The Malleable-Self Experience: Transforming Body Image by Integrating Visual and Whole-body Haptic Stimuli

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Tech Art Seminar 許素朱 教授

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About this demo

- *The Malleable-Self Experience seamlessly integrates VR visuals and Synesthesia X1 whole-body haptic sensations to induce a malleable perception of one's body image. We use integrated visuo-haptic compositions in a particular sequence of steps to establish and maintain body ownership of a virtual body as it dramatically changes shape and form.*

https://youtu.be/5kiOBCz1OOo?si=hoTKrtQR9xZvm8ZQ

The Malleable-Self Experience: Transforming Body Image by Integrating Visual and Whole-Body Haptic Stimuli

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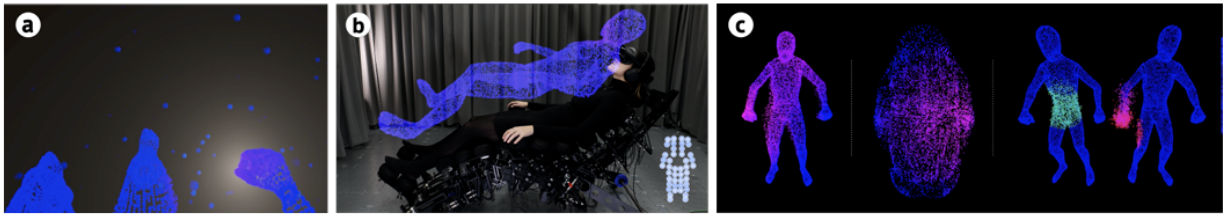


https://dl.acm.org/doi/abs/10.1145/3641517.3664385

Keywords

Malleable-Self Experience

- *A concept in psychology and personal development that refers to the idea that an individual's sense of self is not fixed or static, but rather flexible and capable of change over time.*

*XR(*Extended Reality)

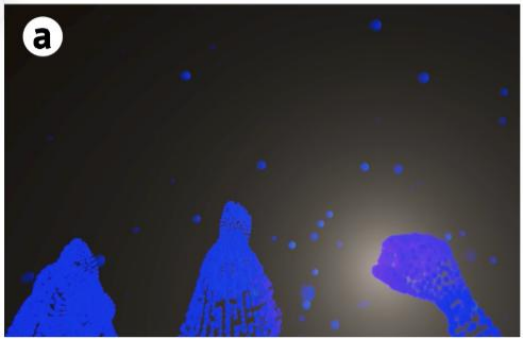
- *An umbrella term that includes: Virtual Reality (VR), Augmented Reality (AR), Mixed Reality (MR)*
- *Provide Immersion and interactivity experiences.*

