Robotics 2
Introduction

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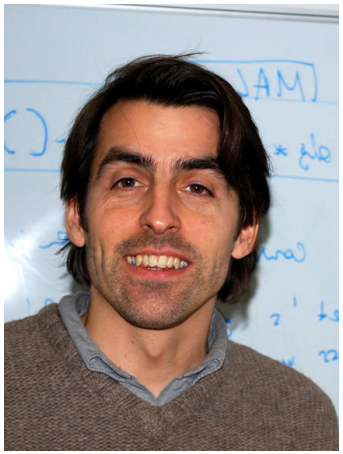
Kai Arras, Maren Bennewitz, Wolfram Burgard

Lecturers

Cyrill Stachniss, AIS

Wolfram Burgard, AIS

Maren Bennevitz, HRL

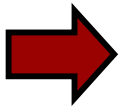


Kai Arras, SRL

Giorgio Grisetti, AIS

Robotics 2

- Introduction to scientific working
- Scientific presentations, less lecture style
- Hands on the problems – practical work
- Scientific writing – how to write paper
- How to give a conference talk



No classic lecture/exercise

What is Needed

- Motivation to work on one project for around half a semester
- Read a series of scientific papers
- Programming skills
- Writing skills
- Presentation skills
- Course: Introduction to Mobile Robotics

Research Topics

- Dynamic trajectory optimization
- Odometry calibration
- 3D camera calibration
- Tracking and Data Association
- Scan Matching – ICP
- Scan Matching – correlative
- Scan Matching – RANSAC
- Graph SLAM
- Clustering
- …

Lectures

- Tools (Gnuplot, LaTeX, Octave)
- Compact course on linear algebra
- Least squares estimation
- Calibration problems
- Graph-based SLAM (Lu&Milios, TORO)
- Data association & RANSAC
- Tracking
- People detection with Boosting
- Cluster algorithms
- Paper writing
- Statistical testing

Exams

- Oral exam

Prerequisites

- Hand in a scientific paper (~Feb 2011)