Detailed Technical Program

9:00	**Tutorial 1:** Radiomics: success stories, negative results, challenges ahead and hands on sessions *Adrien Depeursinge, Mario Jreige, Vincent Andrearczyk* HES-SO Valais, CHUV, Switzerland **Tutorial 2:** A Tutorial on Latency- and Energy-Aware Video Coding and Delivery Streaming Systems *Reza Farahanni and Vignesh V. Menon* Alpen-Adria-Universität Klagenfurt & Fraunhofer HHI, Berlin, Germany **Part 1**
10:30	Coffee break
10:45	**Tutorial 1:** Radiomics: success stories, negative results, challenges ahead and hands on sessions **Tutorial 2:** A Tutorial on Latency- and Energy-Aware Video Coding and Delivery Streaming Systems **Part 2**
12:15	Lunch
14:00	**Tutorial 3:** Deep learning-assisted quantitative image reconstruction in SPECT and PET *Abolfazl Mehranian* General Electric Healthcare, UK **Tutorial 4:** Distributions Shifts, Generalizability and Reproducibility in Brain MRI Analysis *P. Gordaliza, J. Rafael Patino, N. Molchanova, V. Zalevskyi* EPFL, Switzerland **Part 1**
15:30	Coffee break
14:45	**Tutorial 3:** Deep learning-assisted quantitative image reconstruction in SPECT and PET **Tutorial 4:** Distributions Shifts, Generalizability and Reproducibility in Brain MRI Analysis **Part 2**
17:0	End

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Monday- September 9th	
9:00	Opening
9:15	**Plenary Talk 1:** IN SILICO REGULATORY SCIENCE FOR THE DIGITAL ERA, *A. Frangi from University of Manchester, Manchester, UK.* *Chair: H. Zaidi, HUG, Geneva, Switzerland*
10:15	Coffee break
10:30	**Oral Session (OS1):** Medical Imaging and Image-Guided Diagnosis *Chair: A. Frangi; University of Manchester, Manchester, UK.* • Paper 22: Where it all starts: a statistical dive into fMRI data of Neonatal Brain, *E. Di Salvo, S.Colonnese, C.Parrillo, F.Nasta, A. Napolitano, T.Cattai* • Paper 37: Refining Tuberculosis Detection in CXR Imaging: Addressing Bias in Deep Neural Networks via Interpretability , *O.Güler, M.Günther, A.Anjos* • Paper 44: Advancing Gastrointestinal Disease Diagnosis: A Fine-Grained Approach Using Swin Transformer and Explainable AI Techniques, *M. Fahad, N. E. Mobeen, A. S. Imran, S. Mohammad, F. Alaya Cheikh, M. Ullah* • Paper 47: Stable Diffusion Model-based Scintigraphy Image Synthesis: Data Augmentation Toward Enhanced Multiclass Thyroid Diagnosis, *G. Hajianfar et al.*
12:00	Lunch
13:45	**Plenary Talk 2:** EVALUATING MULTIMEDIA CONTENT QUALITY IN THE AGE OF GENERATIVE AI, *M. Deriche from Ajman University, UAE* *Chair: M. Mitrea, Institut Polytechnique de Paris, France, France*

14:45	**Oral Session (OS2)**: Image Quality Assessment and Optimization *Chair: H. Liu, Cardiff University, Wales, UK* • Paper 13: <u>Pattern and Subaperture-free Calibration of Plenoptic 2.0 cameras,</u> *S. Fachada, D. Bonatto, G. Lafruit, M. Teratani* • Paper 15: <u>Performance of point cloud- and image-based quality metrics on geometry-only point clouds and textured point clouds</u>, *M. Wien, J. Jung* • Paper 56: <u>Towards Recommendations and Guidelines for Subjective Medical Image and Video Quality Assessment,</u> *M. Mo Outtas, L. Zhang, M. Martini ; INSA, Rennes, France*
15:45	Coffee Break
16:00	**Poster Session 1:** Healthcare Signal Processing and Analysis *Chair: J. Benois, Université de Bordeaux, Bordeaux, France* • Paper 5: <u>Variability of radiomic features in 18F-FDG PET/MR brain imaging: impact of scan duration and tracer dose</u>, *M. Zhuang, X. Li, Z. Qiu, T. Xie* • Paper 7: <u>Combining DeepLabV3 with Attention Mechanisms for Accurate Brain Tumor Segmentation: Insights from BraTS 2020 and a Private Clinical Dataset</u>, *R. Ranjbarzadeh et al.* • Paper 21: <u>MRIShift: Disentangled Representation Learning for 3D MRI Lesion Segmentation under Distributional Shifts</u>, *U. Rahman, G. Chen; K. Zhang* • Paper 34: <u>Gait Analysis from Pressure Distributions for Patients with Becker Muscular Dystrophy</u>, S. Suzuki, J. Lei • Paper 45: <u>Enhancing Wrist Fracture Detection and Classification through Deep Learning and XAI,</u> *S. Ali, A. Shariq Imran, Z. Kastrati, S. Mohammad; F. Alaya Cheikh* • Paper 46: <u>Graph-based ECG multiscale analysis for Emotion Detection</u>, *E. Di Salvo, C. Caporali, G. Scarano, S. Colonnese, T. Cattai* • Paper 51: <u>Medical Image Authentication and Self-Recovery Using Fragile Watermarking in the Frequency Domain</u>, *R. BOUARROUDJ, F. Souami, F. Zohra Bellala* • Paper 54: <u>Performance evaluation of a Photon-Counting micro-CT system for Spectral Imaging and its Applications</u> *T. Xie, Q. Liu* • Paper 64: <u>Adenoma discrimination by 3-Slices Washout Calculation on CT scans</u>, *L. XIA, M. MO OUTTAS, L. Zhang, E. Frampas, O. Deforges*
17:15	End

