HOSPITAL DA LUZ
LEARNING HEALTH
TRAINING, RESEARCH & INNOVATION CENTER

Artificial Intelligence in Healthcare

Season 3.0

December 12, 2024 to July 24, 2025

Webinar
Broadcasted from Hospital da Luz Lisboa auditorium

Programme

2024

1st Session | **December 12**
Broadcasted from Hospital da Luz Lisboa auditorium 2

Open gen AI for the Portuguese language
António Branco

2025

2nd Session | **January 23**
Broadcasted from Hospital da Luz Lisboa auditorium 1

Data science in a radiology department
Liliana Lourenço Caldeira

3rd Session | **February 27**
Broadcasted from Hospital da Luz Lisboa auditorium 2

Let's Cooperate - Human-Centered AI for Robust Applications in Healthcare
Catarina Barata

4th Session | **March 27**

AI in Public Administration - The case of DGS
André Peralta Santos

5th Session | **April 24**

BioLLMs for AI-driven Drug Discovery
Telmo Felgueira

6th Session | **May 22**

Towards a Medical Superintelligence: Human Reasoning, Language Model "Reasoning," and the Race Towards a Strange New Type of Collaboration
Adam Rodman

7th Session | **June 26**

Computational technologies in healthcare research and innovation – Challenges, opportunities and perspectives
Rebecca Shipley

8th Session | **July 24**
Broadcasted from Hospital da Luz Lisboa auditorium 2

Artificial Intelligence in Medical Image Analysis: Considerations, Applications, and Challenges
Ricardo Vigário

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Speakers

Adam Rodman

Is a general internist and medical educator at Beth Israel Deaconess Medical Center and an assistant professor at Harvard Medical School. He is the Director of AI Programs for the Carl J. Shapiro Center for Education and Research, and he leads the steering group for integration of AI into the medical school curriculum. He is also an associate editor at NEJM AI. His research focuses on medical education, clinical reasoning, integration of digital technologies, and human-computer interaction, especially with AI. His first book is entitled "Short Cuts: Medicine," and he is the host of the American College of Physicians podcast Bedside Rounds.

Adam completed his residency in internal medicine at Oregon Health and Science University in Portland, OR, and his fellowship in global health at Beth Israel Deaconess Medical Center while practicing in Molepolole, Botswana. He lives in Boston with his wife and two young sons.

André Peralta Santos | MD, MPH, PhD

Is the Deputy Director-General of the Direção-Geral da Saúde and an Adjunct Assistant Professor at Escola Nacional de Saúde Pública. He holds a PhD in Global Health from the University of Washington (2023) and was a Fulbright Scholar. He also has a Master's in Public Health from Universidade Nova de Lisboa (2017) and completed a postgraduate program in Clinical Scholars Research Training at Harvard Medical School, as part of the Harvard Medical School Portugal program (2015). Additionally, he graduated in Medicine from Universidade Nova de Lisboa in 2009.

Professionally, Dr. Peralta Santos has held significant roles, including Chair of the OECD PaRIS Project Working Group and Service Director of Information and Analysis at the Direção-Geral da Saúde from September 2020 to September 2021. He has also served as an Adjunct Assistant Professor, where he coordinated areas related to data science and statistics. He is a specialist in Public Health and an Assistant in the Public Health Medical Career. His international experience includes internships at the World Health Organization and the European Commission (DG SANTE).

António Branco | University of Lisbon, Portugal

Is a scientist whose research is devoted to AI and its subarea of Natural Language Processing. He is the leader of the research team that is pioneering Large Language Models of Generative AI for the Portuguese language that are open source, license and distribution, including the Albertina family (encoders), Gervásio family (decoders) and Serafim family (sentence embedders).

He is the Director General of PORTULAN CLARIN Research Infrastructure for the Science and Technology of Language.

He is also an Honorary President of ELRA Language Resources Association, after having been its President (2018-20, 2020-22) and he is a professor at the University of Lisbon, Faculty of Sciences, Department of Informatics, as well as the Head of its NLX - Natural Language and Speech Group.

