

The logo for the AIIM 2024 meeting. It features the letters 'AIIM' in a bold, white, sans-serif font. A red horizontal bar is positioned under the 'I'. A red superscript '2' is placed above the second 'I'. The background is a dark blue gradient with a faint, white geometric network pattern of lines and nodes.

# AIIM<sup>2</sup>

First annual Artificial Intelligence  
and Innovation in Medicine Meeting

**Bologna (Italy)**  
**September 19<sup>th</sup> - 21<sup>st</sup> 2024**



# Faculty

## Chairs



**Filippo Filicori**  
*USA*  
System Chief,  
Surgical Innovation  
Northwell Health,  
New York



**Gilberto Poggioli**  
*Italy*  
Full Professor of Surgery  
University of Bologna

# AI<sup>2</sup> M

First annual Artificial Intelligence  
and Innovation in Medicine Meeting



## Local organizing committee



**Luigi Boni**  
*Italy*  
Professor of Surgery,  
University of Milano



**Pietro Mascagni**  
*Italy*  
Surgical resident,  
Gemelli Hospital, Rome



**Matteo Rottoli**  
*Italy*  
Associate Professor,  
University of Bologna

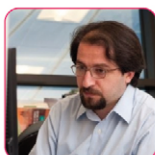


**Riccardo Schiavina**  
*Italy*  
Professor of Urology  
University of Bologna



**Jacopo Filicori**  
*Italy*  
CEO Omniclinics,  
Bologna

## Speakers



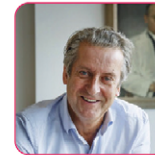
**Mahdi Azizian**  
*USA*  
Senior Director  
of engineering,  
R&D Nvidia



**Jocelyn Barker**  
*USA*  
Data Scientist and  
AI Innovation Leader,  
Johnson & Johnson  
MedTech



**Steve Bell**  
*Italy*  
Expert in MedTech  
Startups



**Jaap Bonjer**  
*Netherlands*  
Chair and Professor  
of Surgery,  
Amsterdam UMC



**Elena Bottinelli**  
*Italy*  
Head of Innovation  
and Digitalization,  
Gruppo San Donato



**Ivo Broeders**  
*Netherlands*  
Professor of Robotics  
Twente University,  
Head of AI,  
Meander Medical Center



**Gherardo Carullo**  
*Italy*  
Professor of Law,  
Univeristy of Milan



**Sarah Choksi**  
*USA*  
Clinical Research Fellow,  
Northwell Health, NY



**Gene Coppa**  
*USA*  
Senior Vice President  
and Executive Director,  
Surgical Services  
Northwell Health



**Vikrom Dhar**  
*USA*  
Assistant Professor  
of Surgery,  
Northwell Health



**Pieter DeBacker**  
*Belgium*  
Doctor of Biomedical  
Engineering  
and Medical Sciences,  
Orsi Accademy, Gent



**Elena De Momi**  
*Italy*  
Associate Professor  
of Robotics,  
Politecnico of Milan



**Luigi Di Stefano**  
*Italy*  
Professor of Electronic  
Engineering,  
University of Bologna



**Daniel Donoho**  
*USA*  
Pediatric Neurosurgeon  
Childrens National  
Hospital, Washington



**Jennifer Eckhoff**  
*USA*  
Research Fellow,  
Surgical Artificial  
Intelligence & Innovation  
Laboratory, Harvard,  
Boston

# Faculty

Speakers



**Chiara Formenti-Ujlaki**

*USA*  
Senior Counsel,  
Data Protection Officer,  
Pfizer



**Hans Fuchs**

*Germany*  
Professor of Surgery,  
University of Cologne



**Gennaro Giustino**

*USA*  
Structural Heart Disease,  
Henry Ford Hospital,  
New York



**Teodor Grantcharov**

*USA*  
CEO Surgical Safety  
Technologies,  
Palo Alto



**Nikhil Gulati**

*USA*  
Global add Engineering,  
Johnson & Johnson  
MedTch



**Daniel Hashimoto**

*USA*  
Assistant Professor  
of Surgery University,  
of Pennsylvania



**Andrew Hung**

*USA*  
Vice Chair for Academic  
Development - Department  
of Urology Cedars, Sinai,  
Los Angeles



**Anthony Jarc**

*USA*  
Senior Director Machine  
Learning Intuitive Surgical,  
Sunnyvale, CA



**Karen Kerr**

*UK*  
Product Development  
Director, Core Team Lead  
AI and Analytics, Medtronic



