Level: Mater 2

Title: Novel haptic watch ~~~~~~~~ change

Watch face

Watch back-face — 0 psi

Watch back-face — 12 psi
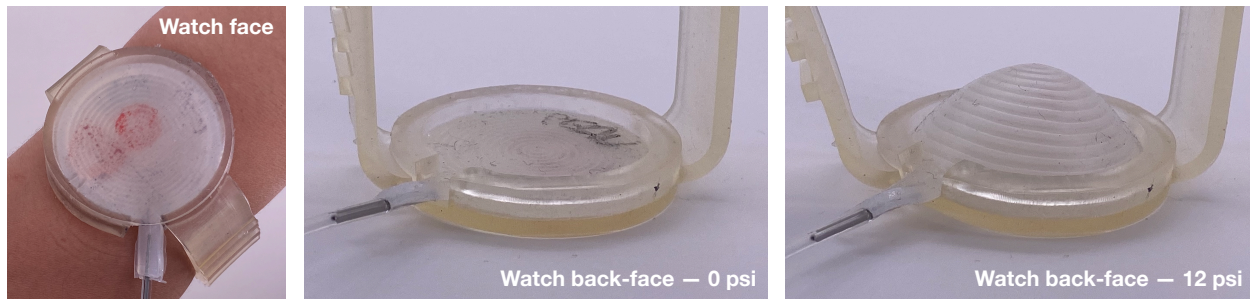
Abstract:
This internship will explore the noticeability of a watch that can change curvature at the back of its face. The objective of the internship is to experimentally study the absolute detection threshold of this novel form of feedback, while the user is distracted with another task. We will compare two different watches whose back face can change its curvature and contact the wearers' wrist to notify them. The two watches have different shapes when inflated with high air pressure. To find the absolute detection threshold, we will conduct a standard two-down, one-up adaptive staircase procedure and find the minimal pressure needed to inflate the back surface to be detected by participants while they are focused on another task.

Skills to have and/or to be developed during the internship:
- Experimental design and cognitively/physically demanding tasks: the intern will design the primary task and the experimental protocol.

- Python: the software to control the interface and to conduct the 2 down 1 up staircase is already written in Python. The intern will need to develop the distracting task and the measure of its user' efficiency.
- Fabrication: The watch prototypes are fragile and might need to be re-fabricated. For this the student will need to use a Form3 3D printer at the FabMASTIC to print the molds and the bracelet, and to mold silicone into it.
- Statistics, R and Rstudio: The current script to analyze the data of our previous non-distracted 2 down 1 up staircase is written in R markdown.

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