Name	**Human–Robot Interactions and Reflective Robotics – Following the Boston Dynamics Course Week**
Codes	M-KF-E-301-FS-252602-15, M-KF-301-FS-252602-15, B-KF-401-FS-252602-15
Host	Future School — Integrated Course by Future Care Lab × Interaction Design (IxD) MA
Location	**Classroom/Studio or workshop**/ External venue/ Online

Basic info						
Course Type	Contact hours	Home study hours	Subject type	Semester	Comprehensive Subject	Subject credit value
Practice	48	110 (research, prototyping , documentation)	Practice (KFI)	Spring semester		5 credits

Recommendation
This course is designed for students who completed the Boston Dynamics course week or who wish to develop a deeper understanding of Human–Robot Interaction and embodied AI through semester-long research and prototyping. The course also offers valuable perspectives for students interested in how such interaction principles may translate to future healthcare and assistive applications. It is particularly suitable for those interested in **experimental robotics, behavioural design, embodied interaction, and design-led research methods**. Students work in multidisciplinary teams or on an independent project to develop R&D-level projects that translate their course week insights into more refined, testable robotic behaviours and interaction concepts.

Short description
This semester-long KFI course builds directly on the Boston Dynamics course week and provides a structured environment for students to develop deeper, research-driven explorations of Human–Robot Interaction and reflective robotics. Through iterative prototyping, embodied experimentation, and agent-based behaviour design, students expand their initial concepts into more complex interaction models. The course covers embodied sensing, behavioural logic design, TouchDesigner workflows, scenario development, somaesthetic analysis, and methods for transferring simulated or sketched behaviours onto physical robot prototypes. By the end of the semester, each student team produces a coherent R&D prototype supported by clear documentation and reflective design research. In addition to general Human–Robot Interaction contexts, the course also considers how embodied robotic behaviours and bodily interaction principles may be relevant in therapeutic, rehabilitative, or assistive contexts where sensitivity to movement, comfort, and bodily experience is essential.

Teachers			
Name	Contact information	Short BIO	Open hours
Renáta Dezső (MOME Robotics Lab)	renata.dezso@mome.hu	Course organiser; senior design researcher specialising in Human–Robot Interaction,	by appointment

		somaesthetic design methods, and reflective robotics. Lead of the MOME Robotics Lab.	
Tamás Fogarasy (MOME IXD MA)	tamas.fogarasy@mome.hu	Head of the Interaction Design MA programme; interaction designer focusing on embodied interaction, prototyping workflows, and complex interaction design methodologies. Leads the IxD MA curriculum and co-teaches across advanced interaction design courses.	by appointment
Kálmán Tarr (MOME Robotics Lab)	kalman.tarr@mome.hu	Technical lead and prototyping specialist, with expertise in TouchDesigner-based behaviour design, embedded systems. Co-developer of experimental robotics systems within the Robotics Lab.	by appointment

Course scheduling			
Course format		Weekly class appointments	
E.g. group and individual consultations according to a pre-announced schedule		8.30-11:20, Room M_016	
Details of each session's type and schedule, showing the teacher's role			
Week	Date	Weekly educational content	Studio/workshop
1	20 February	Reconnecting with insights from the BD course week; defining personal/ team research focus	Studio - Classroom
2	27 February	Foundations of embodied sensing; perception-to-action loops	Studio - Classroom
3	6 March	TouchDesigner for agent behaviour design (logic, states, triggers)	Studio - Classroom
4	13 March	Behavioural cloning methods: translating human motion to robotic behaviour	Studio - Classroom
5	20 March	Hardware prototyping I – sensors, microcontrollers, control pipelines	Studio - Classroom
6	27 March	Integrating AI-driven agents with physical robots	Studio - Classroom
7	10 April	*Mid-semester critique with invited reviewers*	Studio - Classroom
8	17 April	*Somaesthetic and aesthetic perspectives in HRI; reflective robotics*	Studio - Classroom
9	24 April	Multi-agent interaction basics; coordination strategies	Studio - Classroom
10	8 May	Final presentations, R&D documentation hand-in	Studio - Classroom
11			
12			

Course completion requirements, prerequisites, and evaluation

Students' duties:
Active participation in weekly sessions
Development of a semester-long R&D prototype (team-based)
Mid-semester progress presentation
Final presentation
Submission of an R&D documentation package (PDF + video)

Requirements, assignments	Form of evaluation	Evaluation criteria	Deadline	% in evaluation
Mid-semester presentation	Oral presentation	Research clarity; direction; feasibility	Week 7	20%
Final R&D prototype	Physical/digital prototype evaluation	Technical execution; behaviour quality; embodiment; iteration depth	Week 12	45%
R&D documentation	PDF + video	Coherence; research justification; reflective analysis	Week 12	25%
Participation	Studio engagement	Collaboration, consistency, preparedness	Continuous	10%

General requirements:
Minimum 80% attendance.
Safe lab practice is mandatory.
Teamwork must be clearly documented.

e.g. eligibility criteria for the exam, free-form description

Course materials and literature

Mandatory literature

Dautenhahn, K. (2007). *Methodology & themes of Human–Robot Interaction*.
Höök, K. et al. (2017). *Soma-Based Design*.
Shusterman, R. (2012). *Thinking Through the Body*

Course notes and presentations

Slides, reference materials, and code examples provided by the instructors and the Robotics Lab.

Recommended literature

- **Lee, W., Lim, Y. K., & Shusterman, R. (2014).** *Practicing Somaesthetics in Interaction Design*.
- **Jardine, J. (2022).** *Animate Empathy and Intercorporeal Nature*.
- **Dijkerman, H., & de Haan, E. (2007).** *Somatosensory processes subserving perception and action*.
- **Fagerberg, P. et al. (2010).** *Designing for bodily play and movement*.
- **Šabanović, S. (2010).** (light, but still not social robotics) *Integrating human practices into robotics research*.

Learning outcomes

Knowledge	Understand advanced HRI concepts, embodied AI principles, and reflective robotics frameworks.
Skills	Able to prototype interactive robot behaviours using TouchDesigner and embodied experimentation, with an awareness of how such behaviours may translate to sensitive contexts such as healthcare or assistive

	environments. Ability to analyse and integrate embodied sensing and behavioural logic.
Attitude	Openness to experimentation, reflection, and interdisciplinary collaboration. Sensitivity to somaesthetic and ethical aspects of robotics.
Autonomy and Responsibility	Ability to independently develop and manage an R&D project. Responsible and safe use of lab equipment. Ability to articulate and justify design decisions.

Exemption
<u>No exemption may be granted from participation in or completion of the course.</u> Exemption may be granted from completing certain tasks or attending specific sessions. Certain tasks may be replaced by equivalent activities. Full exemption may be granted

Curricular connections		
Subject	Parallel courses	Course proportion in subject
	Course Week: Human–Robot Interactions and Reflective Robotics with Boston Dynamics	No connected course units
Subject prerequisites	Course prerequisites	Is it available as an elective?
Completion of the Human–Robot Interactions and Reflective Robotics with Boston Dynamics course week **(recommended, not strictly required).**	None	Yes

Guidelines and rules for the use of artificial intelligence in the course
The use of artificial intelligence at the university is subject to the Artificial Intelligence and Plagiarism Policy of the Moholy-Nagy University of Arts.

Materials needed for the course	**Who provides the materials?**
Laptop	Tech Park / Programme / **Student** / Other
Robotic kits, sensors, microcontrollers, lab equipment	**Tech Park** / Programme / Student / **Other**

Other information, comments