FICC 2024

Understanding the Potential of Telepresence Robots in Higher Education Learning: A Case Study

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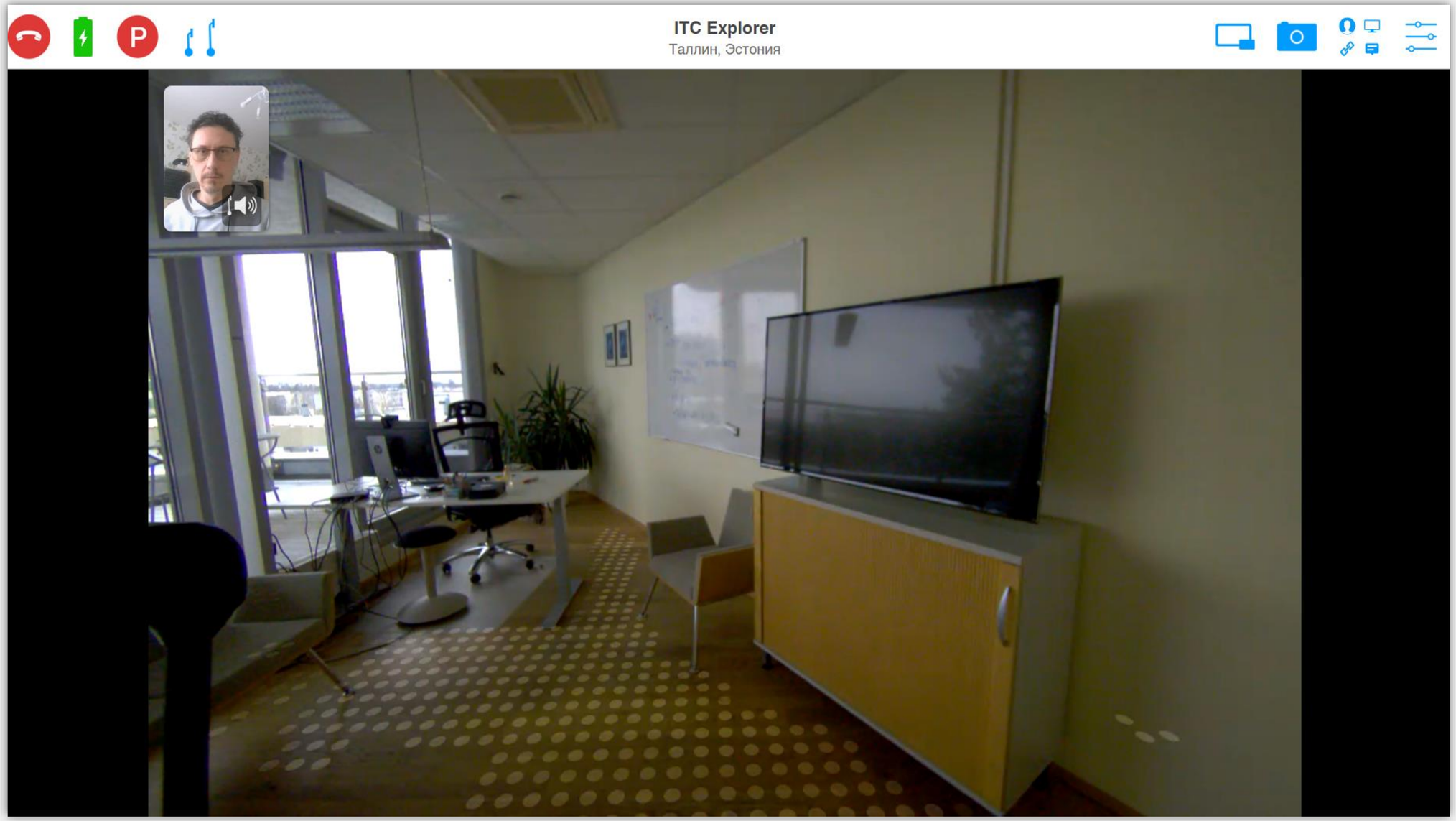
Telepresence robots (TPR)

