

Robot Mapping

This Course

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AiS Autonomous
Intelligent
Systems

Topics

- Simultaneous Localization and Mapping
- Kalman filter, EKF, UKF
- Information filter
- Particle filter
- Graph-based approaches
- Least squares error minimization
- Robust optimization approaches
- Hierarchical approaches
- Data association
- SLAM front-ends
- Appearance-based approaches
- Long term operation
- Semantic mapping

Sprit of the Course

Mixture of

- Introduction to robot mapping & SLAM
- Key milestones of the past 20 years
- Relevant state-of-the-art approaches for robot mapping
- Hands on the problems – practical work

Prerequisites

- Basic math skills (LA, probabilistic concepts)
- Basic programming skills
- Useful: having attended the Introduction to Mobile Robotics course

Exam

- Oral exam

Who Attended Introduction to Mobile Robotics?

Lecture and Exercise

- Lecture: Mondays 10-12
- Exercise: Tuesdays 10-12
- 22.10.13: short lecture & octave exercise

To-do

- Install octave on your notebook
- Bring your notebook to the exercises

Questions and Answers

<https://groups.google.com/forum/#!forum/robotmapping-ws1314>

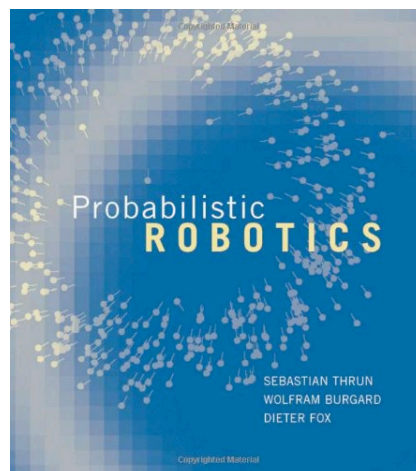
The screenshot shows a web browser window displaying a Google Groups forum page. The browser's address bar shows the URL <https://groups.google.com/forum/?hl=de#!forum/robotmapping-ws1314>. The page header includes the Google logo, a search bar with the text "Nach Themen suchen", and user information for "+Cyrill".

The main content area is titled "robotmapping-ws1314" and is marked as "Privat geteilt". It shows "1 von 1 Themen (1 ungelesen) ☆" and options to "Verwalten · Mitglieder · Über". A message states: "Für diese Gruppe gibt es keine Willkommensnachricht." Below this is a link to "Willkommensnachricht hinzufügen".

A single post is visible, titled "Location (2)", posted by "Von mir" with "2 Beiträge - 1 Aufruf" and a timestamp of "09:46". The post content is partially obscured by a blue box. The left sidebar contains navigation options: "Meine Gruppen", "Startseite", "Markiert", "Favoriten", and "Zuletzt angezeigt". A yellow callout box under "Favoriten" says: "Klicken Sie auf das Sternsymbol einer Gruppe, um sie zu Ihren Favoriten hinzuzufügen." The footer includes copyright information: "© 2013 Google", "Datenschutz - Nutzungsbedingungen - Google-Startseite".

Material

- Slides
- Lecture recordings
- Literature (papers) on the course website
- Thrun et al. “Probabilistic Robotics”



Feedback

Talk to me or send me email!

The earlier you provide feedback the faster and easier things will change...

Questions?