

TRA 385 Machine Learning and AI through Artistic Innovation

AI in Computational Arts, Music, and Games



What is TRA 385?

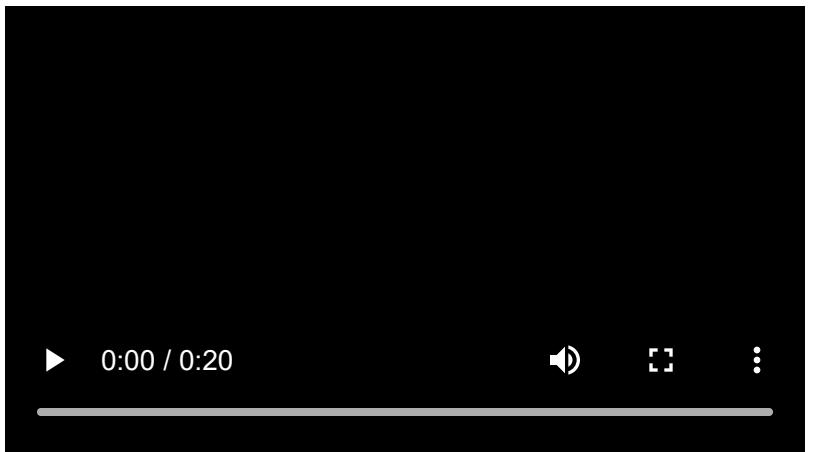
- The Intersection of Art and AI
- Hands-on Experiences with ML and AI tools
- Considerations in Societal Implications

Course Structure

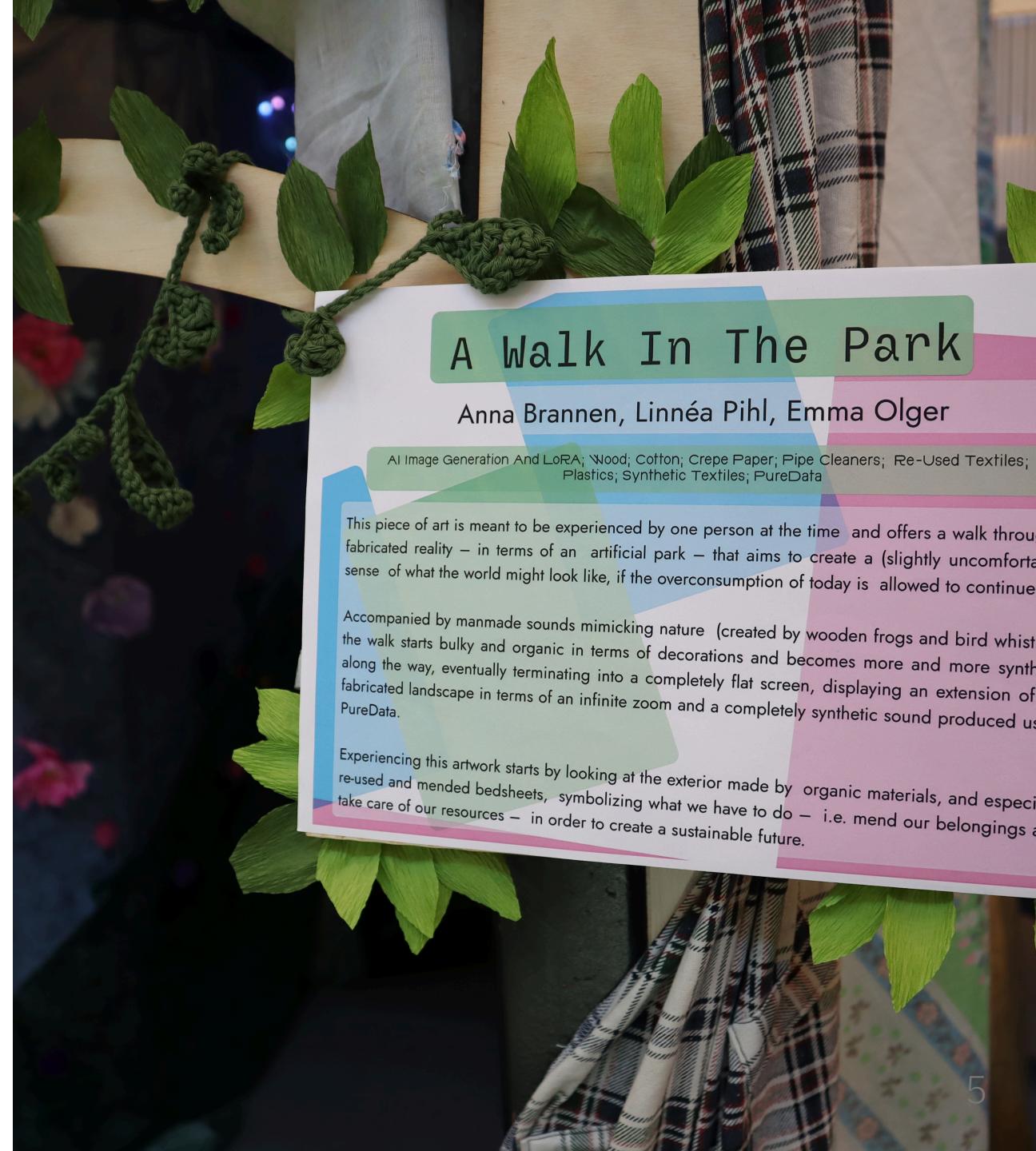
Activities				
Lectures	Introduction to Art and Technology	Introduction to AI and ML	Creativity, Group work, and Tools for Innovation	
Tutorials	Creative Coding with Sound (PureData)	Multimedia Design with TouchDesigner	Deep Learning for Multimedia	Interactive ML with Physical Computing
Project	Project Proposal	Design Iterations	Final Prototype	Reflections

