

# Body ownership constraints and Consciousness: hand-perspective, but not hand-identity, affects the timing of visual awareness

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Department of Psychology, University of Turin

SIPF 2021, Beyond the lockdown of the brain



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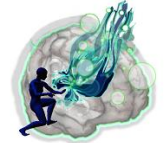


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# Body Ownership Constraints



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**A** Postural  
constraint



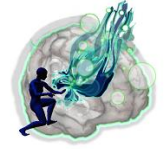
**B** Anatomical  
constraint



# Body Ownership Constraints



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**A** Postural  
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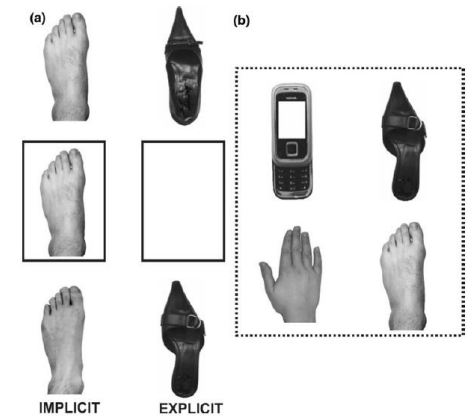


**B** Anatomical  
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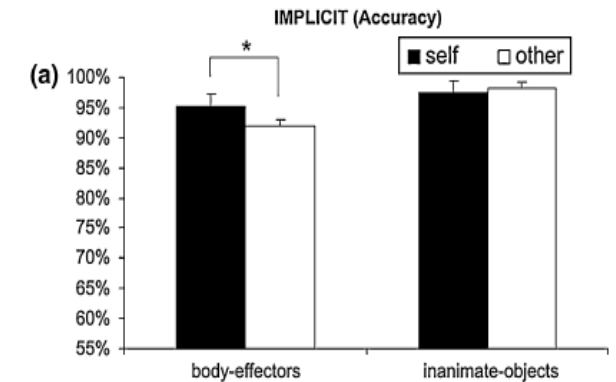


## The identity advantage for the own-body effectors

Humans are faster and more accurate in the discrimination of the own-body effectors:



- only in implicit tasks
- only in egocentric perspective



# Research Question



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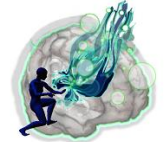
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- How the *postural* and the *anatomical* constraints (i.e., **perspective** and **identity**) affect the timing for the conscious access of hand stimuli?

# Research Question



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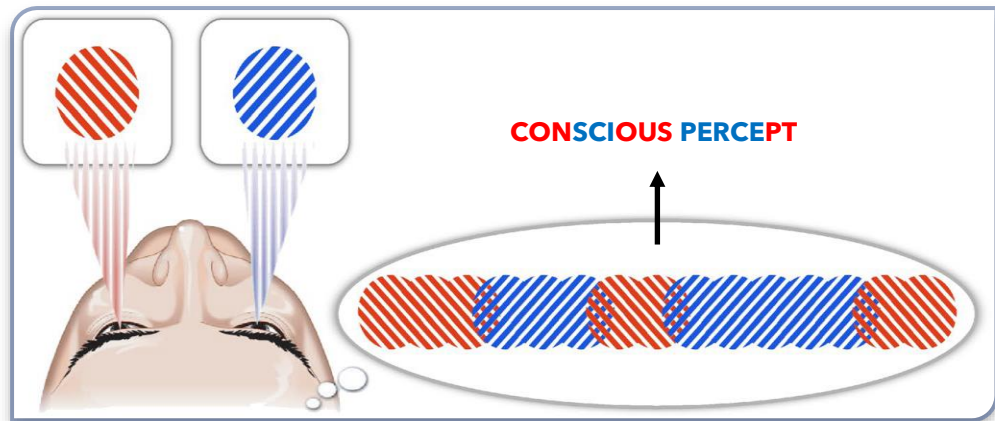


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- How the *postural* and the *anatomical* constraints (i.e., **perspective** and **identity**) affect the timing for the conscious access of hand stimuli?



