Bachelorthesis/ Project

Generation of artificial micrographs of pm steels

Project description
The powder-metallurgical process chain offers the precise and economical production of complex components made of iron-based materials. The component’s properties strongly depend on the microstructure which is created during compaction. The process parameters determine the shape of the powder particles and the pores. Using common machine learning approaches and experimental data, images of pm-microstructures have to be generated which resemble real micrographs regarding pore morphology and grain size distribution.

Your Tasks
- Implementation of a Machine Learning approach (GAN)
- Investigation of its applicability to different microstructural elements
- Combination with different approaches such as Voronoi to generate microstructures
- Validation of the model by microstructural investigations

Your Profile
- Ability to work autonomously
- Basic knowledge of powder metallurgy
- Basic programming knowledge

What we offer
- a comprehensive introduction into the topic and support during your work
- a pleasant work atmosphere
- you will be supported to finish your thesis in a timely manner

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