

## French German Workshop

### “Mathematische Bildverarbeitung / Traitement d'image mathématique”

Kaiserslautern, Fraunhofer ITWM, 2022, May 23-24

Monday, May 23

12.00 Arrival of French group, Lunch

13.00 **Tessa Nogatz (TUK, ITWM)**: Motion estimation in in-situ tests with morphological wavelets

13.20 **Valentin Penaud-Polge (CMM)**: Fully Trainable Gaussian Derivative Convolutional Layer

13.40 **Konstantin Hauch (TUK)**: Quantiles and Morphology for directional data

14.00 Coffee break

14.20 REMOTE talk

**Fabian Altekrüger (TUB)**: WPPNets: Unsupervised CNN Training with Wasserstein Patch Priors for Image Superresolution

14.40 **Francois Willot (CMM)**: Mechanical assessment of defects in welded joints: morphological classification and data augmentation

15.00 Coffee break

15.20 **Lovro Bosnar (TUK, ITWM)**: Texture synthesis and procedural defects for surface inspection

15.40 **Mateus Sangalli (CMM)**: Differential Invariants for SE(2)-Equivariant Networks

16.00 Poster session:

**Chiara Fend**: Adaptive Estimating Functions for Spatial Point Processes

**Natascha Jeziorski**: Stochastic geometry models for metallic surface textures

**Vladyslav Polushko**: Spectral analysis of georeferenced data for humanitarian aid

**Franziska Keilmann**: Estimating Fiber Directions using Anisotropic Gaussian Filters

**Lars Nieradzic**: Object detection on high resolution microscopy images

**Anna Nowacka**: CNN for crack segmentation in 3d concrete images: robustness wrt concrete composition

**Saeedeh Salajegheh**: Comparison of simulated and real compression tests for an improved material model of an AlSi foam

**Julia Amann**: Parametric Modelling of Geometric Anisotropy using Gibbs Point Processes

**Alexander Günther**: Structural analysis of Covid19 SR $\mu$ CT lung scans

**Niklas Rottmayer:** Synthetic Data for Machine Learning Segmentation of Highly Porous Structures from FIB-SEM Nano-tomographic Data

17.00 Break

18.00 Hike to Humberturm, starting at 11-Freunde-Kreisel

20.00 Dinner at Bremer Hof

Tuesday, May 24

9.00 **Alexander Geng (ITWM):** An introduction to Quantum Image Processing

9.20 **Romain Vo (CMM):** Deep learning approach for sparse-view X-ray computed tomography

9.40 **Tin Barisin (ITWM, TUK):** Applications of the Riesz transform to 3d crack segmentation in CT images of concrete

10.00 Coffee break

10.20 **Christian Jung (TUK):** Crack modeling via minimum-weight surfaces in 3d Voronoi diagrams

10.40 **Martin Bauw (CMM):** Anomaly detection for low-resolution pulse doppler radar signatures discrimination

11.00 Coffee break

11.20 **Benedict Grevelhörster (TUK):** Mathematical Modelling of Active Inhibitor Coatings

11.40 **Joao P. C. Bertoldo (CMM):** UNet Data Descriptor: deep image anomaly segmentation with one-class classification

12.00 Lunch

13.30 End