Advanced Techniques for Mobile Robotics

Introduction

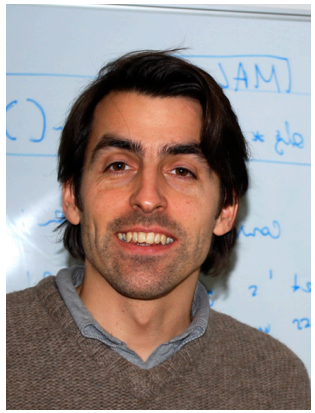
Wolfram Burgard, Cyrill Stachniss,

Kai Arras, Maren Bennewitz

Lecturers

Wolfram Burgard, AIS

Cyrill Stachniss, AIS



Kai Arras, SRL

Maren Bennevitz, HRL

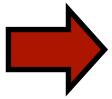
Topics

- Compact course on linear algebra
- Tools (Gnuplot, Octave)
- Robot operating systems
- Least squares error minimization
- Graph-based SLAM
- Calibration problems
- Clustering
- Object recognition and boosting
- Tracking
- Data association
- RANSAC
- POMDPs
- Paper writing and statistical testing

Sprit of the Course

Mixture of

- Approaches to relevant problems in robotics
- Hands on the problems – practical work
- Projects within the semester
- Introduction to scientific working



Less of a traditional lecture/exercise style

What is Needed

- Course: Introduction to Mobile Robotics
- Basic math skills (LA, probabilistic concepts)
- Programming skills

Exercise

- No “traditional” homework assignments
- Instead: projects that need to be solved during the semester
- Two hours of exercise every two weeks

Exams

- Oral exam