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The MARCS Institute for Brain,
Behaviour and Development

INTRODUCTORY VIDEO SERIES TO PsychTestR

Dr. Anthony Chmiel

Overview of the video series

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Video 1 (this video)

- What is PsychTestR, and what can it do?
- Direction to guide for creating your own server (for online experiments only)
- Beginner knowledge for using R

Video 2

- Basic steps for creating your own experiments. Example syntax provided

Video 3

- Advanced steps for creating your own experiments. Example syntax provided

Video 4

- How to publish demo experiments (incl. online – read server guide beforehand for publishing online)

General information

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- PsychTestR was created by Dr. Peter M. C. Harrison, from University of Cambridge
- Two good starting places for resources are:
  1) the PsychTestR website (https://pmcharrison.github.io/psychTestR/) and
  2) Peter's Github page (https://github.com/pmcharrison)
- You can also find links to several peer reviewed papers focusing on PsychTestR and specific experiment packages built by Peter on his website

E.g.,

General PsychTestR paper: https://joss.theoj.org/papers/10.21105/joss.02088
Melodic discrimination test paper: https://www.nature.com/articles/s41598-017-03586-z
Beat perception test paper: https://www.nature.com/articles/s41598-018-30318-8
Mistuning perception test paper: https://link.springer.com/article/10.3758%2Fs13428-019-01225-1

Requirements of PsychTestR experiments

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- **Created via syntax in the R language**

```
> setwd(dirname(rstudioapi::getActiveDocumentContext()$path))
>
```

- **Need to have R installed (preferably R Studio) and need at least a basic understanding the R language/how to use R**

- **If you haven't used R before, I will recommend Barton Poulson's 2 hour introductory video, freely available on Youtube. Poulson's website also has many other freely available resources**

R Programming Tutorial - Learn the Basics of Statistical Computing

2.1M views • 2 years ago

freeCodeCamp.org

Learn the R programming language in this tutorial course. This is a hands-on overview of the statistical programming language R, ...

CC

Primary features of PsychTestR experiments

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- **Reliable for online experiments**

  sessions resume from where you were up to, and you can set experiments to save data at regular intervals

- **A variety of response options – text and integer entry; clickable response buttons; slider scales**
- **Supports inserted multimedia (images, audio, video) – from URL or local file**
- **Ways to set up initial training sections**
- **Stimulus randomisation, and adaptive responses***

  ***easier questions presented to participants who answer incorrectly, and more difficult questions presented to participants who answer correctly**

- **"Pilot" setting to examine your experiments before you go live**
- **Inbuilt admin login section to easily access and download your results and a brief summary of testing time, etc**

N.B. regarding online sensorimotor experiments

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- **For online sensorimotor experiments, such as rhythmic coordination between people, I will recommend using REPP rather than PsychTestR**

Open Access | Published: 11 February 2022

REPP: A robust cross-platform solution for online sensorimotor synchronization experiments

Manuel Anglada-Tort, Peter M. C. Harrison & Nori Jacoby

Behavior Research Methods (2022) | Cite this article

425 Accesses | 22 Altmetric | Metrics

Abstract

Sensorimotor synchronization (SMS), the rhythmic coordination of perception and action, is a fundamental human skill that supports many behaviors, including music and dance (Repp, 2005; Repp & Su, 2013). Traditionally, SMS experiments have been performed in the laboratory using finger tapping paradigms, and have required equipment with high temporal fidelity to capture the asynchronies between the time of the tap and the corresponding cue

PsychTestR experiment examples

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- **Three experiments taken from the Gold-MSI music aptitude tests:**

1. **Computerised Adaptive Beat Alignment Test (CABAT)**
   http://shiny.pmcharrison.com/cabat-demo

2. **Melodic Discrimination Test (MDT)**
   http://shiny.pmcharrison.com/mdt-demo

3. **Mistuning Perception Test (MPT)**
   http://shiny.pmcharrison.com/mpt-demo

Guide to creating a server for online experiments

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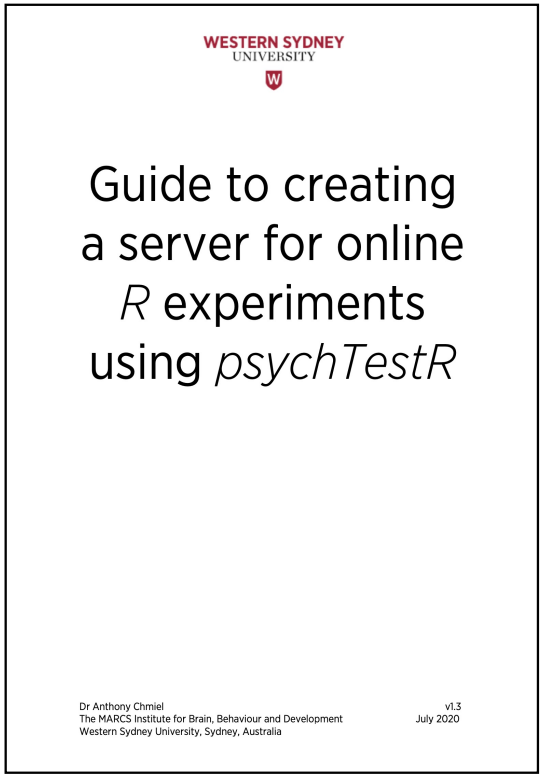
- **Access the step-by-step guide to server creation at the PsychTestR homepage, or Peter Harrison's Github page (both listed earlier)**



Guide to creating a server for online experiments

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- **Access the step-by-step guide to server creation at the PsychTestR homepage, or Peter Harrison's Github page (both listed earlier)**

- **There are several options for creating a server. Just two of these are:**

  - Create a free AWS (Amazon Web Services) server. 12 months of free usage, provided you stay within their 'free tier service'. After 12 months, would need to begin paying for this service (expect around $20 USD per month)
  N.B. you will need to supply a credit card at AWS sign up, and it is your responsibility to check terms and usage; you may be charged a fee if you do not stay with the free tier service bounds

  - Western Sydney University students can sign up for a free ARDC Nectar Cloud server. You receive 6 months free usage, and can apply for additional time
  See the guide for more details on both of these server options