BREAKING-CONTINUOUS  
FLASH SUPPRESSION  
PARADIGM



# Binocular Rivalry

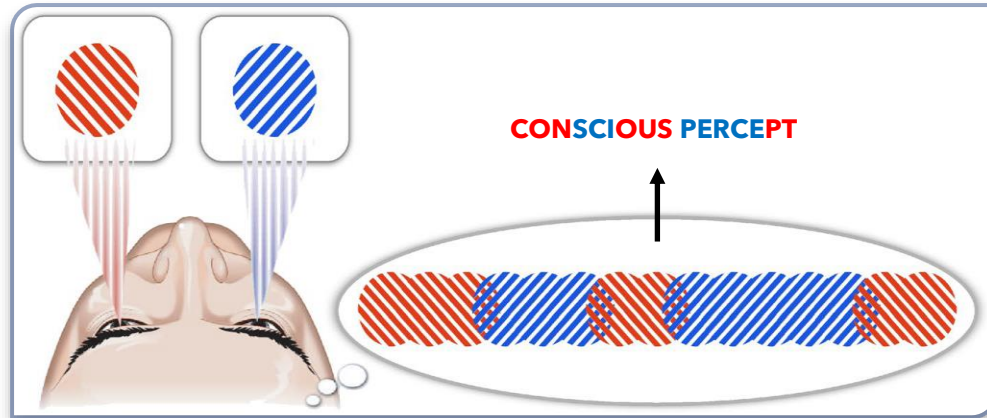
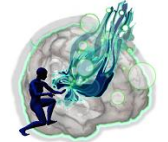


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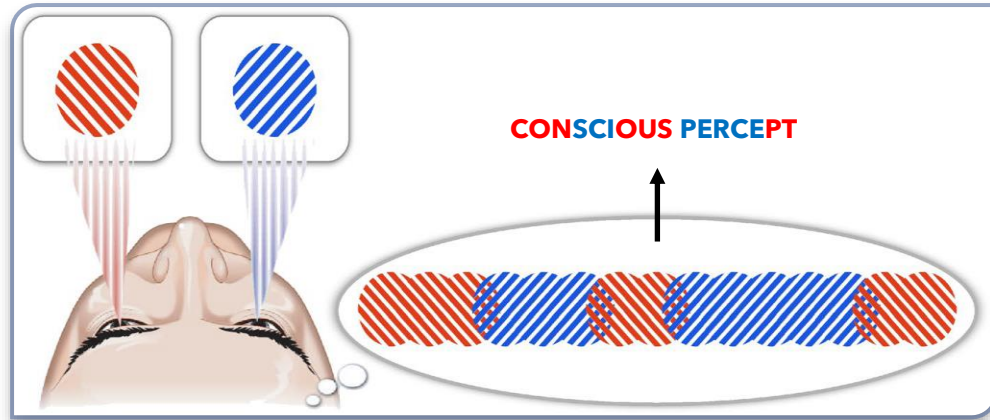


