**Risk Aversion: Data Analysis Pipeline**

**>>> pipelineStart.m**

* Select the job to run:
  + *preprocess\_behav*: loads in raw psychtoolbox/matlab data file and extracts the relevant information from each block. Then concatenates all blocks together.

**Relevant information:**

*pt\_idx, pt\_gender, blockNumber, trialNum, distType,*

*chosen\_dir:* 1 = right, 2 = left

*stimulus\_chosen*: 1 = low-safe, 2 = low-risky, 3 = high-safe, 4 = high-risky

*cnd\_idx:* 1 = both different, 2 = both low, 3 = both high

*RT* and *reward\_obtained*

This function will also generate and save a figure that provides an overview of behaviour

* + *plot\_behavData*:
    - Plots data as a function of Gaussian (*red*) or Bimodal (*blue*) reward distributions
    - Total across all trials: *P(risky|both-low)* and *P(risky|both-high)*
    - Binned by trial number: *P(high|both-different)*
    - Binned by trial number: *P(risky|both-low)* and *P(risky|both-high)*
  + *concat\_behav:* concatenates all participants data into a single matrix for population analyses.
  + *plot\_popBehav:*
    - population behaviour taken across all of participants
  + *process\_eyelink:*
    - CONVERT .EDF TO .ASC USING EXTERNAL EYELINK SOFTWARE
    - *asc2dat:* conversion of .asc file into matlab matrix. Data returned:
      * + **TIME**: timestamps for the duration of the data acquisition period
        + **PUPIL DIAMETER**: diameter sampled in accordance with each timestamp
    - *blink\_interpolate* (taken from Urai, A.E., Braun, A. & Donner, T.H. Pupil-linked arousal is driven by decision uncertainty and alters serial choice bias. Nature Communications 8,14637 (2017)): interpolates pupil size between blinks
    - *riskAversion\_trialfun*: based on fieldtrip toolbox, runs through messages sent to eyelink during data acquisition and identifies all trial encodes and timestamp.
      * + *encodeIdx.instructionPage = 99;*
        + *encodeIdx.practice\_trials = 100;*
        + *encodeIdx.block\_start = 101;*
        + *encodeIdx.block\_end = 102;*
        + *encodeIdx.trial\_start = 20;*
        + *encodeIdx.fix\_spot\_on = 10;*
        + *encodeIdx.stim\_on\_wait = 14;*
        + *encodeIdx.stim\_on\_go = 15;*
        + *encodeIdx.response = 25;*
        + *encodeIdx.delay = 26;*
        + *encodeIdx.cum\_reward\_pre = 31;*
        + *encodeIdx.reward\_on = 30;*
        + *encodeIdx.cum\_reward\_post = 32;*
        + *encodeIdx.intertrial = 40;*
        + *encodeIdx.trial\_end = 21;*
        + *encodeIdx.error\_resp = 104;*
        + *encodeIdx.correct\_resp = 105;*

* + - [trl] data output = pupil diameter, timestamp and task encode index