Speriment:
Making
Experiments
Easier to
Express

Presley Pizzo

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What is Speriment?

Speriment is a framework for creating online experiments that you can run, for instance, on Mechanical Turk.

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PsiTurk

It's based on PsiTurk, a program that takes an experiment written in JavaScript — a dynamic website — and helps you run it on Mechanical Turk or elsewhere online.

Speriment removes even more of the work. Instead of writing a dynamic website, you write a static description of your experiment in Python.

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What Speriment Does

Speriment translates your description into a real experiment and sets it up for use with PsiTurk.

Then you just use PsiTurk as if you had written the JavaScript yourself.

Speriment also helps you download your data in a useful format afterwards.

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Features

The philosophy of Speriment is that it should be easy to use even if you don't have much programming experience, and that the default settings should create sensible experiments.

Speriment has a repertoire of experimental design features that it can create based on your description.

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PsiTurk Features

PsiTurk provides a solid base for Speriment.

- balances conditions across participants
- prevents participant from retaking experiment
- tunnel allows you to use personal computer as server
- secure ad for Mechanical Turk

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Pages

A page shows a question, feedback, or instructions.

- randomization
- pseudorandomization
- Latin square
- random selection

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Options

An option can be selected by the participant as their response.

- radio buttons, checkboxes, dropdown menus, or text boxes
- mouse or custom keyboard selection
- record correctness

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Blocks

Blocks group pages together.

- ordered
- moveable (across fixed blocks)
- treatments
- conditional running
- training

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Block Examples

Swap block positions test block, break block, test block

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Block Examples

Swap block positions test block, break block, test block

Run block depending on answer language question, French block, English block

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Block Examples

Swap block positions test block, break block, test block

Run block depending on answer language question, French block, English block

Run block depending on participant condition A block, condition B block

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Block Examples

Swap block positions test block, break block, test block

Run block depending on answer language question, French
block, English block

Run block depending on participant condition A block,
condition B block

Training block run block until the participant gets a certain
number of answers correct, or tries the maximum
number of times

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Resources

Resources are images, audio, or video.

Pages, options, and feedback pages can have an arbitrary number of resources.

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Sampling

Sampling allows you to mix and match aspects of pages, options, resources, and tags across participants.

This allows you to avoid unwanted correlations without including every possible combination of aspects in your experiment.

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Sampling Examples

- Pair a random image with each question
- Pair a random singular image with each singular question and the corresponding plural image with each plural question
- Select two random words for each question and ensure they're different from each other

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Tags

Pages and options can have tags associated with them that follow them into the output file.

This way, you don't have to merge tables describing your items and options into your results in order to interpret them.

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Utilities

Speriment provides some utility functions to make it easy to:

- access your materials from your script
- check the validity of your script
- access your results from the database

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Cumulativity Experiment

This experiment has test items that appear in four conditions.

They're distributed to participants according to a Latin Square.

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Future Plans

Experiments vary widely, so there are still more features we'd like to add to Speriment.

We'd love your feedback on what you would find valuable so we can set priorities for development.

Some ideas are:

- multi-page items for use in self-paced reading experiments
- more option types (multiple choice with "other", slider, etc.)
- and a more R-friendly output file format.

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Finding Speriment

Speriment is open-source. You can check it out at
https://github.com/presleyp/Speriment.