

Compelled saccades

Karol Piera, Clara Kuper and Martin Rolfs



vs.



Goals of our project:



Open Science Framework

Experimental:

- Replicate an eye-tracking study previously carried out with monkeys, in human participants
- Adjust the paradigm to human participants
- Collect pilot data

Open Science Framework

- Use the OSF environment
- Upload all necessary components: code, data, literature etc.
- Arrange them in a clear manner and make them publicly available

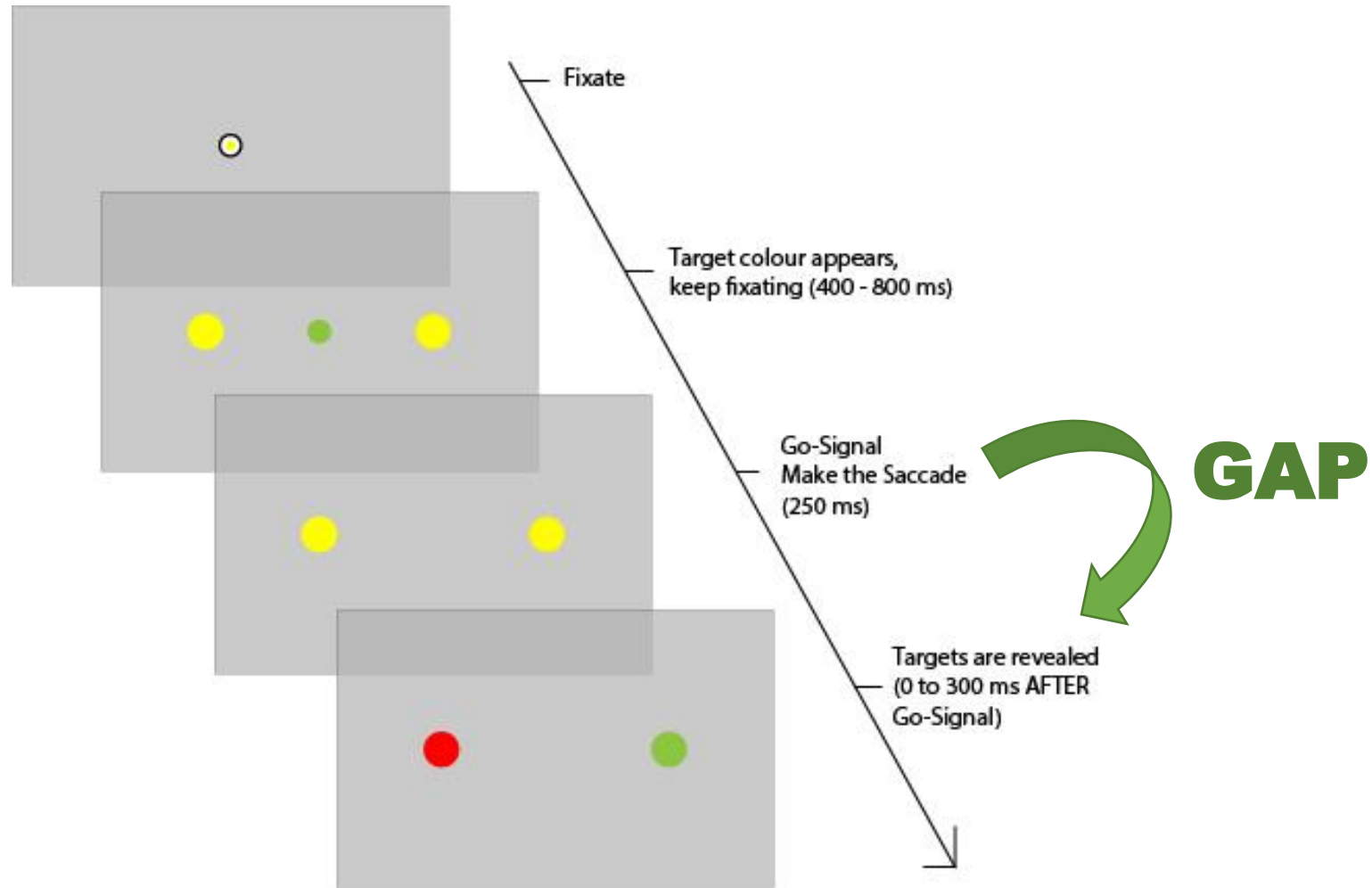
Saccades – what are they?



