

# **Live Electroacoustic Soundscape Performance Based on the Unheard Malaysia Natural Soundscape: Music Composition Approach from *Nada Sfera***

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## **Abstract**

This paper discusses the possible practice of ‘live’ music performance particularly for the electroacoustic soundscape music composition and its potential as an agency to induce the atmosphere of expectation and excitement from the listeners generated by the organised real-time-space sound source event. The objective of this paper is to define ‘live’ electroacoustic soundscape music and explore its potential in developing *Nada Sfera*, a live electroacoustic soundscape performance-based composition concept and method. *Nada Sfera* is then applied to composed new composition based on *Nada Bumi* composition research theme; re-imagine Malay cultural identity with the accentuation of the unheard biophony and geophony sources from Malaysia natural-cultural sites, which serves as an alternative artistic platform for eco-cultural appreciation and conservation.

## **1. Introduction**

The convergence of the terms ‘live’ and ‘music’ (live music) is to describe a music performance, an act of realising and interpreting a music composition or organised sound and silence within a time frame event written (programmed) by a composer in which the musical performing act (playing) by the performer (and composer) to be perceived and witnessed by the listeners as in ‘shared’ either or both real-time and real-space of sonic event as contrast to studio-based reproduction or playback of ‘live music’, live playback music (Figure 1). This leads to the main question: what is the potential of soundscape music composition to be performed ‘live’ and does the ‘live’ quality able to nurture or attract soundscape listening and soundscape eco-cultural appreciation among the audience or listener?

The idea and realisation of ‘live’ soundscape (non-music composition) is not something new, for example this can be observed through a ‘live’ streaming soundscape project known as the SoundMap and Locus Stream Open Microphone project initiated by Locus Sonus, a France-based collective research group, whose main aim is to explore the ever-evolving relationship between sound, place, and usage since 2005 (Sinclair P. 2018). Although there have been

various similar soundscape music project conducted by several sound artist and acoustic ecologist associated with Locus Sonus platform such as Grégoire Lauvin's split soundscape, and Locus Stream Tuner Locus Stream Promenade, just to mention a few, this research output is a unique opportunity during Covid-19 pandemic especially for Malaysian community to appreciate home-grown unheard natural-culture site soundscape and sound art in 'engaging' ways, which will be explored further during the development of the *Nada Sfera* for eco-cultural appreciation and conservation.

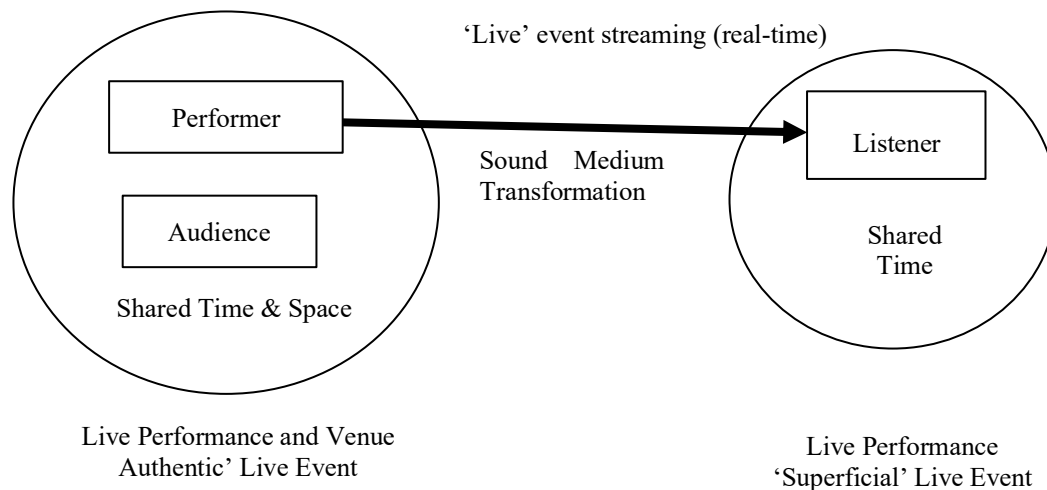


Figure 1. Live performance and venue details, visual and acoustic are streamed in real-time to emulate real-world music performance experience

