Virtual reality sex-work: phantom touch and "tricks."

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1. Introduction

Avatar-mediated sexual interactions in virtual environments [1] allow users to experience different gender identities and various erotic encounters potentially different from their daily lives [2]. This poster presents the user experience design of a Japanese virtual reality sex-work service, X-Oasis, launched in July 2020. The interactions are mediated via anime-like-looking avatars [Image 1]. Guests (customers) can choose between twelve virtual environments, genders, genitalia, and thirty-seven scenarios inspired by Japanese pornographic material. The service is accessed via desktop or using a smartphone and VR goggles. Unlike the guests, the cast can move their bodies in virtual environments using motion tracking. This poster explores the user experience design based on sex workers' capacity to experience phantom touch and "tricks" to awaken guests' body parts.

2. Methodology

• Six 40-min sessions were conducted at X-Oasis.
• iPhone X and Hamswan VR goggles were used.
• The protocol was as following: our avatar body appeared in the virtual space, the cast greeted us, scenarios were played out (lasting 10-15min each), feelings were discussed.
• Two quantitative surveys were conducted amongst five casts in the Summer of 2020 and in March 2021.
• X-Oasis engineer and co-founder were interviewed in March 2021.

3. Data

• The age distribution is 23-26 years old (60%), 27-30 years old (20%), 31-34 years old (20%).
• The average number of customers per week is 10,3.
• The casts spend an average of 5,8h per week in X-Oasis.
• 60% of the cast changed their gender based on their avatar.
• 60% of the cast identify differently from their physical gender.

4. Discussions
A. UX Design

The X-Oasis engineer built the UX in Unity 2019.4. The service uses Unity SteamVR plugins to receive inputs from the cast's VR equipment. The avatars were created in VRoid. The real-time movements are rendered using FinalIK. X-Oasis use their own AWS broadcast server implemented with webRTC or a third-party webRTC server.

The UX heavily relies on the cast's capacity to experience phantom touch. According to the engineer, "the level of VR immersion of the cast equals the level of virtual immersion of the guest, so we develop mostly for casts to increase guests' UX." During our interview, he gave a list of elements that were paramount when designing the UX.
• The casts can use their licensed avatar.
• The casts have freedom of choice when it comes to fashion.
• The guest is represented by an avatar in the virtual environment. Thus, not giving the casts the impression of talking to a camera.
• Penis and nipples can dynamically erect.
• Breasts can move when touched.
• Implementation of a customizable and sexually sensitive facial dynamic system (including custom tongue movements).
• No risk of privacy violation.