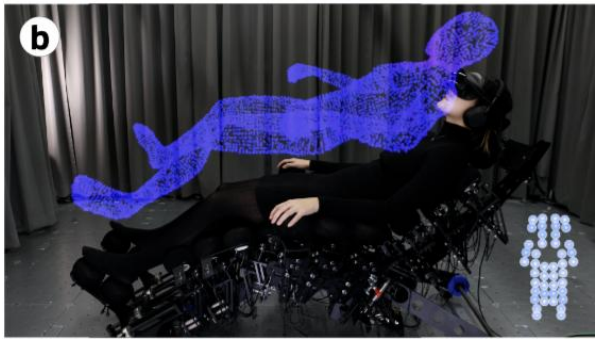
Synesthesia

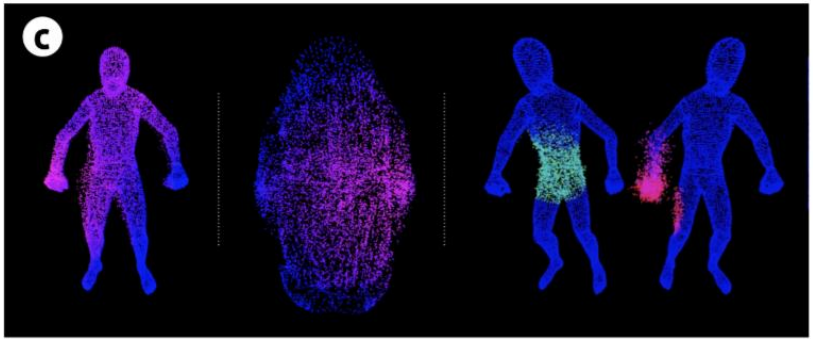
- *a neurological condition in which stimulation of one sensory or cognitive pathway leads to involuntary experiences in a second sensory or cognitive pathway.*

Body Ownership Illusions(BOI)

