

Master thesis!

Design of an arm for a body-realistic simulator

Motivation

The goal of the project is to design a body-realistic simulator, for use in training volunteer, public, and corporate rescue services. The functionality should both match and surpass the current state of the art in patient simulators. The simulator should be used in the training of first responders. Therefore, the kinematics and mass distribution of the simulator has to be anatomical correct. This means that articulations should work equal to a human body. The task is to design the bones and articulations for an arm, including the elbow, acrocontracture and knuckles. The components should be manufactures by 3D-printing using plastics. Finally, this bony structure will be casted with silicone to produce a prototype of the arm.

Tasks:

- Literature review to the state of art of body simulators for rescue training
- Creation of solutions for the different functions (articulations and their degree of freedom, connections to the bones)
- Selection of the best solutions
- Design of the whole arm
- Manufacturing, testing and evaluation of the prototype
- Design of a casting mold to manufacture a whole arm with the surrounding silicone skin
- Poster of the scientific work
- Documentation as master thesis



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