silveira and Dr. Corey Hudson (tentative)*

An Interactive Strategy to Visualize Common Subgraphs in Protein-Ligand Interaction

*Alexandre V. Fassio, Charles Abreu Santana, Fabio R Cerqueira, Carlos H. Da Silveira, João P. R. Romanelli, Raquel C. Melo-Minardi and Sabrina Silveira*

Improving the performance of pathway extraction methods by infeasibilities removal

*Jose F Hidalgo, Francisco Guil and Jose M Garcia*

Development of multi-agent technology for prediction of the "structure-property" dependence of drugs on the basis of modified algorithms of artificial immune systems

*Samigulina Galina and Samigulina Zarina*

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### Session B.13: Biomedical Engineering (Part. IV)

*Chairman: Dr. Maria Taboada and Dr. Ibticeme Sedjelmaci (tentative)*

On the use of Decision Trees based on Diagnosis and Drug Codes for Analyzing Chronic Patients

*Cristina Soguero-Ruiz, Ana Alberca Diaz-Plaza, Pablo De Miguel Bohoyo, Javier Ramos-Lopez, Manuel Rubio-Sanchez, Alberto Sanchez-Campos and Inmaculada Mora-Jimenez*

Some False ECG Waves Detections Revised by Fractal Dimensions

*Ibticeme Sedjelmaci and Fethi Bereksi Reguig*

Eye Aspect Ratio based Blink Rate detection and its potential use for Parkinsons Disease

*Augusto Garcia-Agundez, Robert Konrad, Polona Caserman, Stefan Goebel and Tobias Ochs*

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### Session A.14: Computational genomics (Part. II)

*Chairman: Dr. Nora Kováts and Dr. Diego Hernán Peluffo Ordóñez*

Chloroplast genomes exhibit eight-cluster structuredness and mirror symmetry

*Michael Sadovsky, Maria Senashova and Andrew Malyshev*

Are Radiosensitive and Regular Response Cells Homogeneous in their Correlations Between Copy Number State and Surviving Fraction After Irradiation?

*Joanna Tobiasz, Najla Al-Harbi, Sara Bin Judia, Salma Majid, Ghazi Alsbeih and Joanna Polanska*

Prediction of functional connections from genomic distances in cyanobacteria

*Jose I. Labella, Javier Espinosa, Francisco Rodriguez-Mateo and Asuncion Contreras*

#### **Session B.14: Biomedicine/Bioinformatics for healthcare and diseases**

**Chairman: Dr. Zarina Samigulina (tent.) and Dr. Daniel Castillo**

Web based application for accurately classifying cancer type from microarray gene expression data using a support vector machine learning algorithm

*Shrikant Pawar*

Drug-Target Interaction Prediction Using Short-Linear Motifs

*Wenxiao Xu, Yixun Li, Luis Rueda and Alioune Ngom*

In vitro analysis of polymeric microspheres containing human vocal fold fibroblasts for regeneration of vocal fold lamina propria

*Alicia Reyes*

SARAEasy: A mobile app for Cerebellar Syndrome Quantification and Characterization

*Haitham Maarouf, Vanessa Lopez, Maria J Sobrido, Diego Martinez and Maria Taboada*

#### **Session A.15: Virtual Presentation**

**Chairman: Dr. Olga Valenzuela and Dr. Ignacio Rojas**

Gene-Gene Interaction Analysis: Correlation, Relative Entropy and Rough Set Theory Based Approach

*Sujay Saha, Sukriti Roy, Anupam Ghosh and Kashi Nath Dey*

A Transferable Belief Model decision support tool over complementary clinical conditions

*Abderraouf Hadj Henni, David Pasquier and Nacim Betrouni*

Inspecting the Role of PI3K/AKT Signaling Pathway in Cancer Development Using an In Silico Modeling and Simulation Approach

*Pedro Pablo Gonzalez-Perez and Maura Cardenas-Garcia*

Disease Control at Global Mass Gatherings: Modeling Spread of Infectious Diseases at the Arrival Stage of Hajj

*Sultanah Alshammari and Armin Mikler*

Prediction of Lung Cancer : Data Mining on Cohort DB of National Health Insurance Service in Korea

*Heechel Kim*

Classification of Breast Cancer Histopathological Images using KAZE features and Bag of Features

*Daniel Sanchez Morillo, Jesus Gonzalez and Julio Ortega*

Integration of omic strategies for biomarkers discovery and to elucidate the molecular mechanisms underlying Brugada Syndrome

*Domenica Scumaci, Antonio Oliva, Antonio Concolino, Antonio Curcio, Claudia Vincenza Fiumara, Laura Tammè, Oscar Campuzano, Vincenzo Pascali, Monica Coll, Anna Iglesias, Paola Berne, Gavino Casu, Pietroantonio Ricci, Ciro Indolfi, Josep Brugada, Ramon Brugada and Giovanni Cuda*

GPU-Low-Energy Tracking of the Left Ventricle in the Cloud

*Sidi Ahmed Mahmoudi, Mohammed Ammar, Mohammed Amin Belarbi and Amine Abbou*

Genomic Solutions to Hospital-Acquired Bacterial Infection Identification

*Max Garzon and Duy Pham*



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