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EVENTS CONGRESS&COMMUNICATION

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3rd edition

# ARTIFICIAL INTELLIGENCE FOR ONCOLOGY

PRESIDENT OF THE CONFERENCE

## ARSELA PRELAJ

MILAN, ITALY

## 8-9 MAY 2025

& ONLINE

Fondazione IRCCS Istituto Nazionale dei Tumori

Sistema Socio Sanitario
Regione Lombardia

POLITECNICO MILANO 1863

# OVERVIEW

The AI for Oncology Conference aims to equip participants with a comprehensive understanding of how advanced AI technologies are transforming cancer care and research. As AI innovation accelerates, its applications in oncology are becoming essential across the spectrum of diagnosis, treatment, and research. From integrating diverse datasets, such as multiomics, imaging, and clinical data, to advancing diagnostic precision, AI is enabling the discovery of patterns that traditional methods often overlook.

Participants will explore how AI-driven platforms are improving the integration of data, leading to more accurate diagnostics and personalized treatment approaches for cancers such as lung, breast, and colorectal cancers. Innovations in radiomics and digital pathology will also be highlighted, showcasing how AI enhances the analysis of imaging data and histopathology, particularly for challenging cancers like pancreatic, liver prostate, and head and neck tumors.

The conference will further delve into the role of AI in optimizing clinical research, from designing clinical trials to refining targeted therapies and immunotherapies.

Case studies will illustrate how AI is driving advances in cancer care, including applications in melanoma, NSCLC, and ovarian cancers, where predictive algorithms can identify the best treatment regimens, from adaptive radiation therapy to chemotherapy or immunotherapy dosing. The integration of Large Language Models and Foundation Models offers new ways to analyze clinical data, providing real-time, evidence-based recommendations that assist oncologists in selecting the most effective therapies, whether hormonal treatments for breast cancer or targeted/immunotherapy drugs for NSCLC or unknown primary tumors.

Additionally, the conference will emphasize the need for collaboration across healthcare providers, researchers, and industry partners, underscoring how such partnerships enhance diagnostic accuracy and treatment delivery for various cancer types, including breast, lung, and gastrointestinal cancers. Ultimately, the conference will provide a platform for participants to gain insights into cutting-edge AI advancements and how they can be applied to improve cancer diagnosis, treatment, and patient outcomes across a range of cancer types.

The shared knowledge and diverse experiences will enable clinicians, researchers, and technologists to further develop and implement innovative AI solutions in oncology.

# FORMAT

The event will cover two days. The speakers will have a diverse background to reflect the spectrum of Artificial Intelligence research (and beyond), from Artificial Intelligence engineering experts, to clinicians and translational researchers, and hybrid figures such as clinical Artificial Intelligence specialists. Faculty members represent worldwide centers of excellence in the field. The attendance is expected to mirror this variety, along with participants with a more specific background in imaging and pathology.

The conference also includes poster sessions, with prizes for the best posters in various AI fields. Participants will also be encouraged to participate to a call for abstracts, with the opportunity to present their work in flash talks during the symposium.

## PRESIDENT OF THE CONFERENCE

**Arsela Prelaj**, *MD, PhD*
*Medical Oncologist, Thoracic Oncology Unit, Department of Oncology and Hemato-Oncology Fondazione IRCCS Istituto Nazionale Tumori, Milano, PhD in Bioengineering and Artificial Intelligence, Politecnico di Milano, Member of the ESMO Working Group on Real World Data and Digital Health*

## SCIENTIFIC COMMITTEE

**Filippo de Braud**
*Fondazione IRCCS Istituto Nazionale Tumori, Milano*

**Alessandra Pedrocchi, Francesco Trovò, Vanja Miskovic**
*Politecnico di Milano, DEIB*

## SCIENTIFIC SECRETARIAT

**Giovanni Scoazec, Miriam Fink, Marco Meazza, Cecilia Silvestri, Andrea Spagnoletti**
*Fondazione IRCCS Istituto Nazionale Tumori, Milano*

**Margherita Favali, Alberto Ferrarin, Chiara Giangregorio, Aleksandra Zec**
*Politecnico di Milano, DEIB*

SCIENTIFIC PROGRAM
## 08 MAY 2025

**09:00** ***POSTER SESSION***

**10:00** Welcome
ARSELA PRELAJ
FILIPPO DE BRAUD
*Director – Department of Oncology and Hemato-Oncology, Fondazione IRCCS Istituto Nazionale dei Tumori*
GIOVANNI APOLONE
*Scientific Director, Fondazione IRCCS Istituto Nazionale dei Tumori*
GUSTAVO GALMOZZI
*President - Fondazione IRCCS Istituto Nazionale dei Tumori*
CARLO NICORA
*General Director, Fondazione IRCCS Istituto Nazionale dei Tumori*

