An overview of jsPsych

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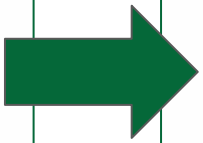
Pushkin Developers Workshop

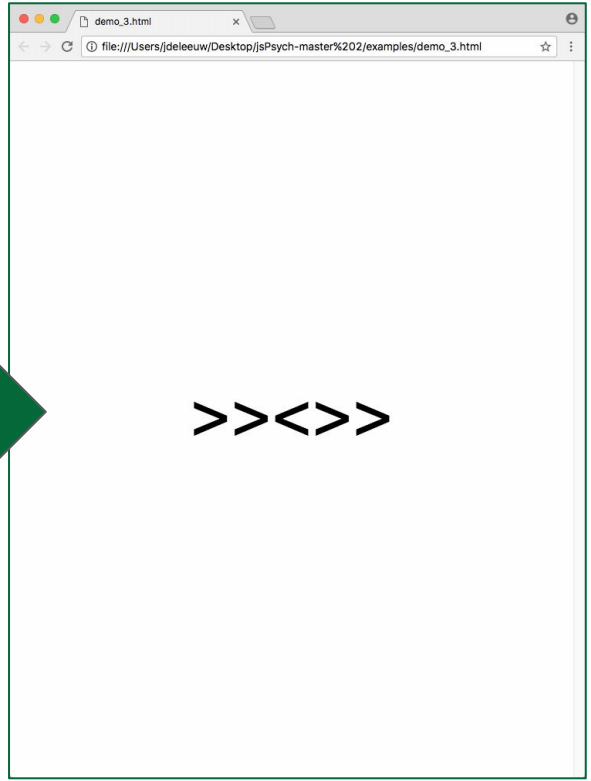
jsPsych is a JavaScript library for building browser-based experiments.

```
var test_stimuli = [
  { stimulus: '<<<<<', data: {stim_type: 'congruent'} },
  { stimulus: '>>>>>', data: {stim_type: 'congruent'} },
  { stimulus: '<<><<', data: {stim_type: 'incongruent'} },
  { stimulus: '>><>>', data: {stim_type: 'incongruent'} }
];

var test = {
  timeline: [{
     type: 'html-keyboard-response',
     choices: [37, 39],
     stimulus: jsPsych.timelineVariable('stimulus'),
     data: jsPsych.timelineVariable('data'),
     post_trial_gap: 1500,
     response_ends_trial: true
  }],
  timeline_variables: test_stimuli,
  sample: {type: 'fixed-repetitions', size: 2}
};

jsPsych.init({
   timeline: [test],
});
```





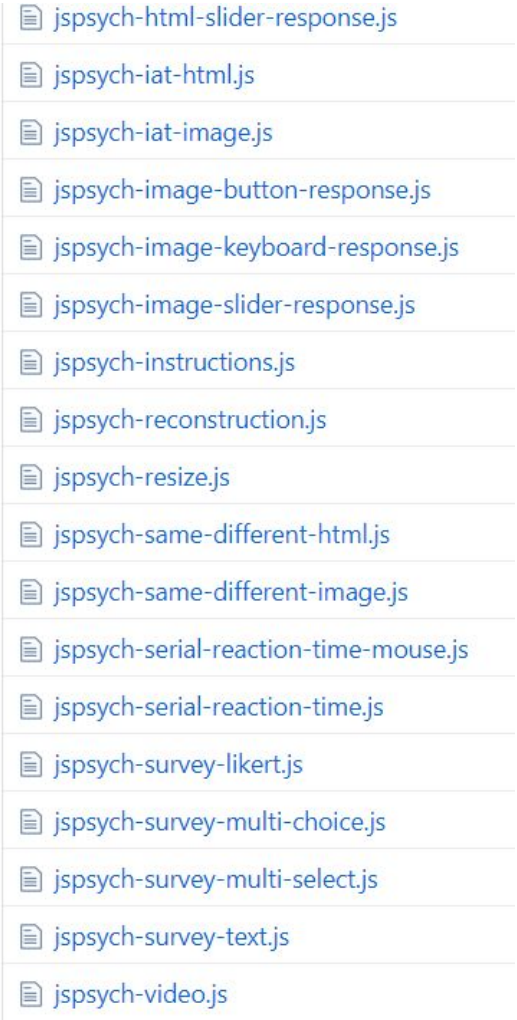
jsPsych is two core files (one JS and one CSS) with many plugin files.


```
<!DOCTYPE html>
<html>

<head>
  <script src="jsPsych/jspsych.js"></script>
  <script src="jsPsych/plugins/jspsych-serial-reaction-time-keys-moving.js"></script>
  <script src="jsPsych/plugins/jspsych-html-keyboard-response.js"></script>
  <script src="jsPsych/plugins/jspsych-html-button-response.js"></script>
  <script src="jsPsych/plugins/jspsych-survey-text.js"></script>
  <script src="jsPsych/plugins/jspsych-call-function.js"></script>
  <link rel="stylesheet" href="jsPsych/css/jspsych.css"></link>

