Enhancing Road Maps by Parsing Aerial Images Around the World

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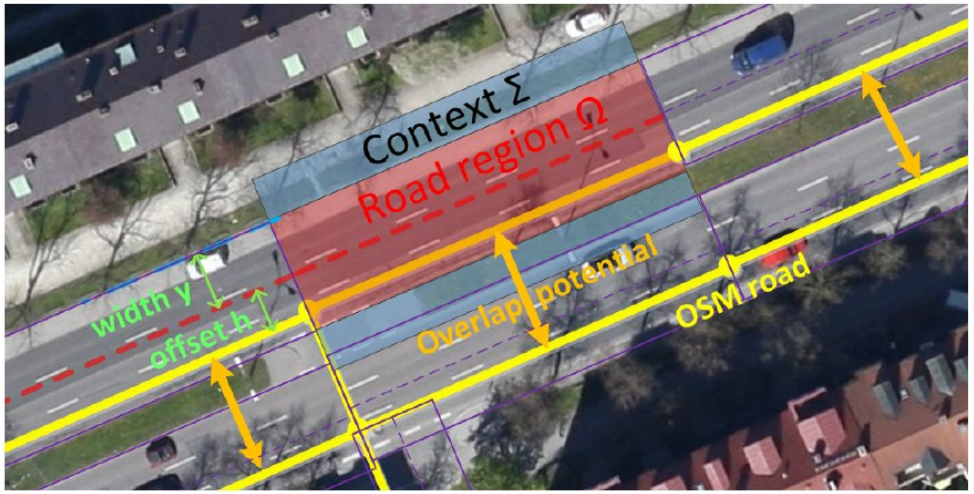

- Exploit aerial images in order to enhance freely available world maps (e.g., with road geometry)
- Formulation as inference in a Markov random field
- Parametrized in terms of the location of road-segment centerlines and width
- Parametrization allows efficient inference and returns only topologically correct roads
- Energy encodes the appearance of roads, edge information, car detection, contextual features, relations between nearby roads as well as smoothness between the line segments
- All OpenStreetMaps roads in the whole world can be segmented in a single day using small cluster of 10 computers
- Good generalization: can be trained using only $1.5km^2$ aerial imagery and produce very accurate results in any location across the world
- Outperforming state-of-the-art on two novel benchmarks