## Binocular Rivalry

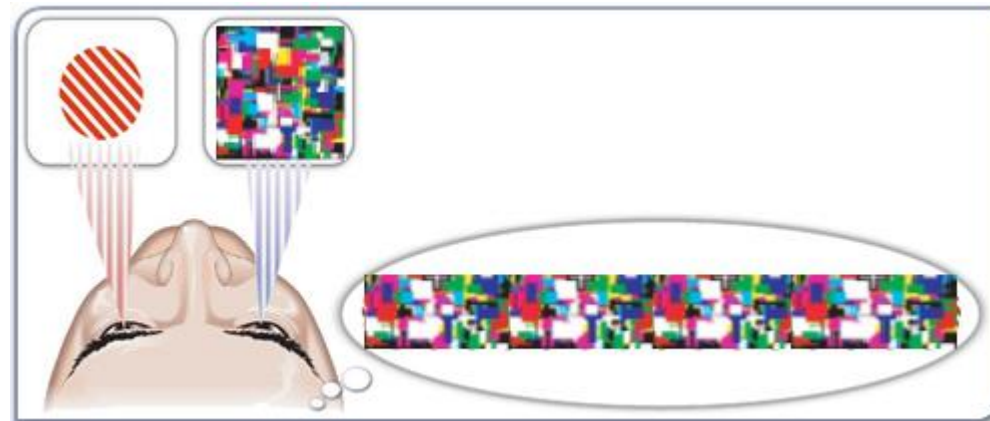


## Continuous Flash Suppression (CFS)

Tsuchiya, N., & Koch, C. (2005)



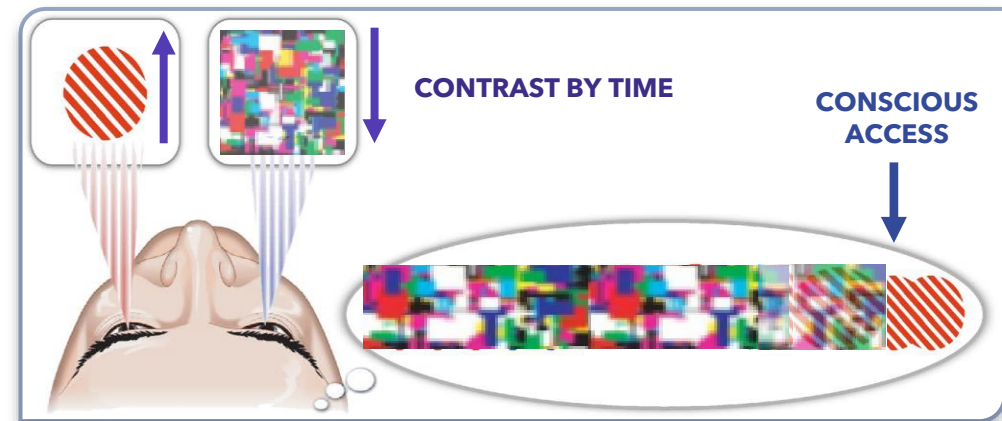
## Binocular Rivalry



## Continuous Flash Suppression (CFS)

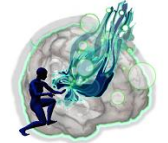
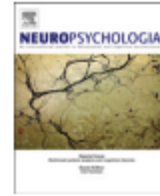
Tsuchiya, N., & Koch, C. (2005)

## Breaking-CFS



Jiang, Y., Costello, P., & He, S. (2007)



