

Electroacoustic Music: *Countdown*

YouTube link: https://youtu.be/WvVOjdn0SmU?si=8IPDOTMpOV4_UuVI

This piece is an electroacoustic music composition using the clock sound as a central motif. It centers on Alzheimer's disease, focusing on the countdown of a patient's life. Through electronic music techniques, the work portrays the different stages of illness, from the onset to the end of life. The work was mainly made by Logic Pro and is 3 minutes and 40 seconds in length, divided into three parts, following an ABA structure.

1. Technology & Music Documentation:

A1 (00:00-01:07)

The A1 section depicts the early stages of Alzheimer's, where patients often experience mild dementia marked by irritability and sadness. The ticking clock sound symbolizes the countdown of life. In the section's first half, the clock sound is continuously transformed using electronic music techniques, changing its speed, pitch, frequency, and timbre. For instance, using "Flex editing's Speed (FX)" feature, I altered both the speed and pitch of the clock sound (Fig. 1), while the "Flex Time - Polyphonic" technique allowed me to adjust the speed without affecting the pitch. These sound effects transformed a single clock sound into various auditory textures. To further develop the sound, I utilized numerous plug-ins and automation to modify its textures. For example, I applied "Valhalla Delay's Feedback" automation to create high-frequency transitional effects (Fig. 2), while "FabFilter's Micro" and SerumFX were used to morph the clock sound into a heart-beat-like sound through adjustments to frequency and peak (Fig. 3).

In the latter half of this section, I incorporated real voice recordings of Alzheimer's patient's conversations with their loved ones. These samples were processed through "Logic's Sampler" to generate different pitches and frequencies of breathing sounds (Fig. 4).

Additionally, I applied effects and transformations to the original dialogue using “Flex” techniques and overall tempo automation, bringing this section to a close (Fig. 5). This effectively captures the emotional instability and sadness experienced by patients when they find they have such a disease.

The ending of A1 includes a transition connecting Part A1 to Part B. This transition uses processed dialogue samples from Part A while introducing granular textures from Part B to create a seamless transition.

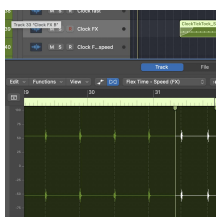


Fig. 1



Fig. 2



Fig. 3

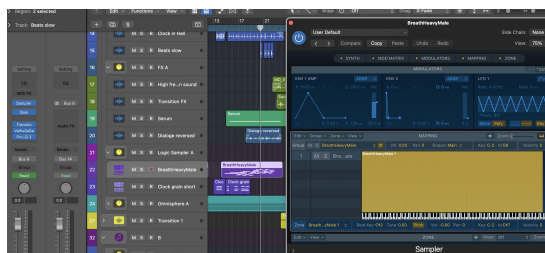


Fig. 4

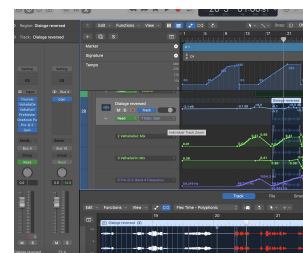


Fig. 5

B (01:07-02:22)

Part B is built around ever-changing clock sounds, with a lead synthesized by “Serum”, reflecting the patient’s progression into moderate dementia. As memory drastically fades and emotions become increasingly volatile, the sound design mirrors the patient’s uncontrollable inner turmoil. The first half utilizes a wide range of plug-ins, samplers, and effects, with heavy automation, to create a dynamic, intense soundscape. For instance, in SerumFX, the lead combines a sine wave with a “BSOD_Square” preset oscillator, adding envelope and LFO modulation to the wavetable position and filter (Fig. 6), then processed with pitch bend to achieve a psychedelic sound, symbolizing the patient’s mental decline into the moderate dementia stage. Simultaneously, the constantly shifting clock sound continues, accompanied

by real patient dialogue samples from Part A1, processed with Ableton Live's Max for Live tools, including "Grain Scanner-Mercurial Buzz" and "Granulator III-Whispers" (Fig. 7). This layering represents the patient's growing instability.

