

Call for 2025 Fall Semester Project / Master Thesis Students

Designing MR Guidance for Microfabrication via Real-World Interaction

Fields: Microengineering | Robotics |

Project Overview

In LMIS1, we have been developing different affordances of a mixed reality system for microfabrication learning. This is a continuous work based on the previous project. In this project, we would like to handle the learning task by using Unity 3D and extensions. We have already developed and implemented a mixed reality platform, and are looking forward to a low-threshold implementation in the lab with real-world object interaction. Additionally, this project requires organizing a small-scale study and testing the usability and microfabrication experimental practices' adaptability. Based on the feedback and data, an iterative design and development for improvement is needed.

What You'll Work On

Tasks will be tailored to your background and interests and may include:

- Exploring real-world sensor events through Azure IoT Hub/Socket for secure messaging
- Developing and prototyping new communication solutions for HoloLens
- Designing 3D models that fit the microfabrication process, for example, plasma generation.
- Exploring the network communication for collaboration synchronization.
- Exploring the low-cost implementation of a virtual reality system based on the current project
- Evaluate and assess the usability test for the mixed-reality platform

Why Join?

- Hands-on design and development experience for mixed reality
- The cutting-edge extended reality (XR) development experience

What do we expect?

- A proactive student who would like to contribute to the challenging problem
- Able to program at least one language fluently, preferably C# or Python
- Previous project experience or related background knowledge in communication
- Curious about the mixed reality technology, if you also have a microengineering background, it will also be preferred

Interested? Reach out now to learn more or apply. **Contact:** Qinglan Shan (qinglan.shan@epfl.ch)