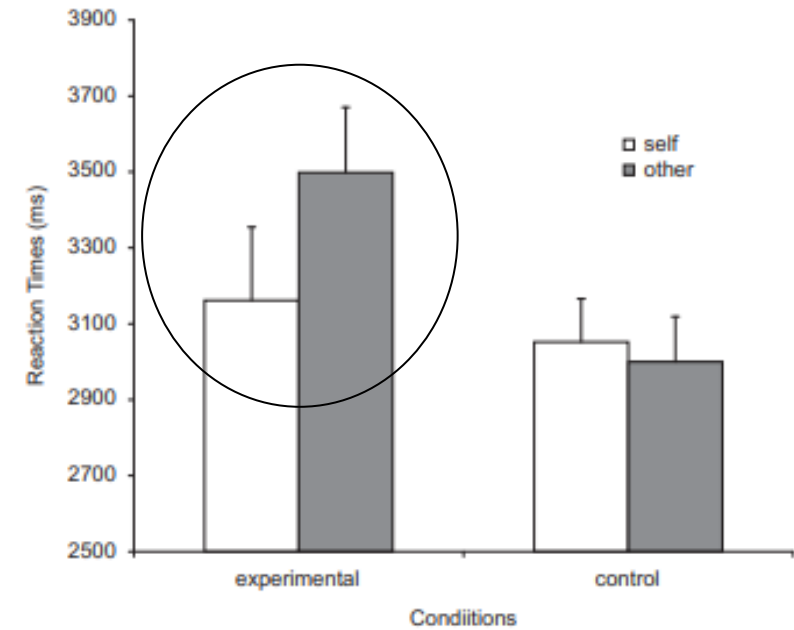
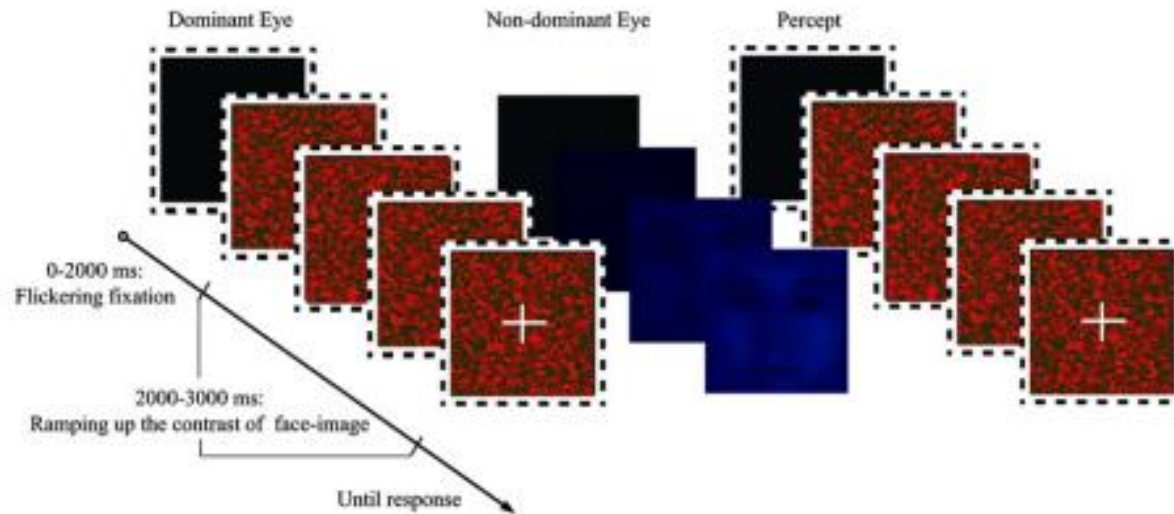


## Dissociations of subliminal and supraliminal self-face from other-face processing: Behavioral and ERP evidence

Haiyan Geng<sup>a,\*</sup>, Shen Zhang<sup>b</sup>, Qi Li<sup>a</sup>, Ran Tao<sup>a</sup>, Shan Xu<sup>a</sup>

<sup>a</sup> Department of Psychology, Peking University, Beijing 100871, China

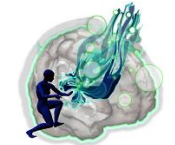
<sup>b</sup> Department of Psychology, University of Wisconsin-Whitewater, Whitewater, WI 53190, USA



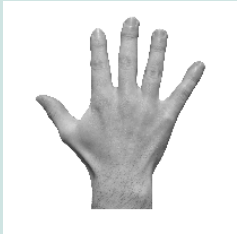

# Materials and Methods



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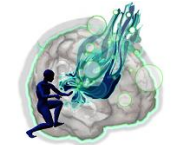
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2x2 design Identity	SELF	OTHER
	 A grayscale photograph of a human hand, palm facing forward, with fingers slightly spread.	 A grayscale photograph of a human hand, palm facing forward, with fingers slightly spread, appearing as a mirror image of the 'SELF' hand.

