



## MASTER GRADUATION PROJECT

# DESIGN OF A VOLUNTARY CLOSING HAND PROSTHESIS FOR TODDLERS

In the design and in the use of hand prostheses three requirements play a key role: cosmesis, comfort, and control. In the domain of control a subconscious control level is strived for. Therefore, feedback of position and force is a necessity. As a consequence, the hand mechanism should be of a voluntary closing [VC] nature. Recently, the US-company TRS introduced the LiteTouch hand, a VC hand for toddlers. Sadly enough, the cosmesis of this hand prosthesis is very poor. Other child size VC hand prostheses are not available. Within the WILMER-group a passive hand prosthesis has been developed, that most likely can serve as a basis for the development of a VC hand prosthesis that is compatible with the three basic requirements: cosmesis, comfort, and control. Challenges are in the design of a non-linear compensation mechanism for the forces of the cosmetic glove, in the avoidance of friction losses, and in the design of a control scheme that enables elbow control.

## ASSIGNMENT

Design, construct, and build a voluntary closing hand prosthesis for toddlers.

## ADDITIONAL INFORMATION:

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