

Mia Guzman
Bryant Koester
Logan McDavid
Claudia Nething
Philip Stafford

AI Assisted Communication for Video Presentations

Artificial Intelligence 4240-001 – Fall 2025

OVERVIEW

Effective communication is often challenging.

In the last half-decade, video-over-IP has become much more important than it had been. The pandemic of the early 2020s forced people into quarantine, and effectively, social isolation. It became apparent that phone calls were not enough to replace face-to-face meetings. Apps like Zoom, Skype, and Facetime were suddenly at the forefront of the world's attention and many found that these tools offered relief from the loneliness of isolation. These apps became such a part of the public consciousness that even as public spaces began to populate again, these technologies stuck around. They are still being used daily and are now a fundamental part of business and education.

Though these apps gave an answer to one of the biggest questions of this decade, they came with some inadequacies. The subtle-but-many problems permeating telecommunications: poor connections, dropped packets, noises that are amplified by integrated microphones, the loss of information inherent in compression algorithms necessary to transfer enormous video files across the internet, all frustrate communication. This project offers a solution in three parts.

1. Before audio gets distorted by compression, an AI powered tool will isolate the speaker's voice, attenuate competing frequencies, and accentuate the frequencies that best carry speech information.
2. Packet loss can turn the speaker's face into a pixelated mask. An AI tool will map the speaker's face, generate a simplified representation, and overlay the result unobtrusively alongside the speaker.

3. As a final measure to facilitate the best communication achievable, an AI tool will generate subtitles; a reliable method for syntax, but hardly a replacement for speech or somatic expression alone.

GOALS

Create an application that utilizes AI tools to:

- Clean audio for voice clarity
- Read facial expressions and generate simplified depictions
- Generate subtitles
- Aid those with sight impairments, autism, and bad internet connections.

TOOLS

- Krisp - audio cleaning and voice isolation
- Facial recognition software - TBD - determine facial expressions
- Subtitling software - TBD - generate subtitles

We will likely discover tools are a better fit for this project as we research this topic further.

PREVIOUS FEEDBACK

I like the idea, but the scenarios where it will be used is not quite clear to me. Can you mention some scenarios and how your tool will be used?

You get the points but I look forward to your response