SAIMI

UNIVERSITÄT BERN

Symposium on AI in Medical Imaging

Thursday 18 JUNE 2026 | 08:30 - 18:30
S003 Hörsaal, UniS | Schanzeneckstrasse 1 | 3012 Bern

Agenda

REGISTRATION 08:30 - 09:15

WELCOME & OPENING 09:15 - 09:30

09:15 **Prof. Lisa Koch** University of Bern, **Albora de Pablo Peña** University of Bern

KEYNOTE 09:30 - 10:15

09:30 **Prof. Julia A. Schnabel** Helmholtz Munich, TUM, Germany
"Medical Foundation Models"

LIGHTNING TALKS 10:15 - 11:00

Moderated by Tim Flühmann

10:15 **Olga Trofimova,** UniL, "*Deep learning aging marker from retinal images unveils sex-specific clinical and genetic signatures"*

10:22 **Daniel Frey,** TUM, *"A Physics-guided Implicit Neural Representation for Streak Reduction in X-ray Dark-field CT"*

10:29 **Paul Friedrich,** UniBas, *"MedFuncta: A Unified Framework for Learning Efficient Medical Neural Fields"*

10:36 **Julia Wolleb,** Yale University, *"Low-Rank-Modulated Functa: Exploring the Latent Space of Implicit Neural Representations for Interpretable Ultrasound Video Analysis"*

10:43 **Jérôme Schmid,** HES-SO, *"Robust multimodal deep learning for medical image diagnosis"*

10:50 **Susu Sun,** Uni Tübingen, *"ProtoMIL: Prototype-Based Multiple Instance Learning for Gigapixel Whole Slide Image Classification"*

11:00 - 11:15 COFFEE BREAK & POSTER SETUP (SESSION 1)

INTERACTIVE SESSION 1: FOYER + A19 + A24 11:15 - 12:00

11:15 **Industry Booths: AKROS AG, Amazon Web Services, RetinAI, ImFusion**
Poster Session 1

12:00 - 13:00 LUNCH BREAK KINDLY SPONSORED BY AKROS

KEYNOTE 13:00 - 13:45

13:00 **Prof. Ender Konukoglu** ETH Zürich, Switzerland
"Uncertainty quantification in medical image computing"

LIGHTNING TALKS 13:45 - 14:30

Moderated by Anna Wundram

13:45 **Henrique Romão,** CERN, *"DeCAF: A Decentralised Compliance Assessment Framework for Medical Imaging"*

13:52 **Susanne Schaub,** UniBas, *"3D CBCT Artefact Removal Using Perpendicular Score-Based Diffusion Models"*

13:59 **Dondu-Busra Bulut,** UniL, *"PRIME-SVR: Physics-infoRmed Implicit Multi-Echo Slice-to-Volume Reconstruction for Fetal Brain T2 mapping"*

14:06 **Maria Monzon,** ETHz, *"BE INDISCRETE: THE BENEFITS OF LEARNING CONTINUOUS SPINE DEGENERATION SEVERITY SCORES"*

14:13 **Jihe Li,** UniBe, *"DoMa-Seg: Dose Map Guidance for Medical Image Segmentation in Head and Neck Radiotherapy"*

14:20 **Linda Wermelinger,** HSLU, UniBas, *"A Systematic Comparison of Pretrained Visual Representations for Dermatologic Concept Encoding"*

14:30 - 14:45 COFFEE BREAK KINDLY SPONSORED BY AKROS & POSTER SETUP (SESSION 2)

INTERACTIVE SESSION 2: FOYER + A19 + A24 — 14:45 - 15:30

14:45 **Industry Booths: AKROS AG, Amazon Web Services (AWS), RetinAI, ImFusion**
Poster Session 2

KEYNOTE — 15:30 - 16:15

15:30 **Prof. Meritxell Bach Cuadra** UNIL, CHUV, Switzerland
"Trustworthy Medical Image Analysis"

IMPULSE TALKS BY PANELISTS — 16:15 - 16:35

16:15 **Kristina John** AKROS AG

16:20 **Dr. Christoph Russ** Amazon Web Services (AWS)

16:25 **Dr. Sandro de Zanet,** RetinAI

16:30 **Prof. Dr. Dr. med. Christoph Gräni,** University of Bern

PANEL DISCUSSION — 16:35 - 17:00

Moderated by Albora de Pablo Peña

16:35 **Kristina John,** AKROS AG
Dr. Christoph Russ, Amazon Web Services (AWS)
Dr. Sandro de Zanet, RetinAI
Prof. Dr. Dr. med. Christoph Gräni, University of Bern