**Matthew Kroh**

*USA*  
Vice Chair for innovation,  
Cleveland Clinic



**Kavoussi Louis**

*USA*  
Chair of Urology,  
Northwell Health



**Eric Landau**

*UK*  
Co-Founder and CEO  
at Encord,  
London



**Anders Larsson**

*Sweden*  
CTO Surgical Sciences,  
Göteborg



**Ashley Mancuso**

*USA*  
Vice President,  
MedTech BISO &  
Product Security,  
Johnson & Johnson



**Emanuela Marcelli**

*Italy*  
Associate Professor  
of Bioengineering,  
University of Bologna



**Keno März**

*Germany*  
PHD Surgical  
Data Science,  
University of  
Heidelberg



**Andrea Mari**

*Italy*  
Assistant Professor  
Urology, University  
of Florence



**Margaux Masson  
Forsythe**

*USA*  
Director of Machine  
Learning at Surgical  
Data Science Collective,  
Washington



**Ozanan Meireles**

*USA*  
Professor of Surgery  
Vice Chair for Innovation,  
Duke University



**Carlo Milli**

*Italy*  
Administrative Director,  
Pisa University  
Hospital Company

**AI<sup>2</sup> M**

First annual Artificial Intelligence  
and Innovation in Medicine Meeting



# Faculty

Speakers



**Andrea Moglia**  
*Italy*  
Assistant Professor in Bioengineering, Policlinico of Milan



**Nassir Navab**  
*Germany*  
Professor and Director of Laboratories for Computer Aided Medical Procedures, Technical University of Munich



**Federico Nicolosi**  
*Italy*  
Adj. Professor of Neurosurgery, University of Milano-Bicocca, CEO UpSurgeOn



**David Noonan**  
*USA*  
Chief Technology Officer, Moon Surgical



**Marc Paradis**  
*USA*  
Vice President of Data Strategy, Northwell Holdings, New York



**Darren Porras**  
*USA*  
Market Development Manger for Heathcare, RTI



**Gretchen Purcell Jackson**  
*USA*  
Vice President, Scientific Medical Officer, Digital at Intuitive Surgical, Atlanta



**Emanuele Ruffaldi**  
*Italy*  
Software Developer, MMI



**Massimiliano Simi**  
*Italy*  
Vice President Research & Development, MMI



**Cristopher Schlachta**  
*Canada*  
Professor of Surgery, Western University  
Chief of Surgery, University Hospital site  
London Health Sciences Centre SAGES President



**Daniel Sereduick**  
*France*  
Data Protection Counsel, Johnson & Johnson MedTech



**Gaya Spolverato**  
*Italy*  
Professor of Surgery, University of Padua



**Danail Stoyanov**  
*UK*  
Professor of Robot Vision, WEISS Centre, UCL Computer Science, London



**Elliot Street**  
*USA*  
CEO, Inovus Medical



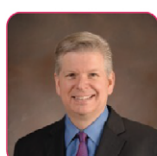
**Lee Swanstrom**  
*France*  
Scientific Director of IHU, Strasbourg



**Pietro Valdastrri**  
*UK*  
Professor of Robotics and Autonomous Systems, University of Leeds



**Richard Vincent**  
*UK*  
CEO, FundamentalVR



**Erik Wilson**  
*USA*  
Professor and Vice Chair of Surgery at UT, Houston



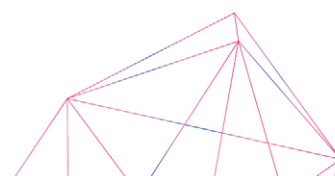
**Andrew Yee**  
*USA*  
Medical Science Manager, Intuitive Surgical Sunnyvale, CA



**Mariavittoria Zaglio**  
*Italy*  
Television journalist, Class CNBC

**AI<sup>2</sup>M**

First annual Artificial Intelligence and Innovation in Medicine Meeting





**Thursday September 19<sup>th</sup>**

**5.00<sup>PM</sup> - 6.00<sup>PM</sup> Sponsored Symposium**

**Intuitive Surgical/AB Medica fireside chat: Redefining the future of robotic surgery**

Moderator: **Mariavittoria Zaglio**

Surgeon perspective on utilization and impact of AI  
**Filippo Filicori**

Engineer Intuitive - The future is now (focus on innovative technologies, digital and remote learning)  
**Anthony Jarc**

Hospital IT Hi-Tech integrated hospital. Management of resources and infrastructures  
**Elena Bottinelli**