## 2. Unheard Malaysia Natural Soundscape

Malaysia is a tropical country with rich natural heritage landscapes consisting of unique natural geographical features; caves, mountains, coastline, swamp lake, rainforest, and coral reefs, which inhabited by a mega-diverse flora (plants) and fauna (animals) species, including endangered one in the Sundaland biogeographical region. These rich natural heritage landscapes are celebrated and appreciated through the ecotourism industry as part of conservation and economic activities. However, it is observed that there are less awareness and appreciation on the potential of the Malaysia natural heritage soundscape (sound ecology) as conservable components and sound arts medium from among the local communities and institutions.

There are several natural heritage found soundscape recordings mainly from the Malaysia rainforest-mountains landscape (including water bodies such as rivers and, swamps) produced at studio quality sound-field recordings and published online by the Wild Ambience and Nature Soundmap project based in Australia, founded by Marc Anderson, which are accessible to the open community via their websites. Other natural heritage soundscapes from the rest of Malaysia's natural heritage landscapes; caves, coastline, swamp lake (underwater), and coral reefs are 'unheard'. Therefore, in order to attract the communities to be aware of and appreciate the 'unheard' soundscapes, the field recordings will be made at specific Malaysia natural heritage landscape locations (Figure 2) based on the historical-culture

(including myth and legends) background originating from the landscape's living communities; the Orang Asli (indigenous peoples), particularly those descending from the Proto-Malay ethnic groups, the ancestors of the Malays in modern Malaysia (Zainuddin, Z. 2012). As a result, a *Nada Bumi* composition research theme is developed; re-imagine Malay cultural identity with the accentuation of the unheard biophony and geophony sources from Malaysia natural-cultural sites.

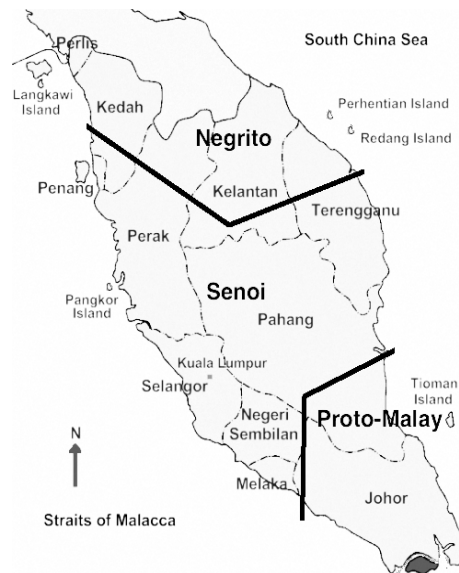


Figure 2. Possible area of the unheard Malaysia natural-cultural sites soundscape based on indigenous people community group locations

### 3. Hybrid Genre: Electroacoustic Soundscape

Through experimental music approach and novelty seeking, music composers from the second industrial revolution era in the earlier 20th century notably Ferruccio Busoni, Luigi Russolo, and Edgard Varèse, had embarked on a new sound world journey of electronic music and following this, influenced by the rapid advancement of electrical-based technology and mathematical computing, music composers for example Karl Stockhausen, Pierre Schaeffer, and Iannis Xenakis just to mention a few, started to adventure further into electroacoustic music (Collins, N., et al. 2013). Electroacoustic music is a type or category of music (genre) that involves the alternate transformation of sound 'medium', between mechanical wave and electrical wave which features organised sound characters based on electroacoustic music composition techniques and style such as acousmatic, spatialisation and algorithm just to list a few.

R. Murray Schafer had coherently defined the audible features of sounds composition characters in soundscape music based on its 'texture-topography' composition; 'keynote' as background, 'sound signal' as foreground, and 'soundmarks' as middle-ground, in which the texture-topography may constantly shift and interchange, resulted from the act of composing music. However, can we do more on found soundscape and its music composition components (background, foreground, and middle-ground) to express our thoughts and feelings (counter-soundscape)? Murray Schafer coined the term 'schizo-ponia' and described

it as the act of one for 'splitting' or 'detaching' the soundscape (encounter-soundscape) from its original-natural composition characters and forms ; background, foreground, and middle-ground, which causing the found soundscape 'lost' its 'landmarks', 'keynote' and 'sound signals' natural-original origin and identity; resulted from one 'unintentionally act' similar to schizophrenia?

