

3Dj

SuperCollider Framework for Live Sound Spatialization

Andres Perez-Lopez

Linux Audio Conference 2015

9/4/2015

# Overview

1 What?

2 Why?

3 How?

# What?

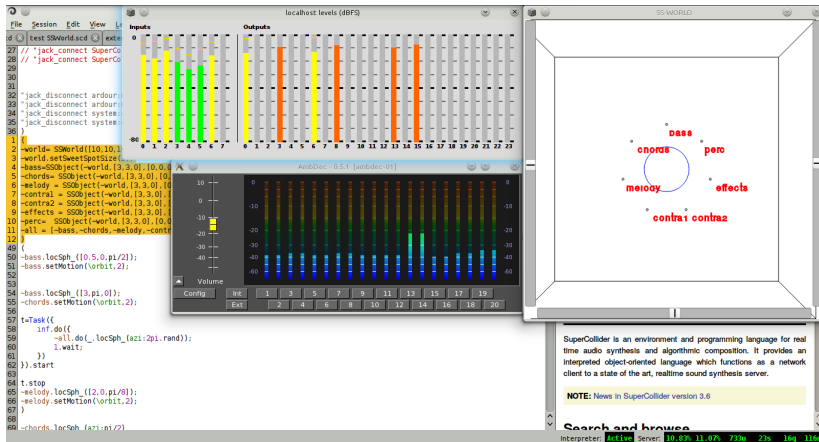
State-of-Art Software for Real-Time Sound  
Spatialization

Framework for SuperCollider

GPLv3 licensed

What?  
Why?  
How?

# What?



# What?

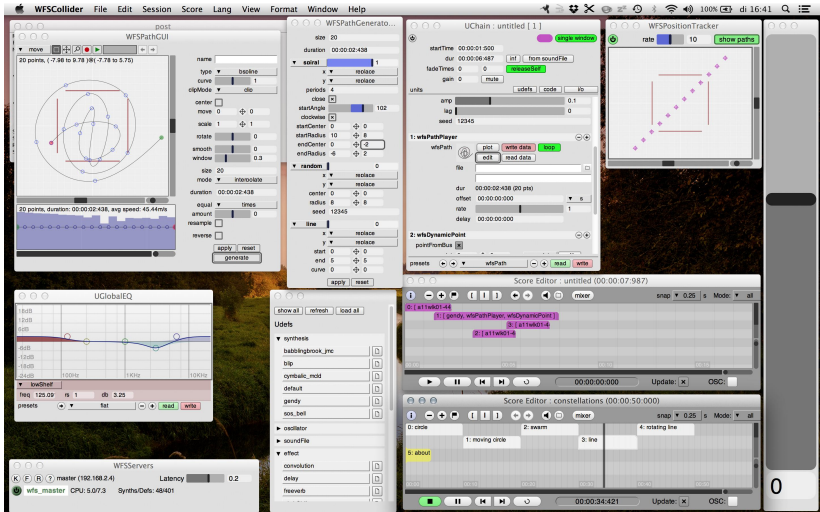
Perez-Lopez, A. *"Real-Time 3D Audio  
Spatialization Tools for Interactive Performance"*  
Master Thesis , 2014

# Why?



What?  
Why?  
How?

Why?



# Why?

	Standalone systems				SPE based systems		
	Zirkonium	Spat	SSR	SES	BEAST Mulch	Spatium	OM Prisma
3D position	✓	✓	×	✓	✓	✓	✓
Source size	✓	?	×	✓	?	?	?
Room parameters	?	✓	×	×	?	✓	✓
Behavior support	?	?	×	×	?	✓	✓
Hierarchies support	×	×	×	×	×	×	×
Render type	VBAP	HRTF VBAP HOA	HRTF VBAP HOA* WFS	DBAP VBAP HOA WFS	?	VBAP HOA*	VBAP HOA DBAM ViMiC
OSC interaction	✓	×	?	✓	?	✓	✓
Description format	?	SpatDIF	ASDF	SpatDIF	?	(OSC-based)	SpatDIF
Platform	MacOS	MacOS	Linux MacOS	Linux MacOS	MacOS	MacOS	MacOS
License	BSD	proprietary	GPL	proprietary	GPL	CC	LGPL



# Why?

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	Zirkonium	Spat	SSR	SES	BEAST Mulch	Spatium	OM Prisma
3D position	✓	✓	×	✓	✓	✓	✓
Source size	✓	?	×	✓	?	?	?
Room parameters	?	✓	×	×	?	✓	✓
Behavior support	?	?	×	×	?	✓	✓
Hierarchies support	×	×	×	×	×	×	×
Render type	VBAP	HRTF VBAP HOA	HRTF VBAP HOA* WFS	DBAP VBAP HOA WFS	?	VBAP HOA*	VBAP HOA DBAM ViMiC
OSC interaction	✓	×	?	✓	?	✓	✓
Description format	?	SpatDIF	ASDF	SpatDIF	?	(OSC-based)	SpatDIF
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3D position	✓	✓	×	✓	✓	✓	✓
Source size	✓	?	×	✓	?	?	?
Room parameters	?	✓	×	×	?	✓	✓
Behavior support	?	?	×	×	?	✓	✓
Hierarchies support	×	×	×	×	×	×	×
Render type	VBAP	HRTF VBAP HOA	HRTF VBAP HOA* WFS	DBAP VBAP HOA WFS	?	VBAP HOA*	VBAP HOA DBAM ViMiC
OSC interaction	✓	×	?	✓	?	✓	✓
Description format	?	SpatDIF	ASDF	SpatDIF	?	(OSC-based)	SpatDIF
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# Why?

