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論文題目	The Effects of Appearance-Mediated Social Presence Regulation on Emotion and Performance		
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論文の内容の要旨

As virtual and augmented environments become increasingly central to everyday social interaction, supporting emotionally sustainable and effective communication in these spaces has emerged as a critical design challenge. Prior research has predominantly focused on how individuals' own avatars influence behavior, while the role of interaction partners' appearance in shaping emotional experience and performance remains underexplored. Addressing this gap, this dissertation adopts an individual-level experimental approach to examine how adjusting the appearance of others can regulate interaction experiences in mediated contexts.

Two empirical studies form the foundation of this work. Study 1 investigates high-pressure oral communication in video-mediated interviews, examining how different forms of interaction partner appearance—familiar faces, stylized representations, and neutral strangers—affect perceived social presence, state anxiety, attentional engagement, verbal behavior, gaze patterns, and physiological responses. Results show that familiar appearances reduce anxiety and promote deeper engagement, whereas stylized faces disrupt emotional interpretation and offer limited relief from evaluative stress.

Building on these findings, Study 2 extends the investigation to embodied interaction through augmented reality (AR) exercise companions. Across three experiments, the results demonstrate that emotionally resonant AR companions enhance enjoyment, reduce perceived pressure, and improve physical performance. Familiar avatars foster psychological safety through emotional bonding, while stylized companions support motivation and comfort when aligned with users' aesthetic preferences. Qualitative interviews further reveal

that users assign distinct social and functional roles to avatars based on appearance, favoring companions that convey supportive presence without surveillance or judgment.

Together, these studies identify appearance (familiarity and liking as affective channels) mediated modulation of social presence as a unifying mechanism linking emotional experience and performance across cognitive and physical tasks. By extending social presence research beyond self-avatar effects to interaction partner appearance, this dissertation contributes theoretical insight into interpersonal regulation in mediated interaction. The findings also offer practical design implications for communication platforms, AR fitness systems, and future AI-driven companions, pointing toward more adaptive, empathetic, and psychologically supportive virtual communities.

Keywords: Avatar appearance; Social presence; Augmented reality; Human–computer interaction; Emotional experience; Performance.

論文審査の結果の要旨

This dissertation presents a rigorous and meaningful investigation of the strategic use of virtual avatar expressions to modulate interpersonal dynamics. As digital environments become increasingly central to social interaction, the candidate addresses a critical design challenge: how to create emotionally sustainable and effective mediated communications. This research is commendable for shifting its focus away from the well-documented “self-avatar” effects and examining how systematically manipulating an interaction partner’s appearance influences users’ emotional experiences and performance outcomes.

This dissertation consists of two main studies: Study 1 explored the psychological effects of replacing an interviewer’s face with that of a familiar person, an animated character, or a stranger in a high-pressure interview scenario. The results demonstrated positive outcomes: familiar faces reduced psychological stress, encouraged better eye contact with the partner, and increased the verbal output. Study 2 showed that supportive behavior had positive effects on users, as measured through questionnaires and their physical activity levels. Based on these findings, an adaptive support system was designed and implemented in this study. Comparisons between conditions with and without the system revealed significant beneficial effects.

The novelty of this research lies in its experimental verification of the causal effects of manipulating an interaction partner’s appearance on users’ emotional experiences and performance. This dissertation is academically significant because it investigates the changes in tension and motivation triggered by variations in the appearance of a listener during oral presentations (Study 1) and a supporter during physical training (Study 2).

The findings of this dissertation are valid and highly applicable, as they can be effectively used to reduce stress and promote active engagement in communication within online virtual environments and social activities, which are expected to become increasingly prevalent in the future. This study is anticipated to substantially enhance the efficiency and facilitation of various knowledge-creation activities involving human interaction.

In summary, this dissertation clarifies the psychological comfort provided by interpersonal avatars and demonstrates

their potential for practical applications. This study offers valuable insights into the future of virtual environments. Therefore, this is an excellent dissertation, and we approve awarding a doctoral degree to GONG, Ziting.