

Ivan Iovine

Work Title The Garden Roots Orchestra

Abstract & Concept
Interaction
Visuals

Abstract

In recent years, scientific publications have increasingly demonstrated the bioacoustic and interactive capabilities of plants through natural phenomena. Gagliano and Mancuso showed that plants are able to recognize water rustling vibrations through their roots, as well as to emit clicks sounds whenever they are near another root or water source [1]. Khait et al. have shown that plants emit "screams" and "wailing" in the form of popping sounds during stressful situations. These bioacoustic phenomena are imperceptible to human hearing, as the sounds range from 20-100 kilohertz [2]. The aim of the project is to simulate and artistically recreate the scientific discoveries listed above, creating an interactive, sensory environment where users can experience natural phenomena that are imperceptible to the human eye or ear.

Concept

“The Garden Roots Orchestra” is an artistic project that aims to create a digital underground world, reflecting “Sculpture Garden” created by Mio Loclair. A digital underground nature will be created that highlights the bioacoustic capabilities of plants highlighted by neurobiological sciences. In this underground world, users will be able to come into contact with roots, fungi, and water sources. By interacting with them, users will be able to hear the



Work Info

year 2023
medium Digital/VR Application
software Unreal 5

Literature

- [1] Gagliano, M., Mancuso, S., Robert, D. (2012). “Towards understanding plant bioacoustics”.
- [2] Khait, I. et al. (2012). “Sounds emitted by plants under stress are airborne and informative”.

Resources

images <https://www.dropbox.com/sc/1fo/8begz49pzuw6meg6ituaf/h?dl=0&rlkey=qpeysppzr08892f4hyvaonsnd>

Artist’s bio & works

link <https://www.dropbox.com/sc/1fo/4h4q6sbbofd703d0e9x64/h?dl=0&rlkey=wt4khqex4g0rs55czpmw2lhkt>

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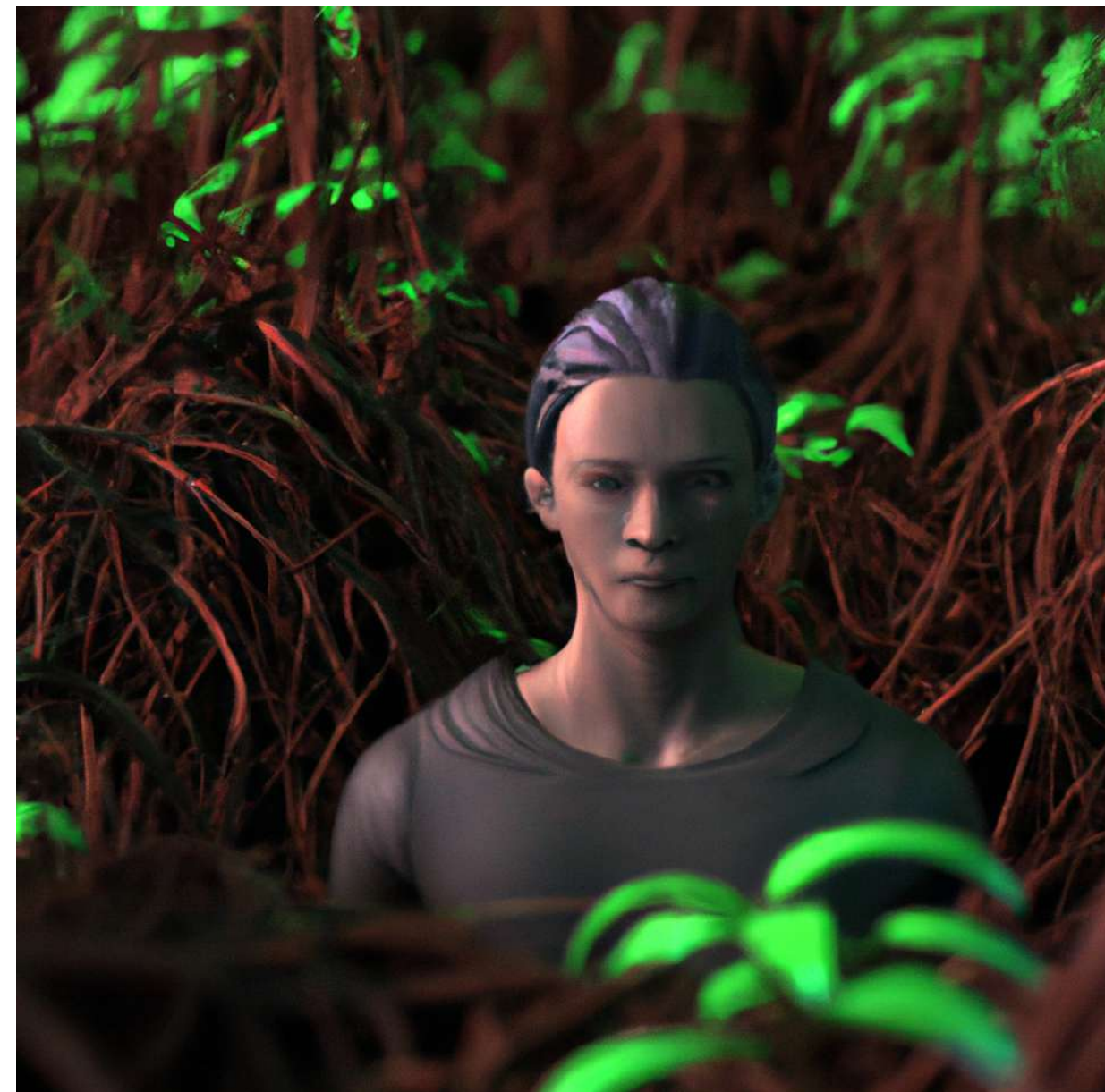
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"concert" produced by these underground beings, experiencing the vibrations produced by water, click sounds and "moans" produced by roots. The sounds replayed will be those reproduced and amplified by Khait et al.[2], Gagliano and Mancuso [1], seeking to create a harmonious and musical composition that users can experience along the way.

