

Longing for Wilderness

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Figure 1: Overview of the three main elements in the experience: the city (left), the transition (middle), and the nature (right)

Abstract

Longing for Wilderness is a 360° VR-experience that takes you from the noisy city through the slowly transforming forest towards a calm and airy landscape. It seeks to express our innate longing to experience nature in its rawest forms. To achieve this, we have made use of the latest technology: phones/tablets, virtual reality head-mounted displays (HMDs), 360° imagery, interactive binaural sound, and a seatback tactile bass system to transmit low frequencies to the user's body, to create a truly immersive experience that addresses all senses. *Longing for Wilderness* constitutes one of the first use cases of a dedicated 360 Player capable of handling high frame rates (up to 50fps) and resolution (up to 4k), developed within the EU funded project Dreamscape.

Keywords: virtual reality ride, immersive experience

Concepts: Information systems~Multimedia content creation; Computing methodologies~3D imaging; Computing methodologies~Computer graphics; Computing methodologies~Virtual reality; Hardware~Sound-based input / output

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SIGGRAPH '16 VR Village, July 24-28, 2016, Anaheim, CA,
ACM 978-1-4503-4377-0/16/07.
<http://dx.doi.org/10.1145/2929490.2932423>

1 The Story

The motivation for *Longing for Wilderness* comes from the possibility to express our desire to turn off everyday turbulences and experience nature in its rawest form - an opportunity getting increasingly rare these days. The story behind it is not only about experiencing wilderness. It is also about being confronted with solitude, finding yourself, and discovering a place in this world that is remote and silence enough, where one can think, meditate, be inspired, and in general, escape from all the noise and distraction that mask our true goals.

The result is a virtual ride where the participant is taken from the noisy and enclosed city into the open nature, allowing him to appreciate the vastness of the world around him. *Longing for Wilderness* aims to convey emotions and feelings by combining captivating visual landscapes with dynamic changes in the tempo of the story. That is why at the beginning of the experience the city is depicted as a dark, oppressing environment that is transited at a very low pace. As the story takes us to the limits of the city and into the forest, the speed of the journey increases, up to its highest peak, to finally recede and leave us floating over the open, wide natural landscape. The final movie can be obtained from the artist website [Epicscapes 2016].

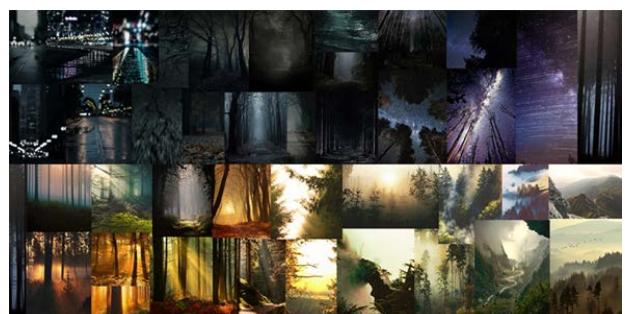


Figure 2: Reference, Color and Moodboard.

2 The Technology

Longing for Wilderness combines novel and already existing state-of-the-art technologies with the goal of creating a VR-experience that impacts all senses of the user.

The total duration is 2 minutes, and is intended to be used with phones, tablets and HMDs. Figure 3 shows a participant during the VR-experience.

In the following we give an overview of the technology behind *Longing for Wilderness*:

VR Player. A dedicated 360° VR Player capable of handling high frame rates (up to 50fps) and resolution (up to 4k) constitutes one of the novelties in this VR-experience. The player is currently a research prototype (not released to public yet), developed by iMinds within the EU funded project *Dreamspace* (610005) [Dreamspace 2016].

HMDs. Even though the experience was designed to work with phones, tablets and HMDs, the preference for the latter offers greater immersion with a wide field of view, and no distractions from the outside. That is especially important for short films with several low key situations where it is necessary to keep out the light from the viewing environment. The selected HMD for the experience is the Oculus DK2 due to its high quality.

Binaural Sound. Being able to properly locate sound sources, and to control the behavior of sound when moving the head during the experience, has proven to considerably improve the immersion feeling and being part of the world. The music and some ambient sounds were left at normal stereo. Specific sounds that are easy to locate in the picture, and needed to remain for a certain amount of time were implemented as binaural elements through a third party plugin [DearVr 2016] for Unity 5.3.4.

Tactile bass system. Enabling the user to feel a sensory feedback of the ride can make a big difference in being part of the experience. To that end we use the Subpac S2 [Subpac 2016], a high fidelity plug and play system that transmits non-periodic, low frequencies to the immersants' body. The low frequencies were checked during the sound design process in Ableton Live, and frequently modified to work with the device. The motivation for using a tactile bass system is the potential they have in transmitting certain feelings, moods, and sensations, thus enhancing the "immersion" of the virtual experience.

Wind. In a VR-experience that takes place outdoors it is important to have as much haptic feedback as possible. For that reason we use a dynamically controlled wind machine (Antaria AF-3) that intensifies the experience, reproducing the effect of the wind on the skin, as we progress from the city through the forest into the open landscape. In order to work in sync with the storyline, the intensity of the wind is increased or decreased according to time stamps where the ride gets faster or slower. The implementation of the controller was done in Unity, and the communication is done via USB-DMX interface.

Software. The software used to create the experience was Cinema 4D, Solid Angle Arnold, After Effects + Mettle Skybox Studio, Photoshop, Ableton Live

3 Evaluation

The complete VR-experience *Longing for Wilderness* was evaluated during a conference focused on animation, visual effects, games and virtual reality. A total of 125 participants took place in the evaluation. Of this total, 64.8% were male and 35.2% were female. 97.6% used the Oculus, while 1.6% used a phone with internet access. The majority of the participants had experienced with virtual reality, films, and/or animation.

In order to assess if the experience managed to evoke feelings in the users, we asked where they have felt very uneasy or very at ease: (1) the city, (2) the nature, (3) traveling through the forest. To this end, we used a 5-Likert scale, where '1' was *very uneasy* (meaning unhappy, awkward, uncomfortable, not relaxed) and '5' was *very at ease* (meaning free, comfortable in body and mind, relaxed). In the city, 34.1% of the participants reported they felt *at ease*, and 29.3% were undecided. In the nature, 57.3% declared *felt very at ease*, and 40.3% *at ease*. Regarding the ride through the forest, 45.5% expressed being *very at ease*, and 35% *at ease*. Moreover, when asked where they would stay after the experience finished, 65.9% said they would stay in the nature, and 34.1% preferred remain traveling through the forest. This results show that indeed *Longing for Wilderness* made people escape from the everyday chaos.

Regarding the virtual world, it conveyed in 86.4% of the users a sense of vastness, it allowed 87.8% of them to feel immersed, and 56.9% felt embodied. Most importantly, 88.4% of all the participants did not feel any dizziness or related feeling.



Figure 3: Participant at international conference.

Acknowledgements

This project has been realized by the post graduate funding scheme [VRNow 2016] in collaboration with Filmakademie Baden-Württembergs Research and Development Labs [RND 2016].

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