

# Yseult Héjja-Brichard

Centre de Recherche Cerveau et Cognition CNRS - Université Paul Sabatier - UMR 5549  
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## EDUCATION

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**PhD candidate (graduating in September 2019)** **2015-Present**

*Université Paul Sabatier and CerCo (CNRS), Toulouse, France*

Supervisor: Benoit R. Cottureau, within the Eco-3D team.

Title of the thesis: Adaptation to the 3D properties of the environment in the primate visual system.

Synopsis: My PhD project aims to provide a better understanding of how the visual system in primates adapts to the 3D properties of natural scenes. I am investigating the relationship between the 3D properties of the environment and neural responses, conducting functional neuroimaging studies in two primate species (humans and macaques). I am also collecting psychophysics measurements to give insight into the link between visual perception, natural statistics and the brain activity.

**Msc in Neuroscience, Cognition, and Behaviour (2nd year)** **2014-2015**

*Université Paul Sabatier, Toulouse, France*

Research project: "Characterisation of the cortical networks involved in 3D orientation processing in primates." at CerCo, Toulouse. Supervised by Benoit R. Cottureau & Jean-Baptiste Durand.

**Msc in Cognitive Psychology (1st year)** **2013-2014**

*Université de Grenoble-Alpes, Grenoble, France*

Research project: "Role of the eyes in face categorisation: Interracial eye change impacts on the other-race effect in a categorisation task." at LPNC, Grenoble. Supervised by Olivier Pascalis.

Internship in Neuropsychology at the Hospital of Grenoble, France (January-February 2014)

**Bsc in Psychology** **2011-2013**

*Université de Grenoble-Alpes, France & Universität Leipzig, Germany*

Research assistant at the Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig, Germany - Department of social neuroscience (April-July 2013). Supervised by Natacha Mendes.

## SCIENTIFIC PRODUCTION

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### Publications

- Héjja-Brichard, Y., Rima, S., Rapha, E., Durand, J.-B. & Cottureau, B.R. (*in preparation*). Stereomotion processing in the non-human primate brain.
- Rima, S., Cottureau, B.L., Héjja-Brichard, Y., Trotter, Y. & Durand, J.B. (*in preparation*). A new visuotopic cluster in macaque posterior parietal cortex revealed by wide-field retinotopy.
- Cottureau, B.R., Smith, A.T., Rima, S., Fize, D., Héjja-Brichard, Y., Renaud, L., ... & Durand, J.-B. (2017). Processing of Egomotion-Consistent Optic Flow in the Rhesus Macaque Cortex. *Cerebral Cortex*, 1-14. <https://doi.org/10.1093/cercor/bhw412>

## International conferences attended

- **Héjja-Brichard, Y.**, Rima, S., Rapha, E., Durand, J.-B., Cottureau, B.R. (2018, November). Stereomotion processing in the non-human primate brain. Poster presented at the Society for Neuroscience, San Diego, USA.
- **Héjja-Brichard, Y.**, Rima, S., Durand, J.-B., Cottureau, B.R. (2017, August). Stereomotion processing in the non-human primate brain. Poster presented at the European Conference on Visual Perception, Berlin, Germany.

## Oral presentations

- **Héjja-Brichard, Y.** & Mercier M.R. (2018). Data visualisation in cognitive neuroscience: Functional neuroimaging and electrophysiology. Talk given for the Toulouse Data Visualization group, Toulouse [Slides]
- **Héjja-Brichard, Y.** (2018). Open Science: Why and How? Talk given at the CerCo's Young Scientist Meeting, Toulouse [Slides]

## TECHNICAL SKILLS

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### Software

- Programming: Matlab, R, Rstudio, C#
- Neuroimaging: SPM12, caret5 (monkey neuroimaging software - surface-based)
- Stimulus presentation: EventIDE (advanced), PsychToolbox (basics), Eprime
- Writing: LaTeX, RMarkdown, Office
- Graphics editor: Adobe Illustrator, Photoshop
- Data sharing: Github, Open Science Framework

### Data analysis

- fMRI data analyses: whole-brain, ROI-based, and retinotopic analyses; MVPA (beginner)
- Psychophysical data modelling
- Eye-tracking analysis (basics)

## TEACHING EXPERIENCE

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### Graduate teaching associate (193h)

2015-2018

Department of neuroscience and behavioural science, Université Paul Sabatier, Toulouse, France.  
Practical works (TP: 175h) and tutorial classes (TD: 18h) for Bsc Biology students (2nd and 3rd year).

2017-2018

Nervous and cerebral functions (L3 BCP)	TD: 4h & TP: 33h
Behavioural ecology (L3 BOPE)	TP: 27h

2016-2017

Neurophysiology (L2 BCP)	TD: 4h
Nervous and cerebral functions (L3 BCP)	TD: 4h & TP: 36h
Behavioural ecology (L3 BOPE)	TP: 21h

2015-2016

Neuroscience (L2 BCP)	TP: 24h
Nervous and cerebral functions (L3 BCP)	TD: 6h & TP: 28h
Behavioural ecology (L3 BOPE)	TP: 6h

*BCP: Cell Biology and Physiology; BOPE: Organisms, Populations, and Ecosystems Biology*

## Student supervision

- 2017-2018: Master's student in Neuroscience, University of Bordeaux, France - fMRI analyses
- 2019: Master's student in Experimental Psychology, Università di Trieste, Italy - Psychophysics

## Volunteering French teacher

2015-2016

- Teaching French as a foreign language (FLE) to adults for the NGO "Croissant Fertile", Toulouse, France

## ADDITIONAL SKILLS

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### Lab Community Involvement

- Student representative at the Lab Council (2017-2018)
- Organisation of the Lab Winter School (2017, 2018)
- Co-organisation of the Annual 'CerCo Day' (2016)
- Ambassador for the Center for Open Science (2018-present)
- Development of an open and slow science associative laboratory with other young scientists (<http://slowpen.science/>)

### Personal Implication in Science Popularisation

- Public presentation on visual illusions (March 2019) for the Brain Awareness Week at Quai des Savoirs, a cultural centre in Toulouse: "Les illusions visuelles, une illusion du cerveau?"
- Public presentation on the study of 3D vision in animals (Feb. 2017) "En tête à tête avec un jeune chercheur", Museum de Toulouse: "La vision 3D : mieux qu'au cinéma !"
- Article written for the Museum of Natural sciences of Toulouse (March 2017, in French) about the evolution of 3D vision in animals. - Yseult Héjja-Brichard & Benoit R. Cottureau "[Evolution et vision : le vivant a de la profondeur !](#)"
- Communications manager and board member of [InCOGnu](#) - an organisation of students and young researchers in cognitive science in the Toulouse area. Organisation of monthly conferences, workshops for the general public (both adults and children) and participation in various events of science popularisation (Pint of Science, EuroScience Open Forum, Brain Awareness Week, National Forum of Cognitive Science).

### Complementary Training

- **Languages** – French (native), English (full proficiency, Toefl iBT: 104/120), German (good command in speaking, level B2), Spanish (basic communication skills, level B1).
- **Methodological improvement** – Workshops in statistical analyses and ethics
- **Certification** – Experimental research design in non-human primates, June 2016 (CNRS Marseille)