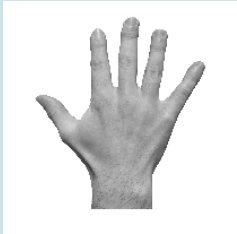



# Materials and Methods



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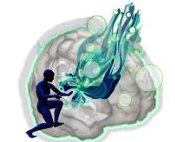
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2x2 design Identity Perspective	SELF	OTHER
EGOCENTRIC		
ALLOCENTRIC		

# Materials and Methods



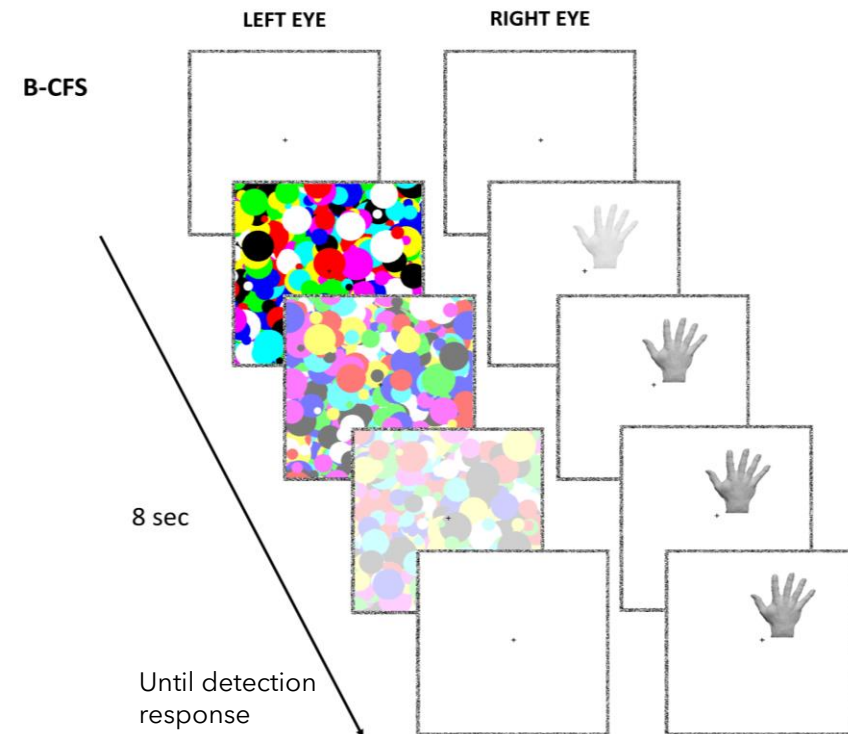
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2x2 design Identity Perspective	SELF	OTHER
EGOCENTRIC		
ALLOCENTRIC		

18 right-handed participants (7 M, mean = 26.7y)