```

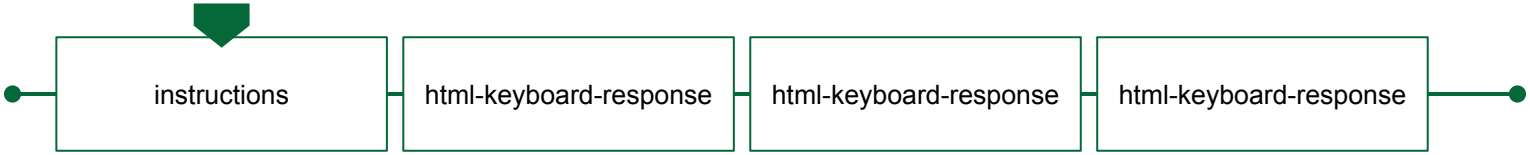
Plugins define the atomic units of a jsPsych experiment. They have a common structure to ensure compatibility, but virtually any browser-compatible task can be implemented as a plugin. There are currently 37 plugins in the official jsPsych release, and others that are community created.

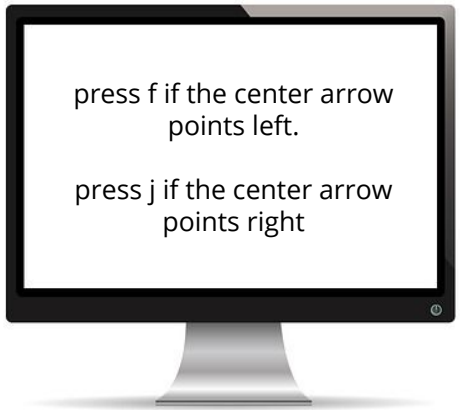


The html-keyboard-response plugin displays arbitrary HTML content on the screen and allows the participant to respond by pressing a key. The key choice and response time are measured.

```
{
  stimulus: "<<<<<",
  choices: ["f", "j"],
  prompt: "press f or j",
  stimulus_duration: 250,
  trial_duration: 2000,
  response_ends_trial: false
}
```

Experiments are defined by specifying a timeline.





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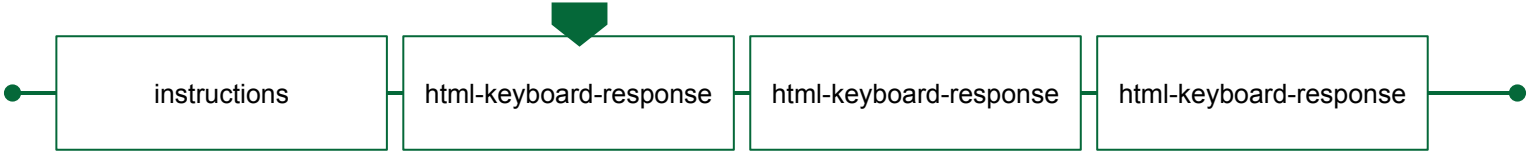

