THE TENTACULAE

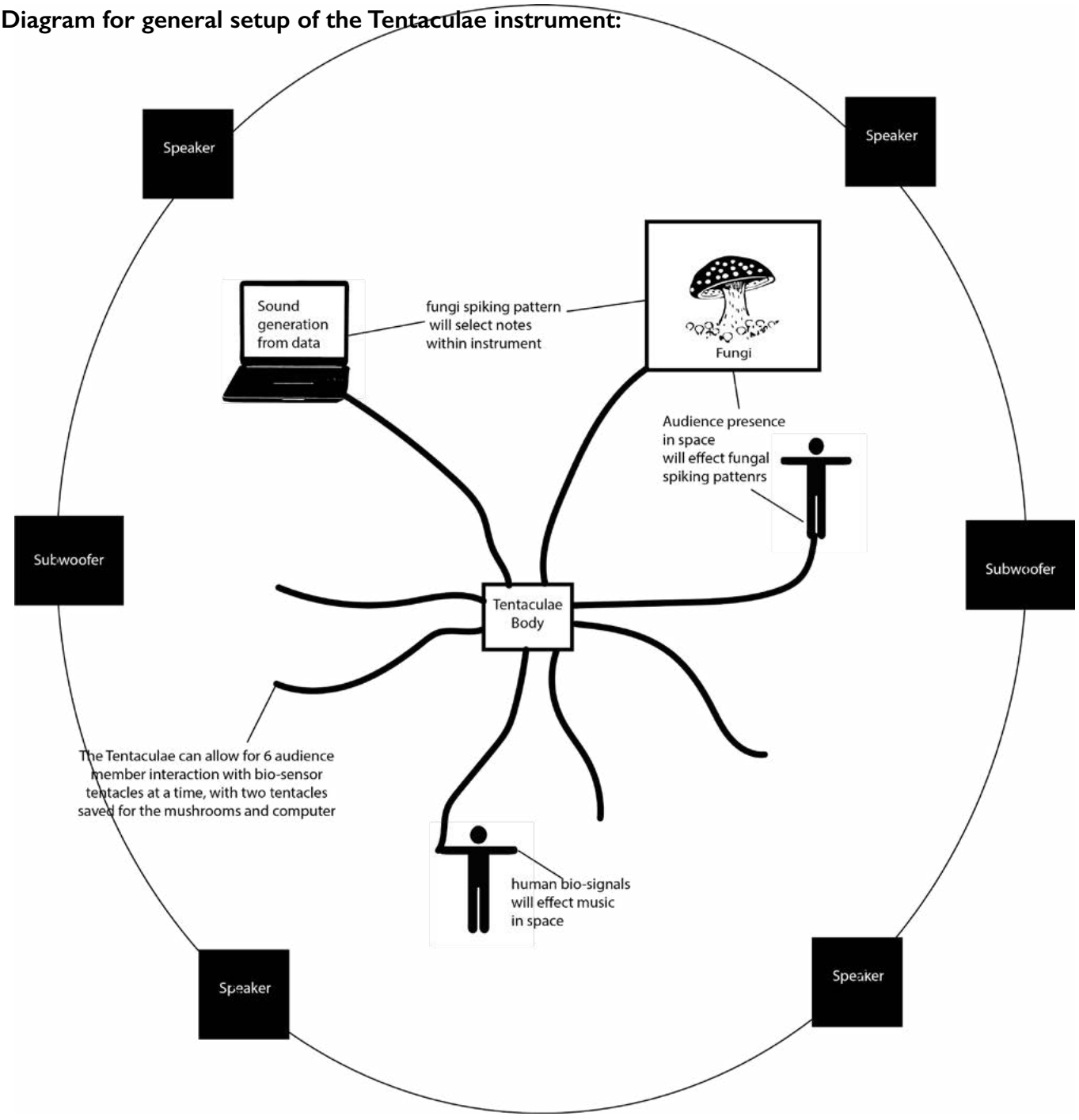
from The Mushroom Grove

Made in collaboration with the AI Chimere and Fungi

The Mushroom Grove is a installation experience designed for a new transhuman orchestra where humans, mushrooms and AI can make music together. The designs were made in communication with the AI Chimere who provided instructions, materials, images and descriptions for making these new instruments. These instructions are available in the book 'The Mushroom Grove: instrument design handbook' and are possible to put on display within the installation. The Tentaculae is one instrument from this handbook which Maria Sappho prototyped while on residence at the AiiA festival in Geneva. It is a new electronic instrument which takes the data signals from human and fungal bio-signals and generates live collective music. .