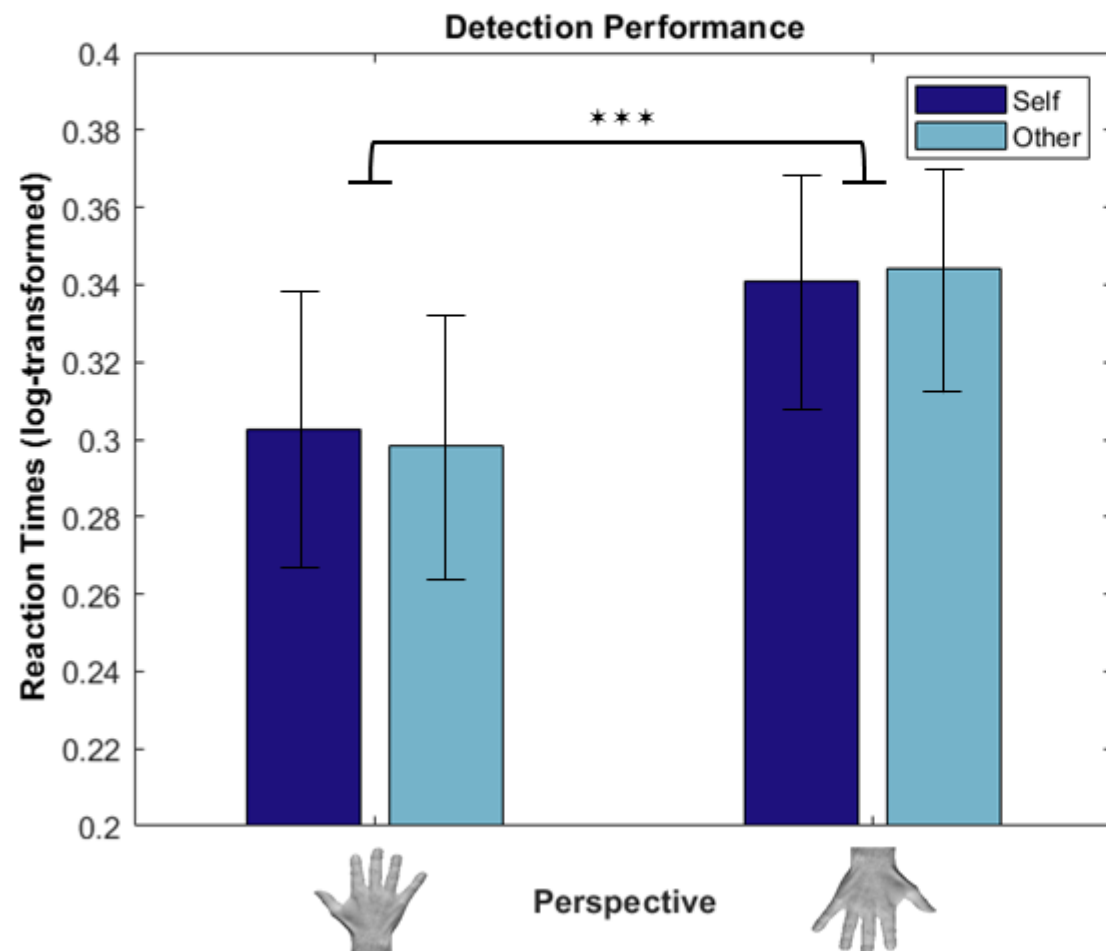
# Results



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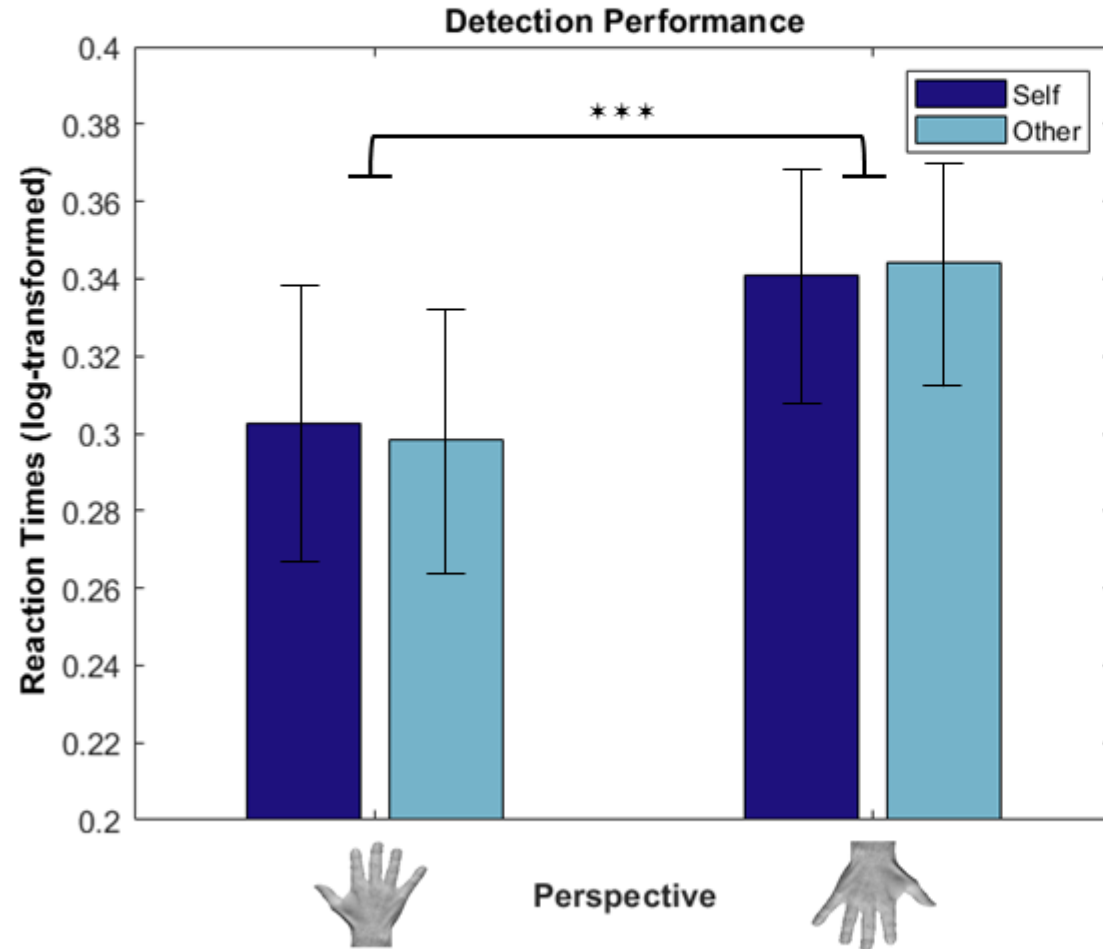
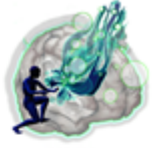


