



## Assignment of bachelor's thesis

**Title:** Gesture detector with Leap Motion sensor  
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**Supervisor:** Ing. Tomáš Nováček  
**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 the 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.