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STUTTGART



Max Planck Institute for
Intelligent Systems

Teaching sensorimotor skills for healthcare applications

Ravali Gourishetti

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Max Planck Institute for Intelligent Systems Stuttgart

What is haptics?

Haptics

Kinesthetic
(proprioceptive)

+

Tactile
(cutaneous)

Tendon force
Ligament force
Muscle length
Muscle velocity
Joint receptors



Vibration
Temperature
Contact location
Stretch
Slip
Pressure

Haptics for healthcare applications

Diagnosis and Treatment (surgery and rehabilitation)

Teaching is required



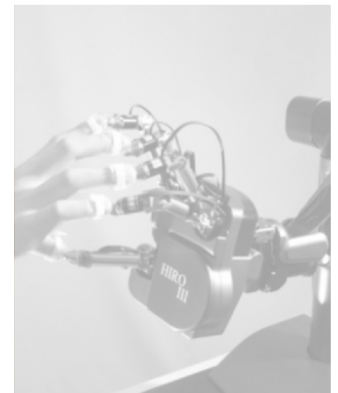
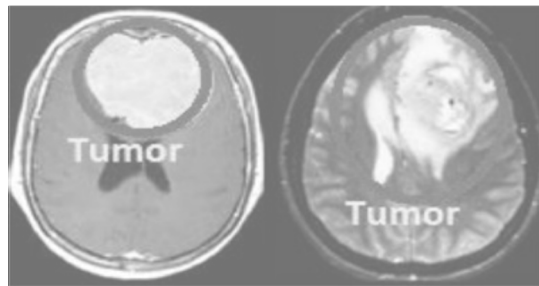
**Medical
Teaching**