AWARDS & CLOSING — 17:00 - 17:15

17:30 - 18:30 NETWORKING APÉRO

350m / 5min walk
Gesellschaftsstrasse 2
3012 Bern

Keynote Speakers

Prof. Dr. Julia A. Schnabel

Director of the Institute of Machine Learning in Biomedical Imaging, Helmholtz Munich
Prof. for Computational Imaging and AI in Medicine, Technical University of Munich

Prof. Schnabel's research interests include the topics of image reconstruction, registration, segmentation, classification and image quality control, using machine/deep learning, with applications in motion reconstruction and image compounding, physics-informed modelling, representation learning and anomaly detection, multi-organ segmentation, multimodality imaging and data integration, applied across imaging modalities (MRI, CT, PET, ultrasound, X-ray, optical imaging) and different diseases and conditions, ranging from neuroimaging, over cardiovascular imaging and perinatal imaging, to oncological imaging, for screening, early detection and treatment stratification.

Keynote talk: "Medical Foundation Models"

Prof. Dr. Ender Konukoglu

Department of Information Technology and Electrical Engineering, ETH Zürich

Prof. Konukoglu's research focuses on developing computational and machine learning methods for biomedical image analysis. The core aims are to extract semantic information from medical images, perform quantitative measurements and enable population-level comparisons in service of improving diagnosis, treatment and clinical research. His work spans a range of interconnected areas, including medical image segmentation, uncertainty quantification and anomaly detection, as well as AI-driven approaches for improving medical image acquisition and analysis.

Keynote talk: "Uncertainty quantification in medical image computing"

Prof. Dr. Meritxell Bach Cuadra

Faculty of Biology and Medicine, University of Lausanne
Head of the CIBM Signal Processing CHUV, University of Lausanne

Prof. Bach Cuadra's team addresses challenges such as image quality assessment, super-resolution, registration, detection, segmentation and normative modelling with direct applications in computer-aided diagnosis and therapy planning. The group maintains a strong emphasis on translational research through collaborations with clinical partners in radiology, neurology, oncology, neuroscience and psychiatry. To support clinical integration, their methods are developed in alignment with emerging regulatory requirements for trustworthy and explainable AI in healthcare. Bach Cuadra's section focuses on uncertainty quantification and robust domain adaptation to ensure that AI systems deliver reliable, reproducible results across diverse clinical settings. In parallel, they emphasize human-centered AI design: promoting interpretability and effective communication of model outputs to support clinical decision-making and foster clinician trust.

Keynote talk: "Trustworthy Medical Image Analysis"

Venue Map & Sponsors

WI-FI ACCESS:
WLAN PUBLIC UNIBE
VOUCHER: gguy-bniz

Main Auditorium

REGISTRATION
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Poster Sessions

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Poster Session 1

CLASSIFICATION IN MEDICAL IMAGING

A1 **Deep learning aging marker from retinal images unveils sex-specific clinical and genetic signatures** Olga Trofimova, University of Lausanne

A2 **Clinical Uncertainty Impacts Machine Learning Evaluations** Simone Lionetti, Lucerne University of Applied Sciences and Arts

A3 **Automatic quality control in multi-centric fetal brain MRI super-resolution reconstruction** Thomas Sanchez, University of Lausanne

A4 **Frame to Flow: Bridging Sequential Dynamics in Fluorescein Angiography** Tymo van Rijn, Idiap Research Institute

A5 **Bi-objective Optimization for Fairness-Aware Glaucoma Detection: A Pareto Analysis using Equalized Odds** Gökhan Özbulak, École Polytechnique Fédérale de Lausanne

A6 **Structure to Function: Predicting Spatially Resolved Visual Fields from OCT and SLO Images in Glaucoma Using Deep Learning** Moritz Schmid, University of Bern

CLINICAL TRANSLATION

B1 **A Physics-guided Implicit Neural Representation for Streak Reduction in X-ray Dark-field CT** Daniel Frey, Technical University of Munich

B2 **Digital Eye Clinic: A Framework for Responsible Development and Clinical Translation of In-House AI Diagnostics in Ophthalmology** Rui Santos, Stadtspital Zurich

B3 **DeepNeuroBOLD: Hypoxia BOLD fMRI for detecting infiltrative glioblastoma beyond contrast enhancement** Natalia Cantavella Franch, University of Zürich

