

# **IWBBIO 2023**

**Gran Canaria (Spain)  
12th-14th July 2023**

## **IWBBIO-2023**

## **PROGRAM**

**11th-14th JULY, 2023  
Gran Canaria (SPAIN)**

# IWBBIO-2023 Program

Tuesday, July 11th, 2023

18:30-20:00	<b>REGISTRATION DESK</b> <i>(start at 18:30h but it is open during all the conference)</i>
18:30-20:00	<b>Upload the presentations to the room's computer (in case you haven't sent them by email).</b>

## NOTES:

- All **Sessions A** will be held in Hotel Lopesan Villa del Conde Resort. They are **face-to-face sessions**, and they will also be shared on-line by Zoom. The **plenary lectures** are in **Session A**.
- All **Sessions B** will be held on-line (virtual) using Zoom.
- Oral Presentation: **17 minutes** (including the questions). Depending on whether there are absent speakers, times may be adjusted.
- **Poster** authors are requested to place their posters on the panels before the start of the poster session (e.g. morning posters can be placed before 10 o'clock, before the coffee break, and afternoon posters before 16:00. They can be placed on any of the panels). The morning posters should be removed at 14:30 and the afternoon posters at 19:45. It is recommended to use **A0 size** and large fonts.



**Session A:** Located in the last floor of the main building.

**Wednesday, July 12, 2023**

8:30	<b>REGISTRATION DESK</b> <i>(start at 8:30h but it is open during all the conference)</i>	
	All Sessions A: Oral <u>face-to-face sessions</u> . All Sessions B: Oral (will be held on-line by Zoom)	
9:00-10:10	<b>Session A.1: E-Health and Computational Support for Clinical Decisions</b>	<b>Session B.1: Biomedical Engineering</b>
10:10- 11:00	<b>Session A.2: Biomarker Identification</b>	<b>Session B.2: Analysis of Molecular Dynamics Data in Proteomics</b>
11:00-11:40	<b>COFFEE BREAK</b>	
11:45-12:45	<b>Session A.P1: Opening &amp; Plenary Lecture.</b> <b>Dr. Sotirios Kiokias</b> European Research Executive Agency. Research Programme Manager. Chemistry Panel leader, Marie Skłodowska Curie Actions (MSCA)	
12:45-14:00	<b>Session A.3: Biomedical Engineering (Part I)</b>	<b>Session B.3: Computational Support for Clinical Decisions</b>
14:00-16:00	<b>REST BREAK</b>	
16:00-16:55	<b>Session A.4: Recent Advances in COVID 19</b>	<b>Session B.4: Image Visualization and Signal Analysis</b>
17:00-18:30	<b>Session A.5: Analysis of Molecular Dynamics Data in Proteomics</b>	<b>Session B.5: Machine Learning in Bioinformatics</b>

<b>Thursday, July 13th, 2023</b>		
8:30	<b>REGISTRATION DESK</b> <i>(start at 8:30h but it is open during all the conference)</i>	
	All Sessions A: Oral <u>face-to-face sessions</u> . All Sessions B: Oral (will be held on-line by Zoom)	
9:00-9:45	<b>Session A.6: Biomedical Engineering (Part II)</b>	<b>Session B.6: Biomarker Identification</b>
9:45- 10:45	<b>Session A.7: High-throughput genomics: bioinformatic tools and medical applications</b>	<b>Session B.7: New Computational Approaches in Biomedicine</b>
10:45-11:15	<b>COFFEE BREAK</b>	
11:15-12:15	<b>Session A.P2: Plenary Lecture.</b> <b>Prof. Ashok Mulchandani</b> <b>Professor at University of California. Pioneer Faculty of Bourns College of Engineering. Distinguished Professor. Bionanotechnology and Biosensors Group</b>	
12:15-14:00	<b>Session A.8: Image Visualization and Signal Analysis</b>	<b>Session B.8: New Advances in Bioinformatics and Biomedicine (Part I)</b>
14:00-16:00	<b>REST BREAK</b>	
16:00-16:55	<b>Session A.9: Sensor-Based Ambient Assisted Living Systems and Medical Applications</b>	<b>Session B.9: New Advances in Bioinformatics and Biomedicine (Part II)</b>
17:00-18:20	<b>Session A.10: Biomedical Computing</b>	
18:20 - 19:30	<b>Session A.11: POSTER SESSION (A)</b>	
20:30	<b>GALA DINNER</b> <b>Hotel Lopesan Baobab 5*</b> <b>(15 minutes walking from Hotel Lopesan Villa del Conde Resort)</b>	

**Friday, July 14th, 2023**

8:30	<b>REGISTRATION DESK</b> <i>(start at 8:30h but it is open during all the conference)</i>	
	All Sessions A: Oral <u>face-to-face sessions</u> . All Sessions B: Oral (will be held on-line by Zoom)	
9:00-10:10	<b>Session A.12: Machine learning in Bioinformatics and NGS</b>	<b>Session B.10: New Advances in Bioinformatics and Biomedicine (Part III)</b>
10:10- 11:00	<b>Session A.13: Feature Selection, Extraction, and Data Mining in Bioinformatics: Approaches, Methods and Adaptations</b>	
10:00 -14:30	<b>Session A.14: POSTER SESSION (B)</b>	
11:00-11:45	<b>COFFEE BREAK</b>	
11:45-12:45	<b>Session A.P3: Plenary Lecture.</b> <b>Prof. Alfredo Vellido</b> Universitat Politècnica de Catalunya. Full Professor. Department of Computer Science (CS).	
12:45-14:00	<b>Session A.15: Advanced in Bioinformatics</b>	

