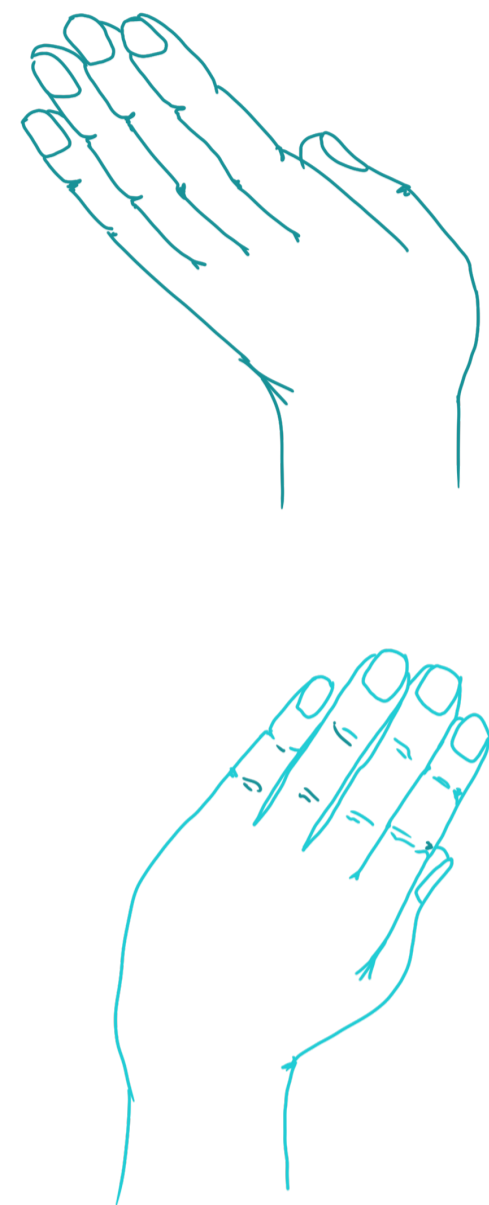


# Redesigning an **anti-tremor orthosis** for increased wrist mobility



Wrist Radial (top) and Ulnar (bottom) Deflection, or WRUD.

## Goal:

STIL's current anti-tremor orthosis dampens tremors in most degrees of freedom in the lower arm. However, **it does not allow Wrist Radial and Ulnar Deflection (WRUD)** because of the rigid way the handpiece connects to the rest of the orthosis.

The focus of this project was to **redesign the connection** between the users hand and the metal slider in such a way that WRUD, and all other degrees of freedom would be possible

## Result:

**With the redesigned connection, WRUD is now possible.** During testing, this increased mobility was experienced as more comfortable by tremor patients. Also, less tremor was measured throughout the arm with the new version.

Two **mechanical dampers** ensure optimal tremor suppression

A set of **bearings** allow smooth and durable WRUD movement.

The mechanism has been designed to add as **little volume** as possible to the orthosis, and blend in with the rest of the design.



Exploded view of redesigned parts

Client:  **STIL**

STIL bv is a YES!Delft based med-tech startup that is developing a non-invasive, anti-tremor orthosis for people with tremors in their upper limbs. The orthosis helps to cope with their condition by stabilising their hands without surgery or medication.

Bob de Reus  
Improve the mobility of a tremor suppression mechanism for the next generation of anti-tremor orthosis  
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Integrated Product Design

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