



Transcendental Chakra: A Multi-Sensory Meditation Spiritual Journey to Enhance Self-Awareness Based on VR

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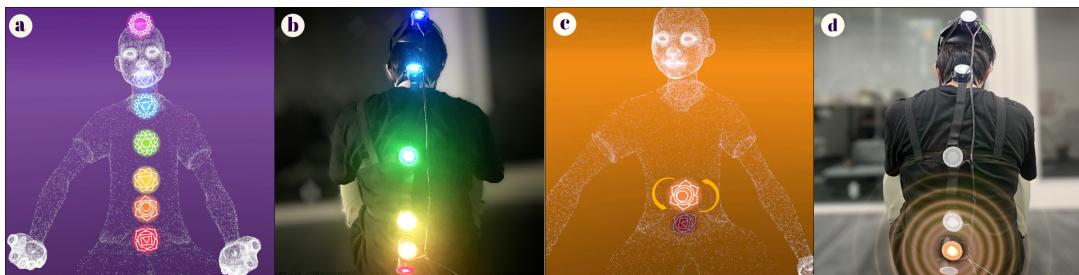


Figure 1: (a) Avatar of user's astral body and seven chakras in the virtual world. (b) The wearable vibrotactile device corresponds to seven chakras in the horizontal position of the real body. (c) Svadhistana chakra is spinning in VR during guided meditation practice, and users need to focus their attention on this position. (d) The vibrating component corresponding to Svadhistana chakra provides vibrotactile feedback to users to help them feel chakra position.

Abstract

Chakra, originating in Hinduism, is described as luminous wheels or auras representing different elements within the body that reflect a person's self-awareness. Chakra-based meditation techniques can support individual wellbeing, but the provision of Chakra feedback in a visual and tangible manner to facilitate mindfulness is largely unexplored. Transcendental Chakra is a virtual reality (VR) multi-sensory experience using guided audio, visual effects, and vibrotactile feedback to aid beginners in chakra meditation by visualizing their astral avatar. The goal of this work is to foster both spiritual and physical self-awareness.

CCS Concepts

- Human-centered computing → Virtual reality; Haptic devices.

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SA XR '24, December 03–06, 2024, Tokyo, Japan

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ACM ISBN 979-8-4007-1141-1/24/12

<https://doi.org/10.1145/3681759.3688927>

Keywords

meditation, chakra, multi-sensory, virtual reality, haptic

ACM Reference Format:

Danyang Peng, Shengyin Li, Tanner Person, Giulia Barbareschi, Pai Yun Suen, and Kouta Minamizawa. 2024. Transcendental Chakra: A Multi-Sensory Meditation Spiritual Journey to Enhance Self-Awareness Based on VR. In *SIGGRAPH Asia 2024 XR (SA XR '24), December 03–06, 2024, Tokyo, Japan*. ACM, New York, NY, USA, 3 pages. <https://doi.org/10.1145/3681759.3688927>

1 Introduction

The concept of Chakras originated in Hinduism, and can be interpreted as 'wheel' or 'cycle.' It has been extensively integrated into ancient meditation and yoga practices. According to Hindu tradition, there are seven core chakras within the body, which spread from the bottom of the spine to the top of the head. The seven chakras are: Muladhara(root) Chakra, Svadhisthana(sacral) Chakra, Manipura(solar) Chakra, Anahata(heart) Chakra, Vishuddha(throat) Chakra, Ajna(third eye) Chakra, Sagasrara(crown) Chakra.

The seven chakras are often portrayed as luminous wheels or localized auras each with distinct functions and colors, that can be awakened to connect with one's inner energy [Beshara 2013]. Muladhara, at the base of the spine, governs survival, stability, and grounding, whereas Svadhisthana, found below the navel, influences creativity, sexuality, and emotions. Manipura, situated in

the stomach area, controls personal power, confidence, and self-esteem. Anahata, centered in the chest, manages love, compassion, and emotional balance. Meanwhile, Vishuddha positioned at the throat, oversees communication, expression, and truth. Ajna, placed between the eyebrows, governs intuition, insight, and foresight. Finally, Sagasrara, located at the top of the head, connects to spirituality, higher consciousness, and enlightenment.