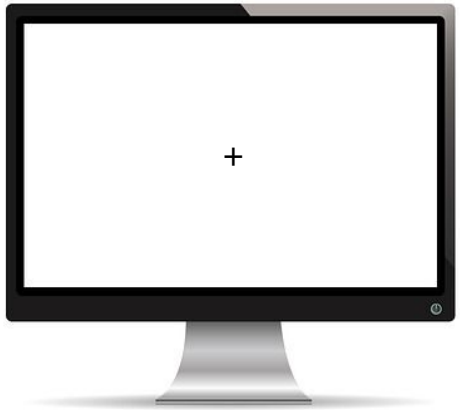

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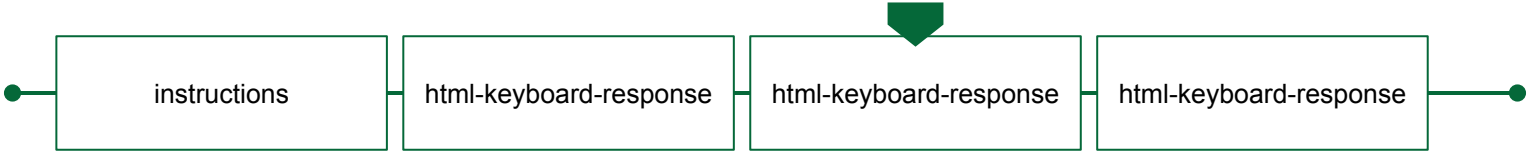

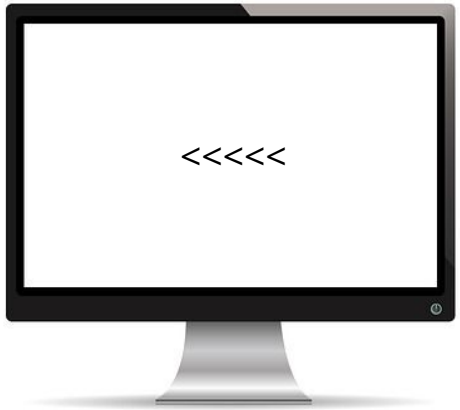

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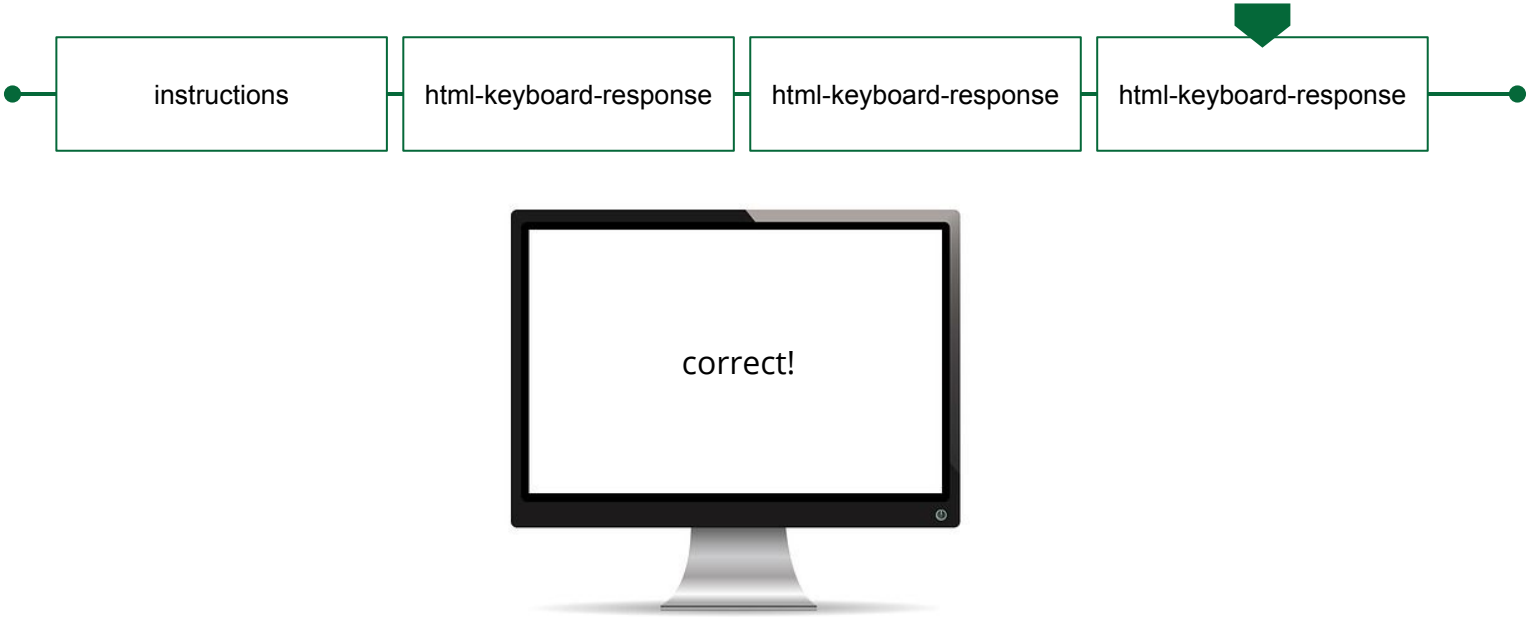
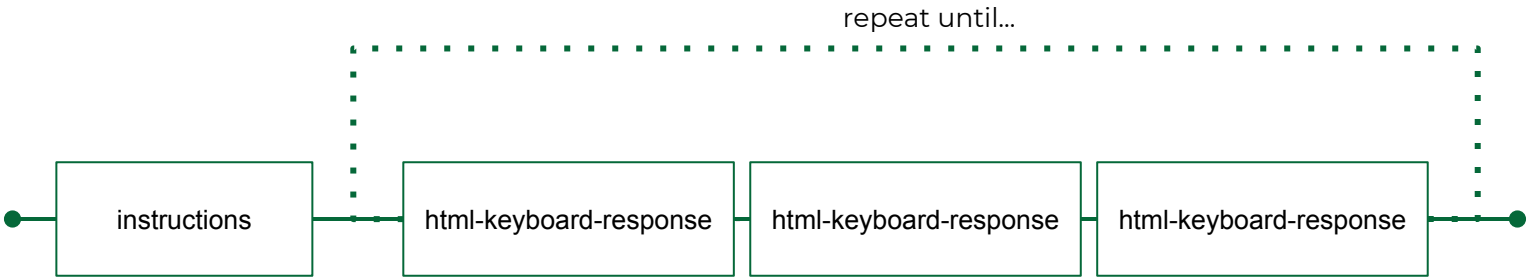


