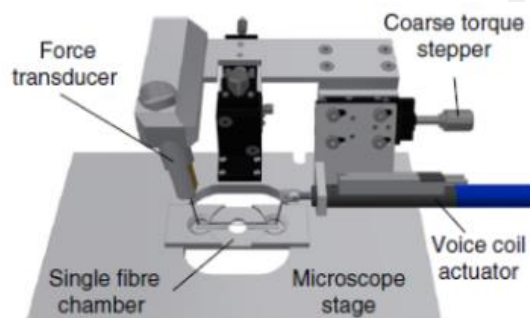


MyoRobot vLab

Implementing decision making in a virtual education scenario

Over 2 years, we have created a virtual laboratory (developed in 'Unity' (<https://unity.com>)) based on the concept of explorative learning, which simulates the scientific workflow in a life science laboratory (3D laboratory simulation). With a strong research focus on medicine and technology, students are inspired to develop subject-specific as well as cognitive skills and to critically question results and content. However, the reality differs noticeably from our research-based teaching concept in that one fundamental component is not represented: decision making. Every day we have to make decisions based on our knowledge and experience (transfer of competences) and work with the result. This core aspect is essential for the sustainability of explorative learning, where new situations with experience/knowledge need to be played out on possible outcome scenarios. Despite those efforts, the vLab is still missing a human-machine interface to decide between actions and receive tasks. Implementing such a framework alongside a new digital twin of our *MechaMorph* will be the task of this project. This requires a storyline that introduces the user to the laboratory and prepares him or her for the following tasks. Human-machine interaction will be implemented via a 3D model of our digital humanoid robot friend 'Myo', whose portrait can be seen below (a 3D model is available in blender). *Myo* must be transformed into Unity. Interaction with *Myo* shall present the core of user decision making. How this is done is up to your creativity. *Myo* is not required to move / to be animated in the digital space, although we envision this in the future. A simple interaction could, e.g., trigger a pop-up dialog box accompanied by *Myo*'s portrait. This simple implementation already serves the requirements of implementing decision making and can be the basis to transmit work tasks, provide information and feedback based on actions done in the virtual space. The *MechaMorph* is depicted below, too. This CAD drawing also needs to be transferred into Unity and voice coil operation should be simulated. We have done this before with another of our devices and will be able to assist you with this.



If you feel interested and/or challenged, please contact Dr. Michael Haug (michael.haug@fau.de)



<https://youtu.be/WmtPKpfkQ9w>