Software Lab:

Modeling: ★★☆☆☆
Mathematics: ★★★★☆
Programming: ★★★★★

Feature Identification from Construction Drawings by Deep Learning Algorithms

Setting

Large shares of construction drawings for buildings are still only paper based or even hand drawn and not available in modern digital formats. There is no tool at hand that is able to convert construction plans into a digital representation including topological and semantic information. However, for the human eye, the features of these drawings are easily recognizable, making this a prime field to use deep learning networks. In this software Lab, a suitable deep learning network should be built and trained to detect common features of construction drawings.

Task

- Do a literature review on current deep learning technology inquire on suitable libraries to be used for the given problem
- Implement a deep learning network to recognize and assign features from construction plans into a digital format
- Train and test the network with varying difficulty
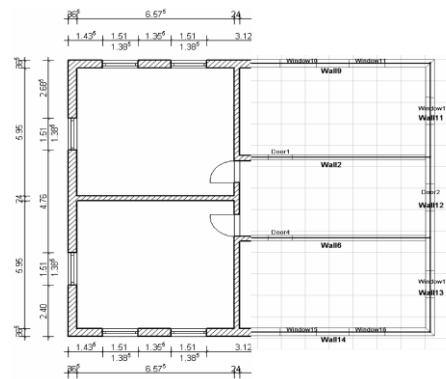
Cooperation with the University of Applied Science Munich

This project will be a joint work with students of the University of Applied Sciences with experience in deep learning. It cannot be guaranteed that the topic is chosen there likewise. If not, the workload will be reduced accordingly.

Supervisors

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References

[1] Berkhahn, Volker, et al. "Re-Engineering Based on Construction Drawings-From Ground Floor Plan to Product Model." Proceedings of the Xth international conference in computing in civil engineering, ICCCBE. 2004.

[2] Komorowski, S., and V. Berkhahn. "Neural networks in the re-engineering process based on construction drawings."