Timelines support linear, conditional, and looping structures.



A few additional **features of jsPsych**

Data management
Data collection is centralized. Data objects support many actions, like filtering, aggregating, and summary statistics.

Automatically preload media
Images and audio files will automatically preload to prevent buffering issues during the experiment.

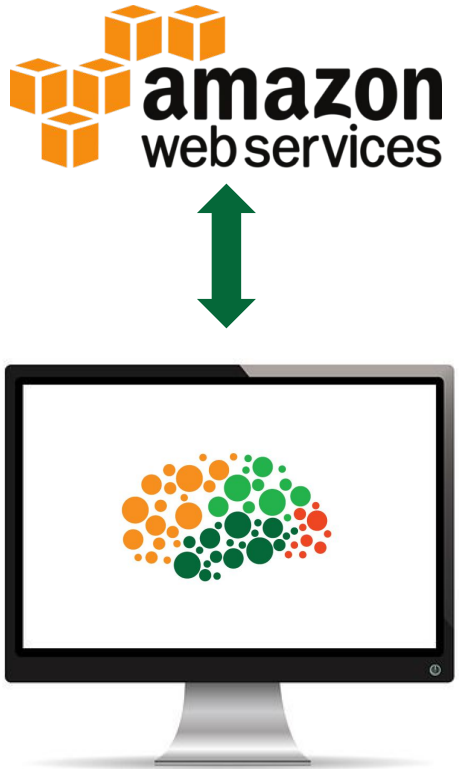
Randomization
Several randomization methods are built in for within-experiment manipulation (e.g., order or selection of stimuli).

Progress bar
An automated progress bar is available. It can also be controlled manually through an API.

