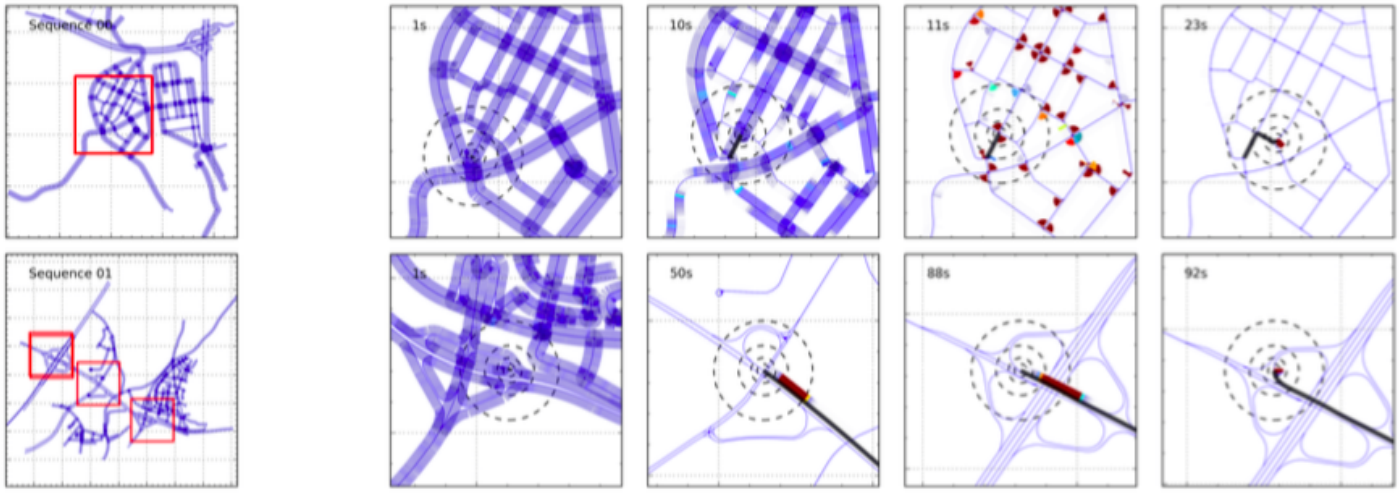
Map-Based Probabilistic Visual Self-Localization

M. A. Brubaker, A. Geiger, R. Urtasun (PAMI 2016)



- Describes an affordable solution to vehicle self-localization which uses odometry computed from two video cameras & road maps as the sole inputs

- Contributions:
  - Proposes a probabilistic model for which an efficient approximate inference algorithm is derived
  - The inference algorithm is able to utilize distributed computation in order to meet the real-time requirements of autonomous systems
  - Exploits freely available maps & visual odometry measurements, and is able to localize a vehicle to 4m on average after 52 seconds of driving

- Evaluates on KITTI visual odometry dataset