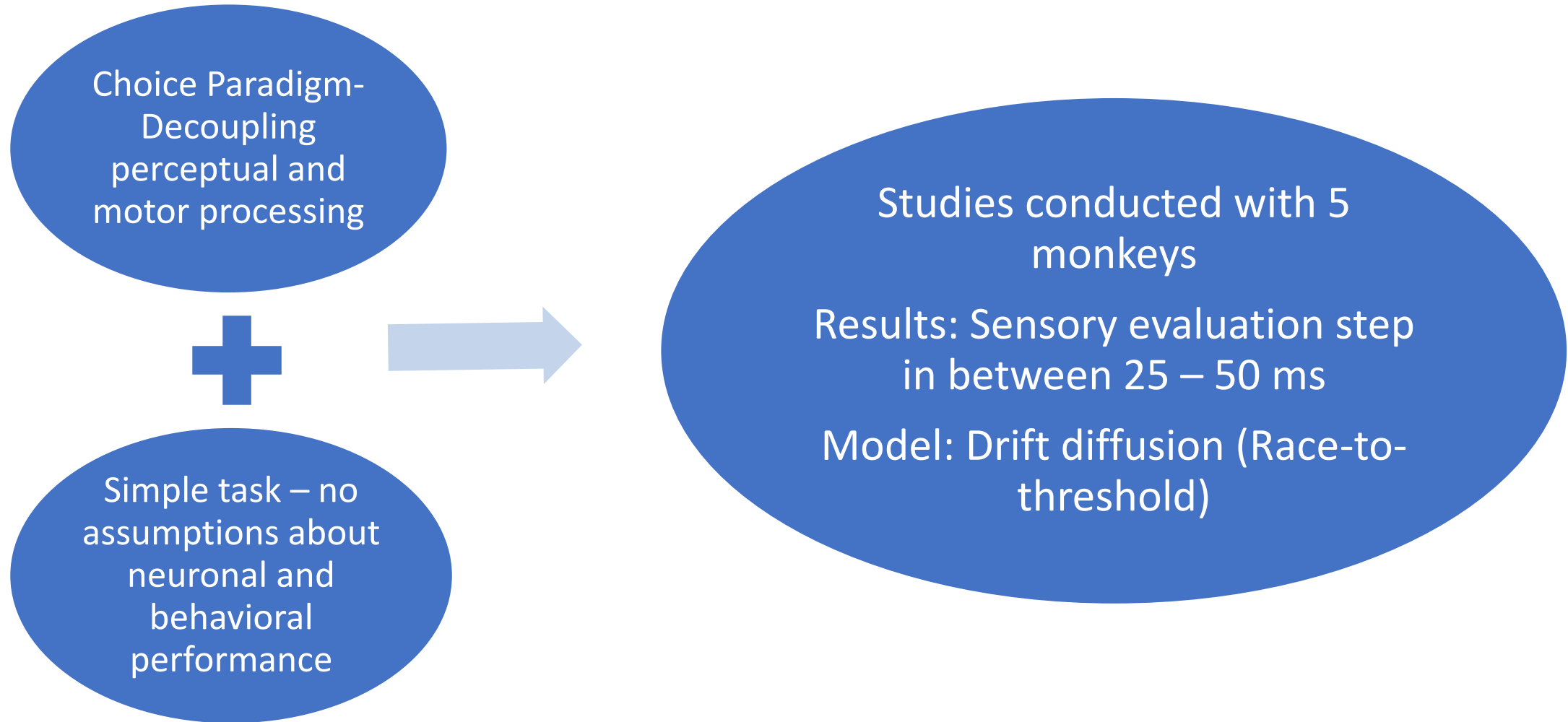
Saccades – rapid, ballistic eye movements that change the point of fixation.