- *Ioccur when individuals feel ownership over a body part or body that isn't theirs, like in the Rubber Hand Illusion. These phenomena help explore how the brain constructs the sense of self and body ownership.*







The Contributors

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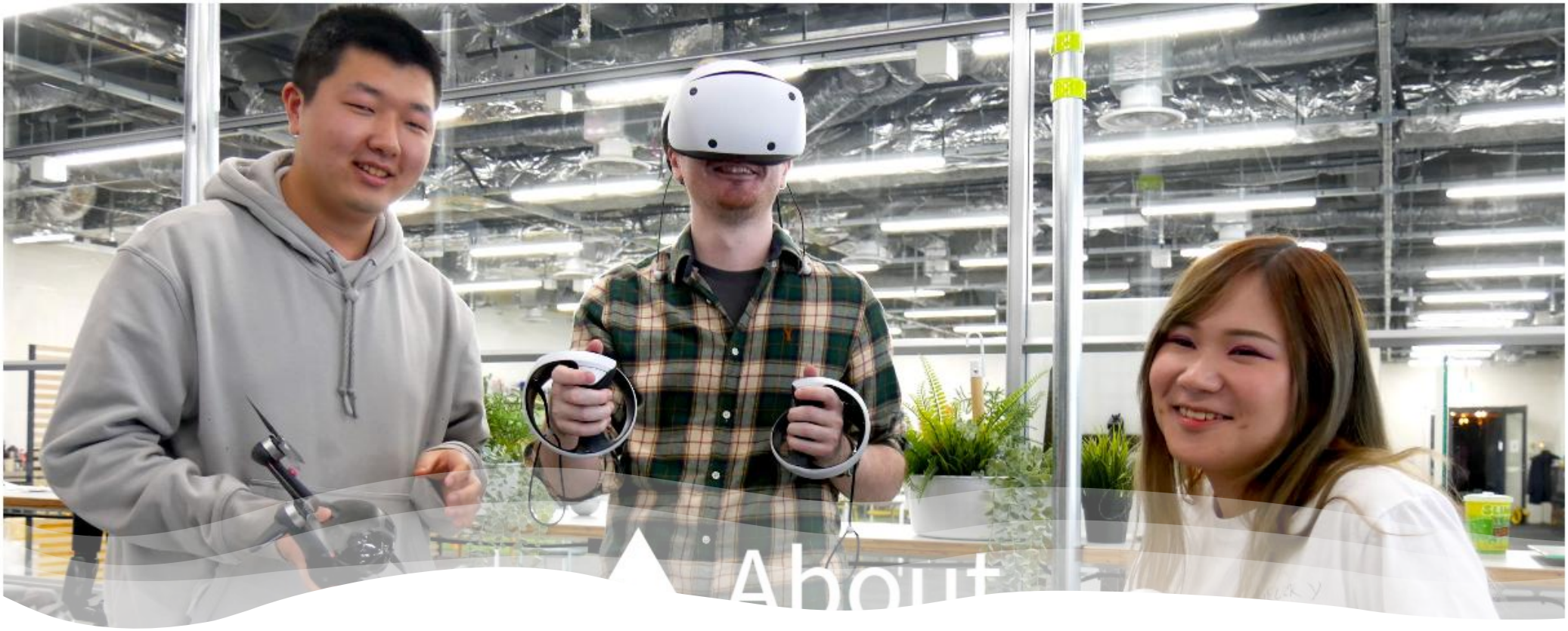
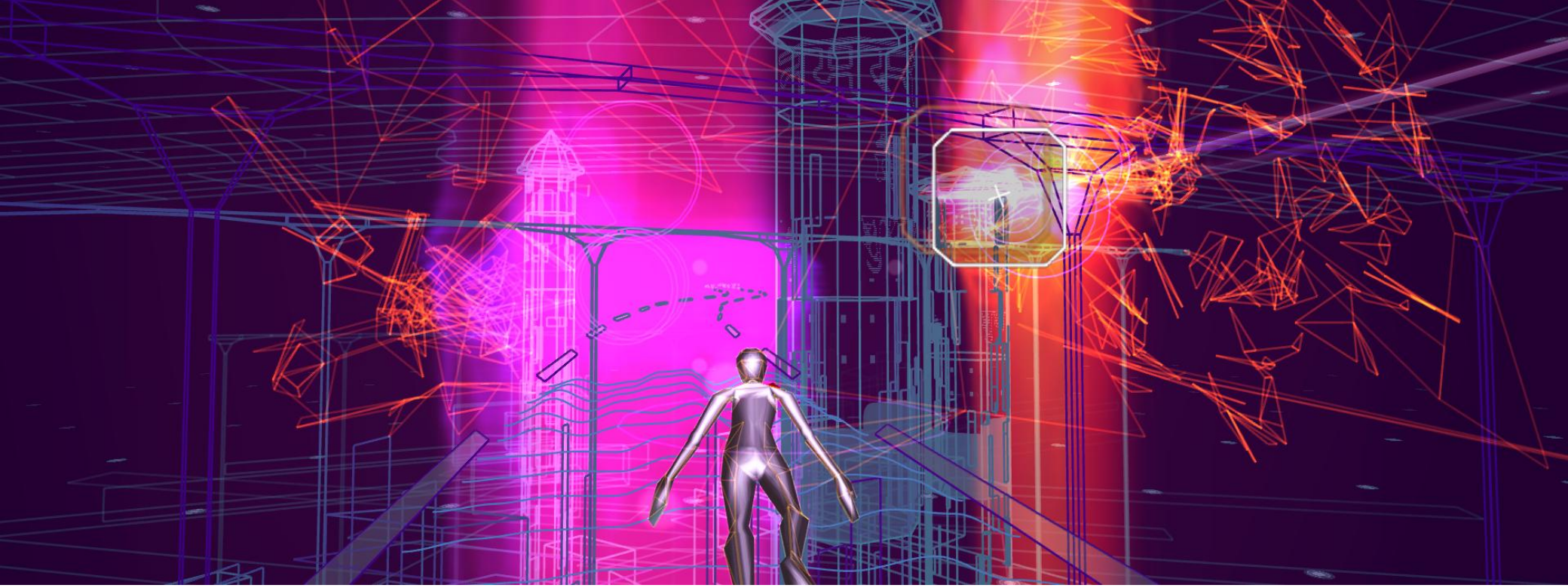


