

SCEHW human-material-machine live performances: Interactive experiments on Shape-Changing Environments for Health and Wellbeing

28-29-30 July 2025, UCL PEARL



Shape-Changing Environments for Health and Wellbeing (SCEHW)

Project led by Valentina Soana, Sara Adhitya, and Shahram Minooee Sabery, with Nick Tyler, Federico Bosi, and Helge A. Wurdemann.

The project brings together expertise from UCL Mechanical Engineering, UCL PEARL, the Arts-Sciences Programme, the Bartlett School of Architecture, Civil, Environmental & Geomatic Engineering, and the UCL Robotics Institute. It is funded by the UCL Grand Challenges Data-Empowered Societies grant, with support from UCL PEARL, the Arts-Sciences Programme, and in-kind support from CEGE.



Expression of Interest: Exploring Shape-Changing Environments for Health and Well-being



Image: Valentina Soana

Project leads: Valentina Soana, Sara Adhitya, Shahram Minooee Sabery

In collaboration with: Bartlett School of Architecture, UCL Mechanical Engineering

Medium: Large-scale elastic robotic structure

Funded by: UCL Grand Challenges, UCL CEGE (in-kind support)

Status: in progress

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Shape-Changing Environments for Health and Wellbeing

This pilot study will explore the potential of large-scale soft robotic elements to create personalised, health-giving environments informed by an individual's physiological data. Through experiments at PEARL, we will explore how individuals respond to soft robotic spaces created with shape-changing, lightweight building elements. We will analyse the relationship between soft robotic interactions and the physiological responses of neurodiverse individuals. We will then assess the potential of such interactions to enhance human well-being through stress reduction and emotional regulation. The objective is to explore the potential of soft robotic building elements to contribute positively to mental health and well-being. The intention is to empower people to adapt their environments to better suit their needs. In the longterm, we hope such insights will inform the design of more inclusive, adaptive environments for a neurodiverse population.

This project addresses UCL's Grand Challenge of *Data Empowered Societies* through its use of physiological data to inform personalised, health-giving environmental design.