Experimental Paradigm - Task



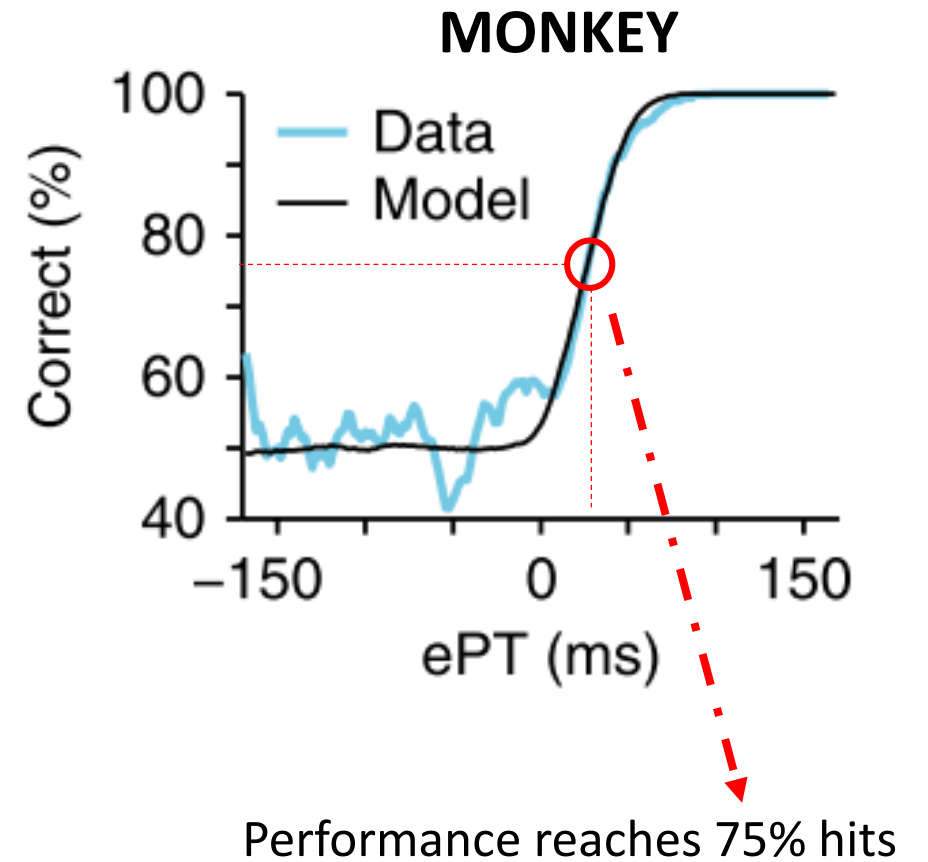