About KMD Embodied Media Project

EMBODIED MEDIA

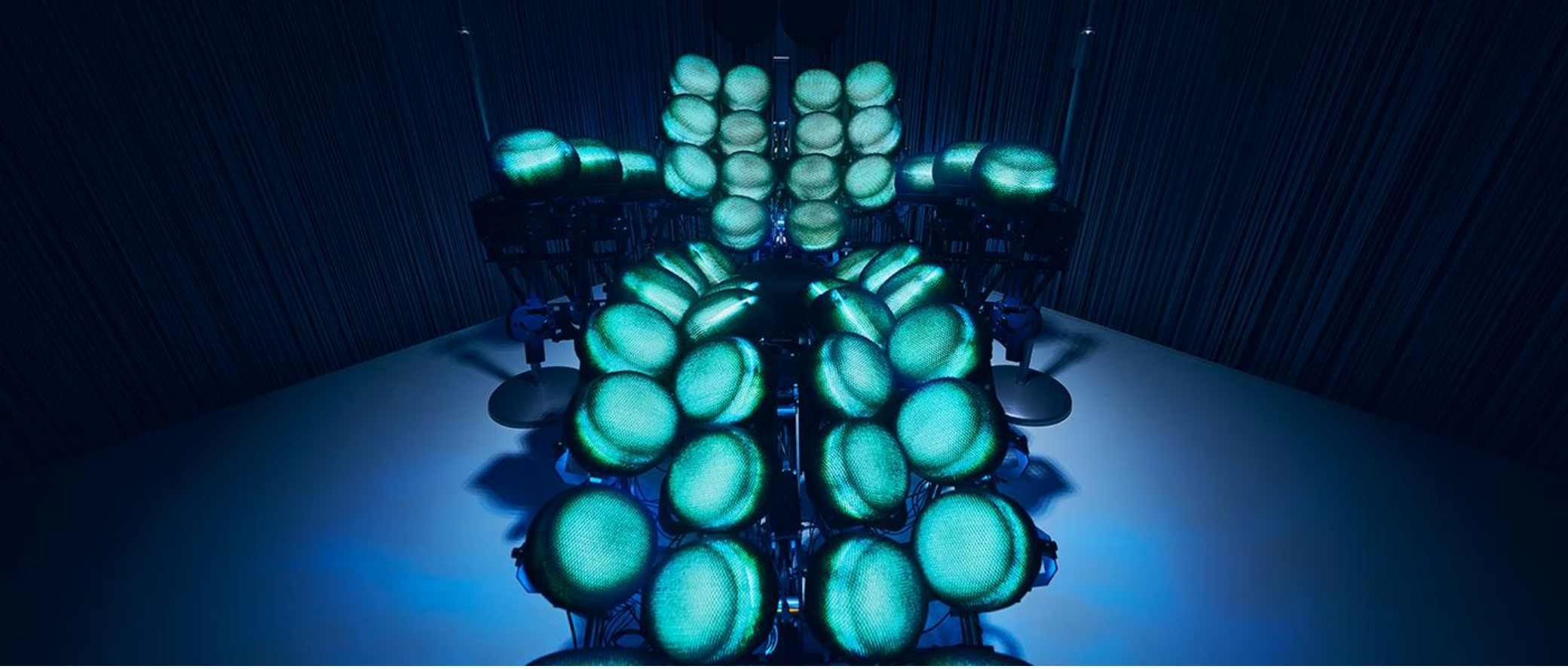
The Embodied Media Project(具身化媒體計畫) at Keio University Graduate School of Media Design aims to create future media technologies that record, share, enhance, and even create the kind of experiences that we have through our bodies. Haptics, VR, Telexistence & Enchanted Things — By studying embodied informatics in human interaction, we design embodied experiences that entertain, enchant, and empower us.



About Enhance Experience Inc

Established in the US in October 2014, Enhance is focused on the creation of new synesthetic experiences using VR, AR, MR and XR (extended reality) technologies.
Our goal is to deliver unique multi-sensory experiences in the form of entertainment, art, devices or services to users around the world.

