

ESSO Course on Artificial Intelligence in Healthcare-Interactive Workshop for Surgeons and Radiologists

22-23 May 2026

Lisbon, Portugal

In partnership with Champalimaud Foundation & Humanitas University

Chairs (physicians)

Pedro Gouveia, Champalimaud Foundation, Lisbon, PT

Giuseppe Catanuto, Humanitas University -Istituto Clinico Catanese Misterbianco, IT

Chairs (technicians)

Tiago Marques, Champalimaud Foundation, Lisbon, PT

João Santinha, Champalimaud Foundation, Lisbon, PT

Faculty members (tbc)

Maria Batrakova, Champalimaud Foundation, Lisbon, PT

Maria João Cardoso, Champalimaud Foundation, Lisbon, PT

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Yasna Forgani, Champalimaud Foundation, Lisbon, PT

Nuno Loução, Champalimaud Foundation, Lisbon, PT

Paolo Oliva, Humanitas Research Hospital, Milan, IT

David Pinto, Champalimaud Foundation, Lisbon, PT

Francesco Pappalardo, University of Catania, Catania, IT

Rafaela Timóteo, Champalimaud Foundation, Lisbon, PT

Programme

Friday 22 May

08:40 – 09:00	Welcome and introduction <i>Andrea Decensi - Breast Unit Director at Champalimaud Foundation</i>
09:00 – 09:30	Basics of machine learning and deep learning <i>T. Marques</i>
09:30 – 09:45	Introduction to Computer Vision and Applications <i>T. Marques</i>

09:45 – 10:00 Datasets, and best practices to train AI models
S. D'Amico

10:00 -10:30 *Coffee Break*

10:30 – 11:00 **Lecture: AI in Healthcare**
P. Gouveia

11:00 – 13:00 **Workshop**

11:00 – 12:00: 3D Slicer and Imaging segmentation tools
J. Santinha

12:00 – 12:30: Creating 3D digital patient Specific models for surgical planning in 3D Slicer
J. Santinha

12:30 – 13:00: Basic of CAD/CAM - 3D Printing
P.Oliva

13:00 – 14:00 *Lunch break*

14:00 – 14:30 Generative AI and Agentic AI in healthcare
M. Batrakova

14:30 – 15.30 **Workshop** AI Agents (I)
M. Batrakova, P. Gouveia

15.30-16:00 *Coffee Break*

16:00 – 16:20 Avatars and Digital twins
T. Marques

16:20 – 16:40 Extended reality and breast cancer
R. Timóteo

16:40 – 17:30 **Workshop**
Digital Surgery LAB and XR headsets

Saturday 23 May

08.30 – 09:30 **Workshop** AI Agents (II)
M. Batrakova, P. Gouveia

09:30 – 09:45 Emulation of historical trials about breast conserving surgery vs. mastectomy with synthetic cohorts trained on contemporary SEER database
G. Catanuto

- 09:45 – 10:00 In silico simulation of immune response to humanized monoclonal antibody immunotherapy in TNBC breast cancer with a mechanistic model
G. Catanuto
- 10:00 – 10:30** **Coffee break**
- 10:30 – 11:30 **Workshop** AI Agents (III)
M. Batrakova, P. Gouveia
- 11:30 – 11:45 Immersive environments for surgical patients
D. Pinto
- 11:45 – 12:00 The Cinderella Project
M J. Cardoso
- 12:00 – 12:20 The surgeon in research: what makes the difference in a scientific career
M J. Cardoso
- 12:20 – 12:35 Model Credibility and Regulation in Healthcare: Mechanistic Modeling, Simulation, and AI-Based Systems
F. Pappalardo
- 12:35 – 12:45 Final remarks, future projects
All course Chairs