

# Communicating polymer skin for haptic feedback

Tom Bruining, Danqing Liu



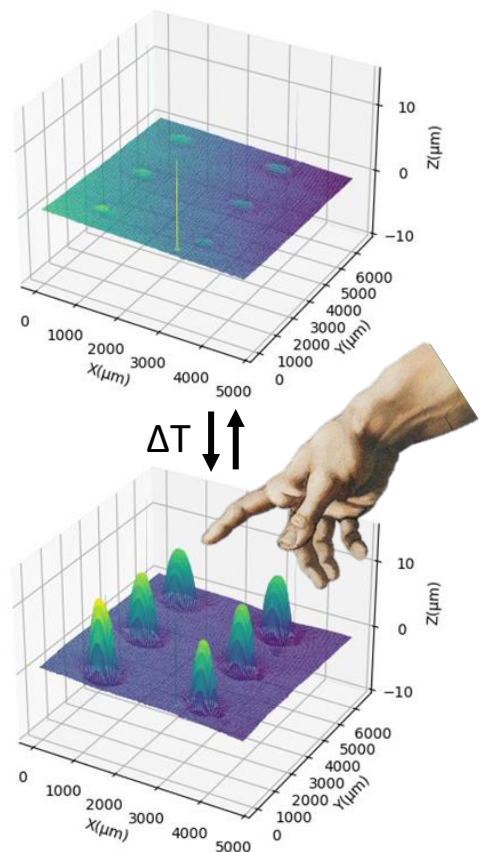
## Introduction

Most information we receive from modern day technology is either visual or auditory. Haptic feedback, or information we receive by our sense of touch, is very limited. Using responsive liquid crystal materials, haptic feedback can be created by changing the surface texture of a device. Applications for these materials range from virtual reality to technology for visually impaired people.

## Project summary

This project involves creating liquid crystal elastomer films that can change their surface structure in a range that is perceivable by human touch. Heat is currently used to trigger deformation, but we would like to expand to other stimuli such as electricity or light.

When new materials are created, they can be integrated into a device like a braille display or tactile display. We are cooperating with the Human-Technology Interaction group in the IE&IS faculty to investigate the effectiveness of the materials and devices we create in user tests.



## Project goals

- Develop liquid crystal networks for haptic feedback purposes
  - Achieve response to different stimuli
  - Increase the deformation amplitude and the rate of deformation
- Integrate the developed material into a prototype device

## Contact information

Tom Bruining - [t.bruining@tue.nl](mailto:t.bruining@tue.nl) - STO 0.39; Danqing Liu - [d.liu1@tue.nl](mailto:d.liu1@tue.nl) - STO 0.41