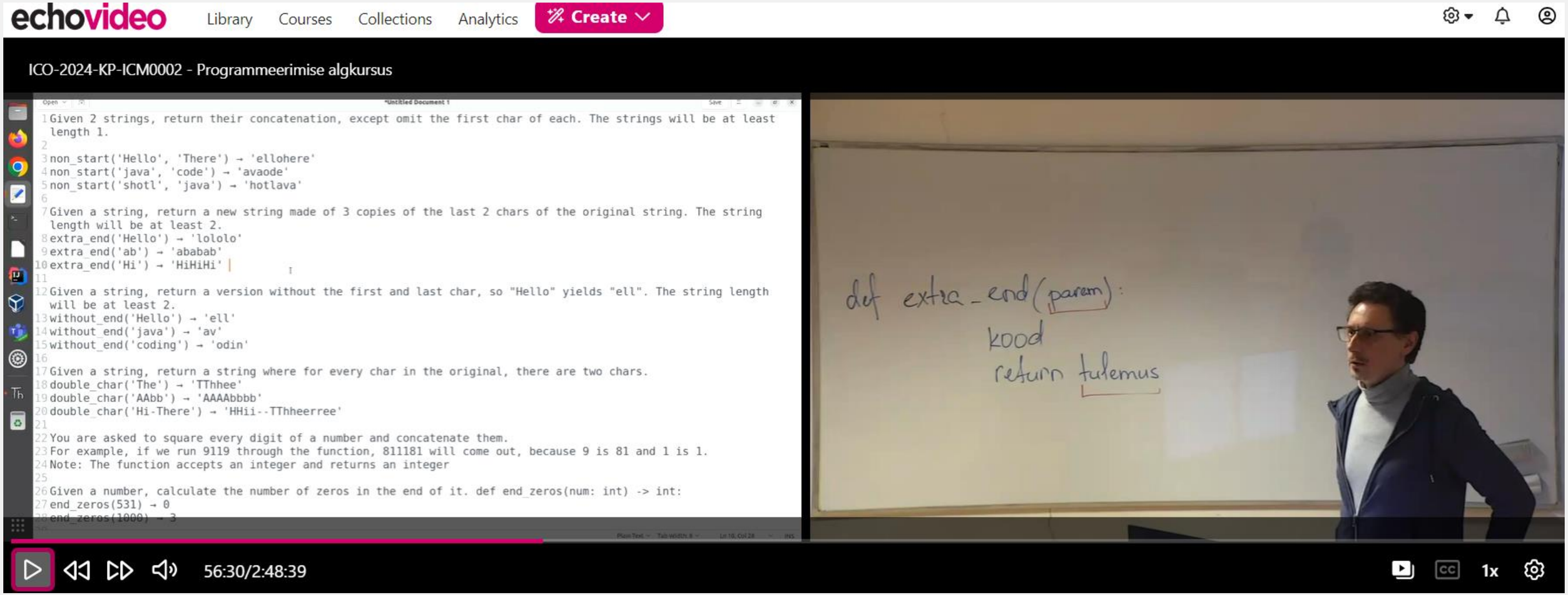
Double 3
by Double Robotics

Ohmni
by OhmniLabs

TPR user interface



Hybrid study



Course description

Course name: "Enhancing Social Interaction in Education and Business by using Telepresence Robots", a part of EuroTeQ initiative

Total workload: 156 hours

Course duration: 12 weeks, February-June 2023

Structure: 6 modules covering different aspects of TPR usage

Remote participants: 6 (limited by the number of robots available)

Research questions

- How did the students assess the benefits and challenges of using TPRs in higher education teaching and learning?
- How did the students' assessments change over time regarding the benefits and challenges of using TPRs in higher education teaching and learning?

Assessment criteria

Semi-structured interviews

- First stage: homework submitted in February representing students' initial knowledge level
- Second stage: homework assignments submitted in March and April and representing students' knowledge during transformation phase
- Third stage: homework assignments submitted in May representing the level of knowledge obtained during the course

First stage results

- *One of the robots wasn't very responsive. There was also some latency with movement so that also created some uncertainty when navigating the room*
- *they [TPR] can't walk up and down the stairs, they can't smoothly go through door frames... If the doors are closed then the robot would need assistance with that as well*
- *Based on my current experience, I think that a telepresence robot increases social belonging in a learning environment*

First stage results

- *Having to pay attention to my surroundings when I move would make me less immersed in the fact that I'm at home and more immersed in the fact that I'm in a classroom*
- *I could move around the room and interact with students/colleagues/faculty in a more natural way that could help build stronger relationships and improve collaboration*

Second stage results

- *It is quite hard to hear what goes on in for example a classroom, especially when there are network issues*
- *it was difficult to understand the other person when we were as far away from each other as possible*
- *the smallest texts were difficult to see on the screen even when using the 4K resolution. I think I could have found a better position, I even tried to drive a little closer*
- *there was a fear that I might disturb the student somehow if I accidentally move or talk, even though the robot was muted*

Third stage results

- *since it is a camera with a large field of view, the image is distorted enough during actual use that it cannot accurately predict its maneuvers and estimate distance.*
- *Tend to ... felt safer comparing to being physically present*
- *practical classes have a limited feeling of being in a robot. The limited feeling would disappear if the surrounding environment could be manipulated*

Thank you for your attention

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