# IWBBIO 2023 PROGRAM

Wednesday, July 12, 2023

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## (9:00-10:10) Session A.1: E-Health and Computational Support for Clinical Decisions

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*Chairman: Dr. Francesco Fioranelli, Dr. Hanna Piotrkowska Wróblewska and Dr. Nuno Rosa*

Predicting and detecting coronary heart disease in patients using machine learning method (**Ref: 1758**)

*Michał Wos, Bartłomiej Kiczek and Bartłomiej Drop*

Deep Learning for Parkinson's Disease Severity Stage Prediction using a New Dataset (**Ref: 7587**)

*Zainab Maalej, Fahmi Ben Rejab and Kaouther Nowira*

Improved Long-term Forecasting of Emergency Department Arrivals with LSTM-based Networks (**Ref: 9307**)

*Carolina Miranda-Garcia, Alberto Garces-Jimenez, Jose Manuel Gomez-Pulido and Helena Hernandez-Martinez*

Measurement Of Acute Pain In The Pediatric Emergency Department Through Automatic Detection Of Behavioral Parameters: A Pilot Study (**Ref: 9753**)

*Letizia Bergamasco, Marco Gavelli, Carla Fadda, Emilia Parodi, Claudia Bondone and Emanuele Castagno*

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## (9:00-10:10) Session B.1: Biomedical Engineering

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*Chairman: Dr. Francisco Ortuño*

Motion control of a robotic lumbar spine model (**Ref: 1997**)

*Thuanne Paixão, Ana Beatriz Alvarez, Ruben Florez and Facundo Palomino-Quispe*

Improving Foetal Health Monitoring: A Review of the Latest Developments and Future Directions (**Ref: 4049**)

*Restuning Widiasih, Hasballah Zakaria and Siti Saidah Nasution*

Transparent Machine Learning Algorithms for Explainable AI on Motor fMRI Data (**Ref: 6449**)

*Jose Diogo Marques dos Santos, David Machado and Manuel Fortunato*

Analyzing dose parameters of Radiation Therapy Treatment Planning and Estimation of Second Cancer Risks (**Ref: 8632**)

*Irine Khomeriki, Lily Petriashvili, Maia Topeshashvili and Tamar Lominadze*

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**(10:10- 11:00) Session A.2: Biomarker Identification**

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*Chairman: Dr. Antonio Mucherino and Dr. Andrzej Kloczkowski*

Predicting Cancer Stage from Circulating microRNA: A Comparative Analysis of Machine Learning Algorithms (**Ref: 5616**)

*Sören Richard Stahlschmidt, Benjamin Ulfenborg and Jane Synnergren*

Osteopontin overexpression synergistically interacts with Aurora kinases overexpression, and is associated with tumor progression, early tumor recurrence, and poor prognosis in hepatocellular carcinoma (**Ref: 7684**)

*Zhong-Zhe Lin, I-Lun Tsai and Kuan-Yu Chen*

Gait Asymmetry Evaluation using FMCW Radar in Daily Life Environments (**Ref: 9807**)

*Shahzad Ahmed, Yudam Seo and Sung Ho Cho*

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**(10:10- 11:20) Session B.2: Analysis of Molecular Dynamics Data in Proteomics**

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*Chairman: Dr. Alfredo Vellido and Dr. Caroline König*

Recognition of conformational states of a G Protein-Coupled Receptor from molecular dynamic simulations using sampling techniques (**Ref: 2884**)

*Mario Alberto Gutiérrez Mondragón, Caroline König and Alfredo Vellido Alcacena*

Inter-helical residue contact prediction in  $\alpha$ -helical Transmembrane proteins using structural features (**Ref: 6505**)

*Aman Sawhney, Jiefu Li and Li Liao*

Structural Analysis of RNA-Binding Protein EWSR1 Involved in Ewing's Sarcoma through Domain Assembly and Conformational Molecular Dynamics Studies (**Ref: 8336**)

*Saba Shahzadi, Mubashir Hassan and Andrzej Kloczkowski*

Degree-normalization improves random-walk-based embedding accuracy in PPI graphs (**Ref: 6924**)

*Luca Cappelletti, Stefano Taverni, Tommaso Fontana, Marcin P. Joachimiak, Justin Reese, Peter Robinson, Elena Casiraghi and Giorgio Valentini*

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**(11:45-12:45) Opening Ceremony. Plenary Talk:  
Dr. Sotirios Kiokias**

European Research Executive Agency. Research Programme Manager. Chemistry Panel leader, Marie Sklodowska Curie Actions (MSCA).