18:30	Reception

Tuesday- September 10th	
9:15	**Plenary Talk 3:** NOISE IN IMAGING: FOCUS ON CORRELATION AND NONLINEARITY, *A. Foi from Tampere University, Tampere, Finland* *Chair: A. Beghdadi, University Sorbonne Paris Nord, France*
10:15	Coffee break
10:30	**Oral Session (OS3):** Visual Information Coding and Representation *Chair: M. Wien, RWTH Aachen University, Aachen, Germany.* • Paper 27: Level-of-detail adaptive subdivision methods for the coding of dynamic mesh sequences with V-DMC, *P. PRA Rondao Alface, D. Nam, S. Yong Lim, L. Kondrad* • Paper 28: Enabling progressive dynamic mesh geometry data extraction in V DMC, *P. PRA Rondao Alface, L. Kondrad, , Kashyap Kammachi Sreedhar* • Paper 32: Optimization-Based Sensing for Compressed Learning Based on Structural Information, *M. Abdollahpour, C. Bockelmann, A. Dekorsy* • Paper 60: Improved predictive coding for animation-based video compression, *G. Konuko*
12:10	Lunch

14:00	**Poster session 2:** Image Analysis and Processing & Demo Session
	
	Chairs: H. Arabi & A. Sanaat, HUG, Geneve, Switzerland
	      • Paper 14: <u>Real-Time Depth-Based Multilayer Image Computation for 3D Displays</u>, *E. Dubar, Eva, L. Van Bogaert, A. Losfeld, G. Lafruit, M.Teratani* • Paper 18: <u>Performance Evaluation of Approximated Computing for Generalized Gaussian Functions, H. Kamei, S. Honda, K. Hayashi, N. Fukushima</u>
	      • Paper 19: <u>Synthetic Image Normalization for Image Quality Assessment of Detail Enhancement</u>**,** *S. Honda, H. Kamei, K. Hayashi, N. Fukushima* • Paper 24: <u>A Novel Artificial Intelligence-driven Technique for Enhancing Medical Imaging Techniques to Detect Non-Small Cell Lung Cancer </u>, *A. Zaernia, M. Youseffi, L. Parisi, R. Abd-Alhameed, R. Ma*
	      • Paper 33: <u>Enhancing Liver SPECT Image Quality: A Novel Approach to Mitigate Respiratory Motion Artifacts</u>, *N. Sinsoilliez et al.*

	• Paper 36: <u>An efficient crayfish optimization for advanced tracheal segmentation techniques in video endoscopy using 2D Non-Local Mean</u>, *A. Hamza, A. Oulefki, A. Amira, F. Kurugollu* • Paper 40: <u>A study about optimization of ultrasound image despeckling using speckle size estimation</u>, *M. Cocco, S. Sozzi, M. Basile, F. Gibiino, J. Cavazza, P. Semplici, A. Bechini, N. Vanello* • Paper 43: <u>Optimization of ultrasound image despeckling using speckle size estimation</u>**,** *M. Cocco, S. Sozzi, M. Basile, F. Gibiino, J. Cavazza, P. Semplici, A. Bechini, N. Vanello* • Paper 55: <u>CoutTree: dataset for tree counting using Vision transformer method</u>, *O. Elharrouss* • Paper 62: <u>A New Method for Uneven Illumination Correction of Wireless Capsule Endoscopy Images</u>, *T. Nguyen, M. Luong, J. Chaussard, H. Zaag, A. Beghdadi, T. Le-Tien* • Paper 63: <u>Hybrid Denoising and Super-Resolution Approach for EFTEM Tomographic Image Quality Enhancement.</u> *S. Sid Ahmed, Z. Messali, A. Beghdadi* • Paper 70: <u>Demo : Towards Zero-Latency Video Transmission through Frame Extrapolation</u>, *M. Vijayaratnam, E. Tartaglione, M. Cagnazzo, G. Valenzise, O. Benameur,, M. Leny, D. Nicholson* • Paper 73: <u>Demo: A Computational Perceptual Framework For Quality Assessment In The Context of Medical Imaging Diagnosis</u>, T. Yousra Nabila, A. Beghdadi, Z. Ming, F. Alaya Cheikh, M. Luong, H. Zaidi. • <u>Paper 74: Demo :Ultrafast Multi-Tracer Total-Body PET Imaging Using a Transformer-Based Deep Learning Model</u> *H. Sun, A. Sanaat, Y Huang, H. Wu, L. Lu, H. Zaidi* • <u>Paper 75: Demo : Deep Learning-based Triple-Tracer Brain PET Scanning in a Single Session</u> *Y. Hu, A. Sanaat , V. Garibotto, H. Zaidi*
15:45	Coffee Break

