# A Quick-Guide for the Method of Constant Stimuli for Hearing Experiments *Online*

This web-based application provides an implementation of the method of constant stimuli for psychophysical experiments that involve the presentations of audio stimuli. The subject performs a 3-alternative, forced-choice task on each experimental trial. The stimuli presented during the signal and no-signal intervals are supplied by the experimenter by uploading customized audio files at the beginning of the experiment.

## Before You Start:

The application is accessible from any computers with internet connection, a sound card, and an up-to-date web browser (e.g., Chrome, Firefox, Internet Explorer, Safari, etc.). Headphones have to be used to enable ear-specific testing.

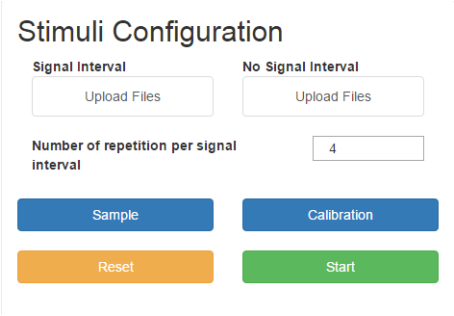


***Figure 1: Set-up page.***

## Running an Experiment:

### *A. Set-up (by the Experimenter)*

**Step 1**: On the configuration page (Fig. 1), click "Calibration" to calibrate the stimulus level. A dialog box will appear and it will provide information on how to adjust the RMS amplitude of the stimulus files to ensure the expected presentation level.

**Step 2**: Upload the audio files for the signal interval and no-signal interval by clicking the "Upload Files" buttons on the left and right, respectively. Specify the number of repetitions per signal-interval file (see the note below).

Note: Once the experiment starts, the program will run through all uploaded signal-interval stimuli in random order and repeat with independent random order according to the specified number of repetitions. The stimuli during the no-signal intervals will be randomly drawn from the list the audio files uploaded under "No-Signal Interval". If five signal-interval files are uploaded and the number of repetitions is set to six, then there will be 30 trials included in the experiment.

**Step 3**: Multiple audio files could be uploaded simultaneous. Once complete, the experimenter is able to upload additional files or remove files from the current stimulus list (by clicking the "-" symbol).

**Step 4**: Click "Start" to begin the experiment. The experimental page (Fig. 2) will appear. Alternatively, clicking "Reset" to refresh the webpage and clear all the settings.

**Step 5**: Provide an oral instruction to the subject based on the section B.

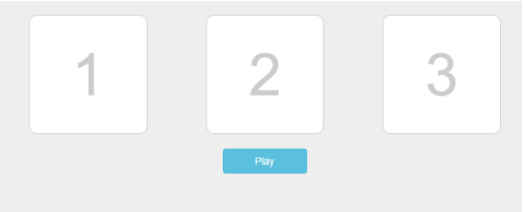


***Figure 2: Experimental page.***

### *B. Run (by the subject)*

**Step 1**: Put on the headphones and click "Play". This will initiate the first experimental trial.

**Step 2**: On every trial, three sounds will be presented in sequence. The task is to identify the sound that is different compared to the other two sounds presented on the same trial by clicking the corresponding box (or pressing "1", "2", or "3" on keyboard).

**Step 3**: Upon response, feedback will be given (the correct answer will flash once), and the next trial will begin immediately.

**Step 4**: After all trials are completed, a report page will appear.

## Save or Print the Data:

A table of results will appear with each row corresponding to an experimental trial, and various columns list the stimuli and responses from each trial. Click "Export" to save the data as an xls, doc, pdf, or txt file. To start a new subject/experiment, click "Reset" on the results page. No new calibration needed.

Questions? Contact Dr. Yi Shen at shen2@indiana.edu

Department of Speech and Hearing Science
Indiana University Bloomington