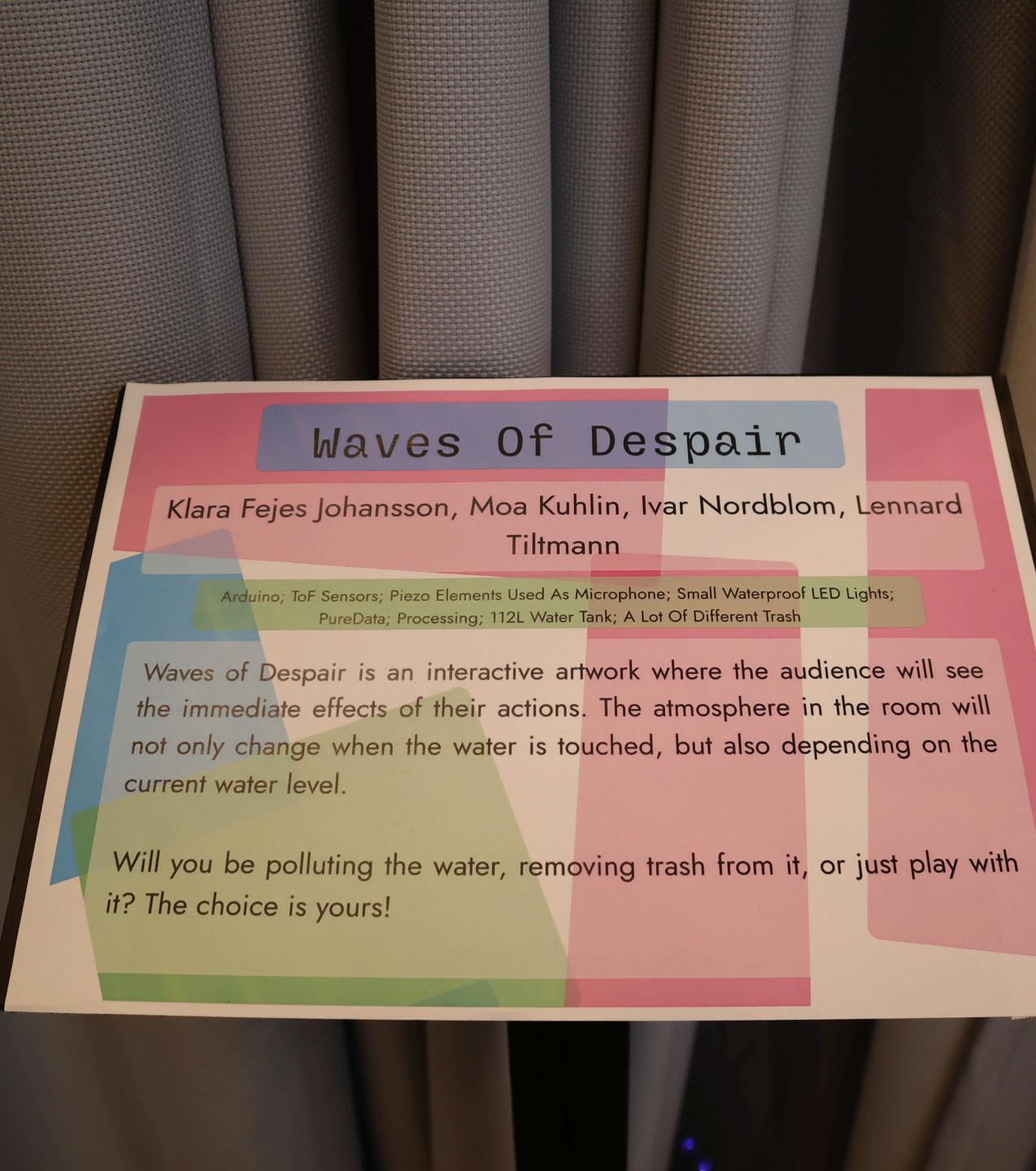
Example Artworks from Students

A Walk in the Park (2024)

