

# 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. Prototype implementations are discussed combining:

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

## 3 STRATIFIED APPROACH



## 4 IMPLEMENTATION