Legal Data protection in robotic surgery. The era of Digital  
**TBD speaker**

**6.00<sup>PM</sup> - 8.00<sup>PM</sup>**

**Welcome reception and drinks**

Friday September 20<sup>th</sup>

8.00<sup>AM</sup> - 6.00<sup>PM</sup>

Welcome and Meeting Presentation

Filippo Filicori, Gilberto Poggioli

Procedural innovation through vision

8.30<sup>AM</sup> - 9.30<sup>AM</sup>

Real time Computer Vision is getting REAL

Moderators: Erik Wilson and Filippo Filicori

Anatomical segmentation and 2D to 3D rendering in RT  
RT Critical view of safety  
RT Visual question answering during surgery with Nvidia Holoscan  
Context Awareness for safer surgical intervention  
RT Operating room state detection

Danail Stoyanov (10min.)  
Pietro Mascagni (10min.)  
Mahdi Azizian (10min.)  
Elena De Momi (10min.)  
Teodor Grantcharov (10min.)

9.30<sup>AM</sup> - 10.30<sup>AM</sup>

Real-Time model application on live surgery from S. Orsola Hospital (Bologna)

Prof. Riccardo Schiavina  
Robot-Assisted Partial Nephrectomy (RAPN)

Moderators: Andrew Hung, Ivo Broeders  
Discussants: Andrea Mari, Mahdi Azizian.

RT application of AR for solid tumor detection in parenchymal organs  
Pieter DeBacker (15min.)

Discussion: technical, practical and regulatory challenges in implementation of Real Time Modelling in the Operating Room, the road to clinical trials.

10.30<sup>AM</sup> - 11.00<sup>AM</sup> Coffee Break

11:00<sup>AM</sup> - 12:00<sup>PM</sup>

Can AI tell me if you're a good surgeon?

Moderators: Gretchen Purcell Jackson and Pietro Valdastrì

Fairness and bias mitigation in the 360 evaluation of a surgeon  
Proficiency metrics in surgical evaluation  
Surgical Quality Assessment (SQA)  
Holistic OR modelling  
Efficiency of surgical approach in pituitary surgery and learning curves

Andrew Hung (10min.)  
Teodor Grantcharov (10min.)  
Pietro Mascagni (10min.)  
Nassir Navab (10min.)  
Daniel Donoho (10min.)



Friday September 20<sup>th</sup>

## Procedural innovation through vision

12:00<sup>PM</sup> - 1:00<sup>PM</sup>

### RFD (Rapid Fire Debates part 1):

Moderators: **Filippo Filicori** and **Anthony Jarc**

Open source datasets vs closed datasets  
Edge computing vs cloud computing  
Supervised learning vs unsupervised learning

**Gretchen Purcell Jackson vs Daniel Donoho** (5+5+5 min.)  
**Mahdi Azizian vs Teodor Grantcharov** (5+5+5 min.)  
**Daniel Hashimoto vs Andrew Hung** (5+5+5 min.)

1:00<sup>PM</sup> - 2:00<sup>PM</sup> Lunch Break

2:00<sup>PM</sup> - 3:10<sup>PM</sup>

### Data pipelines: Instructions for use

Moderators: **Daniel Hashimoto** and **Danail Stoyanov**

Creating the right taxonomy and streamlining your annotation process  
It's not so easy: considerations for integrating and connecting systems in the Digital OR  
How to select the right engineering team  
Building your infrastructure: cloud vs edge computing vs. RAG models  
Multimodal models and new frontiers of computer vision  
Label efficiency in computer vision pipelines and machine learning ops

**Eric Landau** (10min.)

**Darren Porras** (10 min.)

**Daniel Hashimoto** (10min.)

**Keno März** (10min.)

**Andrew Hung** (10min.)

**Margaux Masson Forsythe** (10min.)

3:10<sup>PM</sup> - 4:10<sup>PM</sup>

### How AI will change the way we practice procedural medicine

Moderators: **Christopher Schlacta**, **Margaux Masson** and **Emanuela Marcelli**

Computer vision for personalized maxillofacial surgery  
Identification of lymphatic and connective tissues  
Vision language models  
Go-no go event detection for peroral myotomy  
How to democratize surgical safety, the CVS challenge

**Luigi Di Stefano** (10min.)

**Luigi Boni** (10min.)

**Nassir Navab** (10min.)

**Daniel Hashimoto** (10min.)

**Jennifer Eckhoff** (10min.)

4:10<sup>PM</sup> - 4:45<sup>PM</sup> Coffee Break

Friday September 20<sup>th</sup>

## Procedural innovation through vision

4.45<sup>PM</sup> - 6.00<sup>PM</sup>

### The OR of the Future:

Moderators: **Jocelyn Barker** and **Ozanan Meireles**

Surgical Operating System  
Integration of digital technologies in the OR  
Large datasets and electronic medical record integration  
VBA in the COLOR III trial - RCT on TaTME vs Lap Low Anterior  
The role of a smart connectivity infrastructure for teleoperation, AI, and remote surgery  
Creating the right pipeline for data management  
A new Ecosystem for Robotic Surgery MMI

**Ozanan Meireles** (10 min)  
**Pietro Valdastrì** (10min.)  
**Gretchen Purcell Jackson** (10min.)  
**Jaap Bonjer** (10min.)