**Surgical
Procedure**

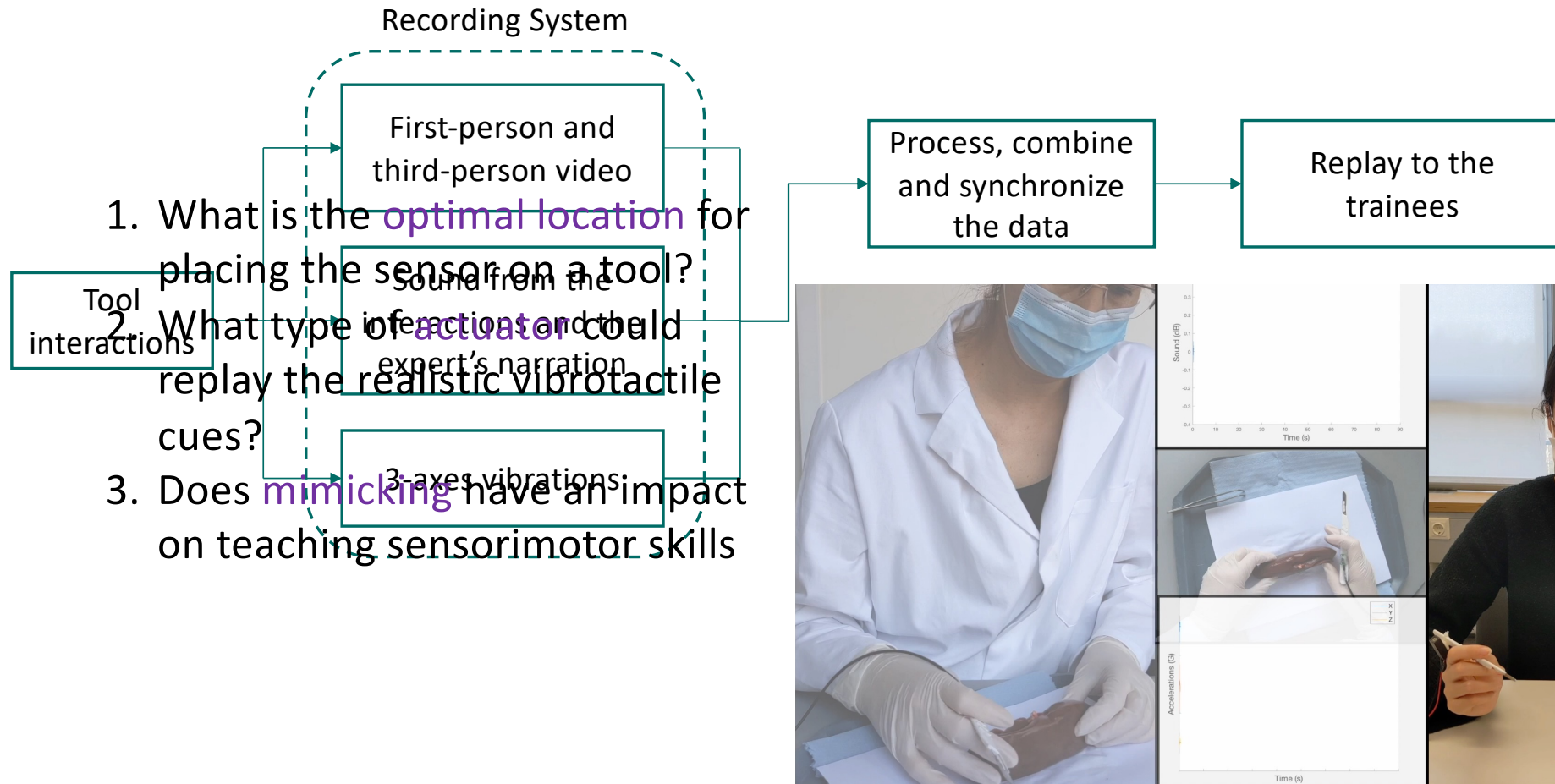
Haptic
Technology

Diagnosis

Rehabilitation



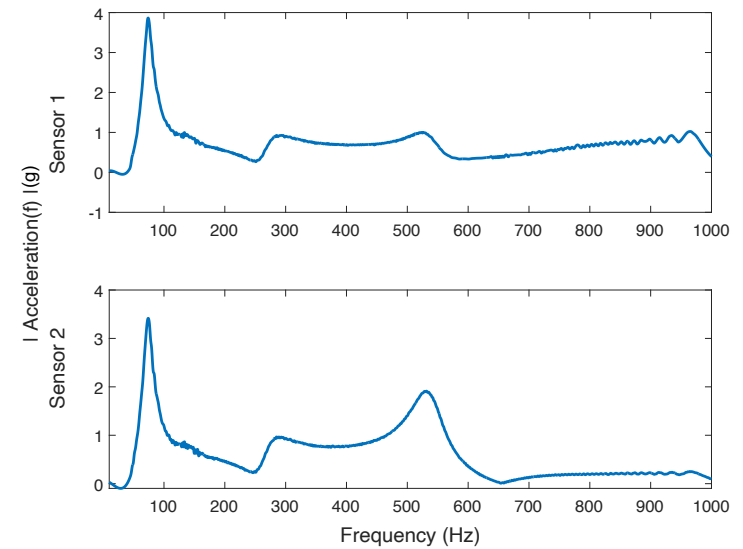
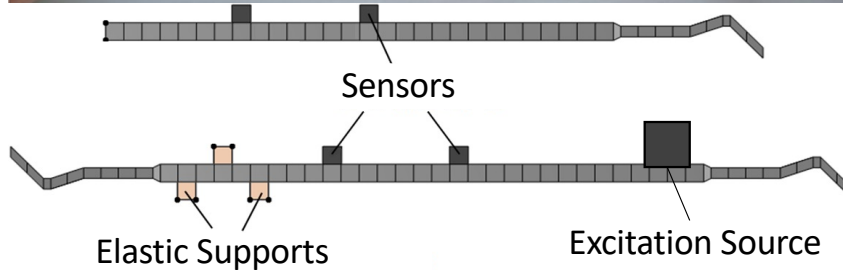
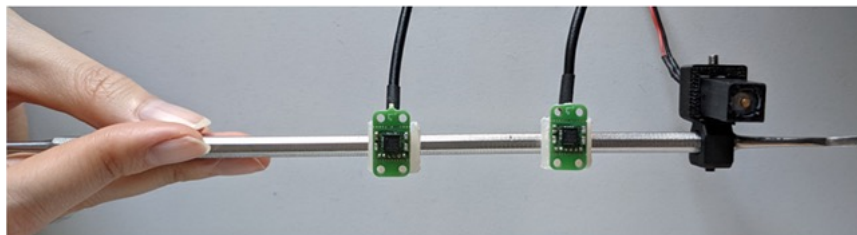
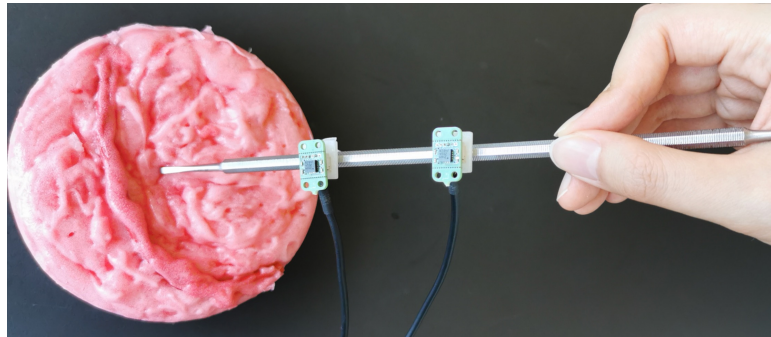
Design of Record and Replay Technology