Leading to this had somehow, dissonating the concept of acousmatic (Pierre Schaeffer) whereby the 'splitting' or 'separating' the sound source from its origins is done intentionally with purposes and causes; reduced listening, semantic listening, causal listening (Chion, M. 2019). B. Truax in his article entitled Soundscape Composition as Global Music: Electroacoustic music as Soundscape, stated that "Schafer (1969) originally described the electroacoustic listening experience as 'schizophonic', suggesting it was an aberration. Today, such 'aberration' is increasingly the norm"; for example, we can hear several soundscape music that includes sounds that moves away from its character of origin (abstract sounds) for instance work by Christ Watson, Climax (from Number One album, 2006). Nevertheless, it is possible to explore further by converging the two paths (found soundscape music and electroacoustic music) and balancing their 'characters identity' by echoing the composer's cultural narrative expression and interpretation. Even so, it would be much more clearer to assimilate the term 'electroacoustic' in (found-) soundscape music composition as a 'hybrid' genre (style); electroacoustic soundscape music, as opposed to found soundscape music and soundscape music (Figure 2).

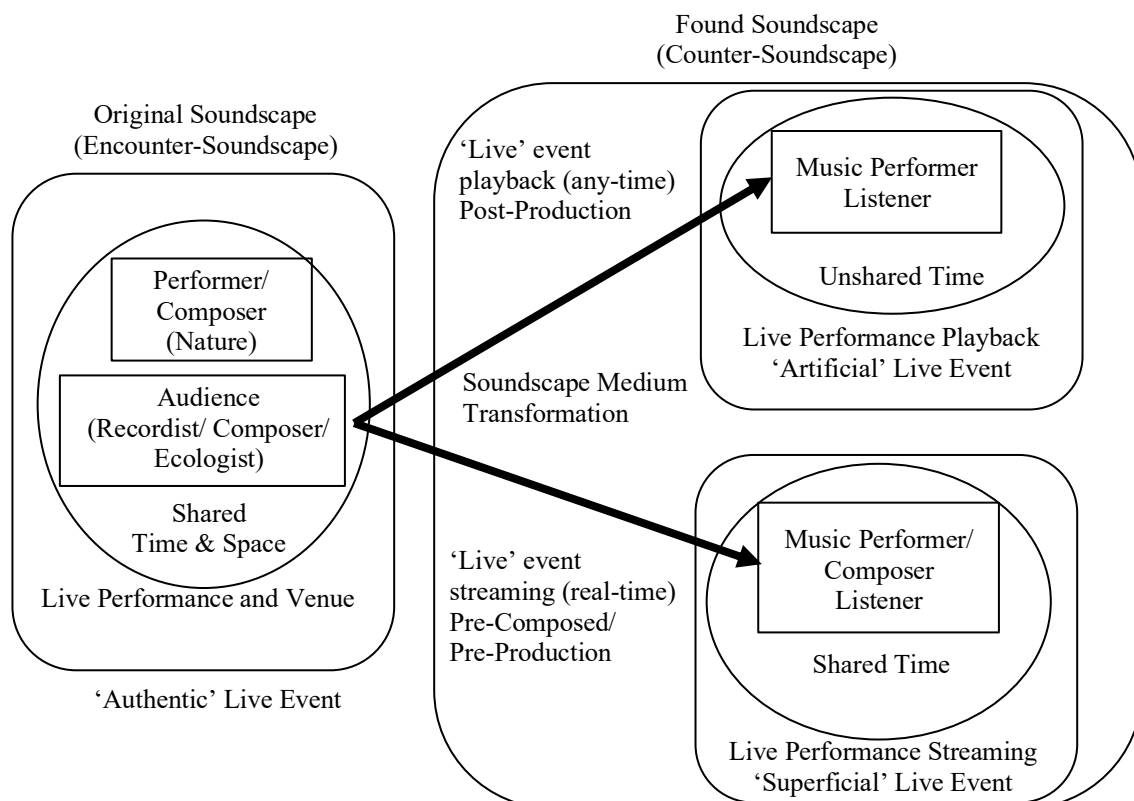


Figure 2. Soundscape sonic event transformation from shared time and space to unshared time and shared time.