Headquarters: California Japan Branch: Tokyo



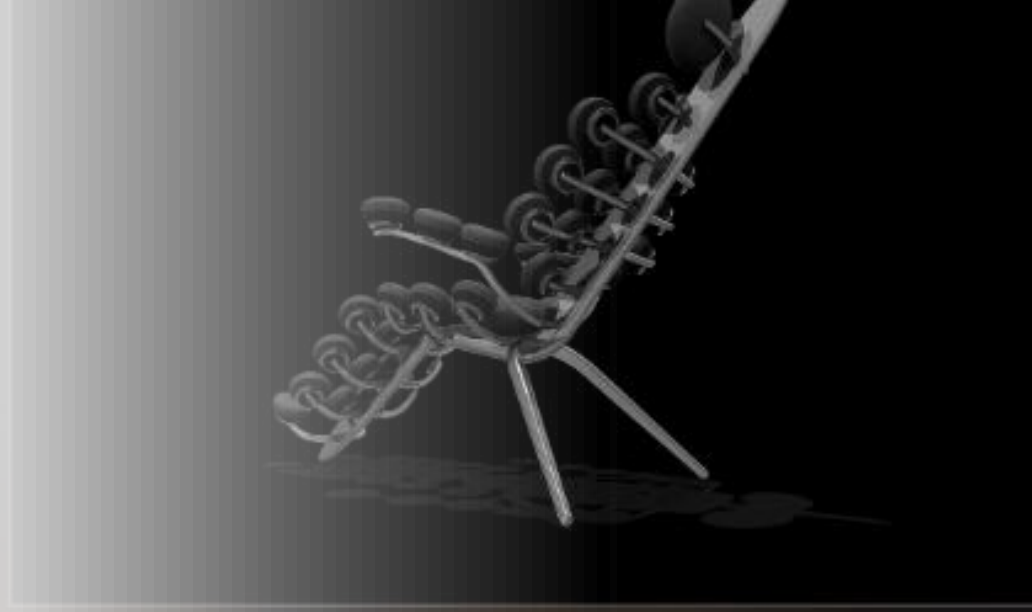
About Synesthesia lab

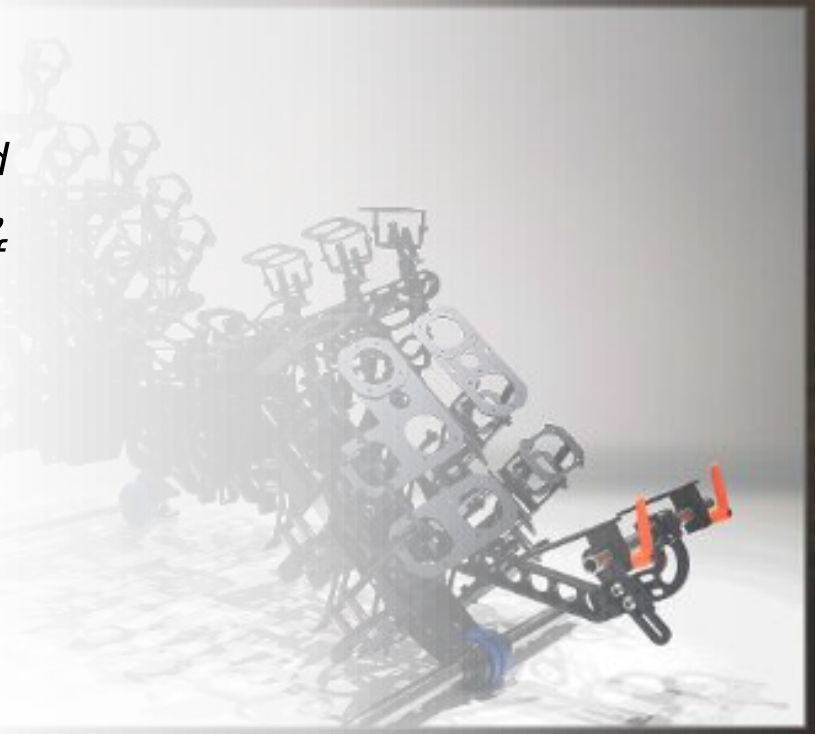
Synesthesia Lab

The Synesthesia Lab is an experimental R&D lab focused on synesthesia and the architecture of other multi-sensory experiences. Formed through an alliance partnership, this experimental R&D lab studies synesthesia and related experiences. We actively partner with companies, researchers, scientists, artists and other like-minded collaborators to bring unique ideas to life.