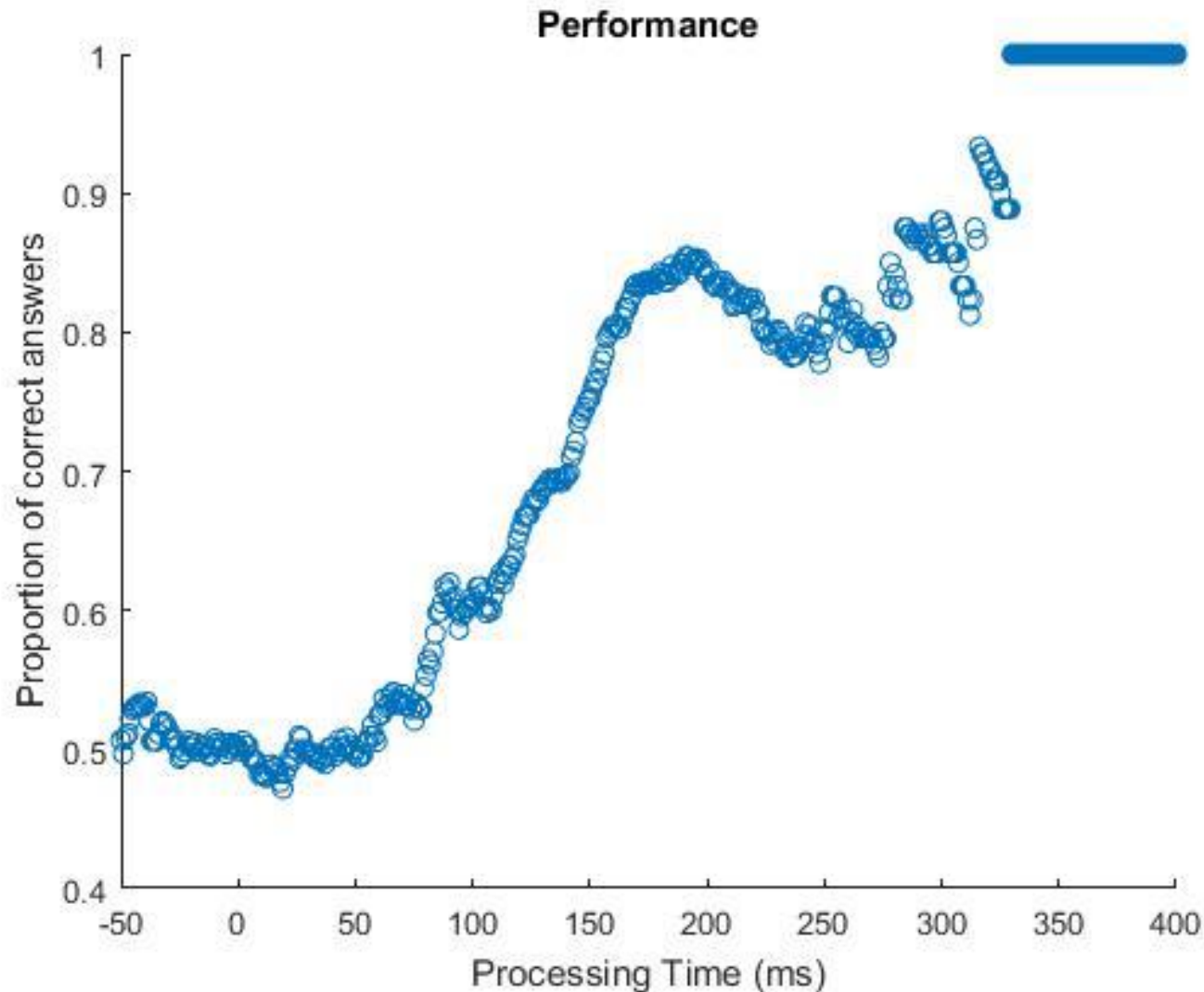
About the background studies



