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Deep Learning for Image Stitching

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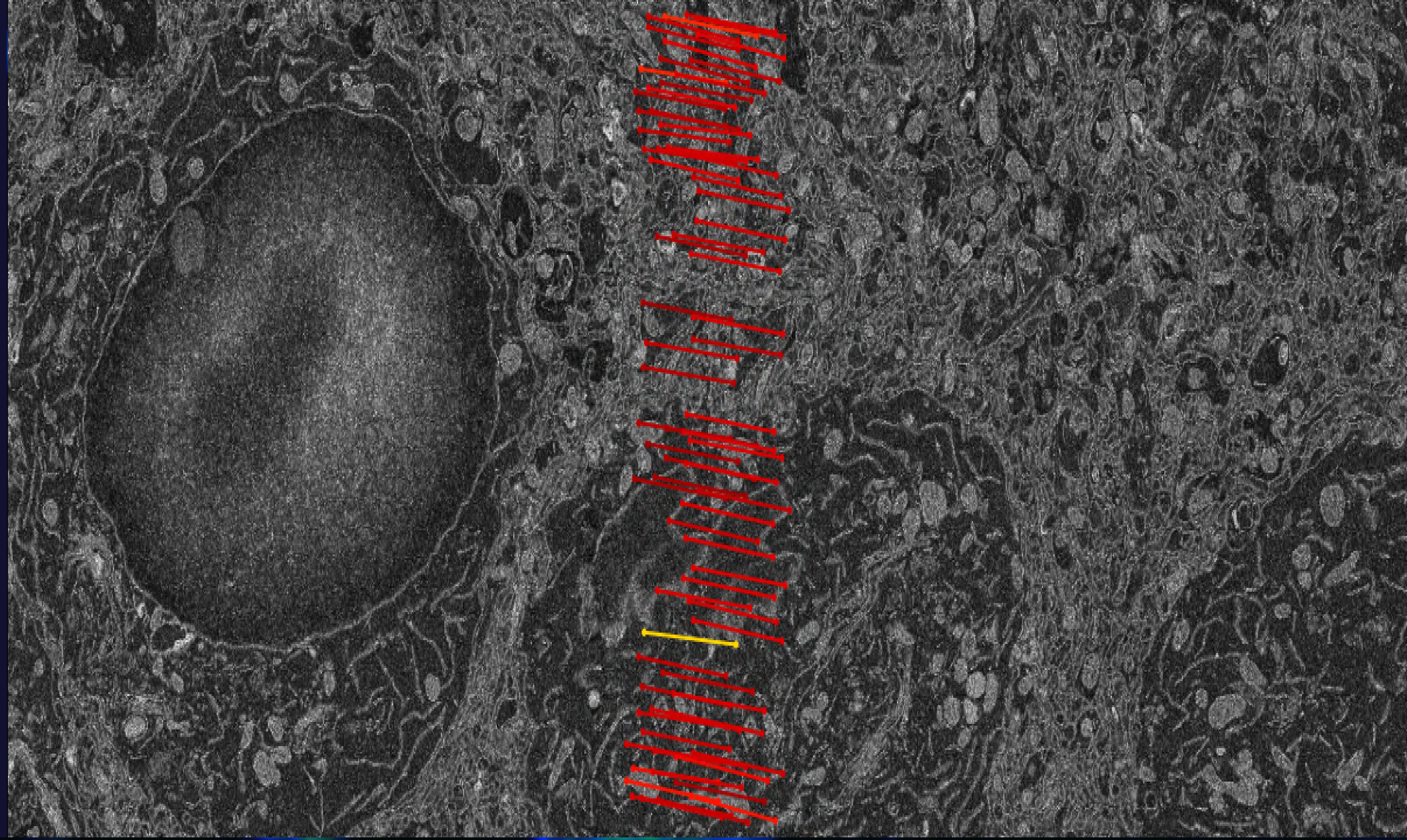


Objectives

The main goal is to become familiar with deep learning image stitching methods.

The simple stitching process composes of feature detection, description and matching. By localisating the distinctive features, correspondences between images can be found.