Title of the presentation: EU funding opportunities of Horizon Europe. Marie Sklodowska Curie Actions (MSCA)

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**(12:45-14:00) Session A.3: Biomedical Engineering (Part I)**

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*Chairman: Dr. Andrzej Swierniak and Dr. Amita Barik*

Evolutionary games in modeling cancer metastases (**Ref: 2735**)

*Andrzej Swierniak, Katarzyna Hajdowska and Damian Borys*

Antimicrobial ceramic materials for biomedical implants (**Ref: 8536**)

*Julietta V. Rau*

Investigation of inclusion for localised characteristics from medical imaging datasets genotype-phenotype associations (**Ref: 6568**)

*Gabrielle Dagasso, Matthias Wilms and Nils Forkert*

Data Augmentation Techniques for Improving Biomedical Name Entity Recognition in Low-Resource Settings (**Ref: 6833**)

*Yiling Cao, Zhongguang Zheng and Lu Fang*



Portable MRI System Based on the Gradient-Free Imaging Technique (**Ref: 7317**)

*Boguslaw Tomanek, Aaron Purchase, Christopher Sedlock and Jonathan Sharp*

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**(12:45-14:00) Session B.3: Computational Support for Clinical Decisions**

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*Chairman: Dr. Francisco Ortuño*

Validation of Height-for-Age and BMI-for-Age Z-scores Assessment using Android-based Mobile Apps (**Ref: 1742**)

*Valerii Erkudov, Sergey Lytaev, Kenjabek Rozumbetov, Andrey Pugovkin, Azat Matchanov and Sergey Rogozin*

Systematic comparison of advanced network analysis and visualization of lipidomics data (**Ref: 3767**)

*Jana Schwarzerová, Dominika Olešová, Aleš Kvasnička, David Friedecký, Margaret Varga, Valentine Provazník and Wolfram Weckwerth*

Comparison of image processing and classification methods for a better diet decision-making (**Ref: 4206**)

*Maryam Abbasi, Pedro Martins and Filipe Cardoso*

A Machine Learning approach to predict brain abnormalities in preterm infants using clinical data (**Ref: 5481**)

*Arantxa Ortega Leon, Roa'A Khaled, María Inmaculada Rodríguez García, Daniel Urda and Ignacio Turias*

Ethical dilemmas, mental health, artificial intelligence and LLM based chatbots (**Ref: 5739**)

*Johana Cabrera, Soledad Loyola, Irene Magaña and Rodrigo Rojas*

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**(16:00-16:55) Session A.4: Recent Advances in COVID 19**

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*Chairman: Dr. Xiaohong WANG and Dr. Vicente Martínez*

Application of custom approaches for target enrichment of SARS-CoV-2 in nasopharyngeal swab for whole genome sequencing (**Ref: 3517**)

*Anna Gladkikh, Ekaterina Klyuchnikova, Valerya Sbarzaglia, Dmitrii Polev and Vladimir Dedkov*

Physiological polyphosphate: a new molecular paradigm in biomedical applications for human therapy (**Ref: 7038**)

*Prof. Dr. Werner E. G. Müller and Prof. Dr. Xiaohong Wang*

Quantitative EEG Findings in Outpatients with Psychosomatic Manifestations after COVID-19 (**Ref: 8024**)

*Sergey Lytaev, Nikita Kipaytkov and Tatayna Navoenko*

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**(16:00-16:55) Session B.4: Image Visualization and Signal Analysis**

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*Chairman: Dr. Aleksandr Sinitca and Dr. Lily Petriaschvili*

Digital Breast Tomosynthesis reconstruction techniques in healthcare systems: A review (**Ref: 5473**)

*Imane Samiry, Ilhame Ait Lbachir, Imane Daoudi, Saida Tallal and Sayouti Adil*

BCAnalyzer: A semi-automated tool for the rapid quantification of cell monolayer from microscopic images in scratch assay (**Ref: 7437**)

*Aleksandr Sinitca, Airat Kayumov, Pavel Zelenikhin, Andrey Porfiriev, Dmitrii Kaplun and Mikhail Bogachev*

Breast Cancer Histologic Grade Identification by Graph Neural Network Embeddings (**Ref: 8322**)

*Salvatore Calderaro, Giosuè Lo Bosco, Filippo Vella and Riccardo Rizzo*

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**(17:00-18:30) Session A.5: Analysis of Molecular Dynamics Data in Proteomics**

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*Chairman: Dr. Alfredo Vellido and Dr. Caroline Konig*

The Coherent Multi-Representation Problem with Applications in Structural Biology (**Ref: 1151**)

*Antonio Mucherino*

Prediction of Functional Effects of Protein Amino Acid Mutations (**Ref: 4683**)

*Óscar Álvarez-Machancoses, Eshel Faraggi, Enrique Deandrés-Galiana, Juan Fernández-Martínez and Andrzej Kloczkowski*

Computational study of conformational changes in intrinsically disordered regions during protein-protein complex formation (**Ref: 4804**)

*Amita Barik, Madhabendra Mohon Kar and Prachi Bhargava*

Conserved Water Networks Identification in Proteins Using Density Clustering Approaches on Positional and Orientational Data (**Ref: 1884**)

*Urban Bren, Marko Jukic, Jelena Tosovic and Domagoj Fijan*

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**(17:00-18:30) Session B.5: Machine Learning in Bioinformatics**

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*Chairman: Dr. Francisco Ortuño*

