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

9-10 April 2027
Milan, IT

In partnership with Champalimaud Foundation & Humanitas University

Chairs

Giuseppe Catanuto, Humanitas University & Humanitas Istituto Clinico Catanese-Misterbianco, IT
Pedro Gouveia, Champalimaud Foundation, Lisbon, PT

Faculty members (tbc)

Gianluca Asti, Humanitas Research Hospital, Milan, IT
Sara Baccino, Humanitas Research Hospital, Milan, IT
Maria Batrakova, Champalimaud Foundation, Lisbon, PT
Ennio Bolondi, Humanitas Research Hospital, Milan, IT
Saverio D'Amico, Humanitas Research Hospital, Milan, IT
Paolo Oliva, Humanitas Research Hospital, Milan, IT
Elena Zazzetti, Humanitas Research Hospital, Milan, IT

Programme

Friday 9 April

08:30 – 09:00 **Registration & welcome coffee**

09:00 – 09:10 **Welcome & Opening**
P. Gouveia, G. Catanuto

09:10 – 09:30 **Opening keynote: From algorithms to agents – what every surgeon and radiologist needs to know**
P. Gouveia

09:30 – 09:50 **Keynote: A Digital-Twin Immune-System Simulation Predicts Response to Neoadjuvant Chemo-Immunotherapy in Triple-Negative Breast Cancer**
G. Catanuto

09:50 – 10:10 **Keynote: Artificial Intelligence in Cancer: real-world applications, challenges and opportunities**
S. D'Amico

10:10 – 10:50 **Keynote: AI-Generated Synthetic Data and Clinical Validation for RWE and Clinical Trials**
S. D'Amico, S. Baccino

10:50 – 11:10 *Coffee break*

11:10 – 11:35 **Innovation Lab: from imaging to patient-specific 3D models** – segmentation, 3D printing and applications in surgical planning and training, biological scaffolds for soft tissue repair
Humanitas Innovation Lab + All faculty

11:35 – 12:15 **Hands-on Lab 2 – Humanitas 3D Innovation LAB:** from imaging to patient-specific 3D models–segmentation, 3D printing and applications in surgical planning and training biological scaffolds (showcase)
Humanitas Innovation Lab + All faculty

12:15 – 12:30 **Emerging needs in medical training the MED-TEC double degree at Humanitas University**

12:30 – 12:45 **Master's Degree in Data analytics in Health Sciences**

12:45 – 13:00 **Students or Alumni of MEDTEC**

13:00 – 14:30 *Lunch*

14:30 – 16:00 **Hands-on Lab 3 – Parallel specialty tracks**

- **Track A – Radiology:** detection and segmentation tools, reading AI outputs, testing a commercial tool on a curated case set
- **Track B – Surgery:** 3D reconstruction and planning, surgical video analysis, AI-assisted patient journey

16:00 – 16:30 *Coffee break*

16:30 – 16:50 **Lecture Title tbc**

16:50 – 17:45 **Hands-on Lab 4 – Synthetic data generation and AI Virtual Assistant application to clinical practice**
E. Zazzetti, G. Asti, Ennio Bolondi, S. D'Amico

17:45 – 18:00 **Wrap-up, hackathon briefing & team formation**
P. Gouveia, M. Batrakova

18:00 **3D Innovation LAB & Simulation Center**
Humanitas Innovation Lab + All faculty

Saturday 10 April

No-code Medical Hackathon – From Clinical Pain Point to Working Prototype

09:00 – 09:20 **Welcome & AI Foundations**
LLMs, AI agents

09:20 – 09:40 **Prompting & AI Design**
System instructions, prompting, context engineering and multimodality

09:40 – 10:00 **From Clinical Problem to Prototype**
From clinical problem to use case: workflow, user, goals and success criteria

10:00 – 11:00 **Healthcare AI Sprint**
No-code build of a working prototype

11:00 – 11:30 Coffee break

11:30 – 12:00 **Test, Improve & Make it Safe**
Edge cases, critical evaluation, privacy, safety and human oversight

12:00 – 12:15 **Final Prototype & Pitch Preparation**
Finalise the prototype and prepare the demo

12:15 – 12:50 **Demo & 2-Minute Pitches**
Problem → Demo → Evidence → Safety → Next Step

12:50 – 13:00 **Awards & Closing**
Jury decision, certificates and close of the workshop