#### 4. Live Electroacoustic Soundscape: *Nada Sfera*

Aiming at the development of the *Nada Sfera* composition concept and method for continuous remote life-feed soundscape sampling in the event of global movement-restriction due to Covid-19 pandemic, a deployable multifaceted and self-contained human head size binaural audio recorder streamer device known as *Nada Sfera* streamer is proposed (Figure 3). Based on Locus Sonus audio recorder streaming platform, the splashproof *Nada Sfera* streamer device is designed to improve off-grid location sound audio recorder streamer rigs with extensible implementation of configurable microphone arrays including binaural, stereo or mono sound field, floatable rig, renewable power source via solar panel and customisable inter-partition Hardware on Top (HAT) modules for additional data acquisition for scientific or artistic interpretation and manipulation. Based on the device's long-term outdoor operation requirements, the *Nada Sfera* streamer enclosure structure fabricated through consumer level fused deposition modelling (FDM) 3-D printing technology with recyclable polyethylene terephthalate glycol (PETG) composite for weather resistant, waterproofing and efficient parts maintenance (Szykiedans, K., Credo, W., & Osiński, D. 2017).

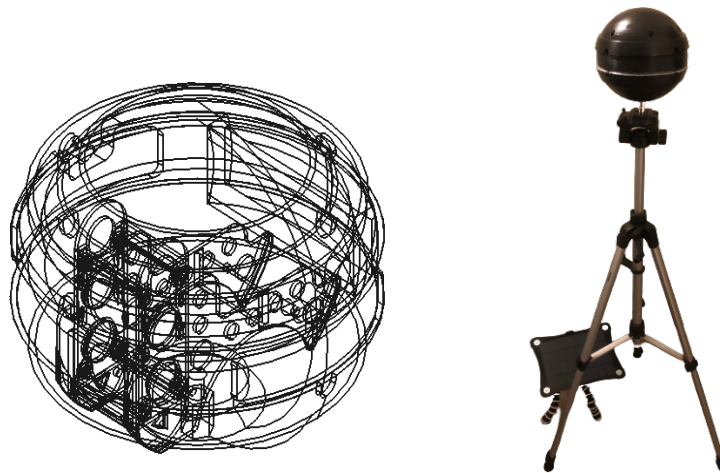


Figure 3. *Nada Sfera* device with 3-D printed head-size binaural audio recorder streamer based on Locus Sonus Streambox device. Audio example: [freesound.org](https://freesound.org)

A preliminary onsite survey (Figure 4) is conducted based on a list of identified location associated with the unheard soundscape and natural-culture narrative for the *Nada Sfera* streamer to be hiddenly installed and to ensure that the area has optimum broadband cellular network coverage to transmit the audio streaming data over the internet. However, the onsite cellular network coverage can be monitored through an open source application known as Opensignal (<https://www.opensignal.com/networks/malaysia/digi-coverage>). External signal booster or amplifier hardware may require to be installed with the *Nada Sfera* device for weak broadband cellular network coverage. A Malaysia mangrove forest swamp in southeast peninsular Malaysia is chosen as a pilot test for the audio streamer. This is due to the fact that the Malaysia mangrove forest swamp is well known to be inhabited by mudskipper among the local communities and the mudskipper is associated with a local Malay folktale, *Batu Belah Batu Bertangkup*, a cursed devouring clamp-like giant rocks, whereby the mudskipper in the