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3D position	✓	✓	×	✓	✓	✓	✓
Source size	✓	?	×	✓	?	?	?
Room parameters	?	✓	×	×	?	✓	✓
Behavior support	?	?	×	×	?	✓	✓
Hierarchies support	×	×	×	×	×	×	×
Render type	VBAP	HRTF VBAP HOA	HRTF VBAP HOA* WFS	DBAP VBAP HOA WFS	?	VBAP HOA*	VBAP HOA DBAM ViMiC
OSC interaction	✓	×	?	✓	?	✓	✓
Description format	?	SpatDIF	ASDF	SpatDIF	?	(OSC-based)	SpatDIF
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## Design Considerations

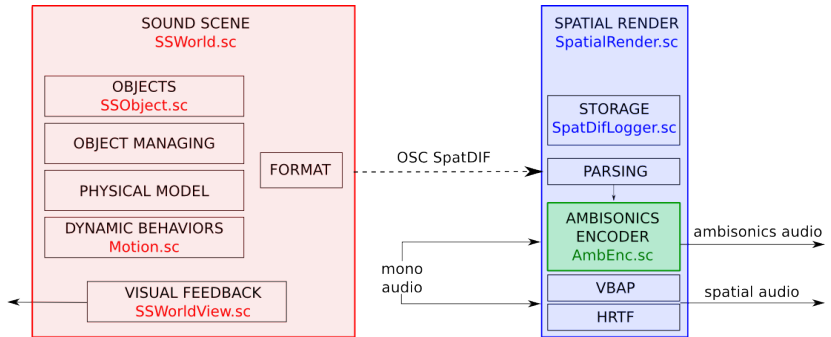
- Device independence
- Flexible mapping
- Control Parameters
- Feedback
- Spatial render
- Exchange format
- Modularity
- Free Software

# Implementation

## SuperCollider

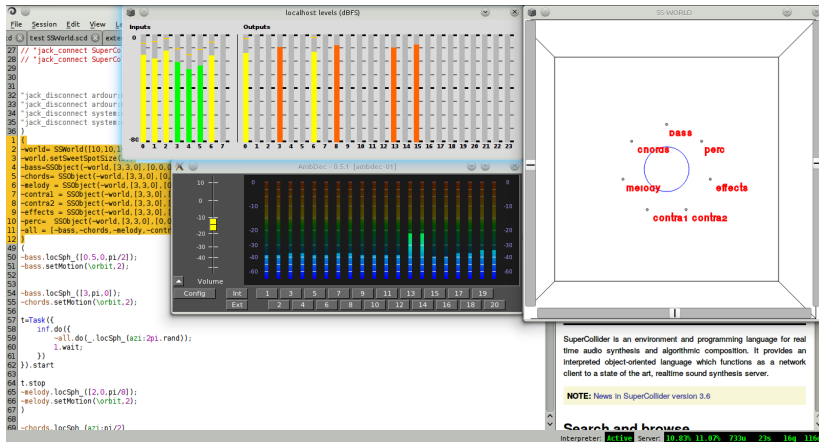
- Real-time DSP & Interactive programming
- Multiplatform
- Free Software
- Scientific & artistic community

# Structure

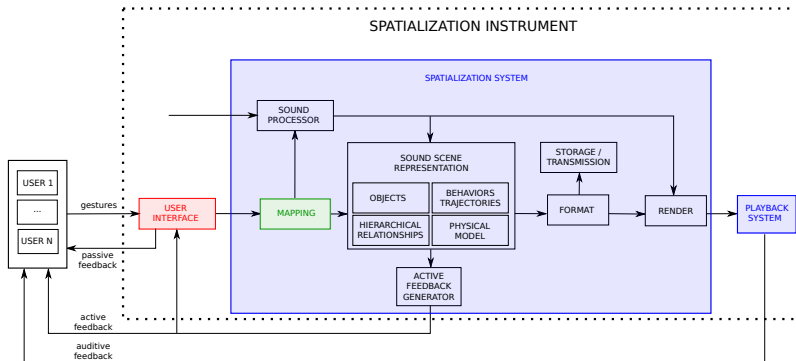


What?  
Why?  
How?

# Structure



# Structure





<http://github.com/andresperezlopez/3Dj>

Live Demo:

Saturday 11th, 11:30

Installation Space

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[contact@andresperezlopez.com](mailto:contact@andresperezlopez.com)