Stochastic model of infection with the SARS-COV-2 virus in a small group of individuals indoors (**Ref: 1100**)

*Igor Derevich and Anastasiia Panova*

An efficient algorithm for detecting mutually exclusive patterns across multiple sets of genomic mutations (**Ref: 2555**)

*Siyu He, Jiayin Wang, Zhongmeng Zhao and Xuanping Zhang*

Exploring machine learning algorithms and protein language models strategies to develop enzyme classification systems (**Ref: 3798**)

*Diego Fernández, Álvaro Olivera-Nappa, Roberto Uribe-Paredes and David Medina*

Relation Predictions in Comorbid Disease Centric Knowledge Graph Using Heterogeneous GNN Models (**Ref: 4664**)

*Saikat Biswas, Koushiki Dasgupta Chaudhuri, Pabitra Mitra and Krothapalli Sreenivasa Rao*

GPU Cloud architectures for bioinformatic applications (**Ref: 8985**)

*Antonio Maciá-Lillo, Tamai Rodríguez, Higinio Mora, Antonio Jimeno-Morenilla and Jose-Luís Sánchez-Romero*

Cyclical learning rates (CLR's) for improving training accuracies and lowering computational cost (**Ref: 9523**)

*Shrikant Pawar, Aditya Stanam, Anand Narayanan and Rushikesh Chopade*

Thursday, July 13th, 2023
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**(9:00-9:45) Session A.6: Biomedical Engineering (Part II)**

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*Chairman: Dr. Werner E. G. Müller and Dr. Vesna Rastija*

Annotation-free Identification of Potential Synteny Anchors (**Ref: 7451**)

*Karl-Kristian Kaether, Steffen Lemke and Peter F. Stadler*

Clinical text classification in Cancer Real-World Data in Spanish (**Ref: 3696**)

*Francisco J. Moreno-Barea, Héctor Mesa, Nuria Ribelles, Emilio Alba and Jose M. Jerez*

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**(9:00-9:50) Session B.6: Biomarker Identification**

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*Chairman: Dr. Francisco Ortuño*

The pathogenetic significance of miR-143 in atherosclerosis development (**Ref: 491**)

*Mikhail Lopatin, Maria Vulf, Maria Bograya, Anastasia Tynterova and Larisa Litvinova*

Significance of using of Liquid Biopsy for Guiding Therapy Decision in Cancer (**Ref: 770**)

*Omayma Mazouji, Hicham Mansour and Abdelhak Ouhajjou*

Complex Network and Artificial Intelligence combined approach to investigate Autism spectrum disorder through gene expression data (**Ref: 6114**)

*Antonio Lacalamita, Alfonso Monaco, Nicola Amoroso, Loredana Bellantuono, Alessandro Fania, Ester Pantaleo, Sabina Tangaro and Roberto Bellotti*

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**(9:45- 10:45) Session A.7: High-throughput Genomics: Bioinformatic Tools and Medical Applications**

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*Chairman: Dr. Jose Luis Oliveira*

A 20-year journey of tracing the development of web catalogues for rare diseases (**Ref: 4883**)

*João Almeida and José Luis Oliveira*

Unsupervised investigation of information captured in pathway activity score in scRNA-Seq analysis (**Ref: 5952**)

*Kamila Szumala, Joanna Polanska and Joanna Zyla*

Meta-analysis of gene activity (MAGA) contributions and correlation with gene expression, through GAGAM. (**Ref: 6258**)

*Lorenzo Martini, Roberta Bardini, Alessandro Savino and Stefano Di Carlo*

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**(9:55- 11:15) Session B.7: New Computational Approaches in Biomedicine**

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*Chairman: Dr. Francisco Ortuño*

Deep Learning for automatic electroencephalographic signals classification (**Ref: 3046**)

*Nadia N. Sánchez-Pozo, Samuel Lascano-Rivera, Francisco J. Montalvo-Marquez and Dalia Y. Ortiz-Reinoso*

Pharmacoinformatics Analysis of Drug Leads for Alzheimer's Disease from FDA-Approved Dataset through Drug Repos itioning Studies (**Ref: 4285**)

*Mubashir Hassan, Saba Shahzadi and Andrzej Kloczkowski*

MetaLLM: Residue-wise Metal ion Prediction Using Deep Transformer Model (**Ref: 6035**)

*Fairuz Shadmani Shishir, Bishnu Sarker, Farzana Rahman and Sumaiya Shomaji*

Predicting Papillary Renal Cell Carcinoma Prognosis Using Integrative Analysis of Histopathological Images and Genomic Data (**Ref: 7286**)

*Shaira Kee, Michael Aaron Sy, Samuel Border, Nicholas Lucarelli, Akshita Gupta, Pinaki Sarder, Marvin Masalunga and Myles Joshua Tan*

Assessing Temporal Stability of Heart Rate Variability Features for Predicting Adverse Cardiovascular Events in Hypertensive Patients (**Ref: 9515**)

*José María López Belinchón, Miguel Á. López and Raúl Alcaraz*

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**(11:15-12:15) Plenary Talk:**

**Prof. Ashok Mulchandani**

Professor at University of California. Pioneer Faculty of Bourns College of Engineering. Distinguished Professor.