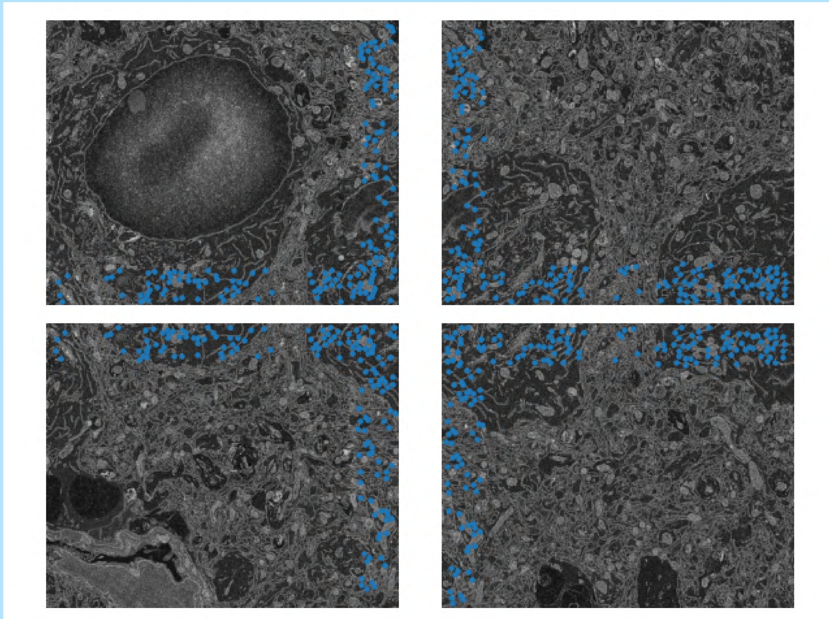
The algorithmic methods for solving these problems are compared to deep learning approaches.

Experimental neural networks are trained to perform one of the tasks from image stitching pipeline.

Proposed Solutions

The deep learning is used for image stitching microscopic images, which contains lots of structures.

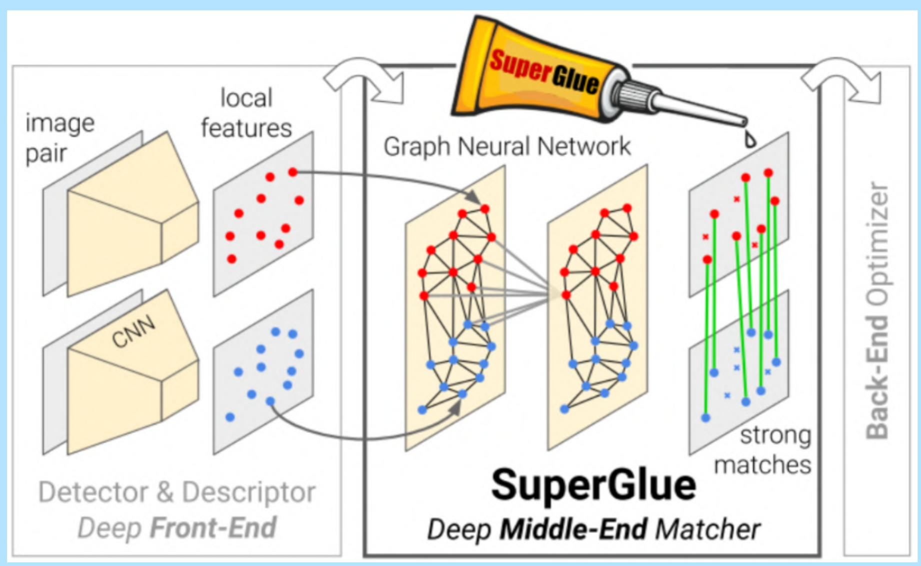
The proposed stitching pipeline using deep learning methods is suitable for stiching images from grids.



Used Methods

SuperPoint
- CNN
- Detector and Descriptor

SuperGlue
- Attentional GNN
- Matcher



Results

Evaluation of matching on augmented images with three pixel disperison:

99% Baseline	**88%** Blur
97% Brightness	**97%** Rotation

Stitched image from pipeline: