The Speech Communication Group at the Research Lab of Electronics investigates the production and perception of speech by humans and machines. One topic in interest is the relationship between human’s ability to produce speech and the ability to keep track of (imitate/follow/learn?) rhythmic patterns. The goal of this project is to test the hypothesis that one’s capability in phonological manipulation is positively related to one’s beat-keeping ability.

Specifically, my task in this UROP is to score the performances of a number of subjects under the following experiment settings: i). Free tapping: the subject is asked to tap regularly given no stimulus; ii). Free syllable repetition: the subject is asked to say “pah” repetitively given no sound stimulus; iii). Synchronized tapping: the subject is asked to tap in synchronization with certain periodic sound stimulus; iv). Synchronized syllable repetition: the subject is asked to say “pah” in synchronization with certain period sound stimulus. From the resulting sound files I will calculate for each subject his/her mean preferred tapping and syllable repetition rate and the synchronization offsets between his/her responses and stimuli, i.e. how much earlier or later the responses occur compared with stimuli.

My personal motivation for participating this UROP is to learn the basics in the representation and perception process of sound. I have been very interested in how human perceives and produces various sounds, especially musical sounds. I believe this UROP, which deals with simple beat patterns, will offer me a good introduction to the world of sounds.