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Predicting a full
field solution via
CNN

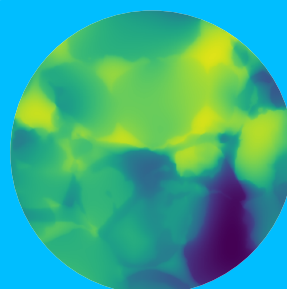
Microstructure homogenization is a (computationally) challenging field of research in itself, computing the effective homogenized response of a microstructured material. Instead of computing it via expensive methods the results can be efficiently approximated using machine learning. Homogenized results are mostly 'smoothed out', neglecting peak values, e.g. stresses, occurring in the microstructure which might be crucial for material failure analysis.

The main objective is to implement a machine learning model using Convolutional Neural Networks (CNN) to predict the full field solution of the response of the microstructures under loading. Further features describing the microstructure can be added into the model to improve its accuracy. All the required data will be provided.

Fields of Interest

- Python programming
- machine learning/neural networks
- knowledge in computer vision advantageous

Python,
Convolutional
Neural
Network



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