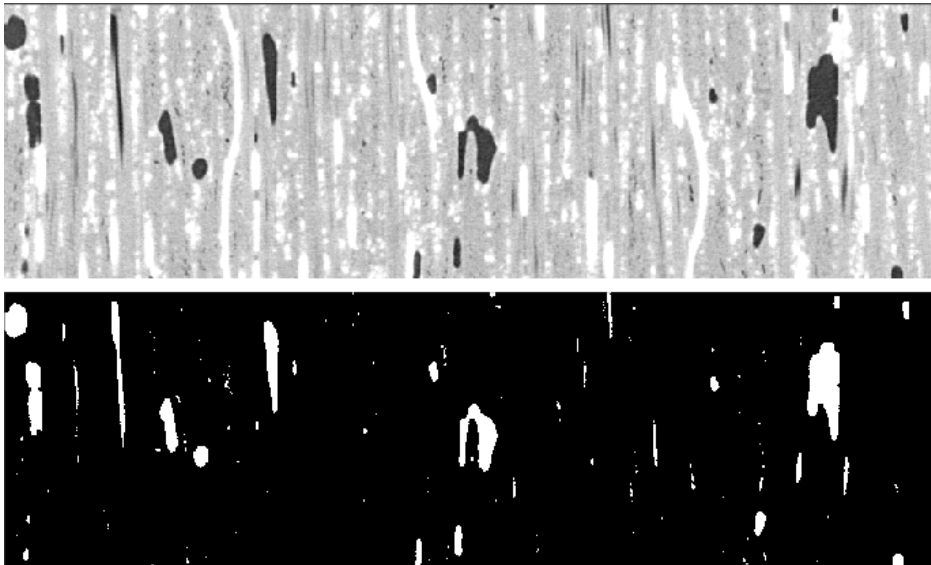


Master thesis topic

Topic: Implementation of a histogram-based segmentation method (using ITK)

In modern industry, computed tomography has established as a non-destructive testing method to characterize material features like pores or fibers within carbon fiber reinforced polymer specimens (CFRP). When analyzing these structures, one of the first steps is to segment these objects by separating them from the background. Your task will be to implement a new pore segmentation algorithm based on the gray-value histogram of an CFRP image using the Insight Segmentation and Registration Toolkit (ITK) and compare it to existing segmentation algorithms



Keywords: image processing, image segmentation, gray-value histogram based, threshold estimation

Starting literature:

- <http://www.itk.org/>
- <http://www.cs.uu.nl/docs/vakken/ibv/reader/chapter10.pdf>
- S. S. Varshney, N. Rajpal and R. Purwar, Comparative study of image segmentation techniques and object matching using segmentation, Methods and Models in Computer Science, Proceeding of International Conference, Delhi, 2009, pp. 1-6. doi: 10.1109/ICM2CS.2009.5397985
- Nobuyuki Otsu, "A Threshold Selection Method From Gray-Level Histograms", IEEE Transactions on Systems, Man, And Cybernetics, Vol. Smc-9, No. 1, January 1979. doi: 10.1109/TSMC.1979.4310076
- R. Beare, Histogram-based thresholding - some missing methods, 2011, <http://hdl.handle.net/10380/3279>

Advisor:

Johannes Weissenböck (johannes.weissenboeck@fh-wels.at)