

Organizers:
Paulo J Oliveira
(Coimbra, Portugal)
Catarina R Oliveira
(Coimbra, Portugal)



Coimbra, Portugal, 22-24 May 2019



Symposium 5 | Bioinformatics and Machine Learning in Biomedicine

Organizer: Ernesto Costa (Coimbra, Portugal)
Francisco Pereira (Coimbra, Portugal)
Armindo Salvador (Coimbra, Portugal)
Alex Freitas (Kent, UK)

Day: Wednesday 22 afternoon and Thursday 23 morning
Meeting room: Meeting Room Petipa, Hotel Vila Galé (Congress venue 1)

Wednesday, 22 May

14.00-16.00 **Session 1: Bioinformatics and Machine Learning in Biomedicine I**

Chairs: Ernesto Costa (Coimbra, Portugal)
Natal van Riel (Eindhoven, Netherlands)

S5-L1 | Machine Learning and Bioinformatics for Ageing Research
Alex Freitas (University of Kent, UK)

S5-O1 | Evolving meaning: Using Genetic Programming to learn similarity perspectives for mining biomedical data

Rita Sousa¹, Sara Silva¹, Catia Pesquita¹

¹LASIGE, Faculdade de Ciências da Universidade de Lisboa, Lisboa, Portugal

S5-O2 | Automatic Instance-edge Detection Network (AID-Net) - Vertebral Edge Detection by Deep Learning

Mr. Richard, Yan Chak Li¹, Mr. Nick Jing Wei Chin¹, Dr. Yi Xiang Wang^{2,3}, Prof. Richard, Hau Yue So¹

¹The Hong Kong University of Science and Technology, Clear Water Bay, Hong Kong, ²The Chinese University of Hong Kong, Shatin, Hong Kong, ³Prince of Wales Hospital, Shatin, Hong Kong

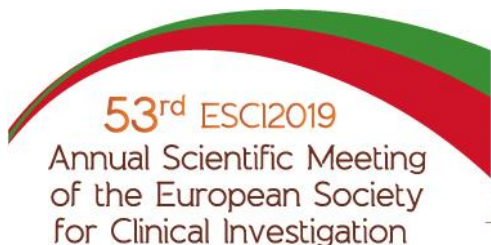
S5-L2 | Predicting Glucose in Diabetic Patients Using Structured Grammatical Evolution
Nuno Lourenço (Coimbra, Portugal)

16:00-16:30 Coffee-break

16.30-18.00 **Session 2: Bioinformatics and Machine Learning in Biomedicine II**

Chairs: Francisco Pereira (Coimbra, Portugal)
Teresa Oliveira (Coimbra, Portugal)

S5-L3 | Predicting disease progression in Amyotrophic Lateral Sclerosis using Machine Learning: Learning from longitudinal data using time windows and progression patterns
Sara Madeira (Lisbon, Portugal)



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S5-O3 | Data Mining Applied to the Varicocele Condition

Judith Santos Pereira¹, Ana Paula Sousa², João Ramalho-Santos³, Jorge Bernardino⁴

¹ISEC, Polytechnic Institute of Coimbra, Coimbra, Portugal, ²Biology of Reproduction & Stem Cell Group, Center for Neuroscience and Cell Biology, University of Coimbra, Reproductive Medicine Unit, Centro Hospitalar e Universitário de Coimbra, Coimbra, Portugal, ³Biology of Reproduction & Stem Cell Group, Center for Neuroscience and Cell Biology, University of Coimbra, Department of Life Sciences, University of Coimbra, Coimbra, Portugal, ⁴ISEC, Polytechnic Institute of Coimbra, CISUC, University of Coimbra, Coimbra, Portugal

S5-L4 | Predicting acute kidney injury and clinical deterioration in hospital inpatients

Chris Farmer (University of Kent, UK)

18.00 - 19.00	Opening Ceremony
19.00 - 20.00	Opening lecture by a Key-note speaker
20.00 - 21.00	Welcome drink
21.00 - 22.00	Champions League in Biomedicine and Experimental Biology

Thursday, 23 May

08.30-10.00 Session 3: Bioinformatics and Machine Learning in Biomedicine III

Chairs: Armindo Salvador (Coimbra, Portugal)
Nuno Lourenço (Coimbra, Portugal)

S5-L5 | Integrated machine learning and mechanistic modelling of Metabolic Syndrome development and dynamics

Natal van Riel (Eindhoven, Netherlands)

S5-O4 | Rational design of enzymes for biopolymer synthesis

Alexandra Teresa Pires Carvalho¹, Beatriz Columbano Almeida, Pedro Figueiredo

¹CNC – Center for Neuroscience and Cell Biology, Institute for Interdisciplinary Research (IIIUC) University of Coimbra 3004-504, Coimbra, Portugal, Cantanhede, Portugal

S5-L6 | Discovering Low-Energy Atomic Clusters with Machine Learning

Francisco Pereira (Coimbra, Portugal)

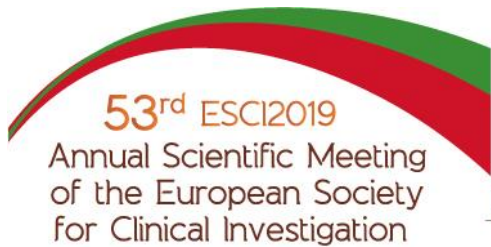
10:00-10:30 Coffee-break

10.30-12.30 Session 4: Bioinformatics and Machine Learning in Biomedicine IV

Chairs: Alex Freitas (Kent, UK)
Chris Farmer (Kent, UK)

S5-L7 | The impact of Bioinformatics and Machine Learning in drug discovery

Joel Arrais (Coimbra, Portugal)



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S5-05 | Uncovering hidden patterns in biological datasets to identify metabolic alterations caused by acute and sub-chronic DOX treatments

Rute Pino¹, Teresa Cunha-Oliveira², Filipa Carvalho², Rita Garcia², Ana Burgeiro², Rui A. Carvalho², Paulo J. Oliveira², Nuno Lourenço¹

¹CISUC, University of Coimbra, Coimbra, Portugal, ²CNC, Center for Neuroscience and Cell Biology, UC Biotech, Biocant Park, Cantanhede, Portugal

S5-06 | Modelling the metabolic heterogeneity over the cell division cycle towards metabolic flux rate quantification – a ¹³C-Metabolic Flux Analysis approach

Ines Miranda-Santos¹, Elmar Heinzle², Armindo Salvador¹

¹Center for Neurosciences and Cell Biology/University of Coimbra, Coimbra, Portugal, ²Biochemical Engineering/University of Saarland, Saarbrücken, Germany

S5-L8 | Artificial Intelligence Application to Drug Development

Irina Moreira (Coimbra, Portugal)