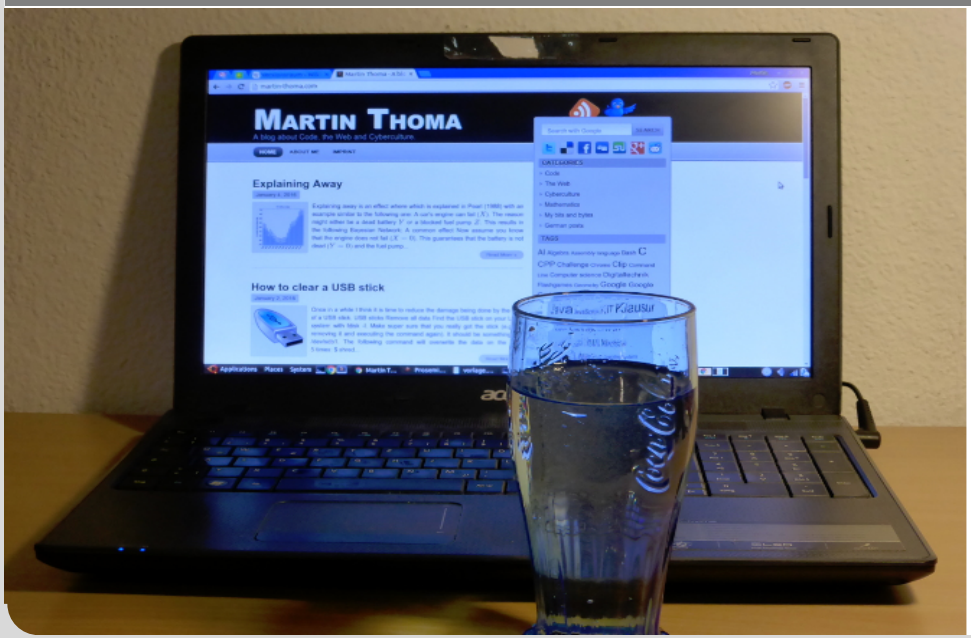
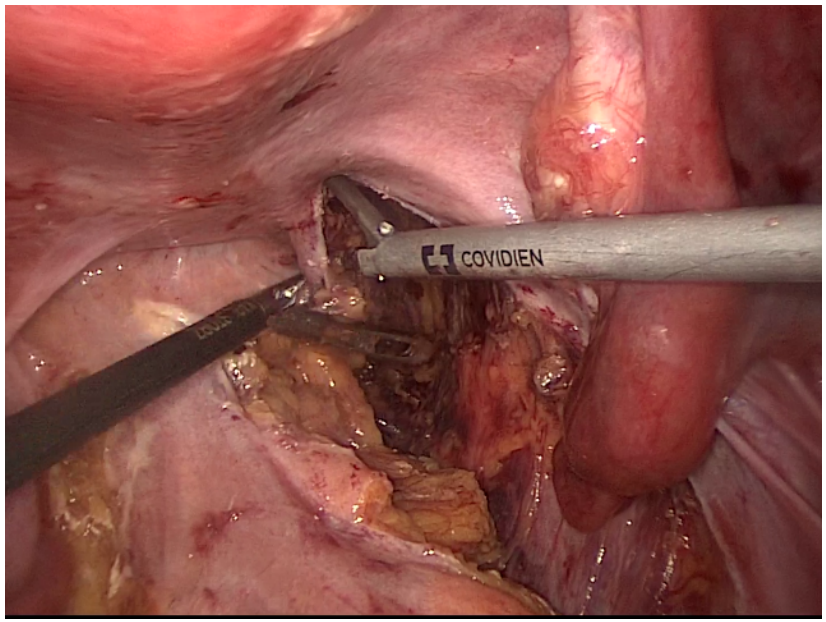
Karlsruher Institut für Technologie