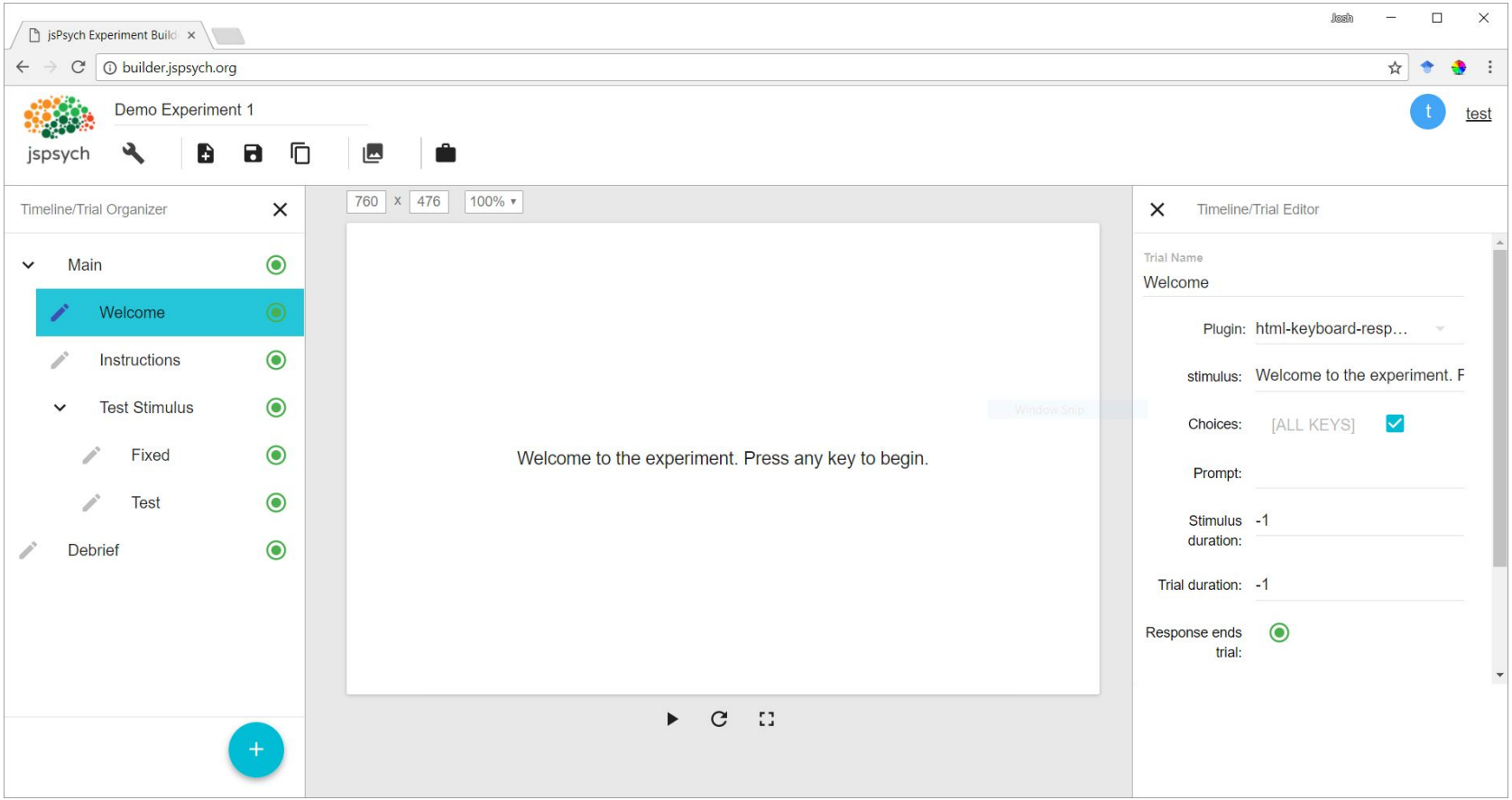
Display size calibration
A short calibration procedure can adjust the display size of jsPsych content to match some predefined physical size.

Automatically record user-interactions
A record is kept of every user interaction event, which includes when the user switches the active display window to something else during the experiment.

jsPsych is a client-side library; it does not handle any server-side needs by design. It needs to be paired with a mechanism for hosting studies and storing data permanently.



We're currently building a **graphical interface** for jsPsych, http://builder.jspsych.org



We’re also working on **hardware extensions** for lab studies