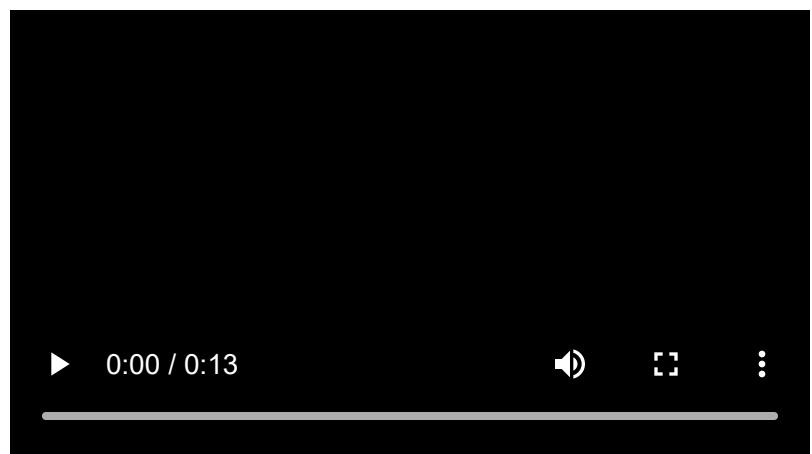


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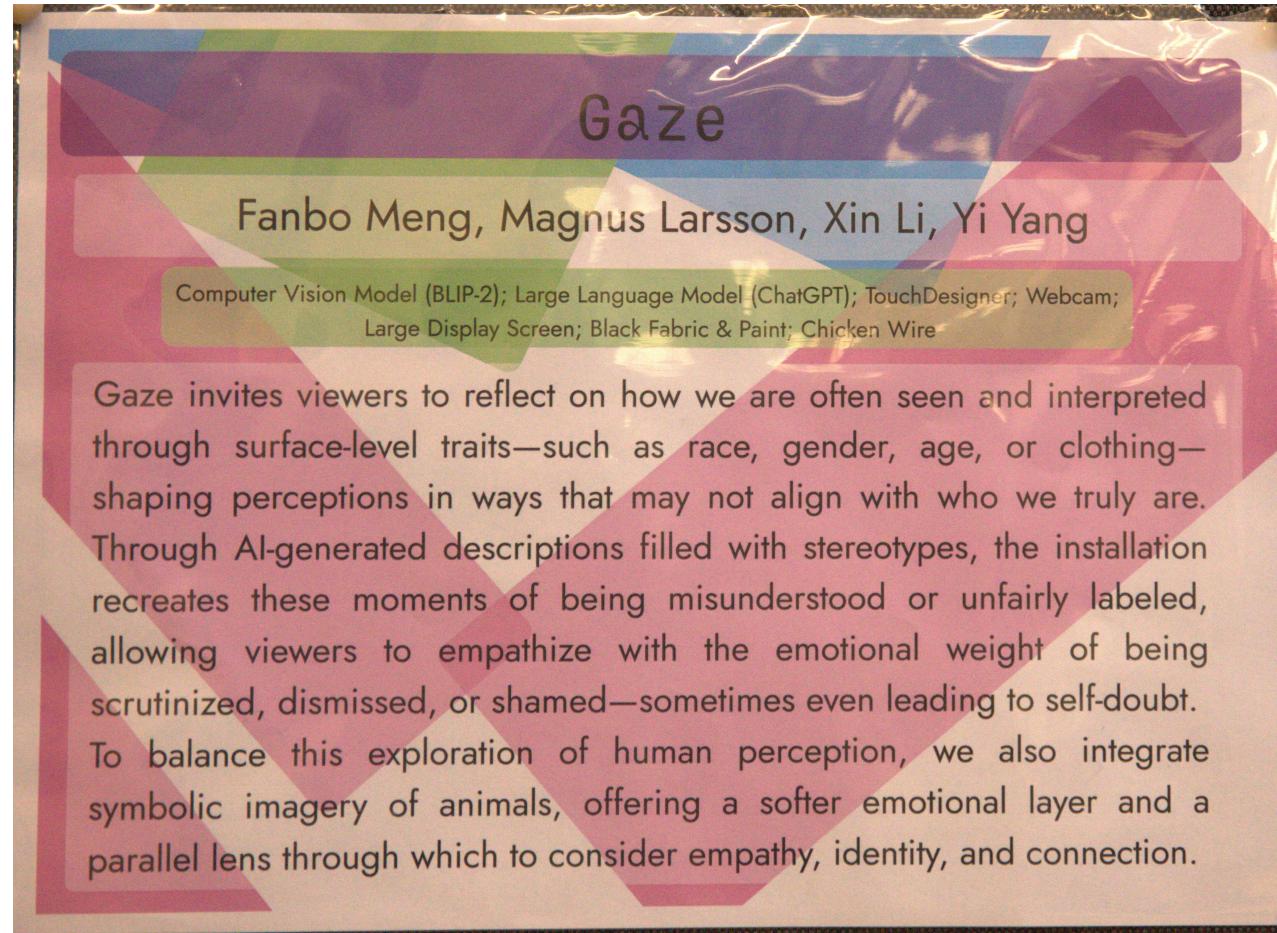