1 SESSION

## DATA-DRIVEN MODELS AND PLATFORMS

*Chairs:* FRANCESCO TROVÒ, SOKOL KOSTA, LAURA MAZZEO

**10:20** Data-Driven Models in Oncology: Employing Real and Synthetic Data
FRANCISCO SANCHEZ-VEGA, *USA*

**10:40** APOLLO 11: a biodata-driven model for lung cancer patients treated with targeted and immunotherapies
LEONARDO PROVENZANO, *Italy*

**10:50** Discussion

**11:05** AIDA - A triple helix ecosystem for imaging diagnostics
CLAES LUNDSTRÖM, *Sweden*

**11:25** Federated learning and Swarm Learning for decentralized data sharing: hype or new horizon?
DANIEL TRUHN, *Germany*

**11:45** Use Case: ODELIA - A Retrospective Analysis of MRI Data for Breast Cancer Screening
OLIVER SALDANHA, *Germany*

**11:55** Discussion

**12:15** Lunch Break

2 SESSION

## SPECIAL SESSION: LITERACY AND EDUCATION

*Chairs:* EMILIA AMBROSINI, EUGENIO SANTORO, ANDREA SPAGNOLETTI

**13:15** Interpreting AI outputs: explanations for patients and carers, from discovery to therapeutic decisions
ALESSANDRA PEDROCCHI, *Italy*

**13:30** Use Case: Codecision-making tools for improving patients' choices in larynx and NSCLC patients treated with immunotherapy
GABRIELLA PRAVETTONI, *Italy*

**13:45** Discussion

**13:55** Guidelines and metrics for image analysis validation
EVANGELIA CHRISTODOLOU, *Germany*

**14:10** From Code to Care: Ethics and Legal and Medical Device Regulation Pathways
CARLO ROSSI CHAUVENET, *Italy*

**14:25** Empowering AI research: how Nature Portfolio Supports Innovative AI Publications
LORENZO RIGHETTO, *UK*

**14:40** Discussion

**14:50** ***KEYNOTE LECTURE***
LARGE LANGUAGE MODELS
JAKOB NIKOLAS KATHER, *Germany*

*Chairs:* FEDERICA CORSO, ARSELA PRELAJ

**15:20** Discussion

**15:35** **Best abstracts - Oral Presentation 1**
**15:45** Discussion
**15:55** Coffee Break

3 SESSION

## AI IN CLINICAL RESEARCH

*Chairs:* **ROBERTO FERRARA, SABINA SANGALETTI, LUCA INVERNIZZI**

**16:20** AI-driven biomarkers:
how to incorporate and validate them in clinical trials
**MIHAELA ALDEA**, *USA*

**16:35** Enhancing the Impact of Real-World Data
in Oncology through AI
**MASSIMO DI MAIO**, *Italy*

**16:50** The role of AI in Molecular Tumor Boards
the point of view of clinicians
**FILIPPO DE BRAUD**, *Italy*

**17:00** Use Case:
How LLMs can help assist Molecular Tumor Boards
**LOÏC VERLINGUE**, *France*

**17:10** Discussion

**17:20** AI for cancer drug discovery in the era of
immunotherapy and targeted therapy
**MARINA GARASSINO**, *USA*

**17:40** Use case:
The CURATE.AI algorithm for treatment
response assessment and personalised dosing
**DEAN HO**, *ASIA*

