

Media Management in Live Performances through Computerized Control

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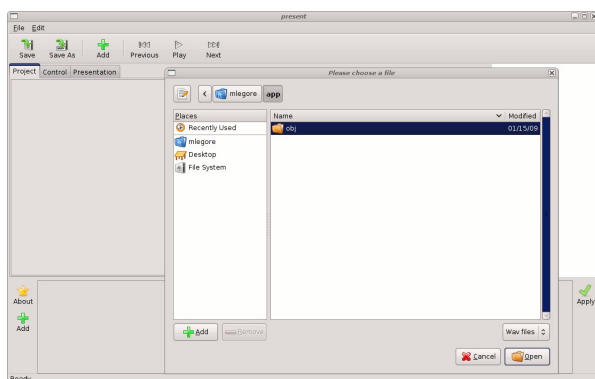
The goal of this project is to make an application capable of controlling several inputs and outputs automatically. This is done by representing each input and output as a resource upon which methods can be performed. A performance consists of a sequence of methods on certain base resources and on resources derived from other types.

Abstract

Keywords: Live Audio Processing

1 Introduction

In a live performance there are many inputs and outputs to keep track of. Musical scores, lighting, cameras, and other media. For humans to coordinate all of these elements in a live performance, it often can involve tens to hundreds of people. If there could be a way of keeping track of all of these medias using a computer, it would allow the common man to create his own professional level performance. The goal of this project is to start work on such a program that would allow this to be possible. And while completion of this project would be impossible given that I am a single person and I have only a year to work on it, I still have been able to demonstrate several key principles that allow this program to be possible.



2 Development

For any performance there are often many forms of media that can be involved, but those can often be condensed down to several base types of media. The base types of media can be linked together by the user to either form the behaviors needed for a performance or to create derived form of media. These derived forms of media call for a generic calling API that would allow the program to call these media in order to combine them into more interactive or complicated forms.

3 Audio

The playback of sound is one of the main building blocks of a multimedia presentation, being able to play music or sound clips in 2D and 3D space allows the user to coordinate sound with other media, either by beat tracking or other means. In a

musical presentation it is also useful to be able to apply effects to music or to take inputs from microphones or audio devices. Also integral would be the live rendering of audio effects that would produce sounds derived from the inputs recieved. Possible applications include beat tracking, tempo changing, autotuning, and various other audio effects.

4 Video

Video playback and visualization helps make up the repertoire of a engaging sensory performance. Video can also be extended into the playback of prerecorded video or to inputs live from cameras. Ifintegrated into the gui, a user could then contol several cameras at once

5 Hardware

Hardware is the most vague of the types of media, it can be anything

that would involve the computer sending or receiving commands to electronic devices outside of the computer. For example, this would include controlling the luminosity and direction of a spotlight, or telling a robot to move forward. As you might imagine, this could have applications for programs outside of live presenta-

tions. To achieve this I have devised a simple API for talking with hardware devices using a textual interface. The API allows the hardware device to identify its methods, and to identify what type of device it is, allowing for a hardware device to mask itself as another class.

References

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