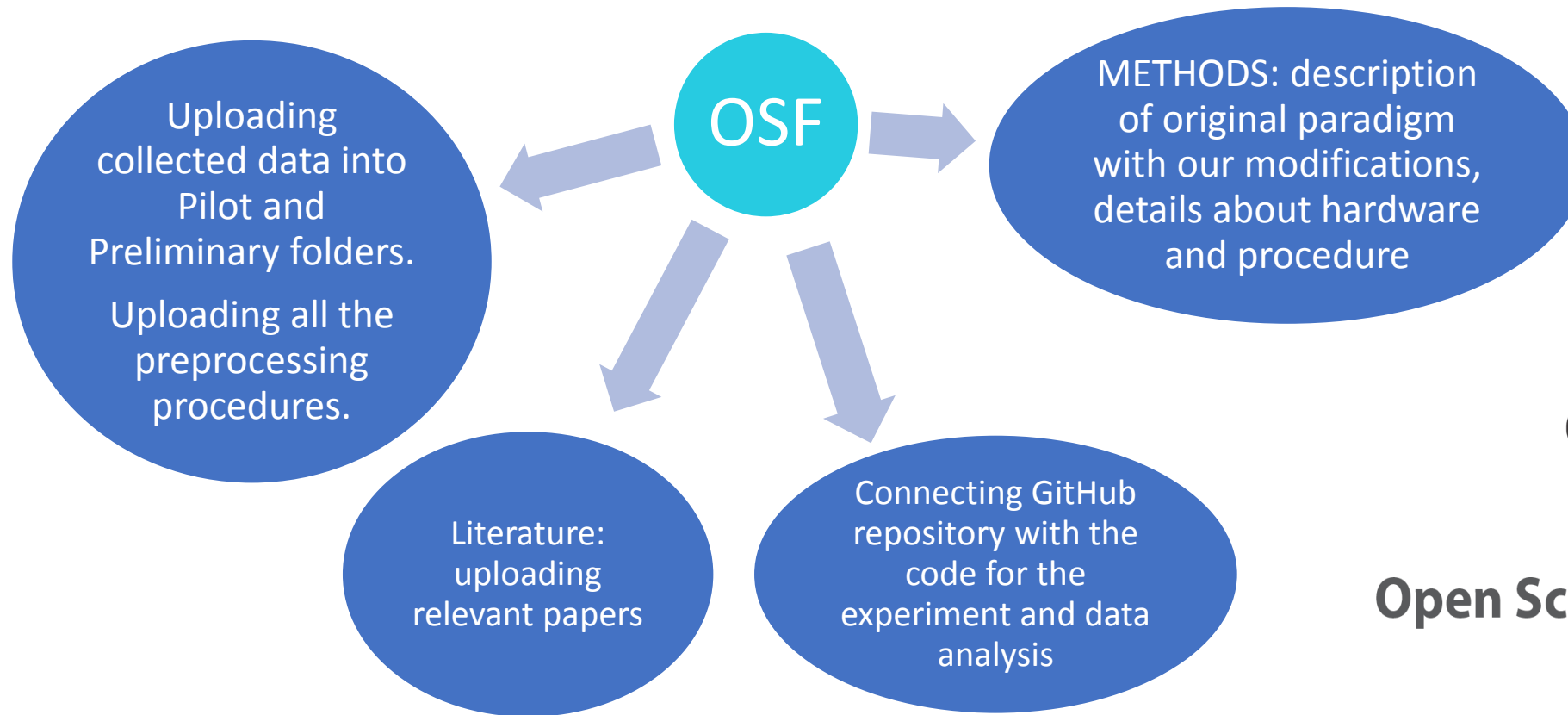
Experiment – what we did so far

- Literature review
- Writing new code or adapting existing one to the paradigm
- Collecting eye-tracking data
- Uploading all components to online repositories
- Writing documentation for our project

Piloting and expected results



Data sharing – what we did



Open Science Framework





Files 

Click on a storage provider or drag and drop to upload

 Filter

Name ^ ▾


Modified ^ ▾

 Fast Perceptual Decision Making in ...+  GitHub: ClaraKuper/CompelledSa...+  OSF Storage+  Literature+  Paradigm Skript+  Data Preprocessing+  Data Files+  ToDos+  Methods  Paradigm Skript Kuper, Rolfs, Piera & 2 more
220 contributions  Data Preprocessing Kuper, Rolfs, Piera & 2 more
41 contributions  Data Files Kuper, Rolfs, Piera & 2 more
216 contributions  ToDos Kuper, Rolfs, Piera & 2 more
15 contributions  Methods Piera, Kuper, Rolfs & 2 more
28 contributions