In the second half, the volume and phase shifts become more pronounced. Using "Fab Filter's Pro-Q3" for high-cut automation (Fig. 8), I emphasized a harsh tearing sound to create a sense of intense conflict. Then, I introduced a second "Serum" sound featuring a combination of low-frequency sawtooth, two oscillators with rapid LFO modulation on their wavetable position, and a direct-out white noise layer, further enhanced with various effects and automation (Fig. 9). As these tearing sounds intensify, the frequency spectrum gradually brightens, representing the patient's intense inner struggle and sense of helplessness. The section culminates with a piercing 6k-8k frequency sound, leading to the climax of Part B.

The ending of B includes a transition to connect Part B to Part A2, continuing the dialogue samples from Alzheimer's patients processed through Max for Live. The transition is further enhanced by "Omnisphere" sound, blending seamlessly between B and A2.



Fig. 6

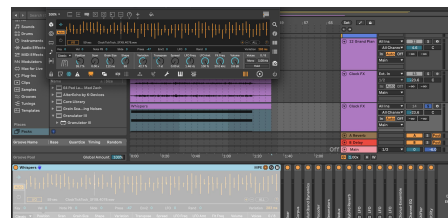


Fig. 7



Fig. 8

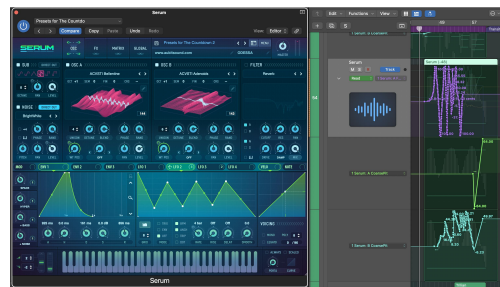


Fig. 9

A2 (02:22-03:13)

This section focuses on the late-stage progression of Alzheimer's, where the patients have almost lost all of their memories, can't take care of themselves, and will die soon. The clock sound continues as a recurring motif, symbolizing the final countdown of the patient's life. Technically, the clock sounds from A1 are revisited but reversed for added emotional depth (Fig. 10). I also recorded and manipulated the sound of flowing water to resemble blood flow sounds, applying automated "Bitcrusher" effects to create an evolving texture (Fig. 11), reflecting the subtle passage of life. In the first half of this section, the high-frequency transitions from A1 return, pushing the music toward another climax, symbolizing the patient's final moments of resistance.

In the second half, the clock motif reappears along with the occasional sound of flowing blood, while two tracks of a "Rhodes 1946 Piano" are introduced as the main melody. I detuned one track by -38 cents (Fig. 12), producing a distinctive sound that represents the patient's peaceful but inevitable decline into death, as they lose all self-sufficiency and fade into oblivion.

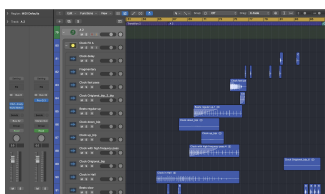


Fig.10

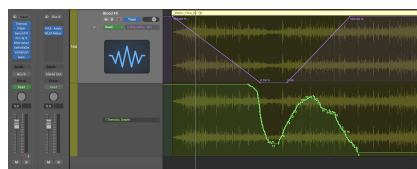


Fig.11



Fig.12

Coda (03:13-03:40)

The piano melody from A2 reappears with slight melody variations, continuing with the clock sound, which gradually fades away, symbolizing the end of the Alzheimer's patient's life. The piece concludes with an augmented triad, representing the tension and instability experienced by the patient throughout the disease's progression, which resembles the unresolved nature of this chord. Despite the tension, the coda ends with a calm sound,

refining the central theme, encouraging the listeners to reflect on Alzheimer's patients' condition, and inspiring empathy and awareness towards patients.

2. Summary:

In summary, the electroacoustic music work *Countdown* is composed in an ABA structure, with the clock as the central motif, maintaining unity in material and clarity in structure. The piece employs various electronic acoustic techniques that align with its theme. Through my music, I aim to deepen listeners' understanding of the inner world of Alzheimer's patients, calling for more attention, care, and compassion for those affected by the disease.