

Modern Intelligent Hand Prostheses

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Motivation

- Why hand prostheses?
 - Replace missing hands
 - Make a normal life possible for amputees
 - Enable amputees to perform activities of daily living (ADLs)

Motivation

■ Desired properties:

- comfortable (lightweight, small)
- many different grasps possible
- High finger forces / fast joint speed
- easy to use
- high durability (robust, easy to repair)
- low-cost
- intelligent functions (sensor-feedback, grasp adaption)

■ Challenges:

- Desired properties are contradicting \Rightarrow trade-offs are mandatory
- Current technologies still need improvement

Motivation

- Analysis of the prosthetic hands in research of the last three years:
 - What are the desired goals? / Where is the focus?
 - Which techniques / technologies are used?
 - What are new design ideas / features?
 - What are general properties?
 - Which hand specific features exist?