GENERALIZABLE AI IN MEDICAL IMAGING

C1 **MedFuncta: A Unified Framework for Learning Efficient Medical Neural Fields** Paul Friedrich, University of Basel

C2 **Low-Rank-Modulated Functa: Exploring the Latent Space of Implicit Neural Representations for Interpretable Ultrasound Video Analysis** Julia Wolleb, Yale University

C3 **Intrinsic Self-Supervision for Data Quality Audits in Medical Imaging** Fabian Gröger, University of Basel, Lucerne University of Applied Sciences and Arts

C4 **Mitigating Shortcut Learning via Feature Disentanglement in Medical Imaging: A Benchmark Study** Sarah Müller, University of Tübingen

C5 **Towards Local Anatomy in Latent Space: Biclustering of Deep Network Activation** Alexandra Oswald, University of Bern

C6 **Leveraging Large-Scale Cross-Sectional Cohorts for Longitudinal Disease Progression Modelling** Ifeoma Veronica Nwabufo, University of Tübingen

IMAGE SYNTHESIS AND GENERATIVE MODELLING

D1 **From Point Estimates to Probabilistic Forecasts: Diffusion Models for Glaucoma Visual Fields** Marta Colmenar Herrera, ARTORG Center for Biomedical Engineering Research

D2 **Beyond Fluency: A Clinical Benchmark and Anomaly-Enhanced Baseline for Spine MRI Report Generation** Maria Monzon, ETH Zürich

11:15 - 12:00

D3 **Realistic 2D B-Mode Ultrasound Simulation from 3D Computed Tomography Scans** Declan McAlinden, University College London

D4 **From Slices to Structures: Unsupervised 3D Reconstruction of Female Pelvic Anatomy from Freehand Transvaginal Ultrasound** Max Krähenmann, University of Basel

MULTI-MODAL MODELS

E1 **Robust multimodal deep learning for medical image diagnosis** Jérôme Schmid, Geneva School of Health Sciences, HES-SO University of Applied Sciences and Arts Western Switzerland

E2 **XBench: A Comprehensive Benchmark for Visual-Language Explanations in Chest Radiography** Haozhe Luo, University of Bern

E3 **A Geometric Multimodal Foundation Model Integrating Bp-MRI and Clinical Reports in Prostate Cancer Classification** Juan Andrés Olmos, ENSTA, IP-PARIS

E4 **Hierarchical and Scalable Registration of Histology and 3D Imaging in Lymph Node Tissue Blocks** Garance Haefliger, HES-SO Valais/Wallis

SEGMENTATION IN MEDICAL IMAGING

F1 **Teeth2Point: A Two-Stage Dental CBCT ROI-to-Point Segmentation Framework** Qi Ma, ETH Zürich

F2 **CoralBay: A Self-Supervised CT Foundation Model with Hierarchical 3D Swin Transformers** Ioannis Gatopoulos, kaiko.ai

F3 **Learning from the Unseen: Synthetic Data for Scoliosis AI Segmentation** Volodimir Buchakchiyskiy, University of Basel

F4 **Self-Supervised Foreground Segmentation of 3D Micro-CT Tissue Samples Using Frozen Embeddings from DINO-ViT** Pau Altur Pastor, Empa

F5 **End2Reg: Learning Task-Specific Segmentation for Markerless Registration in Spine Surgery** Lorenzo Pettinari, University of Basel

TRUSTWORTHY AI AND FAIRNESS

G1 **ProtoMIL: Prototype-Based Multiple Instance Learning for Gigapixel Whole Slide Image Classification** Susu Sun, University of Tübingen

G2 **On Evaluating Subgroup Discovery in Medical Image Classification** Alceu Bissoto, University of Bern

G3 **Beyond Performance: Fairness and Robustness in Medical Imaging Foundation Models** Roberto Pulvirenti, Idiap Research Institute

G4 **Conformal Failure Masks for Reliable Endoscopic Super-Resolution** Julio Silva-Rodríguez, ETH Zürich

G5 **Benchmarking Bias Mitigation Strategies for Dermatology Models in Underrepresented Populations** Sofia Horlacher, Hochschule Luzern

G6 **Label-free estimation of clinically relevant performance metrics under distribution shifts** Tim Flühmann, University of Bern

G7 **Is Uncertainty Quantification a Viable Alternative to Learned Deferral?** Anna Wundram, University of Lucerne

Poster Session 2

CLASSIFICATION IN MEDICAL IMAGING

A7 **A Parkinson's digital descriptor from a conditional diffusion model for MRI to SPECT translation.** Franklin Sierra-Jerez, Universidad Industrial de Santander

