Artificial Intelligence & Machine Learning in Cancer Imaging 3.0

Enhancing Healthcare through AI

30 June & 1 July 2023

Champalimaud Centre for the Unknown

Lisbon, Portugal

Organisation:

ICIS
International Cancer Imaging Society

Champalimaud Foundation

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Champalimaud Centre
for the Unknown,
Lisbon, Portugal**

Dear colleagues and friends,

On behalf of the Champalimaud Foundation and the International Cancer Imaging Society, we would like to invite you to participate in this 3rd multidisciplinary meeting on the development and application of artificial intelligence (AI) and machine learning (ML) in Cancer Imaging.

Following our last virtual meeting held during the pandemic in July 2021, we are pleased to welcome you to join us in-person in Lisbon for this meeting, which will continue the multidisciplinary exploration of AI and ML in cancer imaging.

Significant developments have occurred since our last meeting, together with a more realistic appreciation of these novel technologies. We are particularly pleased to welcome industrial engagement and support at this meeting, and we look forward to the dialogues and showcases.

The theme of this year's meeting is "Enhancing Healthcare through AI". This is an acknowledgment that AI-driven technologies are maturing and that real-world tools are now available to be deployed into clinical workflows. However, there are still significant challenges towards their implementation and use.

Do join us for these discussions in Lisbon!

Celso Matos (Champalimaud Foundation)
Dow-Mu Koh (ICIS)
On behalf of the organising committee

**Scientific Programme
30 June 2023**

09:00 **Opening session**

09:10 **Session 1: Updates in AI and ML Techniques for Cancer Imaging**
Moderator: Dow-Mu Koh, London, UK

We discuss new developments in AI and ML techniques, such as selfsupervised and representational learning, which can improve algorithm performance and generalisability. Developments in AI interpretability and explainability will continue to allow us to better understand and develop trust towards these technologies.

09:10 What's new in disease segmentation?
Leonor Cerda Alberich (Valencia, Spain)

09:30 Representational learning: can it enhance AI performance?
Jayashree Kalpathy-Cramer (Colorado, USA)

09:50 Developments in AI interpretability and explainability
Fred Prior (Arkansas, USA)

10:10 Discussions

10:30 - 11:00 **Break**

11:00 **Keynote Lecture 1**
Supervised learning: Is it the best way forward for imaging?
Mario A.T. Figueiredo (Lisbon, Portugal)

11:30 **Session 2: Unmet Needs for AI Development and Deployment in Cancer Imaging**
Moderator: Fred Prior, Arkansas, USA

Unmet needs remain for the development and deployment of AI into clinical practice. Algorithms may lack generalisability; deployment into realworld clinical environment remains challenging and there is often lack of postdeployment monitoring to detect drifts in performance.

11:30 Embracing data diversity
Luis Marti-Bonmati (Valencia, Spain)

11:50 The trusted-research environment or the trusted-clinical environment?
Raj Jena (Cambridge, UK)

12:10 Monitoring AI performances
Charles Kahn, Pennsylvania, USA

12:30 Discussion

12:50 - 14:00 Lunch

**Scientific Programme
30 June 2023**

Radiomics has captured the consciousness of both radiologists and physicians, but its use in clinical practice remains limited. What are the emerging developments in this area? What are the common mistakes? How do we make sense of the growing volume of literature claiming impressive performance?

What does it take to undertake AI imaging research at scale involving multiple institutions, multidisciplinary partners and collating thousands of images? The ProCancer-I is a EU funded project to develop AI algorithms that would inform the detection and follow-up of patients with prostate cancer.

14:00 **Session 3: Radiomics - Lessons Learnt So Far**
Moderator: Charles Kahn (Pennsylvania, USA)

    14:00 Common mistakes in radiomics analysis
Natally Horvat (New York, USA)

    14:20 AI and ML approaches for radiomics analysis
Nikolaos Papanikolaou (Lisbon, Portugal)

    14:40 Hype or Reality: Clinical perspective on radiomics
Dow-Mu Koh (Sutton, UK)

    15:00 Discussions

15:20 - 15:45 Break

**15:45 Keynote Lecture 2
AI in the healthcare enterprise Lawrence Tanenbaum (New York, USA)**

**16:15 Session 4: The ProCancer-I session
AI Research At Scale**
Nikolaos Papanikolaou, (Lisbon, Portugal)

    16:15 ProCancer-I project

    17:15 EuCanImage project: Another perspective

    17:45 Discussions

    18:05 End

**Scientific Programme
1 July 2023**

We hear from experts how to overcome the challenges of eveloping and adopting AI / Radiomics tool into the clinical realities, which require not only radiological expertise, but also technical, infrastructure and workforce considerations.

09:00 **Session 5: Delivering Cancer Imaging AI: Bottlenecks and Challenges**
Moderator: Evis Sala, Rome, Italy

09:00 Getting the AI tool working in the clinical workflow
Evis Sala (Rome, Italy)

09:20 Radiomics/AI: How to increase translation from research to the clinics
Nikolaos Papanikolaou, (Lisbon, Portugal)

09:40 Infrastructure demands for delivery
Rowland Illing (Washington, USA)

10:00 Growing the multidisciplinary workforce
Christina Messiou, London, UK

10:20 Discussions

10:40 - 11:10 Break

11:10 Keynote Lecture 3
Integrated diagnostics for precision oncology
Manuel Salto-Tellez (Belfast, Northern Ireland)

11:40 - 12: 40 Session 6: Corporate Presentations

13:00 - 14:00 Lunch

14:00 Session 7: Cancer Imaging AI Tools for Healthcare Improvements: Where is the Evidence?
Moderator: Celso Matos, Lisbon, Portugal

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14:00 Faster and better imaging
Hersh Chandarana (New York, USA)

14:20 Lung nodule evaluation
Rozemarijn Vliegenthart
(Groningen, The Netherlands)

14:40 Breast cancer evaluation
Sarah Vinnicombe (Cheltenham, UK)

15:10 Pancreatic cancer
Weichung Wang, Taipei, Taiwan

15:30 Discussion

15:50 - 16:15 Break

16:15 Session 8: Round Table discussions
**Selected from the Faculty Panel and Industry
Participation: "How to improve the quality of
AI research and products for cancer imaging?"**

17:15 Closing remarks

Registration

Full details of registration are available at icimagingsociety.org.uk

Residents €80
Non-residents €100
Onsite registration €150

Accreditation

All participants will receive a certificate of participation, showing 12.5
CPD credits awarded according to the CPD scheme of the Royal
College of Radiologists, UK.

European Accreditation Council for Continuing Medical Education
(EACCME) accreditation has been applied for. EACCME European CME
credits can be converted to AMA PRA Category 1Credit™ by applying to
the AMA. Please visit the American Medical Association (AMA) website
for further information:
https://www.ama-assn.org/education/uemseaccme-cme-credit-recognition

**Official
Language**

English. No translation system available.

**Organising
Committee**

Celso Matos, Dow-Mu Koh, Fred Prior, Charles Kahn, Evis Sala,
Nikolaos Papanikolaou, Luis Marti Bonmati

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Champalimaud Centre for the Unknown, Avenida Brasília, 1400-038, Lisbon, Portugal

Friday 30 June & Saturday 1 July 2023

We gratefully acknowledge the support of our meeting sponsors - Calantic, GE, Guerbet, Mint Medical, Quibim, Siemens Healthineers.

Jointly hosted by

Champalimaud Foundation

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