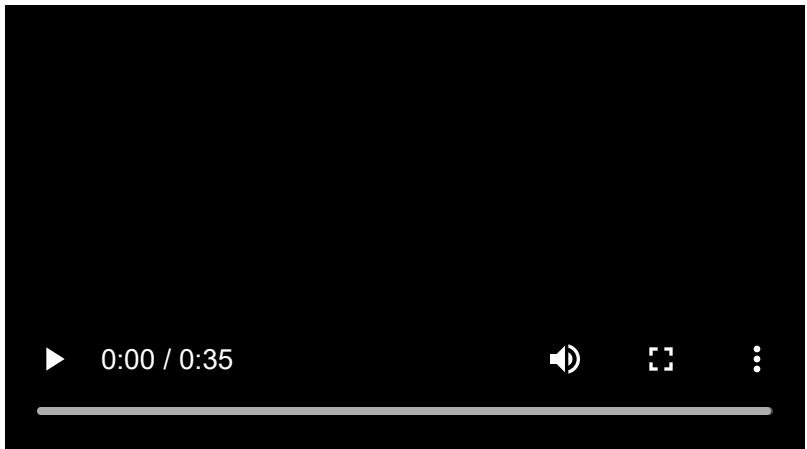


Waves of Despair (2024)

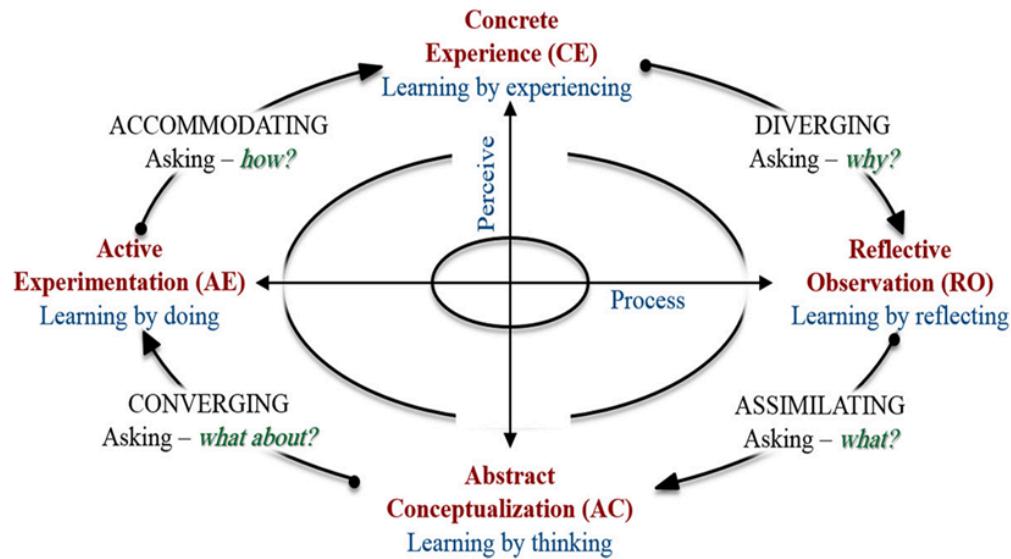


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Gaze (2025)



