

GSOC Test document

Project: Team communication processing and analysis in human-factors simulated environment

Aim: The aim of the test is to implement the task ideas from the project description and accomplish the objectives as a prerequisite for the primary project development. These objectives are as follows:

1. Database identification and evaluation
2. Programming audio enhancement algorithms on a sample and evaluation

Requirements: python programming, jupyter notebook

Approach:

Database Identification:

- i. Identify accessible database that contains audio/video communication data in a team (2 or 2+) communication/conversation environment that can be used as resource for this project.
- ii. This data has to be audio/visual only (e.g. Video, audio recording)
- iii. Exploratory analysis on a sample of this database to test its validity for this project
- iv. A sample of our internal audio/video team communication is [here](#) (this sample is for reference and testing only, not to be used as primary source for this test)
- v. Output: Data resource and sample analysis to answer two questions
 - a. How it will be used?
 - b. Why this data is best option for this project?

Audio Enhancement:

- i. Develop algorithm and methods for audio enhancement using samples(3 - 5 min) from this database
- ii. Enhancement should improve the clarity of the audio to aid in transcription in further development.
- iii. Showcase analysis of this enhancement

iv. Output: Audio analysis and enhanced audio samples

Final Outputs: Two jupyter notebooks, input and output sample files

1. Data resource selection and sample evaluation for this project
2. Audio enhancement algorithm and method evaluation