Virtual Reconstruction of Spacial Reverberation

Graduate Project Report

Team Signal Wizards

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Abstract

The objective of this project is to create a system that artificially reconstructs the reverberative properties of an environment. By capturing the impulse response of the designated space, this system allows the user to simulate the space's acoustics for various inputs. This ability is useful for sound engineers to test audio performance in different environments without the difficulty of a real-world experiment. Additionally, this system could reduce configuration time for public address (PA) systems by allowing the user to identify anomalies in the space's frequency response. This application is beyond the scope of this project, but serves as an example of the potential applications this experiment. For system performance analysis, the output of the artificial space is compared to the captured output of the real-world space for controlled inputs.

Introduction

TODO: We need to rephrase our literature review to fit here as an introduction and background for the project.

Capturing the Impulse Response of a Space

Simulating Audio Responses of a Space

Methodology & Theory

Analysis of Results

Conclusion

References