## Bionanotechnology and Biosensors Group.

Title of the presentation: Towards ASSURED Diagnostics Using Paper-Microfluidic Integrated Chemiresistor Biosensor Arrays

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### (12:15-14:10) Session A.8: Image Visualization and Signal Analysis

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*Chairman: Dr. Veska Gancheva*

Correlation of tumor density and computed tomography response criteria to time to tumor progression of patients with advanced hepatocellular carcinoma receiving anti-angiogenic therapy in clinical trials (**Ref: 527**)

*Zhong-Zhe Lin and Po-Chin Liang*

Color Hippocampus Image Segmentation using Quantum Inspired Firefly Algorithm and Merging of Channel-wise Optimums (**Ref: 8290**)

*Alokeparna Choudhury, Sourav Samanta, Sanjoy Pratihar and Oishila Bandyopadhyay*

A pilot study of neuroaesthetics based on the analysis of electroencephalographic connectivity networks in the visualization of different dance choreography styles (**Ref: 8602**)

*Almudena González, Jose Melendez and Julian J González*

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The promise of deep learning-assisted multimodality medical image analysis (extended talk) (**Ref: 5233**)

*Habib Zaidi*

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### (12:15-14:00) Session B.8: New Advances in Bioinformatics and Biomedicine (Part I)

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*Chairman: Dr. Francisco Ortuño*

Genomic characterization and phylogenomic analyses of the Beta variant of SARS-CoV-2 circulated in Pakistan (**Ref: 272**)

*Nazia Fiaz, Imran Zahoor, Saima Mahad, Tahir Yaqub and Atia Basheer*

Whole tumor area estimation in incremental brain MRI using dilation- and erosion-based binary morphing (**Ref: 573**)

*Orcan Alpar and Ondrej Krejcar*

Trimeric receptor-binding domain of SARS-CoV-2 acts as a potent inhibitor of ACE2 receptor-mediated viral entry (**Ref: 691**)

*Parameswaran Ramakrishnan*

AI(Artificial Intelligence) Determination of Functional Ambulatory Category of Stroke Patients (**Ref: 788**)

*Shi-Uk Lee, Seong-Ho Jang, Youngkook Kim, Jeong-Hyun Kim and Chang Han Lee*

BodyFlow: A library for human pose estimation and activity recognition (**Ref: 3869**)

*Irene López-Bosque, Carlos Marañes-Nueno, Ana Caren Hernández-Ruiz, Rocío Aznar-Gimeno, Pilar Salvo-Ibañez, María de La Vega Rodríguez-Chamarro, David Abadía-Gallego and Rafael del-Hoyo-Alonso*

**(16:00-16:55) Session A.9: Sensor-Based Ambient Assisted Living Systems and Medical Applications**

*Chairman: Dr. Ivan Miguel Serrano Pires and Dr. Paulo Jorge Simões Coelho*

Smart Wearables Data Collection and Analysis for Medical Applications: A Preliminary Approach for Functional Reach Test (**Ref: 5477**)

*João Duarte, Luis Francisco, Ivan Miguel Pires and Paulo Coelho*

Using Digital Biomarkers for Objective Assessment of Perfusionists' Workload and Acute Stress during Cardiac Surgery (**Ref: 8802**)

*Roger Daglius Dias, Lauren Kennedy-Metz, Rithy Srey, Geoffrey Rance, Mahdi Ebnali, David Arney, Matthew Gombolay and Marco Zenati*

**(16:00-18:30) Session B.9: New Advances in Bioinformatics and Biomedicine (Part II)**

*Chairman: Dr. Marco Mesiti and Dr. Irene López Bosque*

Novel gene signature for Bladder Cancer Stage identification (**Ref: 1027**)

*Iñaki Hulsman, Luis Javier Herrera, Francisco Ortuño and Ignacio Rojas*

Three-dimensional representation and visualization of high-grade and low-grade glioma by Nakagami imaging (**Ref: 1799**)

*Orcan Alpar and Ondrej Krejcar*

Role of parallel processing in brain magnetic resonance imaging (**Ref: 2503**)

*Ayca Kirimtat and Ondrej Krejcar*

Identification of Novel Anti-inflammatory Agents by Molecular Docking Studies (**Ref: 2557**)

*Sadaf Naeem, Atia Shaheen and Sadaf Naeem*

Hybridization of Empirical Mode Decomposition and Machine Learning for Categorization of Cardiac Diseases (**Ref: 2666**)

*Saeed Mian Qaisar*

Quality of Life Analysis of Patients with Dermatological Problems: Teledermatology Versus Face-to-Face Dermatology (**Ref: 2785**)

*Antonio López-Villegas, Remedios López Liria and Maria Angeles Valverde-Martinez*

A System Biology and Bioinformatics approach to determine the molecular signature, core ontologies, functional pathways, drug compounds in between Stress and Type 2 Diabetes (**Ref: 4092**)

*Md. Abul Basar, Md. Rakibul Hasan, Bikash Kumar Paul, Khairul Alam Shadhin and Md. Sarwar Mollah*

EMCNN: Fine-Grained Emotion Recognition based on PPG using Multi-scale Convolutional Neural Network (**Ref: 4218**)

