

Lecture "Variational methods in material sciences"

Thursday, 16 September 2021 14:00 (1 hour)

Variational methods are powerful tools in image processing.

Basically we are searching for a suitable mathematical model (function) consisting of a data term and a prior which minimizer provides a solution of the task at hand and can be computed in an efficient, reliable way.

Typically this leads to non-smooth, high-dimensional optimization problems.

This talk deals with recent results obtained by applying variational methods for different tasks in material sciences as

- crack detection using optical flow models in image sequences,
- determination of deformation fields in electron backscatter diffraction image sequences,
- superresolution of material images by learned patch-based priors,
- and
- denoising of FIB images with directional total variation priors.

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Session Classification: Multidimensional Data Analysis