Interaction

Users will traverse the underground path with their avatar, walking through the roots, fungi and water sources. As the user approaches the roots, they will hear the clicks sounds that the roots produce. The sounds will vary in intensity depending on the proximity to a water source, with roots closer to water emitting a more intense and engaging sound. Roots farther from water sources will emit "wailing" and "crying" sounds, similar to those described in the scientific paper by Khait et al. [2] The Garden Roots Orchestra will be a digital underground nature place where roots can express their communication and bioacoustic capability.



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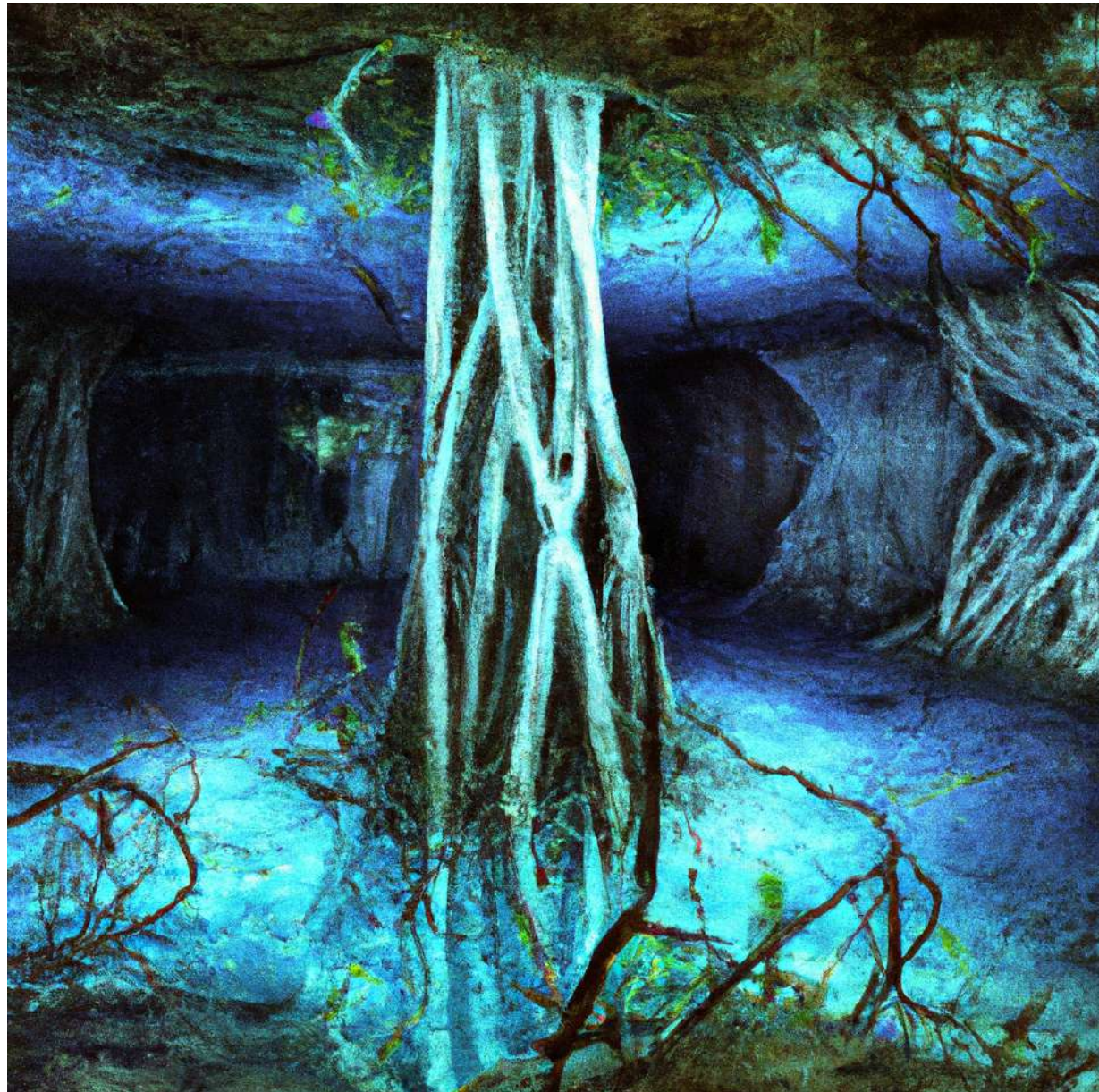
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