What is the optimal location for the sensor placement?



Gokhan Serhat
Research Scientist

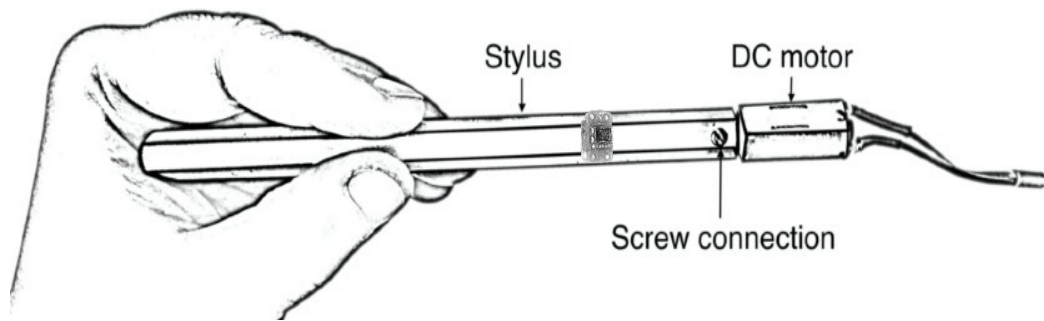


ELIIS
European Laboratory for Learning and Intelligent Systems

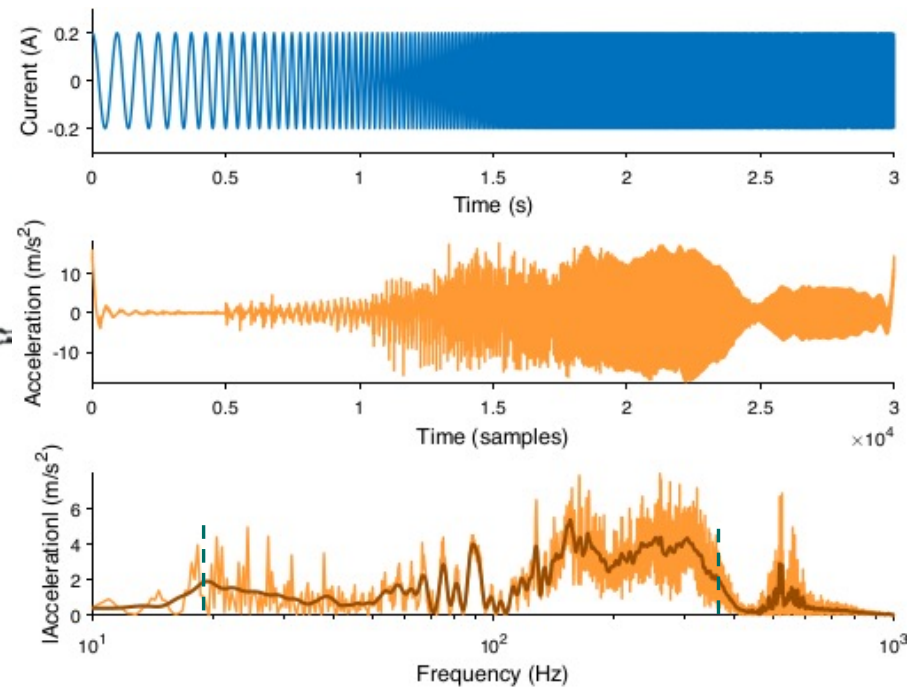
Gourishetti, R., Serhat, G., Kuchenbecker, K. J. **Optimal Sensor Placement for Recording the Contact Vibrations of a Medical Tool** Work-in-progress poster presented at EuroHaptics, Leiden, The Netherlands, September 2020

