



VISTA – Collision warning

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Problem definition

Detect moving objects

- scan (laser range sensor) or photo (omnidirectional camera) acquisition
- extraction of moving objects

Track moving objects

- velocity estimation for moving objects in the surrounding of a vehicle
- prediction of future states

Potential applications

Advanced Driver Assistance Systems

- inform the driver about potential collision points
- generate a warning if necessary

Automatic breaking

- autonomous breaking in high risk situation

Autonomous driving

- navigation in urban environments

Techniques

Raw data processing

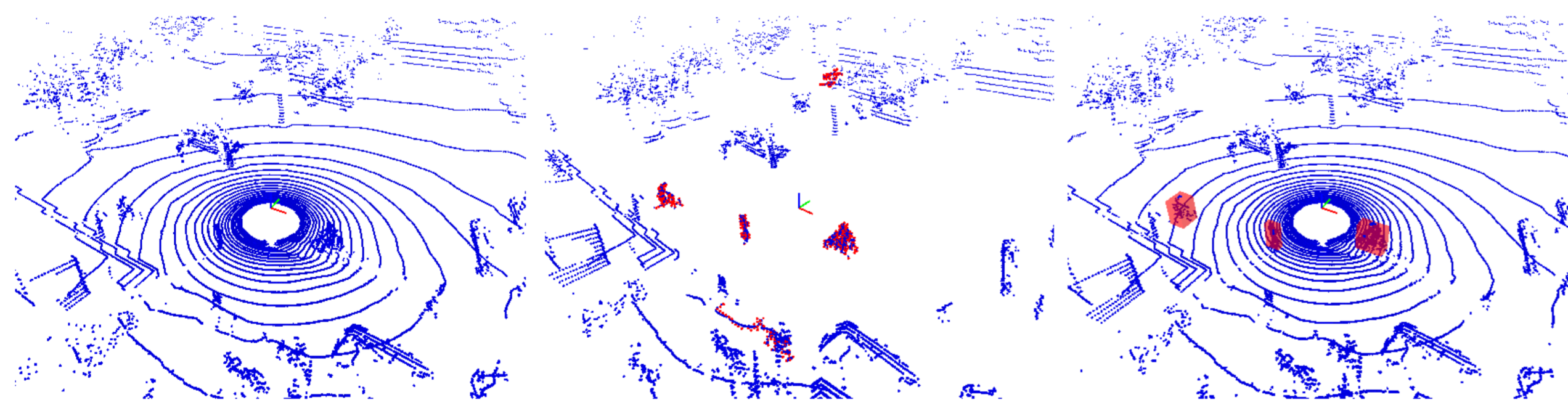
- extracting features in a point cloud and an image
- detection of dynamic parts of scene
- analysis of such dynamic parts and dynamic objects extraction

Velocity and position estimation

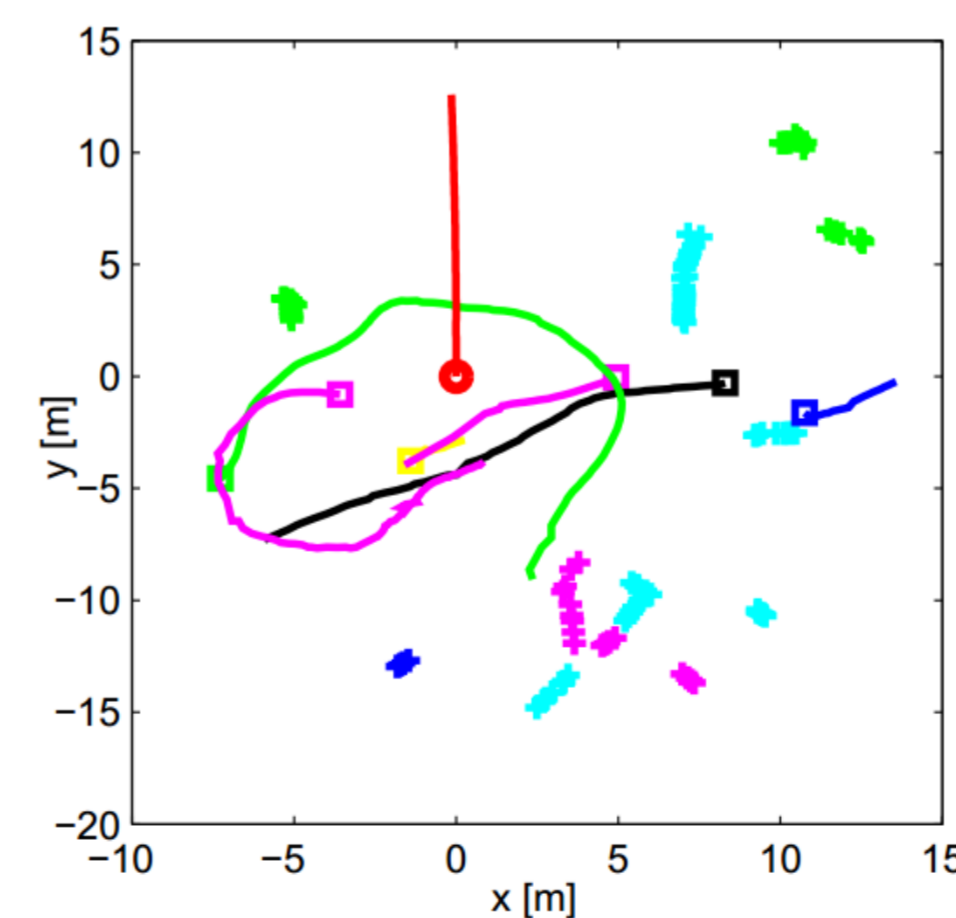
- Kalman filtering
- estimation on manifolds

Results

Moving objects detection



Moving objects tracking



Contact

VISTA

Computer Vision Innovations for Safe Traffic

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Investing in future!



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