

A stratified approach for sound spatialization

Nils Peters
Trond Lossius
Jan Schacher
Pascal Baltazar
Charles Bascou
Timothy Place

CIRMMT, McGill University, Montréal
BEK - Bergen Center for Electronic Arts
ICST, Zurich University of the Arts
GMEA - National Centre for Musical Creation of Albi
GMEM- National Centre for Musical Creation of Marseille
Cycling'74, Electrotap

nils.peters@mcgill.ca
trond.lossius@bek.no
jan.schacher@zhdk.ch
pb@gmea.net
charles.bascou@gmem.org
tim@cycling74.com

ABSTRACT

We propose a multi-layer structure to mediate essential components in sound spatialization. This approach will facilitate artistic work with spatialization systems, a process which currently lacks structure, flexibility, and interoperability.

2 NEED FOR INTEROPERABILITY

Creative work on spatialisation is too much tied into the particular software, rendering techniques, storage formats and playback systems used. There are great individual and context-related differences in the compositional use of spatialization, and there is no one spatialization system that could satisfy every artist.

This lack of flexibility hinders creative processes, interchangeability and possibilities for working on and reproducing works outside of their original context.

Different spatialisation applications should be readily combined, guaranteeing efficient workflow for sound spatialization. This requires structure, flexibility, and interoperability across all involved components.

When dealing with spatialization, the workflow comprises a number of steps. We propose to conceptually organize them according to six layers according to levels of abstraction. Each layer provides services to the layer above it and receives services from the layer below it.

The paper presents the layers, and the communication streams passing sound and control data between layers.

Furthermore prototype implementations are presented combining:

- ✓ **Jamoma** - A modular framework for Max
- ✓ The **ICST Ambisonics Tools** for Max
- ✓ **SpatDIF** - Spatial Sound Description Interchange format
- ✓ **Holo-Edit** - A graphical and algorithmic editor of sound trajectories

3 STRATIFIED APPROACH



4 IMPLEMENTATION

