Assignment of bachelor's thesis

Title:	Gesture detector with Leap Motion sensor
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Study program:	Informatics
Branch / specialization:	Computer Science
Department:	Department of Theoretical Computer Science
Validity:	until the end of summer semester 2021/2022

Instructions

Goals of the thesis:

1) Analyze the possibilities of user interaction with the virtual environment with the use of hand and finger movement detection, with the emphasis on the Leap Motion sensor.

2) Create a dataset with at least five static gestures (fist, open fist, pinch, pointing and peace sign).

3) Create a Python library for gesture detection that uses a neural network that detects the gestures from point 2, with the library designed so that the gesture set can be easily expanded with other static and dynamic gestures.

4) Create a simple application to visualize the output of the detector.

5) Describe the MultiLeap library and its algorithms for fusing data from multiple Leap Motion sensors and integrate it into your library. Compare the precision of the gesture detector when more than one Leap Motion sensor is used.