**Darren Porras** (10min.)  
**Marc Paradis** (10min.)  
**Emanuele Ruffaldi** (10 min.)



Saturday September 21<sup>th</sup>

8.00<sup>AM</sup> - 6.00<sup>PM</sup>

## Procedural Innovation through positional data and simulation

8.00<sup>AM</sup> - 9.00<sup>AM</sup>

### Kinematic data as ultimate performance evaluation tool

Moderators: **Vikrom Dhar** and **Elena De Momi**

The road to kinematic research, current and future applications  
Automated retraction through DVrk  
Breaking down technical performance with OPIs  
New frontiers in stapling technologies and simulation  
Benchmarking skills in simulation through kinematic data

**Andrew Hung** (10min.)  
**Pietro Valdastrì** (10min.)  
**Anthony Jarc** (10min.)  
**Sarah Choksi** (10min.)  
**Andrew Yee** (10min.)

9.00<sup>AM</sup> - 9.45<sup>AM</sup>

### EU vs. US: where is the best place to implement the AI revolution, the administrators perspective

Moderators: **Erik Wilson**, **Daniel Donoho**

Panelists: **Elena Bottinelli**, **Louis Kavoussi**, **Gene Coppa**, **Jaap Bonjer**,  
**Matthew Kroh**, **Carlo Milli**

9.45<sup>AM</sup> - 10.30<sup>AM</sup>

### RFD (Rapid Fire Debates part 2)

Moderators: **Elliot Street** and **Gretchen Purcell Jackson**

Remotely operated robots vs. autonomous robots  
Haptics vs. no haptics in surgery  
Haptics vs. no haptics in simulation

**Chris Schlaeta** vs **Pietro Valdastrì** (5+5+5 min)  
**Anthony Jarc** vs **Erik Wilson** (5+5+5 min)  
**Elliott Street** vs **Andrea Moglia** (5+5+5 min)

10.30<sup>AM</sup> - 11.00<sup>AM</sup> Coffee Break

11.00<sup>AM</sup> - 12.00<sup>PM</sup>

### Novel Robotic Platforms and tools

Moderators: **Lee Swanstrom** and **Steve Bell**

Alternative robotics  
Automated colonoscopy  
Changing the game in surgical robotics with MMI  
DaVinci 5  
Medtronic Hugo  
Moon Surgical

**Lugi Boni** (10min.)  
**Pietro Valdastrì** (10min.)  
**Massimiliano Simi** (10 min)  
**Andrew Hung** (10min.)  
**Matteo Rottoli** (10min.)  
**David Noonan** (10 min.)

Saturday September 21<sup>th</sup>

## Procedural Innovation through positional data and simulation

12.00<sup>PM</sup> - 1.00<sup>PM</sup> **Sponsored Symposium**

### Johnson & Johnson MedTech: Unlocking the Power of Data in the OR

Polyphonic digital ecosystem and potential to scale AI

**Ivo Broeders** (10 min.)

AI application for Improving Workflow, Learning, Procedure planning

**PhD Students** (15 min.)

- AI based pelvic measurements in preparation for rectal cancer surgery  
**Simon Baltus**
- Automated action detection for OR efficiency purposes  
**Beerend Gerats**
- AI based video analysis for benchmarking and life long learning  
**Julian Abbing**

Data Security as an enabler to scaling data science

**Ashley Mancuso** (5 min.)

Panel: Barriers to scale and adoption for AI and Computer Vision in Surgery

**Nikhil Gulati** (20 min.)

1.00<sup>PM</sup> - 2.00<sup>PM</sup> Lunch Break

2.00<sup>PM</sup> - 3.00<sup>PM</sup>

### New frontiers of surgical simulation

Moderators: **Andrea Moglia, Andrew Hung and Gretchen Purcell Jackson**

Synthetic Data in Surgical Simulation

VR simulation as a screening tool for the selection of surgeons

Empowering Next-Gen Surgeons: AI-driven simulation for skill mastery and certification.