B. "Tricks"

The cast has to master the phantom touch to transmit the feeling of immersion to the guest who cannot move in the virtual environment. When a new cast integrates X-Oasis, the co-founder trains them "tricks" to induce sensations of touch and awaken avatar-mediated arousal. The X-Oasis founders and cast share several "tricks" during interviews and conducted surveys:
• One of the tricks is "a ritual that awakes guest's tongue," as the engineer calls it. First, the cast sucks their finger for a second. Then, they slowly let the guest conduct the same action by bringing the finger into their mouth. Finally, the cast proceeds to virtually kiss the guest, stimulating "feeling the tongue," as the engineer adds.
• X-Oasis developed the second trick to provide "realistic" real-time audio feedback. To mimic the sound of kissing, penetration, and licking, the cast licks their fingers or kisses between the thumb and index finger of their hand.
• During the sessions, it has been noticed that the cast comes remarkably close to the guest's head. The engineer explains that this "trick" helps provoke phantom touch, as it is more straightforward with body parts closer to the head. He further mentions that the guest's "eyes can focus on VR 3D, making their body feel that it is there in reality."
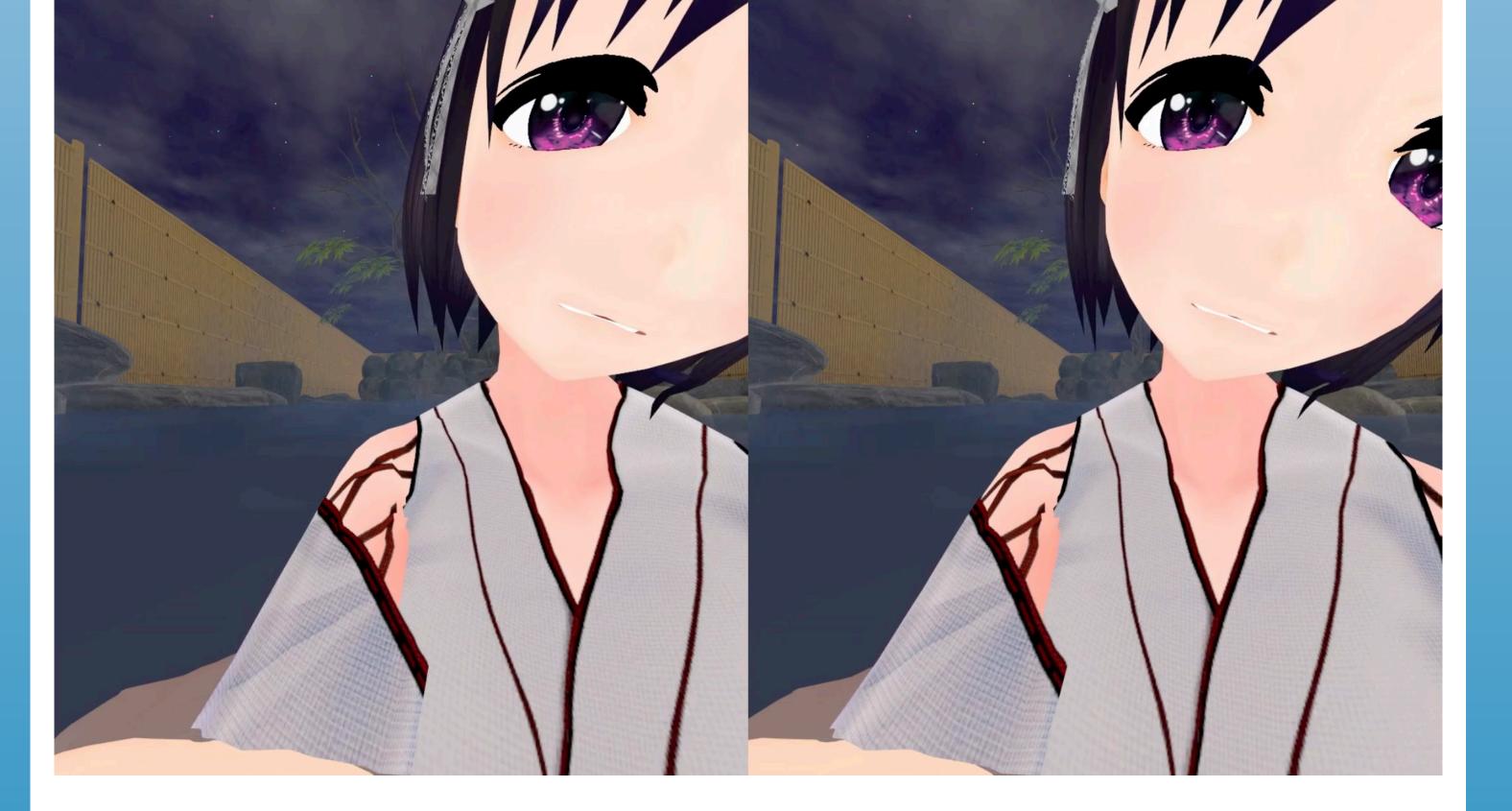

Image 1. Image 1. Co-founder Karin in a virtual environment. For the VR goggles solution, two images, one for each eye, are streamed on the phone positioned inside the goggles at 5Mbps using VP8/9

4. Conclusion

• X-Oasis enables sex workers to work as avatars from home.
• X-Oasis designed a UX to stimulate the casts' phantom touch and immerse guests in the virtual environment even if the latter cannot move their limbs.
• X-Oasis has developed several "tricks" to awaken guests' body parts and provide "realistic" real-time audio feedback.
• Casts' capacity to deploy "tricks" and experience phantom touch enabled by the UX compensates for the absence of haptic feedback.
• With X-Oasis, casts and guests could experience different gender identities and various erotic encounters different from their daily lives.

References

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[2] Lynch, M. J. (2010). Sex Work in Second Life: Scripts, Presence, and Bounded Authenticity in a Virtual Environment. Social Thought & Research, 31, 37–56.