Workshops on Human Factors in Robotics

Bologna

Tuesday, 08.04.2025

Dear colleagues,

This year we want to try something new at the annual conference in Bologna. We are presenting two workshops: one on collaboration between humans and robots and one on robots in public spaces. Below you will find the abstracts of the workshops. Join us if you are interested. ☺

Timetable:

09:00 - Workshop #1 - Building Better Together

12:00 - Lunch break – we'll head out for a pizza ☺

13:00 - Workshop #2 - Design Guideline for Robots in Public Spaces

Location: Conference venue at Piazza San Giovanni in Monte 2,

Book your place: https://tinyurl.com/HFES-workshop-on-robots (20 people per slot)

Building Better Together:
Understanding Human-Machine Collaboration

Organizers: Sascha Kaden & André Dettmann

Ever assembled IKEA furniture with a friend? This experience perfectly illustrates the complexity of successful teamwork - and it's exactly what we'll explore in this hands-on workshop about human-machine collaboration. Just as two people naturally coordinate while building furniture - passing tools, preparing parts, or explaining next steps - we want to understand how humans and machines, in our case robots, can achieve this same level of seamless cooperation. While humans can often work perfectly in a team, machines need to learn some things first: to enable machines to develop different problem-solving strategies and to dynamically reassign roles or tasks. Especially when the task is not pre-defined/programmed.

Through a practical IKEA furniture assembly exercise, we'll explore:

- How team members anticipate and respond to each other's needs

- The role of communication in successful collaboration

- How partners adapt and reassign tasks dynamically

- What makes human teamwork effective and how we can apply these insights to human-machine partnerships

This workshop bridges human factors research with technological innovation, helping us understand how machines can become better team players in manufacturing. By observing how humans naturally work together, we'll try to gain insights that can help shape the development of human-robot collaboration.

Towards a Design Guideline for Robots in Public Spaces -
Application and Evaluation

Organizers: Dorothea Langer, Marty Friedrich & Paul Schweidler

When mobile robots are used in public spaces, interaction design requirements can be characterized by three main components:

- First, the robot should follow basic ethical standards and social norms of the public space.
- Second, the robot may need to deal with passerby in order to fulfill its task.
- Third, almost no assumptions can be made about the people who the robot might encounter, about their motivations and intentions, or about the circumstances of the encounter.

Consequently, interaction design for public robots can quickly become very complex. To help deal with this complexity, we developed a design guideline that sets some cornerstones, building on canonic findings from the literature, best practices, and heuristics. In our workshop we will jointly apply a preliminary version of this guideline to the interaction with a mobile service robot in order to assess the guideline's practicability and quality and to discuss possibilities for improvement.