

Project Update

CSC 466

A Comparison of Packet Loss Concealment Techniques for VOIP

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Over the last few weeks, I have been researching different packet loss concealment implementations and methods that could be used to test them. I have begun work on creating a python program to simulate replacement techniques with silence noise, and sound repeating on audio files. For the case of more complicated methods such as waveform matching or machine learning models, creating a model from scratch for testing seems unlikely to be completed in the time required for the project and as such I have found a number of open-source examples which could be tested instead. These include:

AudioPlc	https://github.com/TaoistKing/AudioPlc
TFGAN-PLC	https://github.com/Guanyuansheng/TFGAN-PLC
Ref-CRN	https://github.com/AugggRush/ref-CRN

Currently, I am planning to run these packet loss compensation methods at 1%, 5%, and 10% packet loss and compare these results against each other. I believe these will accurately simulate the techniques efficiency on networks with a wide variety of conditions.

For audio files that can be tested on, a dataset was published by Microsoft for the Interspeech 2022 Audio Deep Packet Loss Concealment Challenge, <https://github.com/microsoft/PLC-Challenge>. This dataset includes a varied set of clean and lossy WAV audio files.

In the coming weeks I plan to complete the Python program for replacement techniques as well as begin using the open-source projects to create audio files for comparison.