Pedagogy Methods Applied in TRA 385



Theory	Methods
Experiential Learning Theory [1]	Studio-based Learning, Project-based Learning, Peer-to-peer Learning, Critical Reflections

[1] Kolb, David A., Richard E. Boyatzis, and Charalampos Mainemelis (2001). "Experiential Learning Theory: Previous Research and New Directions". In: Perspectives on Thinking, Learning, and Cognitive Styles. Num Pages: 21. Routledge. isbn: 978-1-4106-0598-6.



Studio-Based Learning (2024)

- A space for group work
- Mobile workstations
- A physical course space
- A digital course for out of curriculum knowledge exchanges

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Studio-Based Learning (2026)

- Lecture halls
- Specific rooms for tutorials
- A digital workspace for out of curriculum knowledge exchanges
- Group rooms for group works

Project-Based Learning

- Introductions to Design tools for ideation, project management, etc.
- Supervision sessions
- Project proposal and mid-project reporting

Peer-to-Peer Learning and Groupwork

- Student Profiles
- Group Forming
- Comments from the students

Student Profile - Educational Backgrounds

2024	2025
Software Engineering And Technology MPSOF, Entrepreneurship And Business Design, MPBDP, Applied Mechanics MPAME, Data Science And Ai MPDSC, Physics MPPHS, Interaction design, MPIDE, Alumni	Architecture and Urban Design, Industrial Design Engineering MPDES, Systems, control and mechatronics, Sound and Vibration, Electrical Engineering - TKELT, B.Sc., Mechanical Engineering, Microsystem Integration Technology, MTMAS, Entrepreneurship and Business Design, MPBDP, Alumni

Student Profile - Countries-lived

Countries that you have lived in, including your country of origin, in the format [Country]-[number of months/years lived there], such as Sweden-22 years, South Korea-3 years

2024	2025
Iraq, Turkey, Sweden, Germany, United Kingdom, Norway, United States, France, Lithuania, Pakistan	Germany, Netherlands, China, Mexico, Sweden, Croatia, Austria

Student Profile - Gender

Gender (optional; if provided, we will use this information to try forming groups with the aim that you are not the only person with this gender in your group)

2024	2025
2 "woman", 7 "female", 1 non-binary, 6 "male"	6 "male", 5 "female", one unanswered

Group Forming

- Teams of 4-5 people
- Team forming
 - Teachers form teams
 - Diversity in group forming
 - Interdisciplinarity
 - A teamwork agreement
 - Introductions to conflict management

Comments from Students - Group work

Groups worked well although they were somewhat random, maybe having a chance to form groups on the first day instead of having them pre-determined would have worked better

The groupwork worked pretty well! The first contract at the beginning of the course felt a bit strange but was very nice to have as a backup! Though there were some communication issues within our group, in general the teamwork went great and we really bonded together! I think I have made some friends for life here :)

Cooperation worked well in the end, during the course there were some difficulties, but we got through it. I think that one of the problems was that a lot of things were new for us Erasmus students so it was hard to do time management and adjust the scope of the project accordingly

Comments from Students - Learning Environment

There was a very nice and a bit more informal setting that worked really well for inviting me to ask questions or feel appreciated for my input. In general all teachers were really positive about everything and that kept us going even if we were more insecure.

I felt very welcome to learn and I think the environment was very open and welcoming in general! Thanks for that :)

Comments from Students - Project-based Learning

The main project and excitement building up to the final presentations was really nice and good to have

I very much liked the theme of the course, the open nature of the projects and the amount of resources that were available to us.

I like the project assignment system a lot

Everything was very well communicated and the Canvas page for this course worked a lot better than for some of my other courses :)

Comments from Students - A Memorable Experience

I think I have made some friends for life here :)

This has been the most inclusive course I've ever taken at Chalmers! All to-dos on diversity and inclusion have made me think and reflect on problems I knew nothing about before. Include that to everyone

I had a lot of fun during this course, I also learned a lot and really feel like this was a course that made my exchange semester more meaningful!

Thank You!

Questions?