SIC Saarland Informatics Campus

# Psychological Theories for Intelligent and Interactive Systems - **Projects**

# Topics

- Work Design
- Trust
- Bounded rationality
- Cognitive Load
- Situation Awareness

# Approaches for coming up with ideas

Think about

- What technologies or applications do you use
- What are typical situations in your daily life that involve technology
- What are challenging situations where technology could help
- What problems do you hear or see from others when interacting with techology / AI systems

# Approaches for coming up with ideas

1. System design and prototyping:

How could your new knowledge from psychology be applied to improve these systems or develop new ones? What implications do the theories have for the design of web pages, apps, AI-systems, ...? What would be a good prototype to showcase these implications (wireframe, mock up, video with use case, wizard-of-oz demo, etc.)

2. Empirical study:

How do the theories apply in these situations? What hypotheses can you derive about human behavior in interaction with technology based on them? How can you test them? Many methods you can use: online or offline study, qualitative or quantitative, questionnaire, interviews,  log data, etc.

# Schedule

Over the next 3 weeks:

- Brainstorm ideas
- Formulate your research hypothesis or design implications
- Make a study / implementation plan
- **Meet with Anna between 6th-10th of June to get feedback on idea**
- Present your idea and plan on **20th June, max. 10 minutes**:

Over the following 3 weeks:

- Execute your plan
- Present your project on **11th of June, max. 15 minutes**

# Presentation, Idea and plan

## 20th June, max. 10 minutes

- Introduction and Motivation:
  - What is the topic, scenario, technology, or problem?
  - Why is it interesting, why is it challenging?
  - Get us excited.
- Present your study idea or implementation plan (see next slide)
- Summarize the expected outcome

## Study plan

- Research question / Hypothesis
  - What do you want to find out. How does this related to the theory?
- Study Design
  - Conditions: what do you compare?
  - Within- or between-subject?
- Participants
  - how many, who, how recruited
- Setup and task
  - What material, software, hardware will you need
  - How is the study conducted
  - What do participants do
- Procedure
  - Chronological description of what happens in the study
- Analysis
  - What data do you collect
  - How do you analyze it

## Implementation plan

- Use case
  - Describe a scenario that showcases how your envisioned system will be used
- Design Implications / Requirements
  - Translate the theory into technological requirements
- Features
  - Translate the requirements into features
- Tools and implementation
  - How will you prototype and showcase your idea?
    E.g. mockup, video demonstration, wizard-of-oz demo, ...

    Protoyping tools:
    - Adobe XD
    - Wireframe.cc
    - Balsamiq Mockups
    - OmniGraffle

# Presentation, Project

## 11th of June, max. 15 minutes

- Introduction and Motivation:
  - What is the topic, scenario, technology, or problem?
  - Why is it interesting, why is it challenging?
  - Get us excited.
- What is your hypothesis / research question?
- Background and related work:
  - what scientific work do you build on?
  - Explain relevant parts from theory and how they relate to your project
  - what other work or concepts do you build on?
  - What have others done in this space?
- Describe the study or the design implications and features of the system
- Show the results

# Tips for working in a group

- Set up a first meeting **this** week.
- Agree on two meeting times per week
- Set up a communication channel for in-between meetings (Email, Messaging App, Forum, ...)
- In the first meeting:
  - get to know each other
  - talk about your strengths and interests. Everybody is good at different things – make use of it!
  - Try some brainstorming activities to come up with project ideas (considering the questions above)
- In each meeting, assign clear tasks with deadlines and talk about the expectations for these tasks. You might want to keep track of them using e.g. Trello
- If you want, designate a group leader that keeps track of the tasks and organization

**Be honest, respectful and have fun!**