ESMPE European School for Medical Physics Experts

School for Advancing Breast Imaging with AI: Innovations, Applications, and Future Directions

23rd-25th April 2026, Tallinn, Estonia

EFOMP in collaboration with the Estonian Society for Biomedical Engineering and Medical Physics (EBMY) would like to invite you to the next ESMPE on 23rd-25th April 2026. This course explores the transformative role of artificial intelligence in breast imaging. Participants will gain insights into cutting-edge AI technologies, their clinical applications in early detection and diagnosis, and the ethical and regulatory considerations involved. Through real-world case studies and expert-led sessions, the course offers a forward-looking perspective on how AI is shaping the future of breast cancer screening and care.

This two-and-half day event will be accredited by EBAMP (European Board of Accreditation for Medical Physics) and is intended for practicing clinical Medical Physicists who are involved or interested in diagnostic radiology. There will be an optional examination at the end for those seeking a higher level of certification beyond attendance.

ESMPE have decided this event will be in a hybrid format. All lecturers will give their talks on-site in Tallinn, Estonia, but participants can choose if they want to attend the school on-site or online, it will be live-streamed.

Please note: All times shown are in CET

Content

Introduction to Breast Imaging
Overview of current imaging modalities (mammography, ultrasound, MRI, DBT) Clinical challenges in breast cancer detection and diagnosis
Fundamentals of Artificial Intelligence and Machine Learning AI Applications in Breast Imaging
Automated lesion detection and classification Risk prediction and stratification models
AI in image acquisition and enhancement Workflow optimization and triage systems

Final examination
The final exam is voluntary. Participants can gain additional credits when successfully pass the test.

Organisers
Valentina Ravaglia, Ruben van Engen (Scientific Chairs)
Joao Seco (Chair of the School)

Local organisers
Joosep Kepler (EBMY)

Faculty

Name	Institute
Valentina Ravaglia	AUSL Romagna, Ravenna, Italy
Ruben van Engen	LRCB, Nijmegen, The Netherlands
Veronica Rossetti	AOU Città della Salute e della Scienza, Torino, Italy
Tiina Kuum	Tartu University Hospital, Estonia
Olivera Ciraj Bjelac	IAEA
Alistair Mackenzie	NCCPM, Royal Surrey NHS Foundation Trust, Guildford, UK
Nadia Smith	TUV SUD and National Coordinating Centre for the Physics of Mammography, UK
Jessie Gommers	Radboud University Medical Center, Nijmegen, The Netherlands
Aleksander Sadikov	University of Ljubljana, Slovenija
Danny Panknin	Technische Universität Berlin, Germany, Physikalisch-Technische Bundesanstalt (PTB), Berlin, Germany

Thursday 23rd April 2026				
	Session	**Title**	**Description**	**Lecturer**
8:00-9:00	*Registration*			
9:00-9:15	Introduction	Setting the scene	Presentation of the ESMPE and introduction to the course	Veronica Rossetti
9.15-10.00		X-ray breast imaging from clinical point of view	Overview of current imaging modalities and clinical workflow (mammography, ultrasound, MRI, DBT)	Tiina Kuum
10:00-10.30	*Coffee break*			
10:30-11:15		Basic principles of x-ray breast imaging	X-ray spectrum, detector, grid, AEC	Veronica Rossetti
11.15-12.00		Advanced x-ray breast imaging (DBT, CEM)	DBT Reconstruction algorithm, 2D-synthetic, artifacts, spectrum HE and LE, subraction	Valentina Ravaglia
12:00-12:30			Question & Answer discussion on the morning lectures	All Faculty
12:30-14:00	*Lunch break*			
14.00-14.45		Challenges in breast cancer screening and diagnosis and overview of AI applications in Breast Imaging	Clinical and technical challenges: breast density mask lesions, artifacts, undersample in DBT. AI applications: image acquisition (DM, DBT), image processing (DM, DBT), image reconstruction (DBT), image generation (synth 2D and slabbing), breast cancer detection software, breast cancer detection software as patient/client management tools, breast density software, breast cancer risk estimation software, positioning tools, etc.	Ruben Van Engen
14.45-15.30		Fundamentals of Artificial Intelligence and Machine Learning		Aleksander Sadikov
15:30-15:50	*Coffee break*			
15:50-16:20		AI in image acquisition and image processing/ reconstruction	AEC, processing, noise reduction, etc.	Ruben Van Engen
16:20-17:00		Automated lesion detection and classification		Jessie Gommers
17.00-17.30			Question & Answer discussion on the afternoon lectures	All Faculty
20:00-23:00	Social dinner - participants + lecturers			

