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MA490 Deep Learning

Audio Signal Processing Emulation

Team Leader: Joel Shapiro

Team Members: :(

The objective of this project is to evaluate the effectiveness of doing audio effect emulation using deep learning. This project would be interesting, as it would be interesting to see it applied to streams of audio.

Audio is a medium prone to having complex structures within harmonics and frequency spectrums, something that is especially present in audio created by instruments. Furthermore, audio effects can have multiple states and variables that determine their exact effect on the sound, each of which can actually be a complex alteration of internal features. Deep learning provides benefits over traditional machine learning in this project in regards to its ability to understand these complex relationships between features.

Audio is also a cool medium to work in for machine learning, as like imagery the outputs can be qualitatively assessed simply by listening to it.

The project tasks would involve:

Gathering sample data sets with combinations of the following categories:

- Simple inputs,
- Simple effects,
- Complex inputs,
- Combined/Complex effects,
- Effects with varying attributes,

Researching current popular audio networks

Experimenting with different network types

Project Milestones:

10 / 21 - Gathered majority of data

10 / 28 - Research on methods complete

11 / 04 - Initial models created

11 / 11 - Finalization, experimentation & report draft completed