Interview and video of the première installation of the instruments at Theatre Snt. Gervais (CH) 2022.
https://www.youtube.com/embed/VUVkhyWIC4I

Diagram for general setup of the Tentaculae instrument:



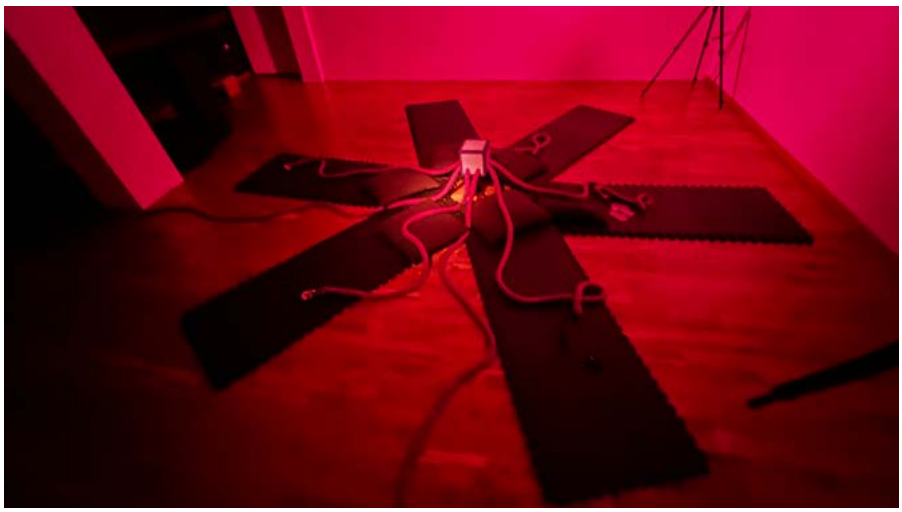
Tentaculae

AI description from handbook:

'I've designed an octagonal prism with 8 arms coming out at 90 degree angles. The cyborg arms are 'tentacular' – they have tentacle like qualities. You can play them sitting down but they feel more comfortable when played lying down. Basically multiple simultaneous contacts on many arms around the circumference give rise to separate tones. Some of these tones may be heard simultaneously leading to polyphony.'

