

THE PROMISES AND DARK SIDES OF  
**ARTIFICIAL INTELLIGENCE  
IN NMR, MRI AND NEUROSCIENCE**



---

**WORKSHOP ARTIFICIAL INTELLIGENCE IN NMR, MRI AND NEUROSCIENCE**

**Programma:**

**Focused introduction to deep learning for biomedical applications**

**Andrea Duggento** – University of Rome Tor Vergata (Italy)

**Hardware and sequence design through AI**

**Keynote Lectures**

***"Potential and potential pitfalls of AI for the diagnostic MRI pipeline"***

**Florian Knoll** – NYU Langone Health (United States)

***"Deep Designed RF"***

**Jongho Lee** – Seoul National University (Republic of Korea)

***"Artificial Intelligence in RF Pulse Design: from High Resolution NMR to Imaging"***

**Manu Veliparambil Subrahmanian/Gianluigi Veglia** – University of Minnesota (United States)

***"Optimal and DeepControl in MRI pulse sequence"***

**Mads Sloth Vinding** – Aarhus University (Denmark)

**AI for image analysis and statistical inference**

**Keynote Lectures**

***"Deep Learning for Dynamic MRI Reconstruction"***

**Chen Qin** - The University of Edinburgh (United Kingdom) -"

***"Artificial Intelligence in MRI: from raw data to analysis"***

**Daniel Remondini / Gastone Castellani** – Bologna University (Italy)

***"Self-Supervised Natural Image Reconstruction and Rich Semantic Classification from Brain Activity"***

**Guy Gaziv** - Weizmann Institute of Science (Israel)

***"Machine Learning Applications to Microstructure Imaging through Diffusion MRI"***

**Marco Palombo** – University College London (United Kingdom) -

***"A Deep Graph Neural Network Architecture for rs-fMRI Data"***

**Tiago Azevedo** – University of Cambridge (United Kingdom) -

THE PROMISES AND DARK SIDES OF  
**ARTIFICIAL INTELLIGENCE**  
**IN NMR, MRI AND NEUROSCIENCE**



**"Robust estimation of cerebral oxygen metabolism with machine learning"**

Mike Germuska – Cardiff University (United Kingdom)

**"Brain MRI segmentation and reconstruction. A Deep Learning perspective"**

Giovanna Maria Dimitri – Università degli Studi di Siena (Italy)-

***Overcoming the challenges of data paucity in deep learning for Neuroimaging***

Simeon Spasov – University of Cambridge (United Kingdom)-"

**Interpretability and Explainability**

---

Keynote Lectures

**"Explainable and Robust Deep Learning for Medical Domain"**

Paul Rad – The University of Texas at San Antonio (United States) -

***Explaining Explanation Methods: from LIME to DoctorXAI***

Riccardo Guidotti– University of Pisa (Italy)

***Quo vadis Europe? A comparative outlook at proposed explainability regulation"***

David Schneeberger– University of Vienna (Austria)

**Current challenges and future perspectives**

---

***"Interpretability and Explainability in Machine Learning: lesson learnt, challenges and directions from a NLP perspective"***

Roberto Basili – University of Rome Tor Vergata (Italy)

***"Current challenges and future perspectives of machine learning techniques in medical imaging"***

Stefano Diciotti – Bologna University (Italy)-

***"Clinician-in-the-loop AI: for a fairer model of clinical knowledge exploitation"***

Fabio Massimo Zanzotto – University of Rome Tor Vergata (Italy) -

THE PROMISES AND DARK SIDES OF  
**ARTIFICIAL INTELLIGENCE**  
**IN NMR, MRI AND NEUROSCIENCE**



AI for neuroscience and clinical applications

---

**Keynote Lectures**

***"Impact of AI and deep learning on imaging of neurodegenerative diseases"***

**Duygu Tosun-Turgut** – San Francisco Veterans Affairs Medical Center  
(United States) -

***"Artificial Intelligence in Cancer Imaging"***

**Hugo Aerts** – Harvard Medical School, Boston (United States)

***"Artificial intelligence for early diagnosis and clinical decision making in neurodegenerative disorders"***

**Federica Agosta** – Vita-Salute San Raffaele University (Italy)

***"AI for psychiatric imaging: promises and challenges"***

**Hugo G. Schnack** – UMC Utrecht (Netherlands)

***"Machine Learning on MRI of Breast Cancer"***

**Maryellen L. Giger** – The University of Chicago (United States)

***"Dissecting the progression of multiple sclerosis through explainable ML techniques"***

**Allegra Conti** – University of Rome Tor Vergata (Italy) -

***"A Machine Learning Framework for Assessing the Effect of Prematurity on MRI Metrics of Functional Connectivity and Regional Brain Structure"***

**Antonio Maria Chiarelli** – G. D'Annunzio University (Italy) -

***"Improving Advanced Imaging Workflows with AI"***

**Patrick Bolan** – University of Minnesota (United States) -

***Clinical Applications of AI in Diagnostic Imaging***

**Tommaso Banzato** – University of Padova (Italy) - "

***Predictive models from metabolomic data"***

**Claudio Luchinat** – University of Florence (Italy) - "

# THE PROMISES AND DARK SIDES OF ARTIFICIAL INTELLIGENCE IN NMR, MRI AND NEUROSCIENCE



## INFORMAZIONI GENERALI

---

**PROVIDER:** Biomedica – 148

**N. ECM:** 312964

### OBIETTIVI FORMATIVI E AREA FORMATIVA

Innovazione tecnologica: valutazione, miglioramento dei processi di gestione delle tecnologie biomediche, chimiche, fisiche e dei dispositivi medici. Health Technology Assessment

### PROFESSIONI E DISCIPLINE ACCREDITATE

Tecnico Sanitario Di Radiologia Medica, Fisico, Medico Chirurgo (Tutte le Discipline); Odontoiatra; Chimico; Terapista Della Neuro E Psicomotricità Dell'età Evolutiva; Tecnico Della Riabilitazione Psichiatrica; Tecnico Della Prevenzione Nell'ambiente E Nei Luoghi Di Lavoro; Tecnico Di Neurofisiopatologia

**ORE DI FORMAZIONE** 20

**CREDITI:** 30 crediti ECM

**VALIDITÀ:** dal 19 febbraio 2021 al 31 marzo 2022

**LINK DI ISCRIZIONE AL CORSO:** <https://bvent.biomedica.net/s/3096>

## SEGRETERIA ORGANIZZATIVA

---

**Biomedica Srl**  
Via Libero Temolo 4  
20126 Milano  
[Chiara.riva@biomedica.net](mailto:Chiara.riva@biomedica.net)