A8 **Vision Foundation Models Enable Recurrent Pneumonia Risk Prediction in Bronchiectasis from 3D CT** AmirEhsan Khorashadizadeh, Paul Scherrer Institute PSI

A9 **Self-Supervised Pretraining and Ensemble Learning for Peritoneal Metastasis Classification in Staging Laparoscopy** Alexander Meng, Noble and Greenough School

A10 **Privacy-Preserving Federated Learning with Strong Differential-Privacy Guarantees for Clinical Dermatology** Philippe Gottfrois, University of Basel

A11 **Scalable AI Model Monitoring for Medical Imaging: An Open-Source MLOps Framework for Reliable Deployment** Stephanie Mehltretter, Akros AG

A12 **Knowledge-Guided Representation Learning for Dental Disease Detection from Intraoral Images** Nicolas Martin, PEEKTORIA

CLINICAL TRANSLATION

B4 **Automated quantification of peripheral and perivascular T1 and T2 relaxation times in liver multiparametric MRI of patients with Fontan-associated liver disease (FALD)** Seyedeh Sharareh Mirzargar, ARTORG

B5 **Soft Tissue Simulation and Force Estimation from Heterogeneous Structures using GNNs** Madina Kojanazarova, University of Basel

B6 **Deep Learning Brain Age Estimation Reveals Postnatal Maturational Delay in Congenital Heart Disease** Misha Kaandorp, University Children's Hospital Zurich

B7 **BE INDISCRETE: THE BENEFITS OF LEARNING CONTINUOUS SPINE DEGENERATION SEVERITY SCORES** Maria Monzon, ETH Zürich

GENERALIZABLE AI IN MEDICAL IMAGING

C7 **DeCAF: A Decentralised Compliance Assessment Framework for Medical Imaging** Henrique Romão, CERN

C8 **Evaluating Synthetic Data Generation for Domain Generalization in Fetal Brain MRI Segmentation** Vladyslav Zalevskyi, University of Lausanne

C9 **GLOWORM: Generative Learning Of cortical morphometry With Outlier-aware Reconstruction Mappings for Unsupervised Epileptogenic Lesion Detection** Johannes Schwarz, Ruhr University Bochum

C10 **NOIR: Neural Operator mapping for Implicit Representations** Sidaty El Hadramy, University of Basel

C11 **Towards Interpretable Foundation Models for Retinal Fundus Images** Samuel Ofosu Mensah, Hertie Institute for AI in Brain Health

C12 **A Deep Learning Framework for Voxel-wise Quantification of Cerebral Amyloid Plaque Burden from QSM MRI in Alzheimer's Disease** Yiru Yang, University of Zurich

IMAGE SYNTHESIS AND GENERATIVE MODELLING

D5 **3D CBCT Artefact Removal Using Perpendicular Score-Based Diffusion Models** Susanne Schaub, University of Basel

14:45 - 15:30

D6 **Deep Generative Models for Enhanced Vitreous OCT Imaging** Simone Sarrocco, University of Basel

D7 **fastWDM3D: Fast and Accurate 3D Healthy Tissue Inpainting** Alicia Durrer, University of Basel

D8 **Streak Artifact Reduction in Human-scale Dark-field CT Using 3D Gaussian Splatting** Tina Dorosti, Technical University of Munich

D9 **SynVas: Annotation-Free Synthetic Data Generation for Liver Vasculature Segmentation** Leonid Risteski, University of Innsbruck

D10 **Cleft-Pathology-Aware Infant Face and Palate 3D Shape Model** Till Schnabel, ETH Zürich

MULTI-MODAL MODELS

E5 **PRIME-SVR: Physics-infoRmed Implicit Multi-Echo Slice-to-Volume Reconstruction for Fetal Brain T2 mapping** Dondu-Busra Bulut, University of Lausanne

E6 **Leveraging Scientific Domain Knowledge for Vision-Language Fundus Models** Verena Jasmin Hallitschke, Hertie Institute for AI in Brain Health

E7 **Midnight v2: A Unified Self-Supervised Vision Foundation Model for Pathology and Radiology** Emil Malmsten, Kaiko.ai

SEGMENTATION IN MEDICAL IMAGING

F6 **DoMa-Seg: Dose Map Guidance for Medical Image Segmentation in Head and Neck Radiotherapy** Jihe Li, University of Bern

F7 **Automated Error Localisation and Correction Techniques for Deep-Learning-Based Segmentation of 3D MRI Sequences Based on Feature-Derived-Region Aggregation** Emma Chambers, University of Bern