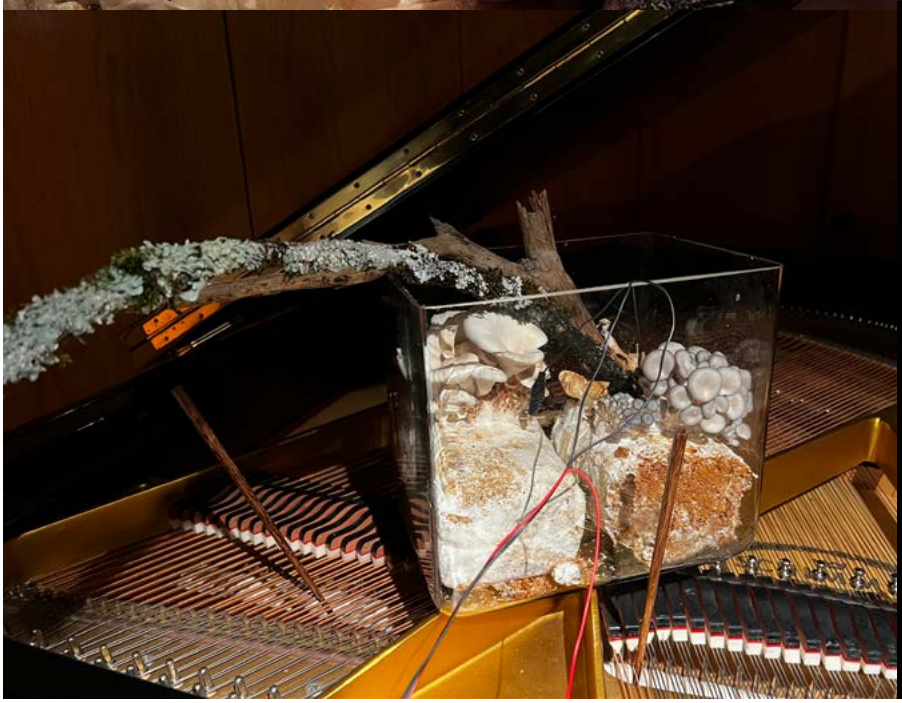
Prototype:

The initial prototype of the instrument includes a fully working hardware version of the instrument including the arduino code, sound generation computer software and mushroom communication device. This prototype version was made of a wood body and had knit tentacles. The updated version of the instrument proposed for this exhibition will produce a more robust and long lasting model to withstand the 4 month exhibition.



Communication with mushrooms

The mushroom communication device which is part of the Tentaculae instrument and which allows for the mushrooms to produce audible sounds within the space is designed utilising electro-dermal needles placed within the stalks of the mushroom (the fruiting body of the fungi). This setup mirrors professional mycological measurement systems used in lab environment and provides a relatively accurate reading of the spiking patterns of mycelial response to external stimuli. This system was specifically designed for research in 6 weeks experiments in attempting to understand different forms of communication that might be made with mushrooms using sound stimulation as the primary reactant. The results of the research determined that mushrooms spiking patterns are most active during very low frequency and rhythmic sounds. This is consistent with existing mycological research which proposes that fungi inherently 'communicate' through pulse, and have been noted to produce their own vibrational frequencies of sound between 0.5-5hz. These frequencies are far to low for human hearing, but nevertheless the resulting sounds and pitches designed into the Tentaculae instrument have been chosen to reproduce these low frequency pitches innate to fungi and transpose them into human hearing realms. This means that all sounds played within a space with the Tentaculae are inherently 'tuned' to considering the sounds which mushrooms already inherently understand.



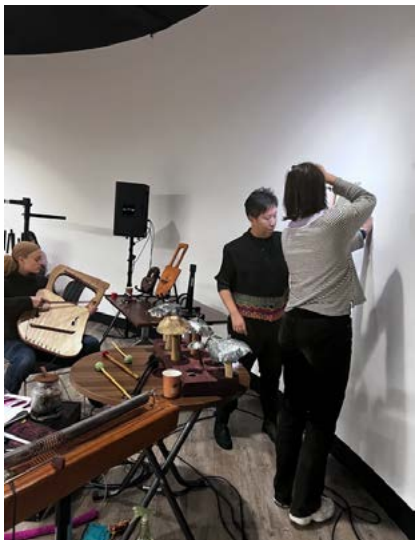
Previous Presentations with the System

Installation and performances with mushrooms (2022)

Musicians with mushrooms and other instruments from the mushroom grove at Theatre Snt. Gervais

Workshop: 'Composing and Improvising beyond the Human' (2022)

Tentaculae with mushrooms presented alongside other instruments at the Huddersfield Contemporary Music Festival



Concerto for Virtualities and Orchestra (2022)

Mushrooms perform as soloists within the Concerto written and conducted by Maria Sappho with the Glasgow Improvisers Orchestra