HOME ▾




 Data Files


-  OSF Storage

-  Piloting data

+  .dat-files

+  .edf-files

+  .msg-files

+  .rea-files

+  .tab-files

 Data

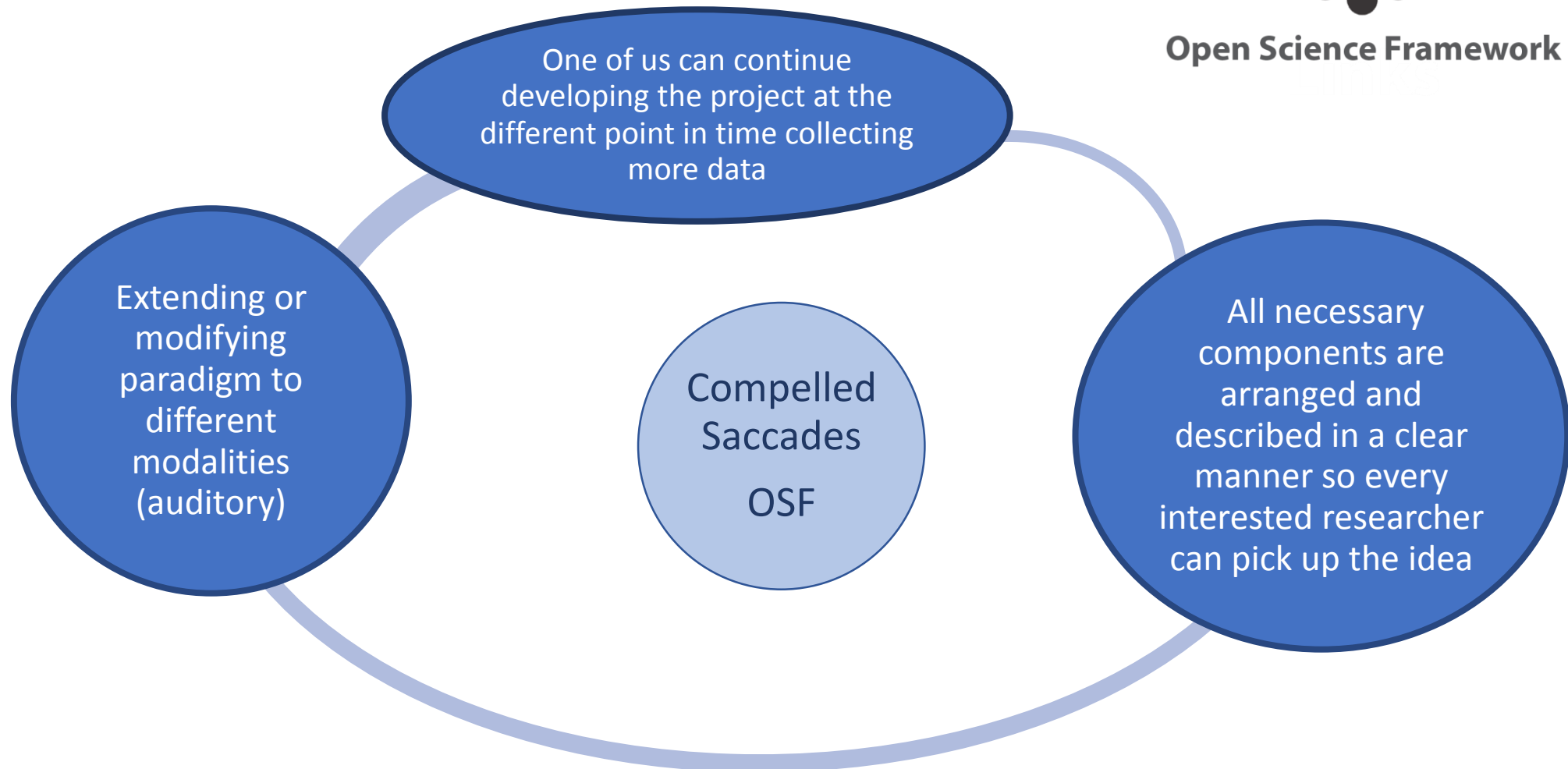
2017-09-14 04:06 PM

+  preliminary data

OSF – what's next?



