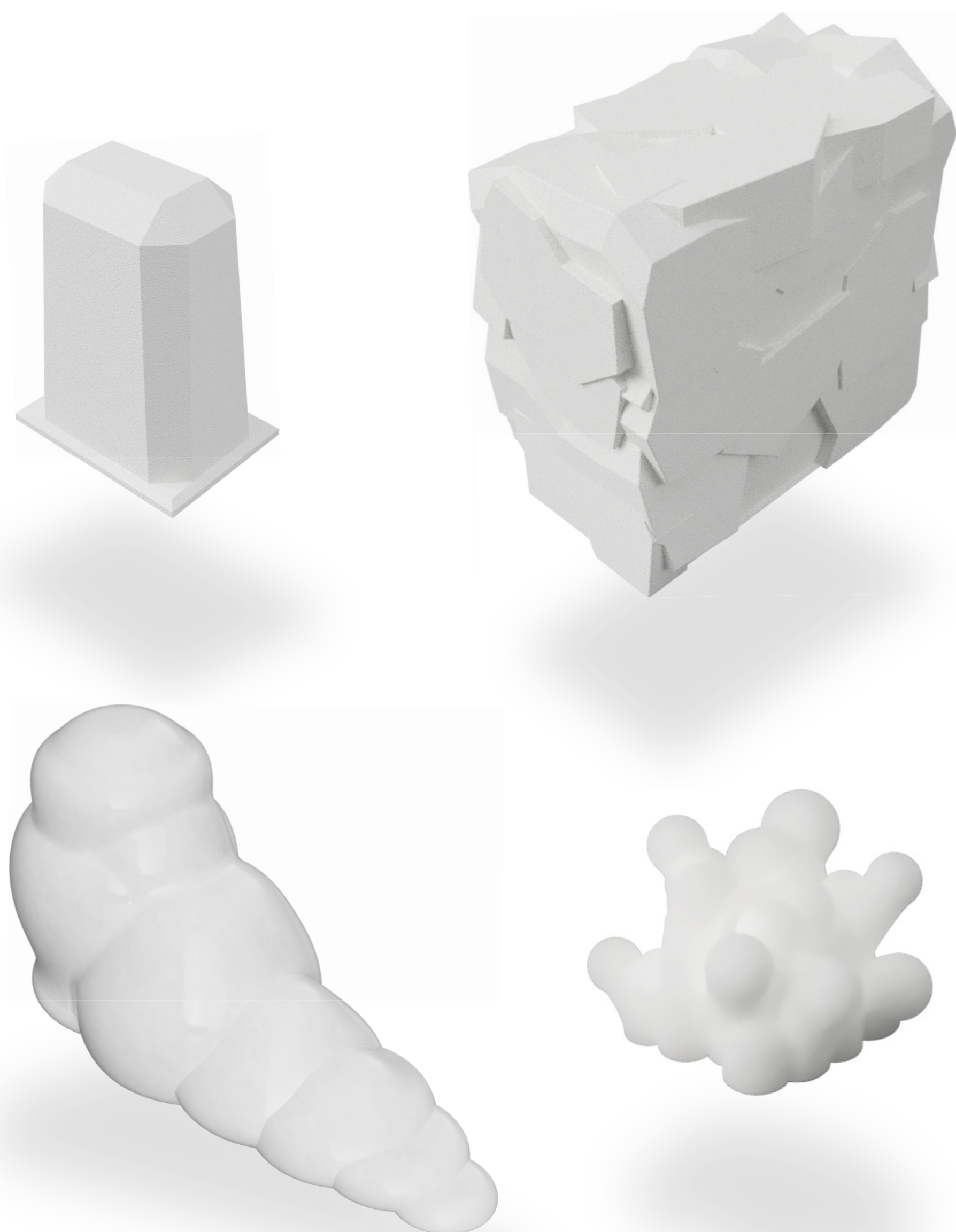


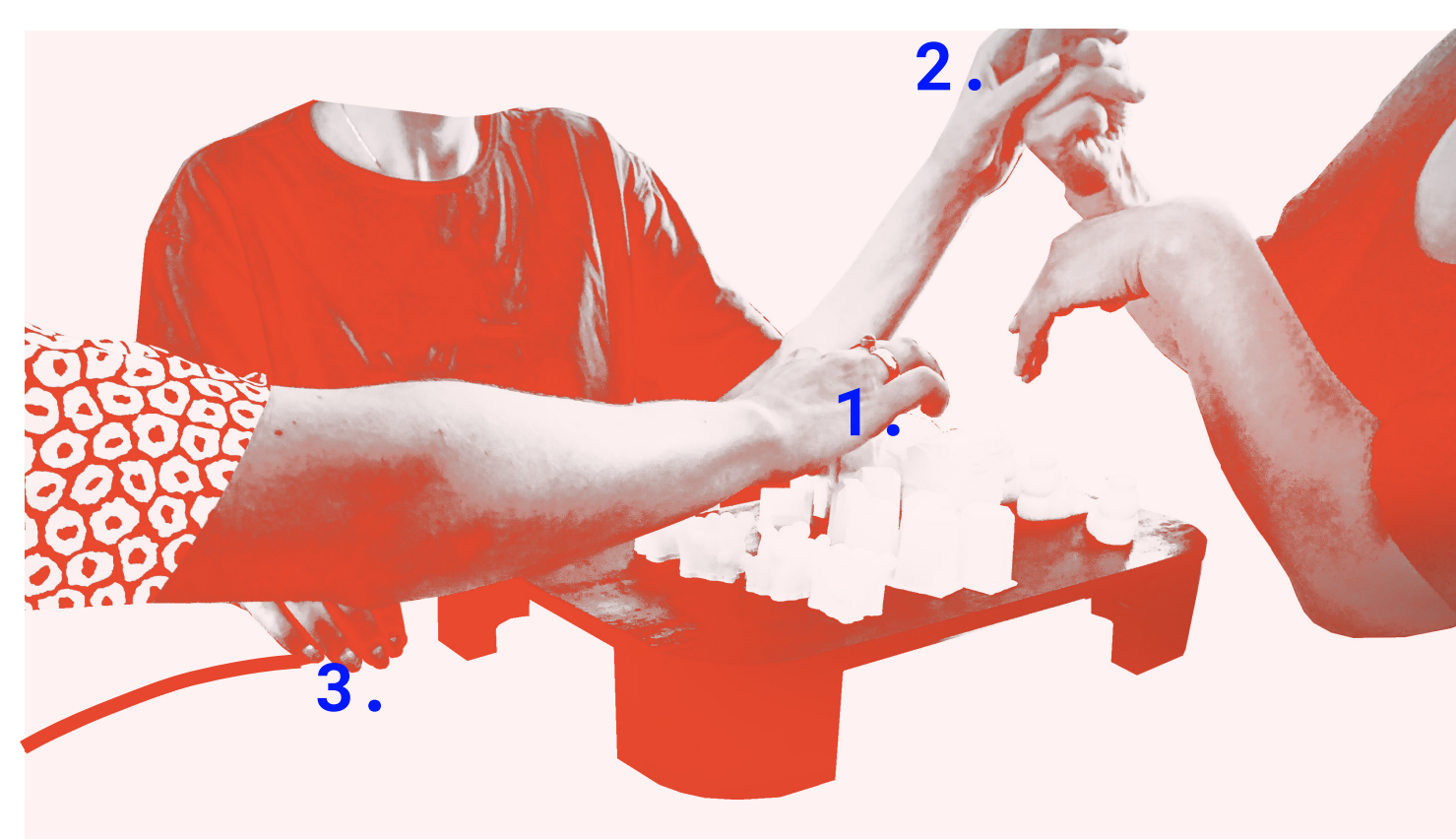
# Co-designing vibrations without vision and hearing

Using cross-modal perception to support communication with people with deafblindness