**17:45** Discussion

**18:00** Important Announcement

**18:10** ***POSTERITIVO (Poster Session with aperitif)***

SCIENTIFIC PROGRAM
**09 MAY 2025**

**09:00** ***POSTER SESSION***

**10:00** *KEYNOTE LECTURE*
**FOUNDATION MODELS AND COPILOTS IN DIGITAL PATHOLOGY**
**FAISAL MAHMOOD**, *USA*

*Chairs:* **GIACOMO BORACCHI, ARSELA PRELAJ**

**10:30** Discussion

**10:45** Awards

4 SESSION

## AI FOR IMAGING

*Chairs:* **ALESSANDRO CICCHETTI, GIUSEPPE VISCARDI, NICOLA FUSCO**

**11:00** Digital pathology:
where are we in clinical cancer practice?
**ALEXANDER T. PEARSON**, *USA*

**11:20** Use Case:
Digital pathology for liver cancer and
immunotherapy prediction
**JULIEN CALDERARO**, *France*

**11:30** Discussion

**11:40** Radiomics:
where are we in clinical cancer practice?
**RAQUEL PÉREZ-LOPEZ**, *Spain*

**12:00** **Best abstracts - Oral Presentation 2**

**12:10** Use Case:
AI applied to image-guided radiation therapy in
colorectal cancer
**LUCA BOLDRINI**, *Italy*

**12:20** Discussion

**12:30** Lunch Break

5 SESSION

## MULTIMODAL

*Chairs:* **LUCA AGNELLI, MONICA GANZINELLI, MARCELLO RESTELLI**

**13:30** Overcoming Data Integration Challenges
in Addressing Immunotherapy Heterogeneity
**SOHRAB SHAH**, *USA*

**13:50** AI-Driven Multiomic Science for
Predictive Cancer Therapy
**MIREIA CRISPIN ORTUZAR**, *UK*

**14:10** Explaining embedded multimodal data in oncology
**JANA LIPKOVA**, *USA*

**14:40** I3LUNG: how to select 1st line immunotherapy
in NSCLC patients
**VANJA MISKOVIC**, *Italy*

**14:50** **Best abstracts - Oral Presentation 3**

**15:00** Discussion

NO CME SESSION

## INDUSTRY & COMPANY SYMPOSIUM

*Chairs:* **MARTA BRAMBILLA, MARIO OCCHIPINTI, CLAUDIA PROTO, DIEGO SIGNORELLI**

**15:10** Talk 1

**15:20** Talk 2

**15:30** Talk 3

**15:40** Talk 4

**15:50** Discussion

**16:00** **BEST POSTER AWARDS**
Presented by:
**TERESA BENINATO**
**ALESSANDRO DE TOMA**
**GIUSEPPE LO RUSSO**
Announcement of the winners

**16:20** **PARTING WORDS**
**ARSELA PRELAJ**

# GENERAL INFORMATION

## CONGRESS VENUE

**Aula Magna,** ***Fondazione IRCCS Istituto Nazionale Tumori***
Via Giacomo Venezian, 1 - 20133 Milano

## REGISTRATION

Registration is free of charge.
You may register for IN-PERSON OR ONLINE-ONLY ACCESS
**www.events-communication.com/event/aiforoncology2025/**

## OFFICIAL LANGUAGE AND TIME

The official language is English
The official Time is Central European Summer Time (CEST), UTC +2

## CME CREDITS

CME accreditation (valid for Italian participants only) for: Medical Doctor, Chemist, Pharmacist, Biologist, Physician, Nurse. CME credits required Italian CME credits will be granted to those participants who attend at least 90% of scientific works, fill in the questionnaire assessment of perceived quality and duly fill in the evaluation questionnaires answering correctly 75% of the questions.

## CALL FOR ABSTRACT

The call for abstract is open, don't miss the opportunity to submit your paper!
The Scientific Committee welcomes the submission of abstracts.

## TOPIC AREAS:

1. **AI-Driven Imaging: Advances in Radiology and Digital Pathology** (Covers AI applications in medical imaging)
2. **Multi-Omic Integration and Analysis** (Focuses on AI methodologies for integrating and analyzing genomic, transcriptomic, proteomic, and other omic data togather with neural networks)
3. **Large Language Models and Natural Language Processing in Oncology** (Explores the use of LLMs and NLP for medical text analysis, clinical decision support, and other oncological applications)
4. **Multimodal AI: Integrating Data for Cancer Insights** (Highlights approaches combining imaging, omics, clinical, and other data for comprehensive cancer analysis)
5. **Patient-Centered AI and Quality of Life Monitoring and Outcomes Prediction** (Covers AI tools for monitoring quality of life, symptom management, and patient-reported outcomes)
6. **Innovations in AI for Cancer Research and Clinical Practice** (An open category for cutting-edge and emerging AI applications in oncology not covered in other categories)

## SUBMISSION DEADLINES:

| | |
|---|---|
| 08th December 2024 | OPEN CALL |
| 03rd February 2025 | SUBMISSION DEADLINE |
| 04th March 2025 | OUTCOME NOTIFICATIONS |

