



**WORKSHOPS**  
**“CURRENT TRENDS IN**  
**BIOMEDICINE”**  
**2022**

**SEDE ANTONIO MACHADO**  
**BAEZA, SPAIN**

**FRONTIERS OF**  
**ARTIFICIAL INTELLIGENCE**  
**IN HEALTH CARE**

**Baeza, Spain • 14<sup>th</sup>-16<sup>th</sup> November 2022**





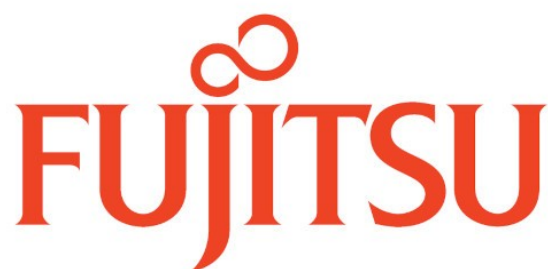
**Organized by:**

**Joaquín Dopazo**

Sevilla, Spain.

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**Sponsors:**



## SCOPE

It has been estimated that the whole medical knowledge doubles approximately every year and by the end of 2021 it will happen every 2 months. Nowadays the health system is one of the major data generators, which, in combination with the enhanced computing power is paving the way for a pervasive use of artificial intelligence (AI) to manage, interpret and generate new knowledge from biomedical data at an unprecedented scale. This disruptive transformation introduced by AI in medicine is beginning to have a strong impact at different levels. At health system level, by the potential for real world data (RWD) analysis to foster evidence-based decision support systems and policies; actually, the recent COVID-19 pandemic is an example of how AI can be used to optimize resources. For clinicians, by the ongoing success in the way medical image, including radiography, electrocardiograms, digital pathology, etc., is processed, providing rapid, accurate image interpretation for the new, and, in general, for the potential reduction of medical errors. Moreover, new ways to analyse genomic data allow better patient stratification and the identification of more accurate biomarkers. AI is opening new, yet unexplored avenues for generating biological and medical knowledge linking both, genetic variation and environment, to phenotypes by analyzing clinical and genomic Big Data together. However, most of these data are affected by data protection rules and reside within restricted access hospital environments, which has fostered the emergence of some imaginative recent proposals such as federate AI learners or the generation of highly realistic simulated patients based on deep learning networks. All these novelties brought about by AI are not exempt of limitations, including privacy and security issues, bias, and lack of interpretability, and will be discussed in this workshop along with the future directions of AI in biomedicine.



## **FORMAT OF THE WORKSHOP**

The workshop will bring together a maximum of 15 speakers and 35 participants, to form a group of around 50 people. The scientific programme will start in the morning of Monday, November 14<sup>th</sup>, and will end around noon on Wednesday, November 16<sup>th</sup>. Ample time for informal discussion will be reserved. Participants will be invited to present a poster.

## **VENUE OF THE WORKSHOP**

The workshop will be held in Baeza, at the “Sede Antonio Machado”, a XVII century building turned into a Conference Centre of the Universidad Internacional de Andalucía (UNIA). This Seat includes a residence, where participants will be accommodated. Baeza is a World Historic Heritage town, renowned for its Renaissance and Gothic buildings.

## **SPEAKERS**

**Bissan Al-Lazikani** Division of Cancer Medicine / Department of Genomic Medicine; The University of Texas, MD Anderson Cancer Center. Houston, TX, USA.

**Spyridon Bakas** Center for Biomedical Image Computing and Analytics (CBICA) / Department of Radiology and Department of Pathology and Laboratory Medicine, Perelman School of Medicine; University of Pennsylvania. Philadelphia, PA, USA.

**Rich Caruana** Microsoft Research Lab – Redmond. Redmond, WA, USA.



- Joaquín Dopazo** Clinical Bioinformatics Area, Fundación Progreso y Salud (FPS), CDCA / Computational Systems Medicine, Institute of Biomedicine of Seville (IBIS) / Bioinformatics in Rare Diseases (BiER), Centro de Investigación Biomédica en Red de Enfermedades Raras (CIBERER), FPS / FPS/ELIXIR-es; Hospital Virgen del Rocío. Sevilla, Spain.
- Smita Krishnaswamy** Departments of Genetics and Computer Science, Yale School of Medicine. New Haven, CT, USA.
- Karim Lekadir** Departament de Matemàtiques i Informàtica, Universitat de Barcelona, Artificial Intelligence in Medicine Lab (BCN-AIM). Barcelona, Spain.
- Bastian Rieck** Helmholtz Munich, Institute of AI for Health. Munich, Germany.
- María Rodríguez Martínez** Computational Systems Biology Group, IBM Research Europe – Zurich. Rüschlikon, Switzerland.
- Oliver Stegle** European Molecular Biology Laboratory, Genome Biology Unit / Division of Computational Genomics and Systems Genetics, German Cancer Research Center (DKFZ). Heidelberg, Germany.



**Mihaela van der Schaar** The Alan Turing Institute. London / Cambridge Centre for Artificial Intelligence in Medicine; Department of Applied Mathematics and Theoretical Physics and Department of Population Health, University of Cambridge. Cambridge; UK / Department of Electrical and Computer Engineering, University of California Los Angeles. Los Angeles, CA, USA.

**Jean-Philippe Vert** Google Brain / Mines Paris PSL. Paris, France.

**Jean-Daniel Zucker** Unité de Modélisation Mathématique et Informatique des Systèmes Complexes, UMMISCO. Bondy, France.

**DEADLINE: 16<sup>th</sup> SEPTEMBER 2022**

**MORE INFORMATION AND APPLICATION:**

**<http://www.unia.es/biomedicine>**

**[workshops.biomed@unia.es](mailto:workshops.biomed@unia.es)**

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