folktale is to be known in Malay language as Ikan Tembakul or *Ikan Belacak* (Toh, T. 2020). This folktale will be used as part of the cultural narrative in new electroacoustic music composition. Moreover, the mangrove forest in the southern region of peninsular Malaysia is traditionally inhabited by the Proto Malay ethnic group, Orang Seletar (also known as Selitar or Slitar) are also considered as part of the Orang Laut, natives of the Straits of Johor (Video 1: <https://youtu.be/paLKTrUvk3w>); separating Singapore from Peninsula Malaysia and Despite their proximity to developed countries, the Orang Seletar largely retain a traditional way of life (Zainuddin, Z. 2012). Most of the Seletar people nowadays have assimilated with the urban way of life, however, for a long time ago, the Seletar people have been practicing a nomadic way of life within the mangrove forests and marshes along the straits and rivers and adhere to their animistic beliefs. Mangrove is a unique repository of rich and diverse aquatic plants and natural resources, the operation of which has built a traditional economic complex of these people, and among the mangrove jungle, the Seletar people remained virtually lost to the outside world. (Lim, J. 2014).



Figure 4. Onsite survey for preliminary observation on the unheard Malaysia natural-culture biophony and geophony and study on its possible sonic narrative for *Nada Sfera* streamer installation at Kukup island mangrove forest park, Johor Malaysia. Audio example: <https://youtu.be/wsdj200jya0>

*Nada Sfera* ‘live’ streaming binaural found-soundscape is then retrieved over the internet at near real-time, in which the degree of streaming latency is based on the size of the audio data stream including sampling rate, bit rate, number of audio channels and network signal speed. The data streaming is feed into Pure Data application through external patch object library for instance from PdOg or PdLoconusus written by Olaf Matthes, Stéphane Cousot, Grégoire

Lauvin and Peter Sinclair (Acoustic Commons 2021) using the assigned streaming server address ([http://locus.creacast.com:9001/mobile\\_ainolnaimzero1.ogg](http://locus.creacast.com:9001/mobile_ainolnaimzero1.ogg)). The streamed audio signal data can be further manipulated with other digital audio workstation (DAW); for example from Pure Data into Ableton Live DAW via virtual output channels such as sound flower which materialised by the composer or performer through ‘live’ performance of sound manipulation and mixed based on the composition time-frame and organised sound parameters written by the composer; for example in a piece composed for four percussionist (with Korean traditional percussions), live soundscape and stereo speakers entitled *Seed of Life (sol): Black Forest* (Figure 5)

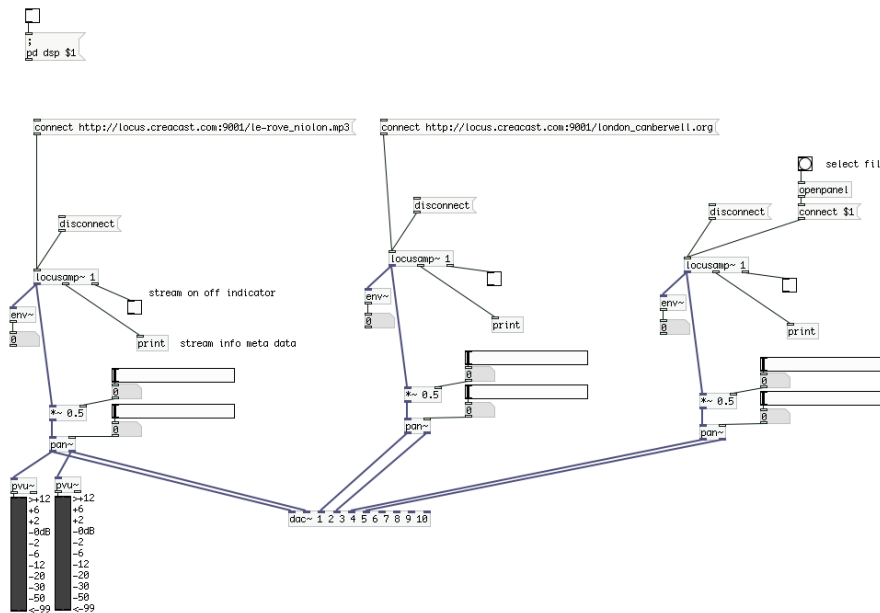


Figure 5. an example of multiple ‘live’ found-soundscape streaming from deployed *Nada Sfera* streamer retrieved and feed into Pure Data using PdLocusonus external library patch

