

Biophotonics Artificial Intelligence School

2nd edition of the **Biophotonics & Artificial Intelligence School**

4-8 September 2023 – Firenze

Program

Monday 4th September 2023

11:00-11:30	Welcome to the school
11:30-12:50	Stefano Diciotti (UniBo) <i>Introduction to Artificial Intelligence</i>
13:00-14:00	Lunch
14:00-14:50	Chiara Marzi (UniFi) <i>Mastering the art of Machine Learning: best practices and beyond</i>
15:00-18:00	Simone Marinai (UniFi) <i>Clustering and unsupervised learning</i>

Tuesday 5th September 2023

08:30-11:00	Alessandro Mecocci (UniSi) <i>Unveiling the AI Landscape: Algorithms, Models, and Techniques</i>
11:00-11:30	Coffee Break
11:30-12:10	Sara Tombelli (IFAC-CNR) <i>Functional and biomimetic molecules in optical biosensing: artificial intelligence approaches for their selection and target-binding prediction</i>
12:10-12:50	Cosimo Trono (IFAC-CNR) <i>Optical biosensing: conventional methods and contribution from Artificial Intelligence</i>
13:00-14:00	Lunch
14:00-14:40	Michela Baccini (UniFi) <i>A statistical introduction to machine learning</i>
14:50-15:30	Chiara Marzi (UniFi) <i>Unleashing the power of effective Machine Learning validation</i>
15:30-18:00	Datathon

Wednesday 6th September 2023

08:30-10:30	Alessandro Mecocci (UniSi) <i>Unveiling the AI Landscape: Algorithms, Models, and Techniques</i>
10:30-11:00	Coffee Break
11:00-11:40	Andrea Farina (IFN-CNR, PoliMi) <i>Computational Imaging for biomedical optics: applications to multispectral fluorescence lifetime imaging and diffuse optical tomography</i>
11:50-12:30	Simone Berneschi (IFAC-CNR) <i>Paradigm shift in optical microcavity-based sensing by Artificial Intelligence</i>
12:30-13:30	Lunch
13:30-14:10	Riccardo Cicchi (INO-CNR) <i>Advanced optical microscopy and imaging techniques</i>
14:20-15:30	Tiago Azevedo (Uni of Cambridge) <i>Explainable boosted trees for biophotonic data</i>
15:30-18:00	Datathon

Thursday 7th September 2023

08:30-10:30	Pietro Liò (Uni of Cambridge) <i>Generative and diffusion models in bioinformatics and medicine</i>
10:30-11:00	Coffee Break
11:00-11:40	Elisa Michelini (UniBo) <i>From biosensors to internet of biosensors</i>
11:50-12:30	Giacomo Mazzamuto (INO-CNR) <i>Large-scale imaging and feature extraction using advanced high-resolution microscopy techniques</i>
12:30-13:30	Lunch
13:30-14:10	Elisabeth Kugler (Zeeks Art for Geeks Ltd) <i>Biomedical Image Analysis and AI</i>
14:20-15:00	Kristen M. Meiburger (PoliTo) <i>Photoacoustic image reconstruction using deep learning</i>
15:00-18:00	Datathon

Friday 8th September 2023

08:30-09:30	Alberto Diaspro (UniGe, IIT) <i>The artificial microscope</i>
09:30-10:30	Team -Work Presentations
10:30-11:00	Coffee Break
11:00-12:30	Team -Work Presentations
12:30-13:30	Best Team - Work Award and Closing Remarks