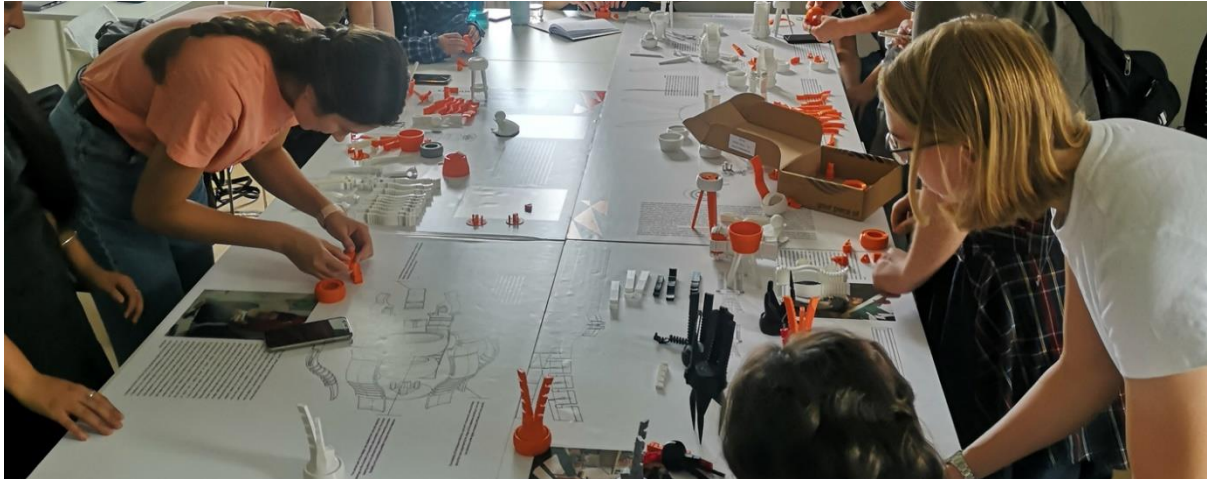


Course title:

Exploring Non-Bionormative Prosthesis Design Collaborative Practices in 3D prototyping



Course instructors:

- Dr. Dezső Renáta - senior research fellow at MOME Academy – dezso.renata@mome.hu
- Luca Szabados Invited lecturer- szabadosluca@gmail.com

Course code

B-KH-401-A-242501-06

M-KH-201-A-242501-06

M-KH-E-201-A-242501-06

Course Description:

This course offers an in-depth exploration of the co-design of a 3D-printed modular upper arm prosthesis, fostering a comprehensive understanding of the design, customization, and application of prosthetic technologies in real-world scenarios. Under the guidance of Luca Szabados, who brings firsthand experience and her insights into congenital limb impairments, students will engage in design research and prototyping. The curriculum emphasizes the integration of 3D printing, aiming to enhance students' proficiency in both technical skills and theoretical knowledge. Central to the course is the examination of the co-Ability phenomenon, recognized for its innovative approach to posthumanist studies and its implications for relational being. Through collaborative efforts and open-source projects, the course addresses critical issues in disability and social impact, promoting deeper scientific inquiry into networked research methodologies and the potential of digital fabrication in prosthetic design.

Whether you are pursuing a bachelor's or master's degree, the course extends a warm welcome to you at the state-of-the-art MOME Tech Park, our newly established digital laboratory. During this

week-long workshop, you will engage in hands-on experimentation with 3D printing and transform digital data into tangible prototypes, encouraged to adopt a problem-seeking approach.

Application

Number of participant: 8-14 student

Schedule: MOME Courseweek 2024 autumn

Outcome:

Basic knowledge about theories and methods of collaborative and networked creativity, the influence of globalization on digital art technological conditions, and solutions to collaborative work. Participants will develop practical skills in using digital design tools and 3D printing technologies. Students will be able to integrate these technologies into the design and customization of modular prosthetics, reflecting on the real-world applicability of their projects. Students will understand the importance of Research through Design (RtD) methodologies and how these can be employed to advance prosthetic design. Through the exploration of posthumanism, transhumanism, and relational networks, students will be able to connect theoretical knowledge to practical design challenges. Students will leave the course with a tangible prototype or a detailed project proposal ready for further academic scrutiny or practical application. Students will gain insight into the potential of design projects to address and transform social issues, equipped to propose solutions that are both innovative and socially responsible.