Jennie Gottschalk (2016) had stated that a piece of music is subject to the technique of the performers including the properties of the instrument, their practice and interpretation of the piece within a space-time, attentiveness of the audience and more, had influence the outcome or performance of the composition, regardless the style of the music. In this work, the live found-soundscape sound elements from the *Nada Sfera* streamer are used in textural and atmospheric forms with no ‘ultra’ audio process at between the beginning and middle of the composition to bring the listener into a journey of different acoustic world. Three layers of found-soundscape sounds from different locations of the landscape are mixed as noted on the score and performed by electronic musician, producing sound rhythms that occur spontaneously re-composed from biophony and geophony sources with various textures to give an element of surprise, unexpected to the listener, temporarily disassociate the 'natural' audible features of the live found-soundscape texture-topography; 'keynote' as background, 'sound signal' as foreground, and 'soundmarks' as middle-ground, in which it may constantly shift and interchange, resulted from the act of composing music. The blend of rhythmic sound-world texture from the live-found soundscape give a contrast pacing with the composed percussion whereby specific stressed phrasing, beats and dynamics is given on the

percussion parts to highlight the natural spontaneous rhythms of the live found-soundscape and sometimes, the percussion rhythm plays a role as a canvas or background for the live found-soundscape with repetitive, minimal and sparse gestures, mimicking the rhythm of nature.

Ditengah-tengah komposisi, stimulasi ritma-akustik spatial cue juga berlaku untuk menghasilkan interweaving acoustic spatial cue rhythm between the live found-soundscape streamed audio and percussionist; the percussionist performed the section by carrying the instrument around the stage as notated choreograph on the score (Figure 6). Walaupun bunyi pentas didalam komposisi ini is amplified (stereo X-Y) dan bunyi kesan pergerakan spatial mungkin dapat diartikulasi melalui stereo speaker pentas, interaksi resonant akustik semula jadi dewan dapat ditekankan untuk memberi pengalaman ‘bonus’ para pendengar dan tindak balas pemuzik dalam menginterperasi cara bahagian muzik tersebut dipersembahkan dimana ianya hanya boleh di perceived and ocured melalui ‘live’ performance venue (shared time and space).

**Performance Notes**  
The pitch scale notation indicates the tone register (high-low) and each percussion sets may have various set of tone qualities

**Musician Layout & Stage Movement (Bar 20 - 28)**

The diagram shows a stage layout with four percussionists (Percussion 1, 2, 3, 4) and an audience area. Percussion 1 is at the top, Percussion 2 and 3 are in the middle, and Percussion 4 is at the bottom. Arrows indicate movement paths: Percussion 1 moves from 1A to 2A and 3A; Percussion 2 moves from 1A to 2A; Percussion 3 moves from 1B to 2A; Percussion 4 moves from 1B to 2A. The audience area is at the bottom, with 2B and 3B also marked.

Figure 6. Percussion ensemble instrumentations and choreography notation example for acoustic spatial cue performance in *Seed of Life (sol): Black Forest* by Ainolnaim Azizol 2021. Full score: [shorturl.at/eftuG](http://shorturl.at/eftuG)

Recalling an earlier composition entitled *Nadi Bumi*, literally means Pulse of the Earth composed for an amplified alto recorder, aleatoric composition technique was used to create a spontaneous performance atmosphere with uncertain musical performance result that had a different phrase sequence structure outcomes and provides unexpected listening reference by the audience (Azizol, 2017). This technique is applied again with the call and response method (Figure 8) from middle towards the end part of the composition to give a spontaneous





technology provides an alternative of live performance to be carried out in a different location, space and time-zone. *Nada Sfera* enables the 'live' electroacoustic soundscape performance of unheard Malaysian soundscape narrative with sustainable performance and engaging form. *Nada Sfera* may be extensively used for other sound art forms for example 'live' sound installation as an alternative artistic platform for eco-cultural appreciation and conservation.

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