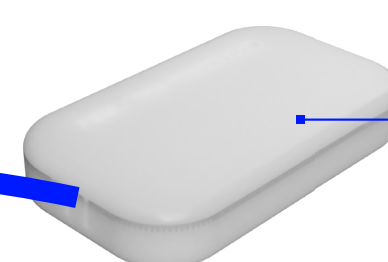
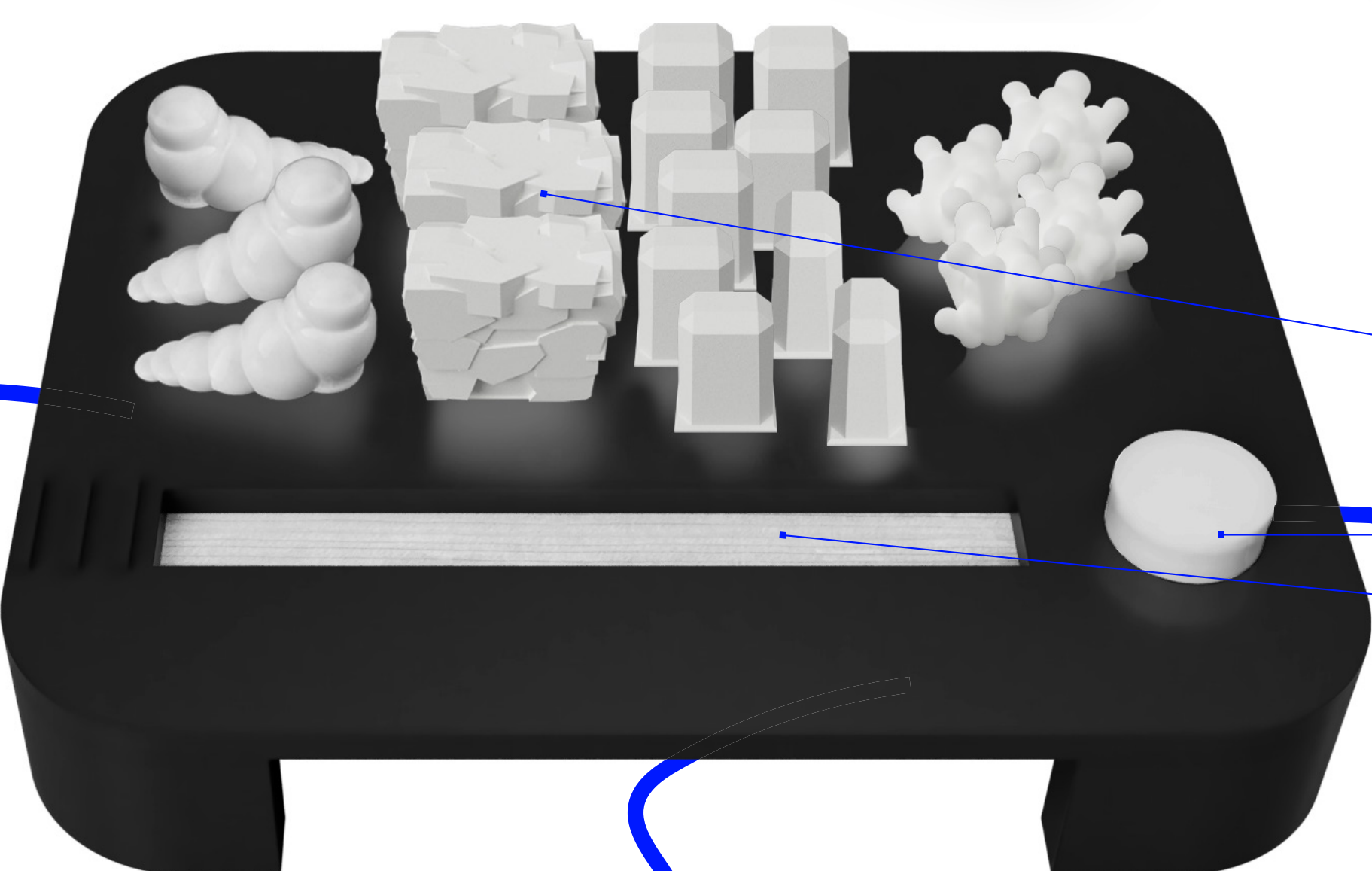


Human-computer interactions should be as inclusive as possible, nowadays. Designers play a vital role in making products, services, and systems usable by a diverse range of users. Mobile applications use vibrations (tactons) to convey information about, for example, messages coming in. The quality of vibrotactile communication can be greatly enhanced by involving in the desing proces the experts when it comes to feeling: people with deafblindness. By involving the haptic experts, mobile applications using vibrotactile communication can become more inclusive for all users.

This thesis addresses the challenge of usability versus flexibility when co-designing with haptic experts. The goal is to establish an equal level of control among all co-designers, including the haptic experts. To achieve this, Shape2Vibe has been developed by using a research-through-design approach. The design process drew inspiration from cross-modal perception. Moreover, clay modelling experiments were conducted for creating embodiments of four dinstinct basic vibration effects from Adafruit's haptic motor library.



Haptic Expert (middle) feeling what the designer (left) is trying to communicate with the blocks (1), by feeling the translation (2) by the sign interpreter (right) and by feeling the vibration of the idea (3).



Vibration output

Shapes corresponding to vibration effects

Play button

Playfield

Xavière van Rooyen  
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13-07-2023  
Design for Interaction

## Committee

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