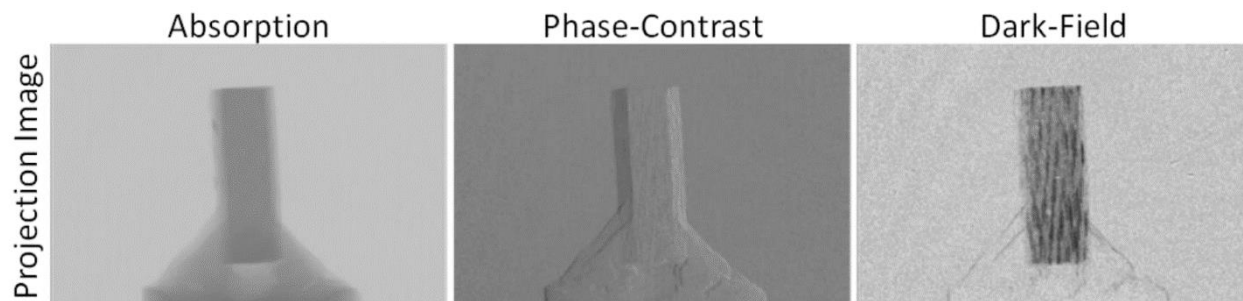# Visualization of Multi-Modal Phase Contrast CT Data

Motivation

Multimodal data refers to having information about one object from multiple image acquisition techniques. We at the University of Applied Sciences Upper Austria Campus Wels have a phase contrast computed tomography (CT) device, which delivers the three image modalities (see example image above).

Goal

The goal of this project is to implement and evaluate different visualization techniques and/or image fusion algorithms for phase contrast CT data; this includes

- Literature research on multi-modal data visualization
- Implementation of selected visualization and/or fusion algorithms in the open_iA framework [1].
- Qualitative and/or quantitative evaluation of the implemented fusion algorithms

Starting Literature

1. B. Fröhler, J. Weissenböck, M. Schiwarth, J. Kastner, C. Heinzl, open_iA: A tool for processing and visual analysis of industrial computed tomography datasets, Journal of Open Source Software, 4 (35), 1185, 2019, doi: 10.21105/joss.01185.
2. S. Maqsood, U. Javed, Multi-modal Medical Image Fusion based on Two-scale Image Decomposition and Sparse Representation, Biomedical Signal Processing and Control, Vol. 57, 2020, doi: 10.1016/j.bspc.2019.101810.
3. M. M. Malik, C. Heinzl, E. Gröller "Comparative Visualization for Parameter Studies of Dataset Series," IEEE Transactions on Visualization and Computer Graphics (TVCG), Vol. 16, No. 5, 2010, pp. 829-840. doi: 10.1109/TVCG.2010.20.

Kontakt

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