DUTCH Trial - substituting 50% learning with digital and simulated training

The Synergy of Surgical Simulation and Artificial Intelligence

(Surgical Science)

Fundamental VR

**Elliot Street** (10min.)

**Andrea Moglia** (10min.)

**Federico Nicolosi** (10 min.)

**Jaap Bonjer** (10min.)

**Anders Larsson** (10min.)

**Richard Vincent** (10min.)

3.00<sup>PM</sup> - 4.00<sup>PM</sup>

### Medicolegal, Infrastructure and Regulatory

Moderators: **Teodor Grantcharov and Daniel Donoho**

Regulation around AI the EU and US perspective

IP and data ownership

Security of Healthcare Information in the Cloud

Bias and AI

The data marketplace and data open sourcing

**Gherardo Carullo** (10min.)

**Chiara Formenti Ujlaki** (10min.)

**Daniel Sereduick** (10min.)

**Gaya Spolverato** (10min.)

**Margaux Masson Forsythe** (10min.)



Saturday September 21<sup>th</sup>

## Procedural Innovation through positional data and simulation

4.00<sup>PM</sup> - 4.30<sup>PM</sup> Coffee Break

4.30<sup>PM</sup> - 5.30<sup>PM</sup>

### The OR of the Future:

Moderators: Erik Wilson and Nassir Navab

Integrating the data pipeline into the operating room  
Custom AR/VR team simulation  
AI and the ultimate endoluminal frontier  
AI and surgical robotics: real applications in today's world  
Fluorescence, Real Time pathology and AI applications  
in Gastroesophageal Oncology  
The power of digital surgery

Teodor Grantcharov (10min.)

Daniel Hashimoto (10min.)

Gennaro Giustino (10min.)

Steve Bell (10min.)

Hans Fuchs (10min.)

Karen Kerr (10min.)

5.30<sup>PM</sup> - 6.00<sup>PM</sup> Final remarks

SESSION 14

# AI<sup>2</sup>M

First annual Artificial Intelligence  
and Innovation in Medicine Meeting

The goal of the first Artificial Intelligence and Innovation Meeting (AI<sup>2</sup>M) is to bring together clinicians and engineers to develop integrated solutions and to deliver healthcare products that leverage all the knowledge in computer science developed over the last decades. AI<sup>2</sup>M specifically focuses on procedural medicine leveraging all sources of data that can be collected in this space to improve clinical outcomes, safety, and efficiency.

In addition to these goals the meeting will have a specific focus on robotic surgery and surgical simulation. Despite the recent rise in robotic surgery popularity, the platform is merely used as an extended limb for the surgeon, and we do not capitalize on the immense amount of data collected (video, kinematic) to improve surgical outcomes.

The meeting will also have a specific focus on regulatory and medicolegal issues related to data and AI in the healthcare space, as well as roundtables with regulators and administrators to allow to discuss opportunities to increase the pace of implementation of such technologies.

We believe that Europe, being of an incredible receptacle for healthcare and engineering talent is the right place to hold such a meeting.

Please join a stellar faculty roster of leaders from US/Europe from both Healthcare and Tech spaces in Bologna, Italy for the inaugural event of this medicine/engineering joint venture. The meeting will be hosted in “the food capital of Italy” during one of the best possible season to visit this country.

Filippo Filicori  
*System Chief Surgical Innovation*  
*Northwell Health*

Gilberto Poggioli  
*Full Professor of Surgery*  
*University of Bologna*



# The AI2M First annual Artificial Intelligence and Innovation in Medicine Meeting

is realized with the patronage of:



CINECA



Aiop

ASSOCIAZIONE ITALIANA DELLE AZIENDE SANITARIE OSPEDALIERE E TERRITORIALI  
E DELLE AZIENDE SOCIO-SANITARIE RESIDENZIALI E TERRITORIALI DI DIRITTO PRIVATO



AiopGiovani

ASSOCIAZIONE ITALIANA DELLE AZIENDE SANITARIE OSPEDALIERE E TERRITORIALI  
E DELLE AZIENDE SOCIO-SANITARIE RESIDENZIALI E TERRITORIALI DI DIRITTO PRIVATO

BBS  
MULTIPLYING OPPORTUNITIES



SICE

Società Italiana  
di Chirurgia Endoscopica  
e Nuove Tecnologie



## MEDIA PARTNER



il Resto del Carlino



Artificial Intelligence Surgery





The logo features the letters 'AI²M' in a bold, white, sans-serif font. The '2' is a smaller red superscript. A thin red horizontal line is positioned below the 'AI' portion of the text. The background is a purple-to-pink gradient with a faint image of a stone tower and a network of white lines.

First annual Artificial Intelligence  
and Innovation in Medicine Meeting