Tactile actuation using DC motor – Rotating Motor Actuator

Design of Rotating Motor Actuator:



Characteristics of the actuator:



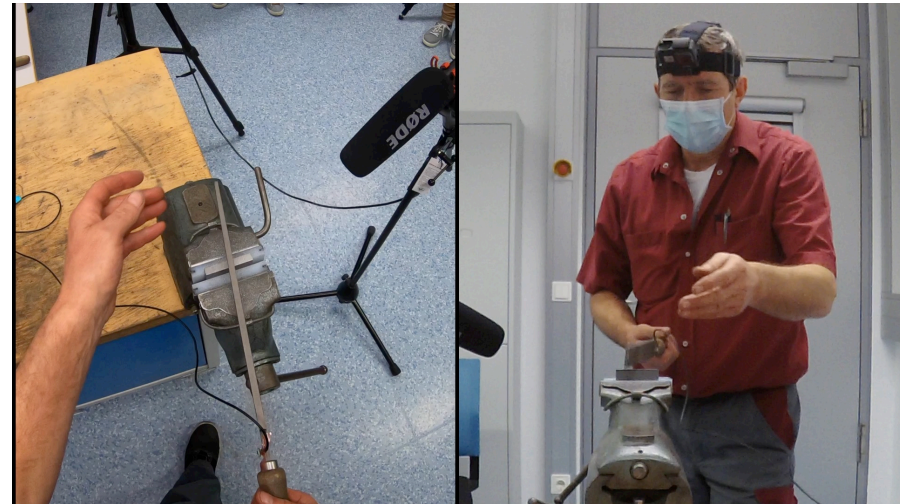
Teaching sensorimotor skills in fields of crafts – investigate effects of mimicking



Bernard Javot
Research Engineer

6 different crafts recording:

