

# Assignment 1 Guidelines

Mukesh Kumar Saini  
mukesh@iitrpr.ac.in

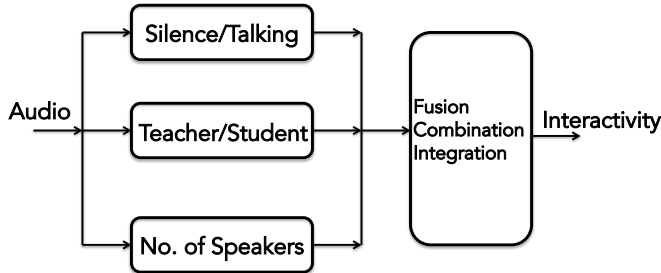


Fig. 1. Block diagram of class interactivity measurement system.

**Abstract**—In this article I will give additional details of assignment 1. The article includes a simple example of assignment 1 for clarification. The document also includes examples of how insert image, table, and references in LaTeX document. Students should follow this format for final assignment report as well.

**Index Terms**—Audio, task1, task2, task3, application

## I. Introduction

In assignment 1 you are supposed to extract at least three semantic attributes or characteristics of audio data and propose an application that needs all three characteristics. You can use any language to do the assignment. If you are using any third party resources (code library, dataset, etc.), explicitly mention the sources.

## II. Example Assignment

In this section I will give you details of one possible hypothetical assignment. I propose to calculate interactivity of a particular lecture by just analyzing the audio recording. For this I need to know the following characteristics of audio:

- Whether someone is talking or it is silence?
- Is it student talking or teacher talking?
- How many persons talked in the class?

A high level block diagram of the proposed application is shown in Figure 1. Your system does not have to be fully automatic. As long as your idea is novel and creative, there can be some parts of the system that are manually implemented.

## III. How to ensure creativity?

You are free to be creative in any aspect of the assignment. For example:

- You can design and develop method to obtain a new characteristic. For example, there is no standard method to differentiate between teacher and student

voice. It will be creative if you implement any such method.

- Your end application can be innovative. For example, no one has used audio alone to determine effectiveness of a teacher in a classroom. This is a novel idea.
- You can be novel in solution also. For example, everyone is using ZCR to differentiate between speech and music. But you can propose a new method that is creative and does it better.

## IV. Can I use Existing Code?

You are free to use any existing library/resource available on the Internet as long as you cite it explicitly. If you are using existing code, I will expect your contribution in other aspect of the project. For example, if you are using existing code to obtain two characteristics, the third characteristic and the integration should be sufficiently complex and novel.

## V. Using LaTeX

You can use any LaTeX editor to write the report. One popular editor is texmaker. Otherwise, you can also use online editors such as Overleaf and ShareLatex. You should choose PDFLaTeX or XeLaTeX to compile your document and BibTeX to compile your references.

An important note on figures. ALWAYS USE PDF VERSION FOR FIGURES. Whatever drawing tool you use, directly save your drawing as a pdf file. Do not save as png or jpeg. The moment you save a file in an image format (jpeg or png), it's quality degrades heavily due to conversion into a bitmap. PDF figures are vectored. To refer to the websites, you can use a footnote, e.g. a group photo dataset is available here<sup>1</sup>

## VI. References

If your reference is just a website, use a footnote to refer to that source. If you are referring to a book or a research paper, use bibtex:

- Open Google Scholar.
- Open Google Scholar settings, in the section 'Bibliography manager', choose BibTeX from 'Show links to import citations into'
- Search for the book on Google Scholar.
- Click on 'Import into BibTeX' and copy the text.
- Paste the text into the file reference.bib.
- Use the label with cite tag to refer to the book or paper.

<sup>1</sup><http://chenlab.ece.cornell.edu/people/Andy/ImagesOfGroups.html>

For example, I am citing the book Fundamentals of Multimedia here [1]. Note that you need to compile the bib file separately in most editors.

## VII. Presentation

Create your assignment presentation on plane background slides. Use Helvetica font for main text with a minimum size of 30. No slide should have more than 3 bullet points. Use figures to explain algorithms and tables to explain results. To your best possible, do not use screen capture from Internet or other documents. Try to draw figures in PowerPoint. The assignment presentation will strictly be in English.

## References

- [1] Z.-N. Li, M. S. Drew, and J. Liu. Fundamentals of multimedia. Springer, 2004.