Two Fundamental Questions in Mobile Robotics

What is the state of the world?

State Estimation

Which action to execute?

Action Selection

Focus of this Course

What is the state of the world?

State Estimation

Focus on Geometric Estimation

What does the world look like and where is the robot?
Topics & Planned Schedule

- 1st half of the term: Stachniss & Chebrolu
- 2nd half of the term: Klingbeil & Kuhlmann

Part 1 – Stachniss

- Least squares
- Graph-based SLAM
- Pose-graphs and landmarks
- Robust optimization for SLAM
- Camera models
- Relative orientation of the image pair
- Fundamental and essential matrix: F & E

Lectures, Exercises, and Exam

- Lectures as video recording
- Tutorials & questions via Zoom
- Homework assignments
- Deadlines: see assignment sheet
- Oral exam

People

Cyrill Stachniss
Nived Chebrolu

Homework Assignments

- Deadline given on the assignments
- Exam admission: 50% of the points of the homework assignments
- Coding is an essential part of the homework assignments
- Submission in groups of 2 students
- Assignment/submission via eCampus
- Limit collaboration among groups (zero tolerance on plagiarism)
Problems?

- In case of problems, please contact me or Nived Chebrolu via Email:
  
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