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UNIVERSITY OF CALIFORNIA, SAN DIEGO

Creating Space

A thesis submitted in partial satisfaction of the

requirements for the degree Master of Fine Arts

in

Theatre and Dance (Design)

by

Nicholas D. Drashner

Committee in charge:

   Professor Shahrokh Yadegari, Chair
   Professor Mark Dresser
   Professor Tara Knight
   Professor Lisa Porter

2012

The thesis of Nicholas D. Drashner is approved in quality and form for

publication on microfilm and electronically:

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Chair

University of California, San Diego
2012

DEDICATION

I would like to dedicate this work to my family.

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ABSTRACT OF THE THESIS

Creating Space

by

Nicholas D. Drashner

Master of Fine Arts in Theatre and Dance (Design)

University of California, San Diego, 2012

Professor Shahrokh Yadegari, Chair

I would like to share a personal aesthetic philosophy that has coalesced during my time studying and practicing sound design. This philosophy pertains to the careful transformation and augmentation of the perceived aural environment in a theatrical setting. In my technical process, I organize spatial characteristics in a specific way wherein I categorize groups of loudspeakers based on their unique spatial properties. Combinations of these groups can then be used in various ways to produce complex aural landscapes and achieve a rich sense of space.

AN APPROACH TO SPATIAL DESIGN

My artistic and technical approach to theatrical sound design begins with

two central concerns. The first involves delivering clear, full-range sound to all seats

in the venue, and the second involves creating a rich spatial impression for the

audience. This leads to a combination of two very different approaches to system

design, and so to clarify and organize aspects of this combination, I have began to

develop a system for myself; a way of dissecting properties into workable and

communicable parameters, which I refer to as "spatial layer properties". I do this by

treating parts of the system (a loudspeaker or group of loudspeakers) as layers

having certain properties that vary in the quality and extent of their contribution to

the two central concerns (clarity and spatial resolution). For example, one set of

loudspeakers may be positioned right in front of a proscenium pointed directly at

the audience, whereas another set of loudspeakers may be positioned on the grid

above pointing directly at the ceiling. The first group would serve to deliver a clear,

direct sound, whereas the second group would deliver fully diffused sound and

serve to enrich the sense of space. I would categorize these two groups (or layers) as

having different and unique spatial properties, and utilized each layer in specific

ways when building cues and mixing in the space.

Some Proposed Categories for Spatial Layer Properties:

Unified Spread is a measure of the perceived range of space covered by a

single virtual source in a layer.

Discrete Event Spread is a measure of the perceived range of space covered when multiple virtual sources alternate between multiple loudspeakers in a layer.

Clarity is a measure of how clear and unaltered the virtual source sounds as compared to its original.

Diffusion is a measure of how diffuse and 'reverberant' the virtual source sounds, compared to its original. Creating very diffuse layers tends to involve placing speakers behind scenic elements or pointed at walls to deliver reflected sound.

Stage Proximity and Relationship is a measure of where the layer exists in relation to the stage and scenic elements.

Audience Proximity and Relationship is a measure of where the layer exists in relation to the audience.

In my workflow, I feel that focus on audience coverage must come early in the system design process, as should the consideration of how spatial layers will be experienced at various listening positions. If I place two speakers, mid-stage, at a certain width, what will the perceived spatial spread be from the front of the house? How will the width of that spread differ from the back of house? These types of considerations for each layer, and all of its spatial properties, should be considered while designing the layout of the system.

Once the system is implemented and the speakers are hung in the space, a designer inevitably has to choose a place in the house to mix cues from. This is the point at which I start to think about the spatial layers I have set up from the perspective of an ideal listening position, knowing that I have designed the layout of my system with all listening positions in mind. With that, I can build and mix cues in the space from one position, and occasionally walk around to make sure that my preplanning paid off and everything sounds good from different areas.

I have developed the "spatial layer" technique to ultimately fulfill an artistic goal. That goal is to blend two sonic worlds together – the live (acoustic), and the virtual (electroacoustic). I want to create a space where there is a blurred distinction between acoustic and electroacoustic sounds; where the virtual sounds can live and breathe in the acoustics of the space and become infused with the sounds of the performers and the world of the play. I often plan to create a space that can be augmented and transformed. I want the audience's experience of this to be in part due to the quality of the sounds they hear, but more importantly, I intend this impression of augmentation and transformation to also be applied to the sense of space itself - to tickle the perceptual system that tells the audience where they are and what is around them. Implementing a system that achieves high spatial resolution and a gradient between live and virtual sounds allows for a sound design that can be lush and immersive, and if these capabilities are used carefully, I believe they can greatly improve the theatrical experience and aid the suspension of disbelief.