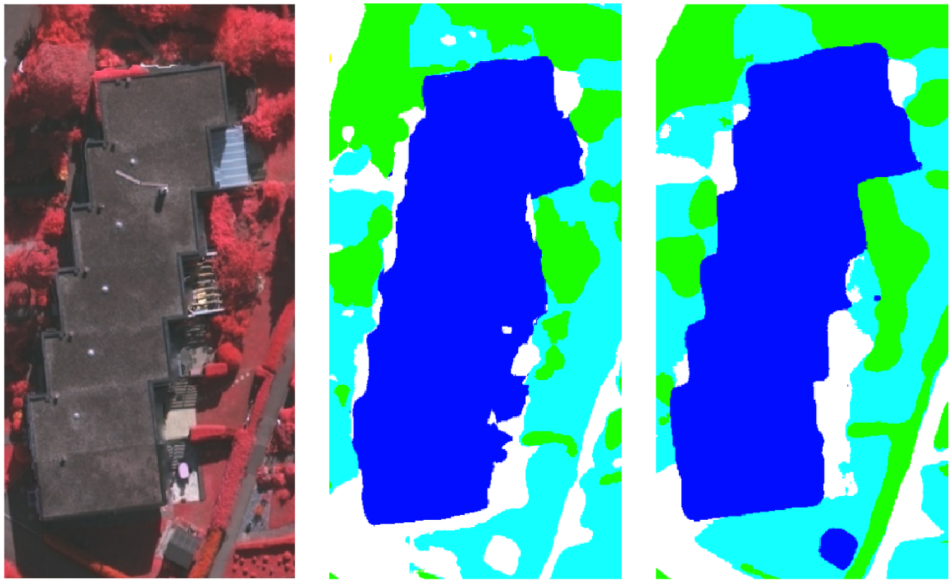
Classification with an Edge: Improving Semantic Image Segmentation with Boundary Detection

D. Marmanis, K. Schindler, J. D. Wegner, S. Galliani, M. Datcu, and U. Stilla (ARXIV 2016)



- Semantic segmentation of high-resolution aerial images using boundaries
- DCNNs: Contextual information over very large windows
- Problem: Loss of spatial resolution, blurry object boundaries
- Adding boundary detection to SEGNET encoder-decoder architecture, FCN-type models
  - Boundary likelihoods as an additional channel
- Ensemble prediction with SEGNET, VGG and FCN
- Boundary detection improves semantic segmentation with CNNs.
- $>$ 90% overall accuracy on the ISPRS Vaihingen bechmark