*Jiyang Han and Hui Yang*

MODULATION OF CYP1A1 AND CYP1B1 GENE EXPRESSION IN 3-METHYLCHOLANTHRENE-INDUCED PROSTATE CANCER BY AFRICAN PEAR FRUIT (DACRYODES EDULIS) IN WISTAR RATS. (**Ref: 4885**)

*David Omisore*

A Meta-Graph for the Construction of an RNA-centered Knowledge Graph (**Ref: 7008**)

*Emanuele Cavalleri, Sara Bonfitto, Alberto Cabri, Jessica Gliozzo, Paolo Perlasca, Mauricio Soto-Gomez, Gabriella Trucco, Elena Casiraghi, Giorgio Valentini and Marco Mesiti*

### **(17:00-18:20) Session A.10: Biomedical Computing**

*Chairman: Dr. Roderick Melnik*

Speeding up simulations for radiotherapy research by means of machine learning (**Ref: 2323**)

*Luis Javier Herrera, Ignacio Rojas, Francisco Carrillo Pérez, Alberto Guillen, Isabel Fernández and Carmen Ovejero*



Preliminary Results of Using the Tangram Meta-Heuristic for Virtual Screening in Drug Discovery (**Ref: 6563**)

*N.C. Cruz, S. Puertas-Martin, J.L. Redondo and P.M. Ortigosa*

Modelling of Anti-Amyloid-Beta Therapy for Alzheimer's Disease (**Ref: 8476**)

*Swadesh Pal and Roderick Melnik*

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**(18:20-19:30) Session A.11: POSTER SESSION (A)**

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*Chairman: Dr. Luis Javier Herrera*

Bayesian Molecular Dating Analyses Combined with Mutational Profiling Suggest an Independent Origin and Evolution of SARS-CoV-2 Omicron BA.1 and BA.2 Sub-Lineages (**Ref: 734**)

*Naveen Kumar, Rahul Kaushik, Ashutosh Singh, Vladimir N. Uversky, Kam Y. J. Zhang, Upasana Sahu, Sandeep Bhatia and Aniket Sanyal*

Comparison of VCFs generated from different software in the evaluation of variants in genes responsible for rare thrombophilic conditions (**Ref: 1236**)

*Radek Vrtel, Petr Vrtel and Radek Vodicka*

Developing a workflow to gain insights from scRNA-seq data for drug development : a case-study with human pancreatic adenocarcinoma (**Ref: 1267**)

*Octavio Morante-Palacios, Ester Gil Vazquez, Oleg Deryagin and Cecilia Klein*

Predictive model for Age-Related Macular Degeneration Response to Anti-VEGF treatment (**Ref: 1279**)

*Álvaro Pérez Sala, Rafael Pelaez, Ana Isabel Oca Lázaro, Ángela Villanueva Martínez and Ignacio M. Larráyoiz Roldán*

Targeted Next Generation Sequencing of a custom capture panel to target sequence 112 cancer related genes in breast cancer tumours ERBB2 positive from Lleida (Spain) (**Ref: 2083**)

*Ana Velasco, Izaskun Urdanibia and Serafín Morales*

Oral e-Health Monitoring Platform - a platform for sharing oral health data (**Ref: 2784**)

*Mónica Fernandes, Eduardo Esteves, Diogo Duarte, Marlene Barros, Nuno Rosa and André Correia*

Putative quadruplex forming sequences in plants: role, occurrence and possible interaction partners (**Ref: 2789**)

*Adriana Volná, Martin Bartas and Jiří Červeň*

Training Strategies for Covid-19 Severity Classification using Machine Learning and Heart Rate Variability Metrics (**Ref: 3356**)

*Daniel Pordeus Menezes, Pedro Ribeiro, Laíla Zacarias, João Madeiro, João Marques, Pedro Rodrigues, Camila Leite, Manoel Neto, Arnaldo Peixoto Jr and Adriel de Oliveira*

Medical X-ray Image Classification Method Based on Convolutional Neural Networks (**Ref: 4486**)

*Veska Gancheva, Tsviatko Jongov and Iwaylo Georgiev*

WATER DYNAMICS IN CHEESE BY MEANS OF NUCLEAR MAGNETIC RESONANCE RELAXOMETRY (**Ref: 4821**)

*Monika Małkowska-Kowalczyk, Justyna Żulewska, Adriana Lobacz, Maciej Maciejczyk and Danuta Kruk*

Bioinformatics for Transcription Factor Discovery at a Primarily Undergraduate Institution (**Ref: 5108**)

*Michael Van Dyke and John Barrows*

Deep learning systems for the classification of cardiac pathologies using ECG signals (**Ref: 5307**)

*Olga Valenzuela, Ignacio Rojas-Valenzuela, Fernando Rojas, Juan Carlos De la Cruz and Peter Gloesekoetter*

The effectiveness of quarantine in viral and bacterial epidemics: new evidence provided by the Covid-19 pandemic (**Ref: 5421**)

*Andreu Martínez-Hernández and Vicente Martínez*

The dark side of NCBI: Annotation artifacts across the RefSeq database (**Ref: 5608**)

*Martin Bartas, Jiří Červeň, Adriana Volná and Petr Pečinka*

Recent Advances in Discovery of New Tyrosine Kinase Inhibitors Using Computational Methods (**Ref: 6932**)

*Vesna Rastija and Maja Molnar*

Preliminary Study on the Identification of Diseases by Electrocardiography Sensors' Data (**Ref: 7246**)

*Rui João Pinto, Pedro Miguel Silva, Rui Pedro Duarte, Francisco Alexandre Marinho, António Jorge Gouveia, Norberto Jorge Gonçalves, Paulo Jorge Coelho, Eftim Zdravevski, Petre Lameski, Nuno Garcia and Ivan Miguel Pires*

Assessing bioinformatic tools for de novo assembly of nanopore sequencing data from human whole-genomes (**Ref: 7881**)

*Adrián Muñoz-Barrera, Víctor García-Olivares, Luis A. Rubio-Rodríguez, David Jáspez, José M. Lorenzo-Salazar, Rafaela González-Montelongo and Carlos Flores*

Modelling the survival kinetics of Salmonella spp. on the surface of ripened raw milk cheese during storage at different temperatures (**Ref: 8515**)

*Adriana Łobacz and Justyna Zulewska*

Eukaryotic topoisomerases of type IIA: cytoplasmic proteins? (**Ref: 9048**)

*Jiří Červeň, Martin Bartas and Petr Pečinka*

Investigating the Dynamics of Cancer Evolution: Variant Allele Frequency Patterns and Model Limitations (**Ref: 9284**)

*Paweł Kuś and Marek Kimmel*

Target NGS data analysis identifies the haplotype in LRRK2 gene as a potential risk factor for endemic parkinsonism (**Ref: 9396**)

*Radek Vodicka, Kristyna Kolarikova, Petr Kanovsky and Radek Vrtel*

The use of H-Scan ultrasound imaging to assess the re-sponse of breast cancer patients to neoadjuvant chemo-therapy (**Ref: 9863**)

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

Friday, July 14th, 2023
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**(9:00-10:10) Session A.12: Machine learning in Bioinformatics and NGS**

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*Chairman: Dr. Silvia BOTTINI and Dr. Radek Vrtel*

Machine learning combining multi-omics data and network algorithms identifies Adrenocortical carcinoma prognostic biomarkers (**Ref: 247**)

*Roberto Martin-Hernandez*

Competitive Analysis of 5 S AND 16 S bacterial RNA in the Phylogeny of bacteria (**Ref: 2158**)

*Michael Sadovsky and Yulia Ovchinnikova*

A Platform for the Study of Drug Interactions and Adverse Effects Prediction (**Ref: 5387**)

*Diogo Mendes and Rui Camacho*

Enabling real-time analysis of nanopore 16S rRNA sequencing data with NanoRTax (**Ref: 9662**)

*Héctor Rodríguez Pérez, Laura Ciuffreda and Carlos Flores*

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**(9:00-11:00) Session B.10: New Advances in Bioinformatics and Biomedicine (Part III)**

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*Chairman: Dr. Luis Javier Herrera and Dr. Francisco Ortuño*

Effect of the primary macroelements in the susceptibility to diseases: A Review (**Ref: 4962**)

*Grethel Lázara Sieiro Miranda, Alberto Nicolás González Marrero, Eida Luisa Rodríguez Lema and Mérida Rodríguez Regal*

Analysis of the organization of the structure of human genes depending on their tissue specificity (**Ref: 5581**)

*Sergey Slyusarev and Olga Lyangasova*

Uterine Cervix and Corpus Cancers Characterization through Gene Expression Analysis Using the KnowSeq Tool (**Ref: 5863**)

*Lucía Almorox, Luis Javier Herrera, Francisco Ortuño and Ignacio Rojas*

Predicting the Risk of Recurrence and Prognosis in Patients with Hepatocellular Carcinoma (**Ref: 6459**)

*Chi-Chang Chang*

A guide and mini-review on the performance evaluation metrics in binary segmentation of magnetic resonance images (**Ref: 6799**)

*Ayca Kiritat and Ondrej Krejcar*

ITRAQ-based proteomic analysis reveals potential osteogenesis-promoted role of ATM in strontium-incorporated titanium implant (**Ref: 7436**)

*Yuzi Xu, Yangbo Xu and Fuming He*

Selection Process of Phytochemicals and Efficacy of Thymol, Eugenol and Calcium Ferulate on Heterotrophic Plate Count Bacteria in Water (**Ref: 7653**)

*Humayun Wali and Muhammad Zafar*

Principaux facteurs de prise de poids pendant le confinement COVID-19 dans une population Marocaine : une étude transversale (**Ref: 8452**)

*Nourellyakine Lakhdar, Driss Lamri and Moulay Ouahidi*

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**(10:10- 11:00) Session A.13: Feature Selection, Extraction, and Data Mining in Bioinformatics: Approaches, Methods and Adaptations**

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Leveraging latent representation in metabolomics (**Ref: 331**)

*Evariste Njomgue-Fotso, Justine Labory, Youssef Boulaimen and Silvia Bottini*

Entropy approach of processing for fish acoustic telemetry data to detect atypical behavior during welfare evaluation (**Ref: 2926**)