Synesthesia X1

- *The Lab defines the Synesthesia X1 as a resonant instrument that envelops the body and was developed under the theme of a light-emitting, pulsating living organism. Based on the shape of a chaise longue, which welcomes you to let go of yourself in the most relaxed posture, 44 uniquely designed actuators are positioned to closely fit your body. The vertebrate skeleton serves as a motif for the overall structural frame, engineered to allow for precise angular and positioning adjustments of the actuators.*



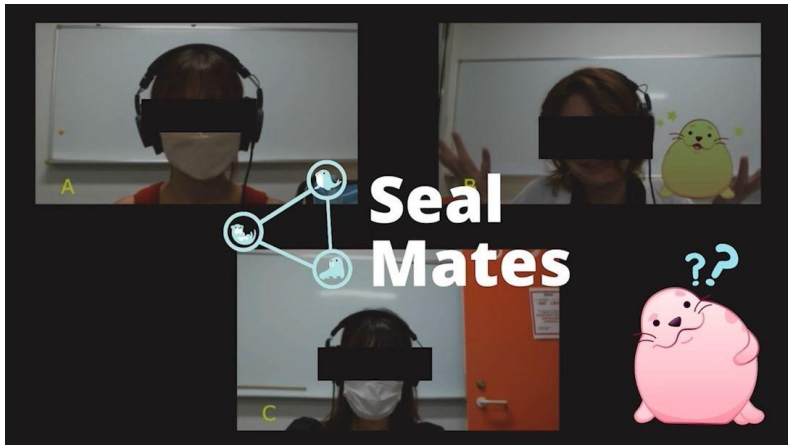


More Projects of KMD

FEEL TECH Wear (2024)

FEEL TECH Wear is a system that facilitates haptic, by presenting directional force through rotational skin-stretch distribution feedback to the wrist and providing texture sensation through vibration feedback to the fingertips. With advancements in hand tracking and passthrough technologies, hand interactions in Mixed Reality (MR) environments have become more accessible. The hardware of FEEL TECH Wear primarily consists of two components: a hand-mounted device for each hand and a control unit located at the back of the head. Using FEEL TECH Wear, three applications have been realized: haptic feedback for virtual objects, haptic augmentation for real objects, and haptic guidance towards objects.
https://www.embodiedmedia.org/projects/feeltechwear

More Projects of KMD



SealMates (2024)

The limited nonverbal cues and spatially distributed nature of remote communication make it challenging for unacquainted members to be expressive during social interactions over video conferencing. To support expressive communication and equal participation among unacquainted counterparts, we propose SealMates, a behavior-driven avatar in which the avatar infers the engagement level of the group based on collective gaze and speech patterns and then moves across interlocutors' windows in the video conferencing. By conducting a controlled experiment with 15 groups of triads, we found the avatar's movement encouraged people to experience more self-disclosure and made them perceive everyone was equally engaged in the conversation than when there was no behavior-driven avatar..

https://www.embodiedmedia.org/projects/sealmates

Connections

經過設計，VR裝置可造成人類的身體錯覺virtual Body Ownership Illusions(BOI)，通過視覺-觸覺的整合，強化了身體錯覺的效應！

- 身體錯覺應用在肢體障礙者的復健。(身體-虛擬-復健身體)
- 身體錯覺操控虛擬身體(電影：一級玩家)。
- 身體錯覺應用在強化操作者對物理身體的感覺，突破限制乃至於超出想像？！(電影：阿凡達)。
- 應用身體錯覺來執行遠地協作(電影：環太平洋)。
- 應用身體錯覺操控另一個實體（電影：電幻國度)。

碳基生命的延伸與限制

駭客任務 (Matrix), 1999

阿凡達（Avatar), 2009

環太平洋 (Pacific Rim), 2013

一級玩家（Ready Player One), 2018

電幻國度（The Electric State），2025

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- https://dl.acm.org/doi/abs/10.1145/3641517.3664385
- https://www.embodiedmedia.org/projects

Enhance Experience Inc.

- https://enhance-experience.com/about

Synesthesia lab

- https://synesthesialab.com/