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- Main effect of **perspective** ( $p < .001$ )
- **Egocentric hands break faster** into visual awareness

# Results



- Main effect of **perspective** ( $p < .001$ )
- **Egocentric hands break faster** into visual awareness
- No identity main effect ( $p = .867$ )
- No interaction ( $p = .575$ )
- **No self-advantage** in conscious access



# Discussion



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→ **Perspective** is a more primitive element for the self-other distinction with respect to identity

# Discussion



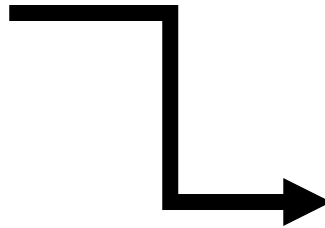
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➔ **Perspective** is a more primitive element for the self-other distinction with respect to identity

➔ At this level of processing, it **is differentially processed** with an egocentric advantage

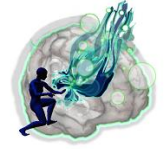


*Familiarity and  
relevance for the  
Bodily Self as a  
motor agent*

# Discussion



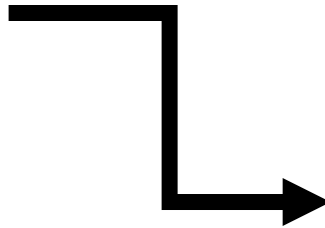
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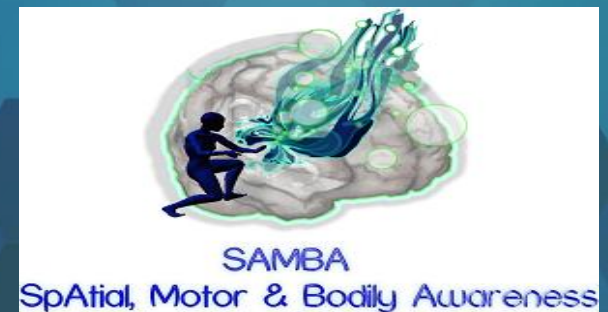
*Familiarity and  
relevance for the  
Bodily Self as a  
motor agent*

➔ The hand's identity do not affect the timing for visual awareness. We plan to perform a binocular rivalry experiment to test for self-advantage (or disadvantage) at higher cortical processing

# Thanks for the attention!



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