

Swiss Institute for Translational
and Entrepreneurial Medicine

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**UNIVERSITÄT
BERN**

Artificial Intelligence Online Symposium 2022

Imaging AI in the Wild: How to Handle Data Heterogeneity

October 13th 2022, Online



Artificial Intelligence Online Symposium 2022

Imaging AI in the Wild: How to Handle Data Heterogeneity

In the last five years, the enormous potential of computer vision and artificial intelligence for medical imaging has become clear. Fears that radiologists will be replaced have given way to hopes that intelligent tools can assist the imaging physician, bringing patient benefit and reducing the burden of increasing imaging volumes.

Theory vs. Practice

However, the excellent performance of these systems seen in scientific articles is not always reflected in the real world: differences between scanners, sequences and hospitals can contribute to a phenomenon known as “domain shift”. As a result, a method developed in one hospital may fail to perform well when applied to data from a second, or even after an update in scanner or sequence at the same hospital.

Standardization vs. Fragmentation

How can we handle this wide variety of data, both during model development and after a product release? Are very narrow models developed with a specific sequence and scanner in mind the solution, or should we rather embrace the whole range of vendors with one algorithm? How can algorithms be trained on data from a variety of centres without compromising the security of patient data? And what techniques can we bring to bear to make models robust to domain shift?

Registration and Contact

The symposium will take place on **October 13th, 2022**.

Until October 10th, 2022, please register [here](#)

Any questions in the meantime? school@sitem.unibe.ch is happy to help.



Symposium participation is free of charge. Attendees may request an SIWF confirmation (7 Credits) of participation for CHF 60.-.

Program

08.30– 08.45

Introduction and Welcome

Part I – Morning session

08.45 – 09.30

Keynote 1: Safe and robust AI in a highly heterogenous data environment

Jorge Cardoso (King's College London, London Medical Imaging and AI Centre for Value-based Healthcare)

09.30 – 10.00

Talk 1: Synthetic and simulated data for improved domain adaptation

Meritxell Bach Cuadra (CIBM Center for Biomedical Imaging, Lausanne University)

10.00 – 10.45

Break Out Session

10.45 – 11.30

Keynote 2: Safety in medical AI

Lauren Oakden Rayner (Australian Institute for Machine Learning at the University of Adelaide)

11.30 – 12.00

Talk 2: : Performance metrics in the wild: pitfalls and recommendations for image analysis validation

Lena Maier-Hein (Deutsches Krebsforschungszentrum)

12.00 – 12.45

Break Out Session

12:45 – 13:45

Sponsored Lunch session

Part II: Afternoon session

13.45 – 14.30

Keynote 3: AI in Cardiac imaging

Christoph Gräni (Department of Cardiology, Inselspital, University Hospital Bern)

14.30 – 15.00

Talk 3: To buy or not to buy—evaluating commercial AI solutions in radiology (the ECLAIR guidelines)

Patrick Oumoumi (Department of Radiology, CHUV, Lausanne)

15.00 – 15.30

Talk 4: Jazz: a Pragmatic Solution for Handling Daily Clinical Brain Image Heterogeneity

Christian Federau (AI Medical AG)

15.30 – 16.00

Break Out Session

16.00 – 16.45

Keynote 4: Requirements for successful AI implementation – the vendor's perspective

Rebecca Ramb, (Siemens Healthineers)

16.45 – 17.00

Closing Remarks