Prerequisite for completing the course (please underline):

- *Laptop:* Equipped with 3D modeling software. It is preferred that students already possess basic skills in 3D modeling.
- *Notebooks and Pens:* For note-taking and sketching during sessions.
- *Scrap Paper:* For rough work and spontaneous designs.
- *Marker Pen:* A permanent marker, such as a Sharpie, for labeling and creating durable markings on various surfaces.

These prerequisites ensure that all participants are adequately prepared to engage in both the theoretical discussions and practical activities throughout the course.

Course recommendation

This course is designed for students who are eager to explore the world of digital technology, preferably with prior experience in 3D modeling. Get ready for stimulating group work and hands-on workshops that foster active student participation!

Links: <https://www.renatadezso.com/momecourse/>

Readings:

- Bishop, Ganising, Parikka (2016): "Across and Beyond: Post-digital Practices, Concepts, and Institutions" in: Bishop et.al. (eds), , Sternberg Press and transmediale e.V., pp 1-10,
- Dezso, R., 2023. Prototypes as a Structured Information Source in Theory Nexus, in: From Abstractness to Concreteness – Experiential Knowledge and the Role of Prototypes in Design Research. Presented at the International Conference 2023 of the Design Research Society Special Interest Group on Experiential Knowledge (EKSIG), Politecnico di Milano, Department of Design, Politecnico di Milano, Italy, pp. 470–489.
- Dezso, R., 2019. Co-Ability Practices. Proceedings of the 2019 8th biannual Nordic Design Research Society (Nordes) conference at Aalto University, Finland 0.
- Goodley, D., Lawthom, R., Runswick Cole, K., 2014. Posthuman disability studies. *Subjectivity* 7, 342–361. <https://doi.org/10.1057/sub.2014.15>
- DE COUVREUR, L. AND GOOSSENS, R. 2011. Design for (every)one : co-creation as a bridge between universal design and rehabilitation engineering. *CoDesign* 7, 2, 107–121.
- MANZINI, E. 2015. Design, When Everybody Designs: An Introduction to Design for Social Innovation. The MIT Press, Cambridge, Massachusetts.
- Gaver, W., 2012. What should we expect from research through design?, in: Proceedings of the 2012 ACM Annual Conference on Human Factors in Computing Systems- CHI '12. Presented at the the 2012 ACM annual conference, ACM Press, Austin, Texas, USA, p. 937. <https://doi.org/10.1145/2207676.2208538>
- Margolin, V., Margolin, S., 2002. A "Social Model" of Design: Issues of Practice and Research. *Design Issues* 18, 24–30. <https://doi.org/10.1162/074793602320827406>
- Meekosha, H., Shuttleworth, R., 2009. What's so 'critical' about critical disability studies? *Australian Journal of Human Rights* 15, 47–75. <https://doi.org/10.1080/1323238X.2009.11910861>
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- Zimmerman, J., Forlizzi, J., 2014. Research Through Design in HCI, in: Olson, J.S., Kellogg, W.A. (Eds.), *Ways of Knowing in HCI*. Springer, New York, NY, pp. 167–189. https://doi.org/10.1007/978-1-4939-0378-8_8
- BADER, C., KOLB, D., WEAVER, J.C., ET AL. 2018. Making data matter: Voxel printing for the digital fabrication of data across scales and domains. *Science Advances* 4, 5, eaas8652.
- Buchanan, R., 2007. Strategies of Design Research: Productive Science and Rhetorical Inquiry, in: Michel, R. (Ed.), *Design Research Now: Essays and Selected Projects*, Board of International Research in Design. Birkhäuser, Basel, pp. 55–66. https://doi.org/10.1007/978-3-7643-8472-2_4