*Jan Urban*

Determining HPV Status in Patients with Oropharyngeal Cancer from 3D CT Images Using Radiomics: Effect of Sampling Methods (**Ref: 4314**)

*Kubra Sarac and Albert Guvenis*

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**(10:00- 14:30) Session A.14: POSTER SESSION (B)**

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*Chairman: Dr. Ignacio Rojas*

HEALTH CARE AND DISEASES (**Ref: 2379**)

*Aditi Katake*

The Utilization of Click Reactions in Understanding the Structure and Function of IgE in Allergic Reactions (**Ref: 3365**)

*Parth Shinde, Yash Saini, Veeky Baths, Manas Mandal and Shounak Bhattacharya*

Radar Sensing in Healthcare: Challenges and Achievements in Human Activity Classification Vital Signs Monitoring (**Ref: 5617**)

*Francesco Fioranelli, Ronny Guendel, Nicolas Kruse and Alexander Yarovoy*

The effect of biofeedback on learning the wheelie position on manual wheelchair (**Ref: 5730**)

*Antonio Pinti*

Bioinformatics approaches to characterize the Monkeypox virus genomes from cases of the mid-2022 outbreak (**Ref: 7471**)

*Adrián Muñoz-Barrera, Laura Ciuffreda, Julia Alcoba-Florez, Luis A. Rubio-Rodríguez, Héctor Rodríguez-Pérez, Helena Gil-Campesino, Diego García-Martínez de Artola, Josmar Salas-Hernández, Julia Rodríguez-Núñez, Antonio Íñigo-Campos, Víctor García-Olivares, Oscar Díez-Gil, Rafaela González-Montelongo, Agustín Valenzuela-Fernández, José M. Lorenzo-Salazar and Carlos Flores*

Constructing a Stroke Diagnosis and Prognosis System Based on the BPN Algorithm Using Tc-99m-ECD SPECT images (**Ref: 7485**)

*Jui-Jen Chen, Hung-Nien Chang Chien and Yen-Hsiang Chang*

A Platform for the Radiomic Analysis of Brain FDG PET Images: Detecting Alzheimer's disease (**Ref: 9490**)

*Ramin Rasi and Albert Guvenis*

Detecting Intra Ventricular Haemorrhage in Preterm Neonates using LSTM Autoencoders (**Ref: 9647**)

*Idris Muniru, Jacomine Grobler and Lizelle Van Wyk*

Insulin sensitivity and Insulin Resistance and Diabetes prediction by applying artificial intelligence techniques on genes obtained from expression analysis differential (**Ref: 1590**)

*Jesús María González-Martín, Francisco Rodríguez-Esparragón, Bernardino Clavo, Laura Beatriz Torres-Mata, Sara Estefania Cazorla-Rivero and Estrella Gómez-Bentolila*

Agent based modeling of fish shoal behavior (**Ref: 2829**)

*Pavla Urbanova, Ievgen Koliada, Petr Cisar and Milos Zelezny*

Evaluation of homogeneity of effervescent tablets containing quercetin and calcium using X-ray microtomography and hyperspectral analysis (**Ref: 4874**)

*Michał Meisner, Piotr Duda, Beata Szulc-Musioł and Beata Sarecka-Hujar*

Modeling and Simulation of Multiphase Flow in Integrated Multitrophic Aquaculture Systems with Macroalgae: Application of CFD-DEM (**Ref: 5017**)

*Radomir Filip, Pavla Urbanova, Ingrid Masalo and Stepan Papacek*

The dilemma of choosing the best prediction model and feature engineering approach for heterogenous datasets. (**Ref: 5192**)

*Lukasz Piorecki and Joanna Polanska*

Identification of InhA-inhibitors interaction fingerprints that affect residence time (**Ref: 6973**)

*Magdalena Ługowska and Marcin Pacholczyk*

Optimizing Variant Calling for Human Genome Analysis: A Comprehensive Pipeline Approach (**Ref: 8458**)

*Miguel Pinheiro, Jorge Miguel Silva and José Luis Oliveira*

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## (11:15-12:15) Plenary Talk: Prof. Alfredo Vellido

Universitat Politècnica de Catalunya. Full Professor.  
Department of Computer Science (CS).

Title of the presentation: AI as a socialite: time to think about its  
impact in biomedicine

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## (12:45-14:00) Session A.15: Advanced in Bioinformatics

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*Chairman: Dr. João Paulo Madeiro*

Revealing the RBP regulome in hepatocellular carcinoma via consensus GRN inference (**Ref: 1853**)

*Mateusz Garbulowski, Riccardo Mosca, Carlos J. Gallardo-Dodd,  
Claudia Kutter and Erik L. L. Sonnhammer*

GeneCaRNA: A new world of non-coding RNAs for disease decipherment (**Ref: 2118**)

*Doron Lancet*

An Algorithm for Pairwise DNA Sequences Alignment (**Ref: 2271**)

*Veska Gancheva and Hristo Stoev*

Multiallelic Maximal Perfect Haplotype Blocks with Wildcards via PBWT (**Ref: 4398**)

*Paola Bonizzoni, Gianluca Della Vedova, Yuri Pirola, Raffaella Rizzi  
and Mattia Sgrò*