

PROJECTS

You have been divided into four groups with five members each. Consult your group members and prepare a ranking of the 4 projects from the most desirable to least. I will try to assign the first or the second choice to each group.

- Each group will choose one of the four projects outlined below. No duplication.
- Each group will give a 20 minute presentation at the conference scheduled for July 28–29. We’ll have our own “practice” conference on Monday, July 26 to work out all the bugs in your presentations.

Here are some things to keep in mind when preparing your presentations:

- Use transparencies or a beamer presentation.
 - Because you might be nervous, there will be a tendency to talk too fast. Try to avoid this.
 - Keep things simple. A period of twenty minutes is not enough to go into great detail. It is a cardinal sin to go over your allotted time.
 - Keep your transparencies or slides uncluttered.
 - Avoid information overload; be clear and concise.
 - PRACTICE your presentation several times before our Monday practice session. Cut out unnecessary items. The more you practice, the smoother things will go during the practice session.
- Two of the projects require you to make some sound recordings. Here are some ways to make the recordings—make sure you save them in .wav format:
 - I will have some microphones you can use, either with your PC and Windows Sound Recorder or with a Linux station in the calclab and KRecord.
 - Texas A& M has a recording lab at the Student Computing Center (SCC) located by the library. For more information on the location and open hours, go to the link
cis.tamu.edu/oal/labs/
To use the recording lab, see the help desk at the SCC for assistance.
 - One of the other two projects will require you to make some scans.
 - There are some scanners in the Open Access Lab (OAL) in Blocker.
 - There are more scanners at the Student Computing Center (SCC).

See the link above for more information.

(OVER)

Here is a brief description of the four projects. After you have been assigned a particular project, I will provide more information on each one.

- **Project 1.** A high speed machine can be damaged if a bearing fails. As a bearing starts to fail, it emits a characteristic noise that serves as a warning. Audio sensors monitor the machine and when the characteristic noise starts, the machine shuts down immediately. How can a computer recognize the characteristic sound? The goal of this project is to construct algorithms to distinguish three different guitar chords. Don't worry about knowing how to play a guitar; there is a website that will play the chords for you.
- **Project 2.** The post office uses machines to sort mail. The question of interest to us: how do the machines recognize the addresses? The goal of this project is to construct algorithms to distinguish four different handwritten cursive letters.
- **Project 3.** Is it possible to have a machine read a signature and decide if it is genuine? The goal of this project is to construct algorithms to isolate the genuine signature from of group of 3–4 of which only one is genuine.
- **Project 4.** We have all made a phone call to a company that has an automated answer system. The system asks various questions and we respond verbally so that the system can direct the call to the appropriate place. How does the machine recognize the words? The goal of this project is to construct algorithms to distinguish three short words.