**ONLINE SUBMISSIONS**

# INVITED SPEAKERS

**Luca Agnelli**, Fondazione IRCCS Istituto Nazionale dei Tumori, Milano, Italy
**Emilia Ambrosini**, Politecnico di Milano DEIB, Milano, Italy
**Mihaela Aldea**, Dana-Farber Cancer Institute, Boston, USA
**Teresa Beninato**, Fondazione IRCCS Istituto Nazionale dei Tumori, Milano, Italy
**Luca Boldrini**, Policlinico Gemelli, Rome, Italy
**Giacomo Boracchi**, Politecnico di Milano DEIB, Milano, Italy
**Marta Brambilla**, Fondazione IRCCS Istituto Nazionale dei Tumori, Milano, Italy
**Julien Calderaro**, Henri Mondor Hospital, Créteil, France
Evangelia Christodolou, German Cancer Research Center DKFZ, Germany
**Alessandro Cicchetti**, Fondazione IRCCS Istituto Nazionale Tumori, Milano, Italy
**Federica Corso**, Fondazione IRCCS Istituto Nazionale Tumori, Milano, Italy
**Mireia Crispin Ortuzar**, University of Cambridge, CRUK Cambridge Centre, UK
**Filippo De Braud**, Fondazione IRCCS Istituto Nazionale Tumori, Milano, Italy
**Alessandro De Toma**, Fondazione IRCCS Istituto Nazionale dei Tumori, Milano, Italy
**Massimo Di Maio**, AOU Città della Salute e della Scienza Torino, Italy
**Roberto Ferrara**, IRCCS Ospedale San Raffaele, Milano, Italy
**Nicola Fusco**, IRCCS European Institute of Oncology (IEO), Milano, Italy
**Monica Ganzinelli**, Fondazione IRCCS Istituto Nazionale dei Tumori, Milano, Italy
**Marina Garassino**, University of Chicago, USA
**Dean Ho**, University of Singapore, ASIA
**Luca Invernizzi**, Fondazione IRCCS Istituto Nazionale dei Tumori, Milano, Italy
**Jakob Nikolas Kather**, Technical University of Dresden, Germany
**Sokol Kosta**, Aalborg University, Denmark
**Jana Lipkova**, University of California Irvine, USA
**Giuseppe Lo Russo**, Fondazione IRCCS Istituto Nazionale dei Tumori, Milano, Italy
**Claes Lundström**, Linköping University, Sweden
Faisal Mahmood, Harvard Medical School, Division of Medical Sciences, USA
**Laura Mazzeo**, Fondazione IRCCS Istituto Nazionale dei Tumori, Milano, Italy
**Vanja Miskovic**, Fondazione IRCCS Istituto Nazionale dei Tumori and Politecnico di Milano DEIB, Milano, Italy
**Mario Occhipinti**, Fondazione IRCCS Istituto Nazionale dei Tumori, Milano, Italy
**Alexander T. Pearson**,University of Chicago, USA
**Alessandra Pedrocchi**, Politecnico di Milano DEIB, Milano, Italy
**Raquel Pérez-Lopez**, VHIO Radiomics Group, Barcelona, Spain
**Gabriella Pravettoni**, Istituto Europeo di Oncologia, Milano, Italy
**Arsela Prelaj**, Fondazione IRCCS Istituto Nazionale dei Tumori, Milano, Italy
**Claudia Proto**, Fondazione IRCCS Istituto Nazionale dei Tumori, Milano, Italy
**Leonardo Provenzano**, Fondazione IRCCS Istituto Nazionale dei Tumori, Milan, Italy
**Marcello Restelli**, Politecnico di Milano DEIB, Milano, Italy
**Lorenzo Righetto**, Nature Medicine, UK
**Carlo Rossi Chauvenet**, Bocconi University, Milano, Italy
**Oliver Saldanha**, Technical University of Dresden, Germany
**Francisco Sanchez-Vega**, Memorial Sloan Kettering Cancer Center, New York, USA
**Sabina Sangaletti**, Tumor Genomics FondazioneIRCCS Istituto Nazionale dei Tumori, Milano, Italy
**Eugenio Santoro**, Istituto Mario Negri, Milano, Italy
**Sohrab Shah**, Memorial Sloan Kettering Cancer Center, USA
**Diego Signorelli**, Niguarda Cancer Center, Grande Ospedale Metropolitano Niguarda, Milano, Italy
**Andrea Spagnoletti**, Fondazione IRCCS Istituto Nazionale dei Tumori, Milan, Italy
**Francesco Trovò**, Politecnico di Milano DEIB, Milano, Italy
**Daniel Truhn**, Aachen University Hospital, Germany
**Loïc Verlingue**, Centre Léon Berard, Lyon
**Giuseppe Viscardi**, Azienda Ospedaliera Monaldi Cotugno Cto, Università degli Studi della Campania Luigi Vanvitelli, Napoli, Italy