



11th to 12th | November 2022

Escola Superior de Tecnologia da Saúde do Politécnico de Coimbra
Rua 5 de Outubro, 3046-854 Coimbra (Latitude 40°11'52.6"N | Longitude 8°27'39.5"W.)

KEY DATES

- Early bird – 31st July
- September 30th – Abstract(s) submission deadline
- October 10th – Notification of acceptance
- **October 17th** – Deadline for registration with reduced fee

FEES

Include access to all conferences, round tables, lectures, special sessions and exhibition area; access to coffee breaks and work lunch.

The society dinner is not included in the meeting registration fee.

	Until July 31 st	Until October 12 th	After October 17 th
SPFis student member*	0 €	25 €	50 €
SPFis regular member	50 €	65 €	100 €
Student non-member**	50 €	75 €	100 €
Non-member	75 €	120 €	150 €

* only for current members; proof of student status is mandatory

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Other Sponsors



THE PORTUGUESE PHYSIOLOGICAL SOCIETY

2nd INTERNATIONAL MEETING

Institutional science partners



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ABSTRACT SUBMISSION TOPICS	
- Neurophysiology - Locomotion / Exercise / Muscle / Active Living - Heart, Circulation and Respiration - Renal and Urinary physiology - Gastrointestinal physiology - Endocrine, Reproduction and Development - Skin Physiology - Integrative physiology - Methods and Models - Education - Other (miscellaneous)	
OTHER INFORMATION	
Abstract submission deadline SEPTEMBER 30th exclusively ONLINE. Accepted abstracts will be published in an open access abstract book (<i>e-book with a DOI</i>). Only accepted abstracts from registered authors will be published. The organization will decide the presentation form for each submission. Two Special Topics related to this meeting are being edited by <i>Frontiers in Physiology</i>: “Physiological education: preparing for the future” https://www.frontiersin.org/research-topics/45000/physiological-education-preparing-for-the-future “Emerging topics in human physiology” https://www.frontiersin.org/research-topics/44998/emerging-topics-in-human-physiology	
AWARDS AND DISTINCTIONS	
Best Science Award - meant to distinguish innovation and societal impact in physiology education and research - by Physiologia from MDPI The Young Scientist Travel Award is supporting four young scientists attending the meeting as authors – by the Journal of Physiology (<i>check how to apply</i>)	
ORGANIZATION AND SCIENTIFIC COORDINATION	
Sofia Fernandes SPF Board, CBIOS U Lusófona Adelino Leite Moreira Dep. Surgery and Physiology, FM U Porto Carlos Filipe SPF Board, Institute Physiology NOVA Medical School Carmen Brás Silva Dep. Surgery and Physiology, FM U Porto Cristina Sena SPF Board , Instituto de Fisiologia FM U Coimbra Diana Cunha-Reis SPF Board, BIOISI FCUL Emanuel Carvalho-Dias Paediatric Surgery & Human Physiology, ICVS U Minho	Hugo Ferreira SPF Board, IBETE, FCUL Hugo Plácido da Silva SPF Board, IT-IST, U Lisboa Inês Falcão Pires Dep. Surgery and Physiology, FM U Porto Jorge Correia Pinto Pediatric Surgery & Human Physiology, ICVS, U Minho Luis Monteiro Rodrigues SPF Board, CBIOS U Lusófona Telmo Pereira ESTeSC, LABINSAUDE IP Coimbra
FINAL PROGRAM	
Friday November 11 th	
08:45	Welcome, Registration
09:45-12:30	Workshop 1 "Exploring biosignals using BITalino" (pre registering required) by PLUX
11:00-12:30	Workshop 2 “new tools to explore hypoxia” (pre registering required) by TypeSolution
14:00-14:30	Opening session with the presence and interventions of: H.Ex. The President of the Instituto Politécnico de Coimbra and the Director of the Escola Superior de Tecnologia da Saúde H.Ex. The Minister of Ciência, Tecnologia e Ensino Superior (represented) H.Ex. Susan Wray, Int Union Physiological Societies and Federation of European Physiological Societies (FEPS) President L. Monteiro Rodrigues, Chairman of SPFIS
14:30-15:30	Invited Lectures “Physiology in EUROPE” - Susan Wray (UK) FEPS and IUPS President “New strategic direction in the US to improve physiology teaching and learning” - Erica Werhwein (USA) PMIG Director Break - visit to exhibitors and posters
16:30-18:00	Seminar I <i>Teaching Physiology</i> Moderators: Vicente Martinez Perea -The Spanish Physiological Society and Carlos Nunes Filipe - Nova Medical School “Human Physiology in the Portuguese higher education system – a current view” L. Monteiro Rodrigues et al., CBIOS Lisboa, U.Lusofona “Clinical Physiology in Portugal – a recent history” Telmo Pereira, ESTeSC, I.P.Coimbra “Novel pedagogical tools in the teaching of medical physiology – is new always better?” Diogo Santos Ferreira, Dep. Surgery and Surgery & UnIC@RISE, Fac. Medicine, U.Porto “Human vs. machine learning: enhancing student metacognition via the active learning of physiology” Jorge Ascensão Oliveira, Dep Pharmacology, Fac. Pharmacy-U.Porto “Implementation of physiology and pathophysiology teaching in a novel Portuguese undergraduate medical curriculum” André Leite-Moreira, U.Aveiro Dep Medical Sciences Round table and open discussion
18:00	Closure
20:00	Society Meeting Dinner (business dress)

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Presenting author profile

Jorge Ascensão Oliveira (PharmD, PhD) coordinates Physiology and Neuroscience units at the Faculty of Pharmacy, University of Porto, where he Presides the Pedagogical Council. He leads the Mitochondria and Neurobiology Lab at UCIBIO - Applied Molecular Biosciences Unit. Jorge is an European Certified Pharmacologist and a trained Data Scientist. He was distinguished with several Pedagogical Awards from the U.Porto (Excellence in e-learning, Pedagogical Excellence, and Pedagogical Innovation).

Title

Human vs. Machine Learning: enhancing student metacognition via the active learning of Physiology

Abstract text

While machines outperform human associative memory, education should emphasise metacognition – including emotional intelligence. Physiology learning provides ample opportunity for cognitive development. Indeed, an updated mechanistic understanding of human body function and its dynamic regulation requires metacognition (awareness and understanding of thought processes, to self-assess, monitor and improve by self-regulation). This study implemented an assessment-based strategy to foster metacognition while students learn Physiology. Pharmaceutical Sciences students self-assessed their interest in Physiology and study strategies (Survey-1); monitored their skills in weekly formative tests (ForTes - including a self-prediction of score and percentile); and received counselling on active study techniques. Students reported their study adaptations in Survey-2; and were rewarded for accurate predictions of performance in Exams. Anonymised data from ForTes and surveys were analysed with R language to compute statistics and perform machine learning (ML). Unsupervised ML of Survey-1 identified 3 student clusters with different levels of motivation and study, which associated with different Exam scores. A supervised ML model trained with ForTes predicted Exam failures with over 90% accuracy, and the actual Exam scores (0-20) with error under 2 points. Analysis of ForTes over time evidenced significant improvements in students' metacognitive ability to accurately self-assess, despite being challenged with different questions about different Physiological systems over time. Moreover, the frequent report of study adaptations in Survey-2 supports widespread metacognitive regulation. This study provides evidence-based support for enhanced student metacognition and suggests that ML models can accurately predict student failure, enabling early counselling towards success. This study also emphasises the need for authentic assessment to promote Physiological skills.