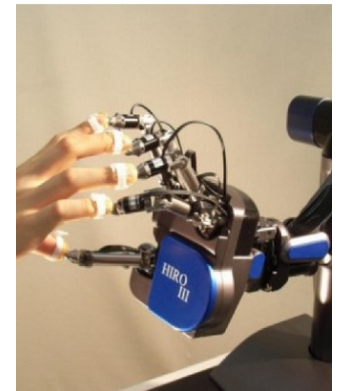
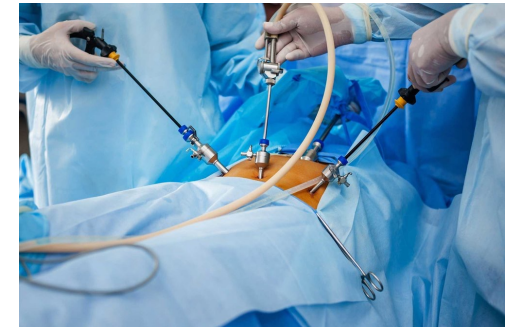
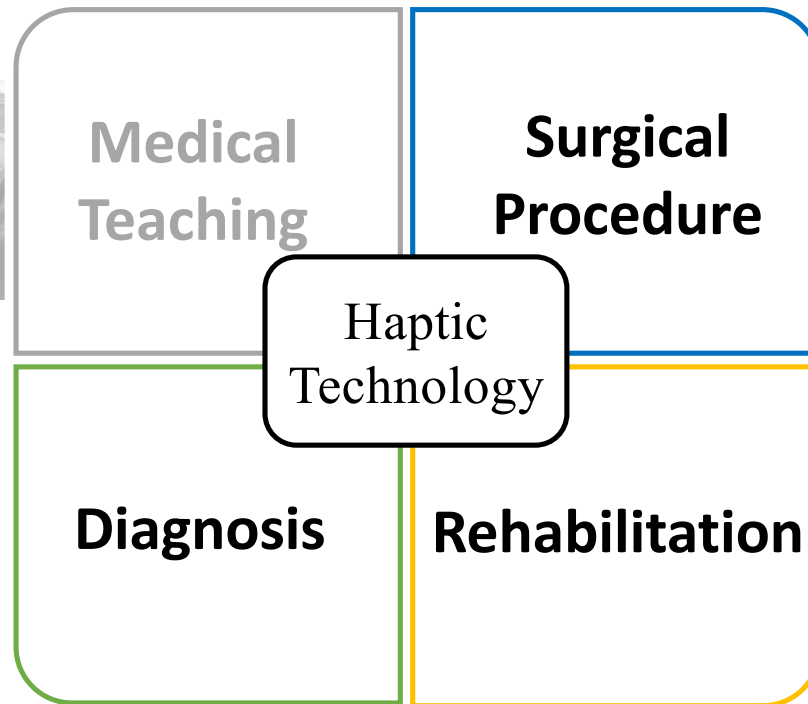
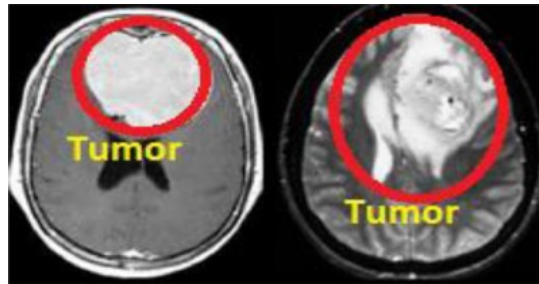
- Metal manufacturing
- Crafting and printing
- Hair dressing
- Sculpting
- Cooking - cutting vegetables
- Musical instrument



Future research directions

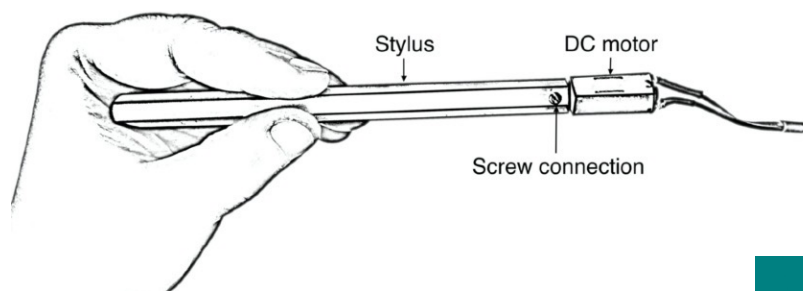
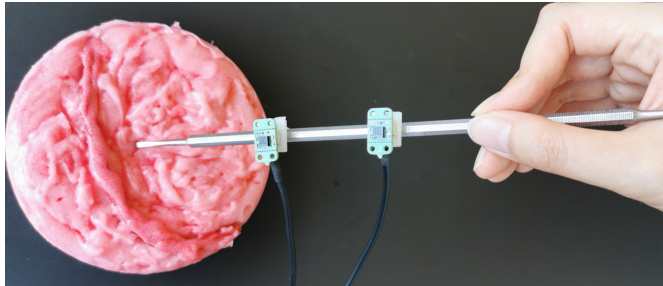
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Teaching is required



Kinesthetic + Tactile

Thank you for your attention



Any questions or comments?