16:00	**Panel Discussion** on Medical Data Protection and Accessibility in the Age of Big Data and Deep Learning *Chair: G. Valenzise, L2S, CNRS, CentraleSupelec, Université Paris-Saclay, France* Participants: - **Jean-Pierre Hubaux**: Professor at EPFL, Academic Director of the Center for Digital Trust, and expert in data and privacy protection, information security, personalized health data protection, and federated learning. - **Pina Marziliano**: Executive Director of the Centre for Biomedical Imaging of EPFL, and expert in medical image processing. - **Valentina Garibotto**: Medical doctor and researcher, Head of the Nuclear Medicine Division at Geneva Hospital. - **Mihai Mitrea** : Professor at Institut Mines-Telecom; Telecom SudParis, France

17:30	End
18:45	Gala Dinner

Wednesday- September 11th	
9:00	Plenary Talk 4: VISION THROUGH THE INFORMATION-THEORETIC AI LENS: VARIATIONAL AND CONTRASTIVE TECHNIQUES IN EXPLAINABLE AI, *S.Voloshynovskiy Chair: F. Alaya Cheikh; NTNU, Gjovik, Norway*
10:00	Coffee break

10:30	**Oral Session (OS4):** Image Segmentation and Classification *Chair: R. Mohammed Ay ; Tehran University of Medical Sciences, Iran* • Paper 11: <u>Object segmentation in the wild with foundation models: application to vision assisted neuro-prostheses for upper limbs</u> , B. Atoki, J. Benois-Pineau, F. Baldacci, A. De Rugy • Paper 16: <u>Comparing stability and discriminatory power of hand-crafted versus deep radiomics: a 3d-printed anthropomorphic phantom study</u>, *O. A. Jimenez del Toro et al.* • Paper 31: <u>Assessment of Automatic Segmentation Tools for Ultra-Low-Dose CT in PET/CT Imaging: A Comparative Study with Low-Dose CT,</u> *S.Mostafapour et al.* • Paper 72: <u>Thyroidiomics: An Automated Pipeline for Segmentation and Classification of Thyroid Pathologies from Scintigraphy Images</u>**,** *M. Sabouri et al.*
12:00	Lunch

14:00	**Oral Session (OS5):** Visual Scene Analysis and Understanding *Chairs: A. Depeursinge, HES-SO Valais, Switzerland* • Paper 6: <u>Spacetime Gaussian Grouping for 4D object Segmentation</u>**,** *B. Wei, J. Marava, B. Besnard, M. Mo Outtas, K. Kpalma, N. Ramin, L. Zhang* • Paper 38: <u>Using Synthetic Images to Improve and Test Object Detection in the context of the Autonomous Vehicle,</u> *J. Jaspar, E. Viennet, D. Gualandris, J. L. Sauvaget, F. Soulié-Fogelman* • Paper 49: <u>Multi-Pose Human Action Recognition using deep learning ConvLSTM</u> *V. Sharma, D. Mishra,U. Shandilya* • Paper 61: <u>A New Lightweight Hybrid Graph Convolutional Neural Network - CNN Scheme for Scene Classification using Object Detection Inference</u> *A. Beghdadi, A. Beghdadi, M. Ullah, F. Alaya Cheikh, M. Mallem*
15:40	Coffee Break

15:55	Project Dissemination Session & Industry Talks
	Chairs: S. Colonnese; Sapienza University, Roma 1, Italy
	& M. Ullah; NTNU, Gjovik, Norway
	Project dissemination session
	Industry speakers (30 minutes, 10 minutes each)
	    • I1. Alexander Allemeersch from XEOS https://www.xeos.care/
	    • I2.Katayoun.doroud from Picotech https://www.picotechscanner.com/en •
	I3.Andrea Rosso from PMOD Technologies https://www.pmod.com/ ***Project dissemination posters (30 minutes, 1 minute oral presentation each)*** • P1. XR and new Media in Next Generation Networks by Stefania Colonnese (Sapienza University of Rome, Italy)
	    • P2 .NewEmma - Neural nEtwork Watermarking for Energy-efficient Mobile Multimedia Applications by Mihai Mitrea (ARTEMIS / SAMOVAR, TSP, IP Paris, Palaiseau, France)
	    • P3. Overview of the SINFONIA European project achievements (Yazdam Salumi, Univ.Geneva)
	    • P4. CS-NCCT: Cardiac Structures Segmentation in Noncontrast CT Images (Mohib Ullah, NTNU)

17:00	Closing Ceremony and Announcement of EUVIP 2025