Open Science Framework



Conclusions – compelled saccades

Further steps (ideas):

- Greater variability between naive human subjects relative to trained monkeys in performance – modifying time gaps to account for that
- Using Salinas et al. race-to-threshold model to analyze the data



Taking perceptual decision tasks from monkeys to humans

Clara Kuper, Karol Piera, Martin Rolfs

Background

Reaction Time = Perception + Motor Execution

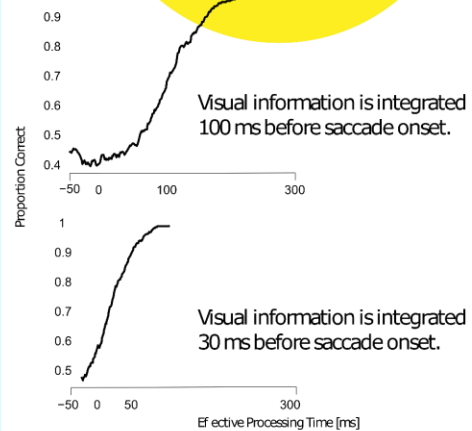
Reaction times provide information about fatigue, cognitive load, cognitive capacities.

The compelled saccade task can be used to decouple timing measurements of perception and motor planning.

In macaques, color information is integrated in 30 ms.

We wanted to measure the processing time for color integration in humans.

Simulation



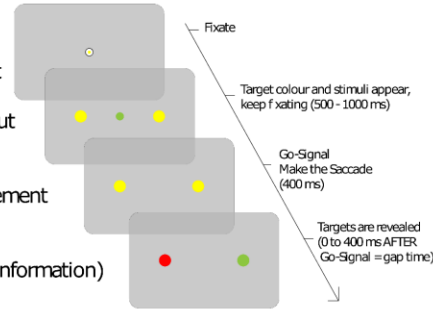
Paradigm

Fixate a central point

Get Information about target color

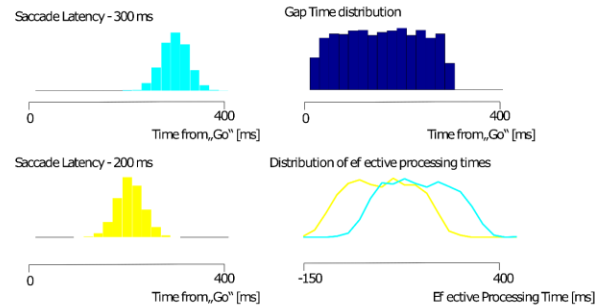
Initiate the Eye Movement

See the target (try to integrate the information)

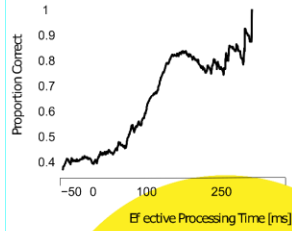


Crucial adjustments

Variable Saccade Latencies - Or simply a waiting strategy?



Collected Data



Warning: Preliminary Data!

6 Participants (2 Authors)
2266 data points
Variation in gap time
Variation in allowed saccade latency

Open to your suggestions



Find us on osf.io

Visit our poster!

Discussion - OSF



Open Science Framework

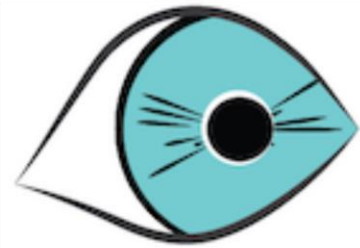
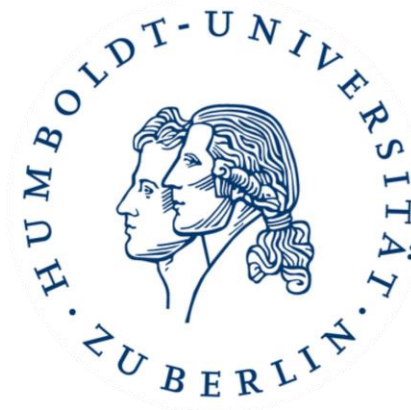
- Using OSF is straightforward and intuitive
- Compatible with other repositories such as Github
- Quick and easy access, tracks modifications
- Helps to organize work, allows to go back to your project at any point in time

Problems we experienced:

- Problem with OSF - Mendeley synchronization
- Initial documentation of lab-internal routine

Overall we perceive OSF as an useful environment which we would certainly use in our careers.

Thanks to hosts and supporters!



rofslab – active vision and cognition





Thank you for your attention!