Applying AI Methods to Microscopy and Imaging

Workshop 18 January 2023 09:00 – 17:00

The Great Hall, King's Building

Organisers: Dr. Robert Knight (Centre for Craniofacial and Regenerative Biology)
Dr. Mads Bergholt (Centre for Craniofacial and Regenerative Biology)
Dr. Andrew King (School of Biomedical Engineering and Imaging Sciences)

09.00 – 09.30	Registration	
09:30 – 09.35	Welcome, brief introductions and outline goals of workshop	Dr. Robert Knight
09.35 - 09.45	Overview of AI Institute	Prof. Michael Luck
09.45 – 10.15	Ice breaker and strategy session	Dr. Robert Knight and attendees
Session 1 – Talks from physicists, imaging scientists and others about applications of AI (Chair: Dr. Andrew King)		
10.15 – 10.30	Learning-based super-resolution for interventional biophotonics	Prof. Tom Vercauteren
10.30 – 10.45	FTIR spectroscopic analiysis of live cells	Dr. Andrew Chan
10.45 – 11.00	SpectrAI: A deep learning framework for spectral data	Dr. Mads Bergholt
11.10-11.20	Discussion of session 1	Dr. Andrew King
Break (11.20 – 11.45)		
Session 2 – Talks from biologists aiming to (or are currently) apply AI to their data (Chair: Dr. Robert Knight)		
11.45 – 12.00	Quantitative bioimage analysis for cell and developmental biology: current projects and outstanding questions	Dr Stefania Marcotti
12:00 – 12:15	Imaging Cell Therapies - what we can do and where computational help is needed	Dr Gilbert Fruhwirth
12:15 - 12:30	Machine learning-based approaches identify novel prognostic morphological features in digitised H&E images of breast cancers	Dr. Anita Grigoriadis
12.24 – 13.00	Discussion of session 2	Dr. Robert Knight
Lunch Break (13.00 – 14.00)		
Session 3 – Talks from computer scientists and others who design and apply AI tools (Chair: Dr. Mads Bergholt)		
14.00 – 15.10	Clinical Trust in Predictive Cardiac AI Applications	Tareen Dawood
	Weakly supervised Unet: an image classifier which learns to explain itself	Robert O'Shea
	Deep learning for data synthesis and augmentation in fluorescence microscopy	Dr. Susan Cox
15.10 -15.20	Discussion of session 3	Dr. Robert Knight
Break (15.20 – 15.30)		
Session 4 – Inferring spatio-temporal models from bioimaging data		
15.30 – 16.20	Keynote Speaker	Prof. Ivo Sbalzarini
16.20 – 17.00	Panel discussion	
17.00 – 17.10	Summary and closure (attendees to complete feedback forms)	Organisers
17.10 – 18.00	Drinks reception - Networking	