

Open Educational Resources on Enabling Technologies in Wearable and Collaborative Robotics

WeCoRD

IO1 Winter School: Components for Wearable and Collaborative Robots

DAY 1:

08:00 – 9:00 Introduction to Winter School:

A brief welcome presentation from the dean, self-introduction from each student, identifying the teams, introducing the project and Winter School in general terms.

09:00 – 09:45 Presentation: State-of-the-art and Major Challenges in Wearable and Collaborative Robots

Barkan Ugurlu and Emmanuel Vander Poorten will give a presentation, discussing the state-of-the-art, major challenges, WeCoRD goals, and Winter School goals.

09:50 – 10:35 Presentation: Self-Regulated Learning Approach of WeCoRD

Ebru Kilic-Bebek will give a presentation regarding the educational approach and objectives of the project.

10:35 – 11:50 Coffee Break

11:50 – 12:20 Presentation: Ford Otosan's use-case study.

Melike Kodal will present a use-case from Ford Otosan's truck factory where handling of a heavy machine part needs to be assisted.

12:25 – 13:10 Presentation: Guest Speaker (Katja Mombaur, occupational exos)

13:10 – 14:00 Lunch Break

14:00 – 15:00 Presentation: User Centered Design – Contextual Design Approach (Matteo)

Zeynep Karapars and Ali Gokkurt will give a presentation that provides a helicopter-view to discuss how the design affects human experience and acceptance.

15:00 – 17:00 Group discussion

Each team starts to build its own roadmap. (progression slides EBRU?)

DAY 2:

08:00 – 08:30 Getting together, plain chat, warming up (Ebru: stimulator)

09:30 – 10:00 Engineering Design Tools

Baris Akin will give a plenary talk regarding the mechanical engineering design tools.

10:05 – 11:05 Presentation: User Centered Design – Engineering Design Tools

Ramazan Unal will disclose the aspects of engineering design tools with an emphasis on human-centered design.

11:10 – 11:35 Group discussion

11:35 – 11:50 Coffee Break

11:50 – 12:50 Presentation: Guest Speaker (Matteo Laffranchi)

12:50 – 13:10 General Q&A and Feedback Session

13:10 – 14:00 Lunch Break

14:00 – 14:45 Presentation: Guest Speaker (WeCoRD ethics, Heike Felzmann)

14:50 – 17:00 Group discussion

Each team starts their own design.

DAY 3:

09:00 – 09:30 Getting together, plain chat, warming up.

09:30 – 10:10 A graduate student's view on Wearable Robot Design

Sergey Kolyubin and Ivan Borisov: Functional and Bio-inspired Design

10:15 – 11:15 Presentation: Sensor and Actuator Development

Barkan Ugurlu will give a presentation regarding the case studies in sensor and actuator development for wearable and collaborative robots.

11:15 – 11:30 Coffee Break

11:30 – 12:30 Presentation: Control Aspects

Ozkan Bebek will give a presentation regarding low level control, middle level control, communication between the components and RTOS.

12:30 – 13:10 General Q&A and Feedback Session

13:10 – 14:00 Lunch Break

14:00 – 14:45 Presentation: Guest Speaker (Jan Veneman)

14:50 – 17:00 Group discussion

Each team focus on their design.

DAY 4:

09:00 – 09:30 Getting together, plain chat, warming up.

09:30 – 10:00 Kostas Nizamis

10:00 – 11:00 Presentation: Guest Speaker: A physiotherapist's take: Nuray Yozbatiran

11:00 – 12:50 Coffee Break, Group Discussion, more coffee and more discussion

12:50 – 13:10 General Q&A and Feedback Session

13:10 – 14:00 Lunch Break

*14:00 – 17:00 Group discussion
Each team focus on their design.*

DAY 5:

09:00 – 09:30 Getting together, plain chat, warming up.

09:30 – 10:30 A graduate student's view on Collaborative Robot Design

Baris Balci explains briefly ROS and EtherCAT./Mehmet Can Yildirim explains his take in research activities at TUM.

10:35 – 11:35 Presentation: Guest Speaker: Collaborative robots (Arash Ajoudani)

11:00 – 12:50 Coffee Break, Group Discussion, more coffee and more discussion

12:50 – 13:10 General Q&A and Feedback Session

13:10 – 14:00 Lunch Break

14:00 – 17:00 Final Presentations and Concluding the Winter School