Friday 24th of April 2026

	Session	Title	Description	Lecturer
09:00-09:45		Explainable AI in mammography (X AI)	What is X AI and what is needed in mammography	Aleksander Sadikov
09:45-10:30		Breast density	BIRADS classification, software, etc.	Valentina Ravaglia
10:30-11.00	*Coffee break*			
11:00 – 11:45		Workflow optimization and triage systems in breast cancer screening and diagnostics	Using AI software for lesion detection and AI breast density software for triage, order of reading images, etc.	Jessie Gommers
11:45-12:30		AI in breast cancer risk prediction and stratification models		Nadia Smith
12:30-14:00	*Lunch break*			
14:00-14:30			Question & Answer discussion on the morning lectures	All Faculty
14:30-15:10		AI in Medical Physics	IAEA: Clinical Implementation of Medical Imaging Based Artificial Intelligence Tools – Guidelines for Medical Physicists	Olivera Ciraj Bjelac
15:10-15:40		Introduction to validation and monitoring of AI software	Introduction to the topic	Ruben van Engen
15:40-16:10	*Coffee break*			
16:10-17:30		Commercial AI software for lesions detections	Presentation of software, DL or ML, how is trained and validated	Vendors
17.30-18:00			Question & Answer discussion on the afternoon lectures. Questions to the vendors: how we can validate you software?	All Faculty

Saturday 25th of April 2026				
	Session	**Title**	**Description**	**Lecturer**
09:00-9.45		Practical considerations and quality assessment of breast cancer detection tools		Danny Panknin
09:45-10:30		*Data for the evaluation of AI software*	What to include in a database to validate AI software	Nadia Smith
10:30-10:50	*Coffee break*			
10.50-11.30		Validating AI software		Alistair MacKenzie
11.30-12.15			Round table: experts answer	All Faculty
12.15-12.45			Question and Answer discussion on the afternoon lectures	All Faculty
13.00-14:00	*Final examination (optional ; for those seeking a higher number of CPDs beyond attendance)*			

Course language	English
Level	Medical Physics / Medical Physics Expert
Registration fee* (2 main meals, 5 coffee breaks, 1 social dinner)	400 € (*VAT included)
Reduced registration fee* · subsidized by EFOMP · first-come, first-served policy	200 € (*VAT included) - for the first 40 participants (max. 3 from one country) coming from the following European countries: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Greece, Hungary, Latvia, Lithuania, Moldova, North Macedonia, Poland, Portugal, Romania, Serbia, Slovak Republic, Spain, Ukraine. 200 € (*VAT included) - for 30 young persons (under 35y)
Maximum number of on-site/online participants	60/90
Duration	23rd – 25th April 2026
Study load	20 hours of lectures and case examples, 1h optional exam
Venue	Mövenpick Conference Center, Tallinn, Estonia https://movenpicktallinn.ee
Accommodation	Participants must book their own accommodation.
Information, programme at:	www.efomp.org
Registration	Electronic registration via www.efomp.org
Registration period	Closes on 10th of April (onsite attendance) 17th of April 2026 (online)

***** payment must be done in 7 days following the pre-registration, otherwise pre-registration will be cancelled and neither free place nor subsidized or ordinary fee can be granted for repeated registration

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