Catarina Barata | Instituto Superior Técnico (DEEC) e Instituto de Sistemas e Robótica/LARSyS

Holds a Msc Degree in Biomedical Engineering and a PhD in Electrical and Computer Engineering (Instituto Superior Técnico - IST - 2011 and 2017 respectively). In the Fall of 2022, she was a Visiting Scholar at Carnegie Mellon University. Presently, she is a tenure-track Assistant Professor at the ECE Department of IST and a Researcher at Institute for Systems and Robotics (ISR), where she is a member of the Computer and Robot Vision Laboratory (VisLab). Her main research interests are in the interface between machine learning, computer vision, and healthcare, where she has been collaborating and leading various projects together with hospitals and other healthcare institutions. An example is her work on the discovery of therapeutic biomarkers for melanoma, for which she received a Google Research Award in 2021. She is currently the PI of two FCT funded projects focused on multimodal AI systems in healthcare: OptSurgAI and MMIST.

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Liliana Lourenço Caldeira | University Hospital of Cologne, Germany

Is a team leader at the University Hospital of Cologne, where she leads her team in innovative data science research in the field of radiology. The team focuses on the development and implementation of AI algorithms using 3D medical images such as computed tomography (CT) and magnetic resonance imaging (MRI). The team is part of the radiology department and supports the creation of high quality datasets and the evaluation of AI algorithms. She studied Biomedical Engineering at the University of Lisbon and during her PhD she worked between Portugal and Germany in collaboration with Siemens Healthineers. She then worked as a postdoctoral researcher at Forschungszentrum Jülich, where she conducted research in the field of PET/MR.

Rebecca Shipley | University College London and UCLPartners

Professor Rebecca Shipley expertise lies in computational modelling in healthcare as well as healthcare innovation. She has pioneered model-based techniques to better understand how diseased and damaged tissues function and repair, including in cancer and nerve injury, as well as data-driven models in physiology and digital health technologies. She is a passionate advocate for healthcare engineering and the translation of scientific discoveries into practice. During the pandemic, Rebecca co-led the UCL-Ventura programme, which delivered non-invasive ventilators in the UK and globally. Rebecca led the UCL Institute of Healthcare Engineering during between 2018 and -2024 and now is Chief Research Officer at UCLPartners.

Ricardo Vigário

Professor Ricardo Vigário is an Associate Professor in the Department of Physics at FCT NOVA, where he coordinates the undergraduate program in Biomedical Engineering, as well as the UNL branch of the LIBPhys research center. He holds a degree in Technological Physics, a Master's in Medical Physics and Biomedical Engineering (both from FCUL), and a PhD in Computer Science from the Helsinki University of Technology.

For three decades, he has been active in teaching and research in the areas of machine learning and biomedical data analysis, with clinical applications including electrophysiological signals and medical imaging. He is the author of over 100 peer-reviewed scientific publications and has been listed since 2019 in Stanford University's "Top 2% Most Influential Scientists in the World" in his areas of expertise.

For two decades, he was a faculty member and researcher at Aalto University (Finland), leading a group in neuroinformatics. He has also been a visiting professor in Berlin, Graz, and Grenoble, and has supervised several researchers, including 1 postdoctoral fellow, 5 PhD students, and over 35 master's students.

Telmo Felgueira

Holds a Master's in Electrical and Computer Engineering and has been working in the machine learning industry for the past six years. He's currently ML Team Lead at Loka, an AWS Partner for Life sciences and GenAI, leading projects on the application of Biological Large Language Models (BioLLMs) for AI-driven Drug Discovery. An expert in deep learning, probabilistic modelling and time series, Telmo also passionately contributes to education as an instructor at the Lisbon Data Science Academy and organizer of PyData Lisbon.

Biological Large Language Models (BioLLMs) are a new class of LLMs that interpret DNA, RNA, proteins, and chemical molecules as language. This presentation will first provide an overview of the existing landscape of BioLLMs, explaining the architecture of models like ESM and MolFormer by drawing parallels to their natural language counterparts. Then, it will dive into how BioLLMs are being leveraged for AI-driven drug discovery for both predictive and generative use cases by focusing on applications such as variant effect prediction and drug-target interaction.