

Social Robotics

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Exercise Sheet 10

Due: July 15, 2019

Exercise 10.1

When looking through the lecture slides for the following exercises there may occur some questions regarding the topics covered in this semester. Please collect those questions and bring them to the next lecture session (July 22). The end of this session is reserved for answering them, and any other questions you may have regarding the content of the lecture and exercises.

Exercise 10.2

In this exercise, each group is asked to design a social robot and an experiment to evaluate that robot.

- (a) Design: Describe a robot that you would like to build. Describe its purpose, appearance, personality, possible interactions, and maybe an AI component that functions as the robot's central processing unit. Explain your design. If you need background information, then please consult the lecture slides and the survey by Fong and colleagues¹.
- (b) Reflect upon the question if there are ethical concerns regarding the introduction of your robot into human society.
- (c) Research Question: Formulate a research question based on your previous considerations.
- (d) Hypothesis: Formulate one hypothesis that is of interest. Provide a rationale for it.
- (e) Experiment Design: Describe how you plan to investigate the hypotheses using the scientific methods you know from the lecture (i.e., what is your sample, which variables do you measure, which measures do you use, which questionnaires could be suitable).
- (f) Data-Analysis Planning: describe how you plan to analyze your data regarding the hypothesis using the statistical methods you know from the lecture.

Exercise 10.3

Prepare a short presentation (10 minutes) describing your robot and research idea, and be prepared to present them in the lecture session on July 22.

¹Fong, T., Nourbaksh, I., Dautenhahn, K. (2003) A survey of socially interactive robots, *Robotics and Autonomous Systems* 42:143–166.