In chakra meditation, practitioners are required to 1) sequentially focus their attention on different chakra points 2) scan their bodies to achieve chakra alignment, and 3) visualize the shapes and colors of each chakra. This is challenging for novices in terms of imagination and attention. To assist them, visual meditation is gradually being explored[Ng and Caires 2024], and the support of wearable devices for meditation has also been proposed[Ezer et al. 2024; Kuprijanova et al. 2019]. However, existing research has largely focused on mono-sensorial feedback. Transcendental Chakra utilizes VR and wearable devices to provide novices with a guided visual chakra training experience. Through multi-sensory feedback, beginners can quickly understand and learn chakra meditation, thereby enhancing their spiritual and physical self-awareness.

2 Implementations

After consulting with a meditation expert, we designed a guided visual meditation training experience based on virtual reality (VR), incorporating multiple elements.

Visual Effect: This design employs Meta Quest Pro and motion capture to create a personalized mirrored avatar for users based on Unity Engine, reflecting their astral body, utilizing starlight particle avatars to simulate the user's spiritual layer detaching from the physical body. The avatar's gender is intentionally obscured, and seven chakras are positioned at their respective locations on this layer of the avatar body. Each chakra is also associated with a distinct VR environment designed in the corresponding monochromatic gradient to simulate the various colored consciousness realms experienced during chakra meditation.

Auditory Guidance: We drew inspiration from chakra sounds¹ and incorporated elements of a Tibetan singing bowl to simulate the rotation of chakras and the resonance of the spirit. A gentle female voice was employed to provide meditation guidance, integrating the background and cultural aspects of chakra into the content.

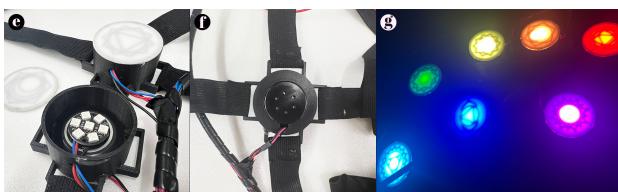


Figure 2: (e) The internal composition of vibrating component. (f) The back of vibrating component. (g) Overview of 7 components in working state.

¹<https://www.healingsounds.com/sound-and-the-chakras/>

Wearable Devices: Vibrotactile feedback can provide beginners in chakra meditation with prompts about the locations of chakras, helping them quickly focus their attention on the corresponding chakra positions. This design features seven vibrating components placed along the user's spine. Each component is encased in a 3D printed shell and includes an LED light set and a VP2 vibrating Sieve(Figure 2(e)&(f)). Adjustable soft straps connect the components to allow for customization of the distances between them. For a more comfortable wearing experience, sponge pads have been added to the vibrating components at the neck, back of the head, and top of the head. Convert audio signals into gentle vibrotactile, ensuring that users can feel the vibrations being distracted by it.

3 Experience

For our demonstration at SIGGRAPH Asia, participants are required to wear the designed wearable device and VR headset, sitting cross-legged on a meditation mat to experience approximately 3-4 minutes of *Transcendental Chakra* guided meditation. Participants will be advised to keep their eyes fully or partially open. Initially, they will be guided to acclimate to their avatar in VR. Following audio guidance, users will practice breath relaxation, starting from Muladhara Chakra, and progressively focusing on each chakra. In their virtual astral body, Muladhara Chakra will appear and begin to spin. They will be instructed to *"Please focus on the base of the spine, imagining roots growing from the body to the ground, grounding you. Visualize the color red as you breathe deeply..."* Simultaneously, the vibration component corresponding to Muladhara Chakra will provide haptic feedback, indicating Muladhara's location. The lights on the component will also illuminate, displaying the participant's meditation progress to audience. This process continues until reaching Sagasrara Chakra. Participants will then align all chakras, performing a body scan from bottom to top. Finally, they will detach from their spiritual body and gradually return to reality, with the VR scene slowly fading away.

4 Conclusion

Transcendental Chakra offers a novel guided meditation experience for novice practitioners, utilizing VR visuals, guided audio, and haptic feedback through wearable devices.

Acknowledgments

This work is supported by JST Moonshot R&D Program "Cybernetic being" Project (Grant number JPMJMS2013) and JST COI-NEXT "Minds1020Lab" Project (Grant Number JPMJPF2203).

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