A Survey of Semantic Segmentation

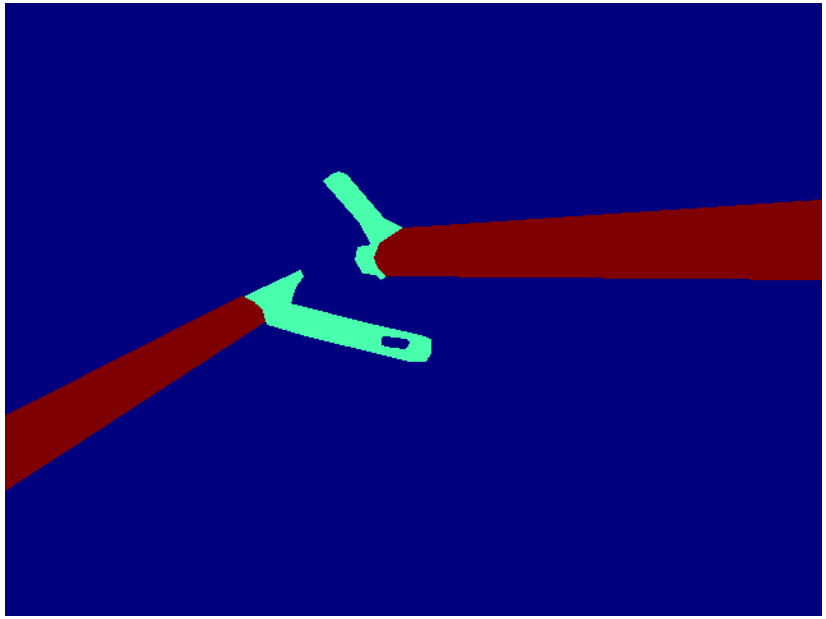
Martin Thoma | 17. Februar 2016



Pixelweise Segmentierung

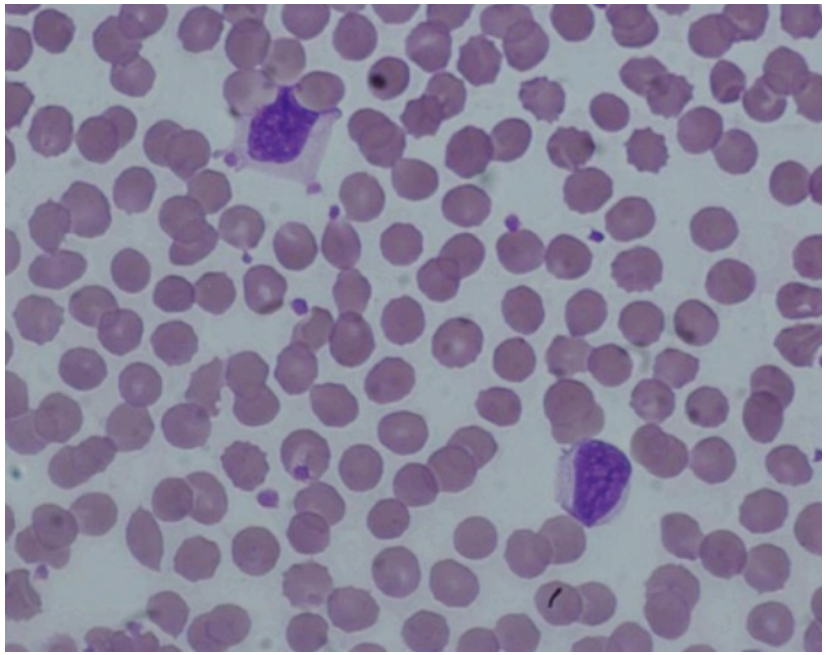


Input

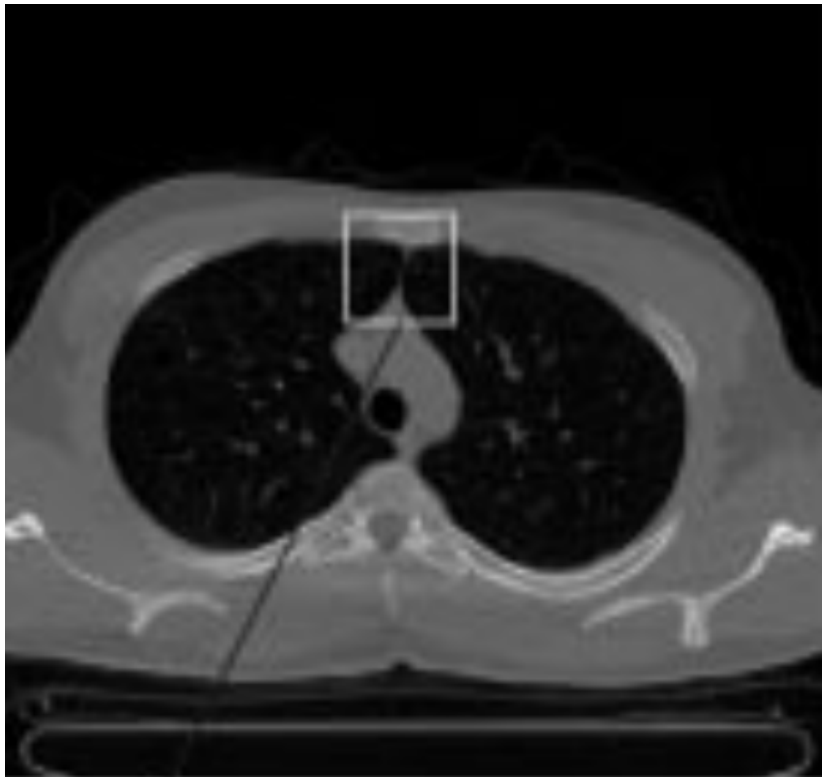


Label / Output

Pixelweise Segmentierung



[Sharif 2012]



[Hu 2001]

Taxonomie

TODO

Verfahren

Allgemein

- **Sliding Window + Allgemeiner Klassifizierer**
- Markov Random Field / Conditional Random Field
- CNN + Tricks (vgl. Marvin)

Allgemeine Klassifizierer

- Random Forests
- SVMs
- Neuronale Netze

Danke!

Gibt es Fragen?

Bildquellen

- J. M. Sharif, M. F. Miswan, M. A. Ngadi, Md Sah Hj Salam. *Red Blood Cell Segmentation Using Masking and Watershed Algorithm: A Preliminary Study*. 2012.
- S. Hu, E. Hoffman, J. Reinhardt. *Automatic lung segmentation for accurate quantitation of volumetric X-ray CT images*. 2001.

Literatur

- J. Shotton, J. Winn, C. Rother and A. Criminisi: *Textonboost: Joint appearance, shape and context modeling for multi-class object recognition and segmentation*. 2006.
- J. Shotton, M. Johnson and R. Cipolla: *Semantic texton forests for image categorization and segmentation*. 2008.
- Y. Yang, S. Hallman, D. Ramanan and C. Fowlkes: *Layered object models for image segmentation*. 2012.
- Insgesamt 119 Quellen, vgl. Paper für den Rest.

Folien, LaTeXund Material

Der Foliensatz sowie die LaTeXund TikZ-Quellen sind unter
github.com/MartinThoma/seminar-pixel-exact-classification

Kurz-URL: tinyurl.com/semantic-segmentation