Hochschule
Bonn-Rhein-Sieg
University of Applied Sciences

Robot Manipulation

Lab Class

WS17

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Goals

Help you improve with

- Research
- Scientific approach
- Software skills

The lab classes

- **You** are responsible for your own learning
- Email is the official means of communication of the university. I expect you to read all of the emails and LEA posts related to the class.
- A number of students will be selected randomly every lecture to provide explanations and comments about the contents of the lecture and lab classes.
- Each lab class the topics and/or papers to be discussed the next session will be announced.
  - Not showing up for a lab class is not an excuse. You should be prepared!

Evaluation

- Continous evaluation
- The lab class is worth 30%
  - Assignments are worth 15%
  - Project is worth 15%
- Contributions can get you up to 5% of points maximum.
- Don’t forget to cite other’s work! Plagiarism is a serious offense and will not be tolerated.

Assignments

- Due dates: Mondays at 22:00
- Submissions are individual unless stated otherwise.
- Only files with that follow the name convention will be counted: RM_<LastName>_Assignment_Number.pdf
- No handrwitten scanned submissions. You must use LaTeX! Exceptions: Drawings of reference frames.
- Assignments which contain less than 50% correct solutions, will not count towards your grade.
- Please post problems or questions first in the forums in LEA.

Project

- A Cartesian trajectory controller (CTC) would receve a desired Cartesian positon in a given frame and control the arm in such a way that is moves in a smooth line motion to the final goal
- Advanced Welding Test from RoboCup Work Rulebook [1]
- Basic idea: The end effector needs to follow a given contour
  - Examples of contours: sine, cosine, straight lines
  - However, your planner should be able to handle other trajectories

[1] http://www.robocupatwork.org/download/rulebook-2017-01-24.pdf

Student participation

- Flipped classrom teaching
  - You need to prepare in advance for the lecture and labs.
  - Learning is not a monologue on my part
  - Learning cannot be done at the end of the course before the exam
  - **You** need to be proactive
- Attendance to the lab sessions
  - Student presentations on the chapter currently being covered
  - Quizzes covering lecture topics will be randomly given out
  - Weekly some papers will be assigned for presentation or disscussions for the week after
- Contributions are points awarded to students who provide *insightful* content during discussions and presentations.