F8 **Bridging the Annotation Gap Between Fetal and Neonatal Brain MRI via Protocol-Conditioned Learning** Daniela Correa Orozco, EPFL

F9 **A Generic SAM-Based Segmentation Pipeline for Surgical Planning: A Vertebra Case Study** Jonathan Dong, EPFL

TRUSTWORTHY AI AND FAIRNESS

G8 **A Systematic Comparison of Pretrained Visual Representations for Dermatologic Concept Encoding** Linda Wermelinger, HSLU, Universität Basel

G9 **A Global Atlas of Digital Dermatology to Map Innovation and Disparities** Fabian Gröger, University of Basel, Lucerne University of Applied Sciences and Arts

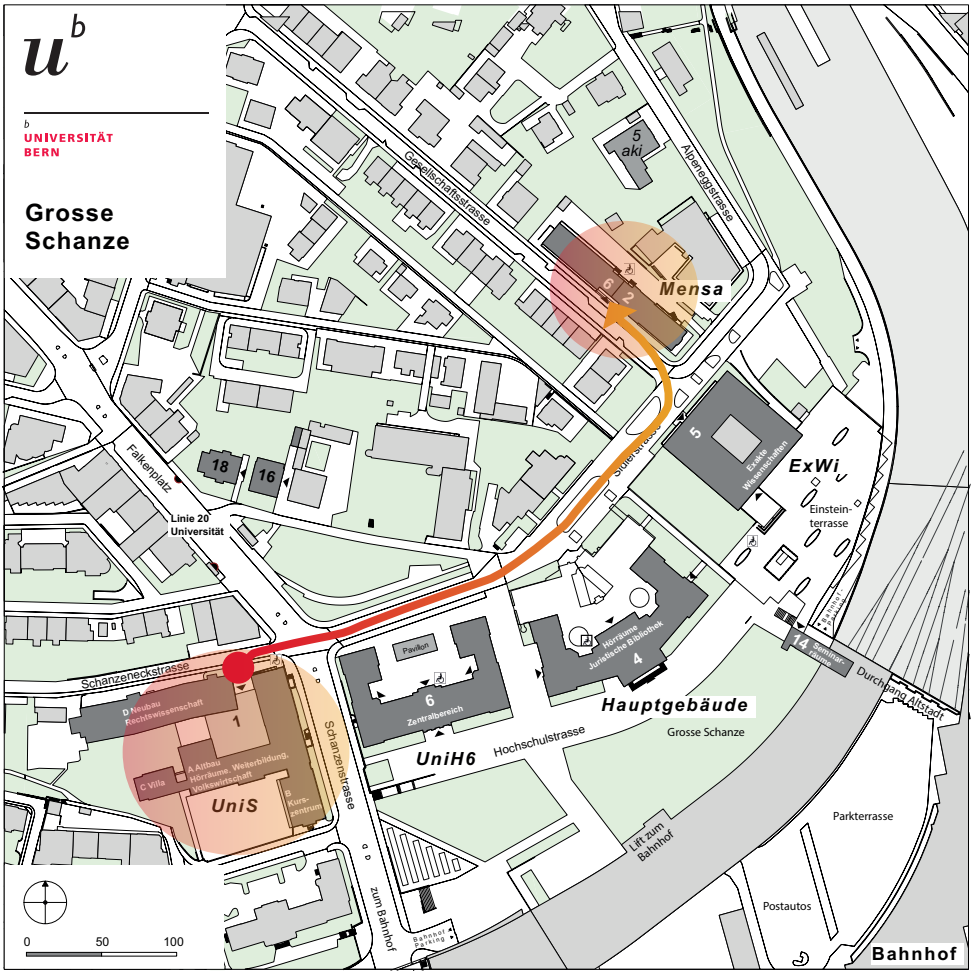
G10 **VIDS-Seg: Towards Fair Uncertainty Quantification in Pediatric Cardiac Ultrasound Segmentation** Paul Fischer, University of Basel

G11 **Using Visual Clinical Concepts to Retrieve Differential Diagnoses in Dermatology** Nipun Ranasekara, HSLU

G12 **Benchmarking attention-based methods for vision transformers interpretability in retinal fundus imaging** Sacha Bors, University of Lausanne

G13 **Interpretable Multi-task Deep Survival Analysis for AMD Progression Prediction** Julius Gervelmeyer, University of Tübingen

Apéro



350m / 5min walk
Gesellschaftsstrasse 2
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Organisation

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