# ASCR ECX Evaluation Toolkit

This code is licensed under a BSD 3-Clause License.

Copyright (c) 2016, University of Texas at Austin, Los Alamos National Laboratory.  
All rights reserved.

Contributor: Terry Turton

# README for ETK Round Robin Comparison Module

## File List:

* ETK-RoundRobinQualtrics.html
* ETK-RoundRobinQualtrics.css
* ETK-RoundRobinQualtrics.js
* ETK-RoundRobinREADME.docx
* ETK-RoundRobinSurveyFlow.png
* Image00.png-Image03.png
* Validation0.png & Validation1.png

## Overview

This module is intended to be run within a Qualtrics survey. Qualtrics survey software can be found at www.qualtrics.com.

The Round Robin Comparison allows a comparison of a series of images – comparing each image to all of the others once and only once (note that an image is not compared to itself). Each pair of image is shown randomly as A vs. B or B vs. A. The set of pairwise comparisons are shown in random order. A generic study within Qualtrics might consist of:

1. An IRB consent block/question.
2. An introduction block/question to explain the task and how an image should be chosen out of the pair shown.
3. A study block with a Round Robin Comparison module question.
4. A demographic block containing any relevant demographic questions.

## Instructions for implementation of the Round Robin Comparison Module

There are three files that work together for the implementation, an HTML, a CSS and a JavaScript file. The CSS file is added in the Look and Feel part of the survey options. Choose the Advanced tab and click on Add Custom CSS. Cut and paste the CSS sheet as directed. The HTML and JS files are added in the individual question. Choose a Descriptive Text question type. Click on the question text and an HTML View tab will appear. Click on the HTML tab and insert the HTML file. The list of images will need to be updated as will the phrasing of the specific question under study. Lastly, to the left of the question is the settings icon. Click on the settings icon and choose Add JavaScript. The custom JavaScript code should be added there.

Detailed information on developing surveys and using the Qualtrics JavaScript API can be found on the Qualtrics website.

A set of example images are included so the user can explore the functionality. The user must edit the image source array and array of image names to point to the images which will be used. A pair of validation images can also be included in a separate array. The pairwise comparison of validation images will be automatically randomized into the set of round robin comparison images.

For each image pair, information on which images were shown and which choice was made must be saved to embedded data variables. The Qualtrics JavaScript API allows the user to write out information via the setEmbeddedData method. The embedded data variables MUST be created within the Survey Flow in order to save this information. An example Survey Flow screenshot in included. Each image pair is saved with the names of the two images shown (left-right) and the choice that is made (1=left image; 2= right image). The embedded data variables are, by default, nX and cX, where X starts at 0. If the user wishes to change the embedded data variable names, the JavaScript file must be edited so that the embedded data variable names match the ones created in the survey flow. More information on creating embedded data variables and the survey flow can be found on the Qualtrics website.

A Boolean variable, AllOneSide, is used as a check to make sure that participants are faithfully completing the task. If a user always chooses the left (or right) button, the AllOneSide flag is set to 1. This can be used in post-processing to remove bad participants. Again, AllOneSide must be declared in the Survey Flow as an embedded variable (with no preset value). Note that if AllOneSide is false, it is not written out by Qualtrics.

## Amazon Mechanical Turk

Amazon Mechanical Turk, <https://www.mturk.com/mturk/welcome>, is a crowdsourcing site that can provide a convenient source of study participants for online studies. A URL link to a Qualtrics study can be input into an Mturk HIT to launch a study. More information can be found on the Mechanical Turk website.

Copyright (c) 2016, University of Texas at Austin, Los Alamos National Laboratory.  
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

3. Neither the name of the copyright holder nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.