

Thomas Sanchez

Research and education 2022- Postdoctoral researcher, CIBM-SP-CHUV-UNIL, Switzerland. • Working at the Medical Image Analysis Laboratory (MIAL) with Meritxell Bach Cuadra within the Center for Biomedical Imaging (CIBM) • Working on the European ERA-NET MULTI-FACT project to develop automated quality control for fetal brain MRI. 2018–2022 PhD in Computer Science, EPFL, Switzerland. • Thesis title: Learning to sample in Cartesian MRI – Supervisor: Volkan Cevher • Research interests: developing acquisition trajectories for MRI using data-driven approaches; deep-learning methods and rigorous uncertainty modelling. 2015–2018 Master in Computational Science and Engineering, EPFL, Switzerland. • Numerical Analysis, Machine Learning, Image processing, High-Performance Computing • Master Thesis on Learning-Based Non-Cartesian Compressive Sampling for dynamic MRI supervised by prof. Volkan Cevher. 2012–2015 Bachelor in physics, EPFL, Switzerland. Experience Feb.-Aug. Laboratory for Information and Inference Systems (LIONS, EPFL). 2018 Internship at LIONS, continuing the work started during my master thesis. February-July Intern at the Ageing in Vision and Action Lab, Paris. 2017 Developed a neural model for goal-directed spatial navigation based on optic flow. Relevant Skills ML Studied and worked on several of machine learning methods during my PhD GANs for inverse problems CNNs for reconstruction and uncertainty estimation RL for MR acquisition (Q-learning, MCTS) Reconstruction for non-Cartesian MRI Robust and interpretable fundus imaging Programming Very good knowledge of Python (including Pytorch), Matlab, Java and C++. Good knowledge of C and C#.

Languages

- French Native Speaker
- English Full proficiency
- German Good knowledge (B1 level)
- Spanish Good understanding

Selected Publications

Thesis

T. Sanchez, Learning to sample in Cartesian MRI. PhD thesis, EPFL, 2022.

Conference papers

Z. Sun, F. Latorre, T. Sanchez, and V. Cevher, "A plug-and-play deep image prior," in *ICASSP*, pp. 8103–8107, 2021.

T. Sanchez and I. Krawczuk et al., "Uncertainty-driven adaptive sampling via GANs," in *NeurIPS 2020 Workshop on Deep Learning and Inverse Problems*, 2020.

T. Sanchez et al., "Scalable learning-based sampling optimization for compressive dynamic MRI," in *ICASSP 2020*, pp. 8584–8588, 2020.

B. Gözcü, T. Sanchez, and V. Cevher, "Rethinking sampling in parallel MRI: A data-driven approach," in *27th European Signal Processing Conference*, 2019.

Pre-prints

T. Sanchez, I. Krawczuk, and V. Cevher, "On the benefits of deep RL in accelerated MRI sampling," 2021. Under review.

T. Sanchez, I. Krawczuk, Z. Sun, and V. Cevher, "Closed loop deep bayesian inversion: Uncertainty driven acquisition for fast MRI," 2019.