Yseult Héjja-Brichard

UMBC Biological Sciences – 1000 Hilltop Circle - Baltimore, MD 21250
E-mail: yseult.hejja@umbc.edu - Website: yseulthb.github.io

ACADEMIC POSITION

Postdoctoral researcher   **November 2021 - Present**
UMBC Biological Sciences, Baltimore, MD, USA

Postdoctoral researcher   **November 2020 - November 2021**
Centre d'Ecologie Fonctionnelle et Evolutive, Montpellier, France

How information theory informs the evolution of sexual signaling pattern preferences and signal design in darters (*Etheostoma* spp.).
Machine learning, neural networks, mating preference, behavioural experiments

EDUCATION

PhD studies in Neuroscience, Cognition, and Behaviour   **2020**
Université Paul Sabatier and CerCo (CNRS), Toulouse, France

Supervisor: Benoit R. Cottereau, within the Eco-3D team.
Title of the thesis: Spatial and temporal integration of binocular disparities in primates.
Functional neuroimaging, visual behaviour, comparative visual cognition (macaques and humans)

Msc in Neuroscience, Cognition, and Behaviour (2nd year)   **2015**
Université Paul Sabatier, Toulouse, France

Research internship at CerCo, Toulouse. Supervised by Benoit R. Cottereau & Jean-Baptiste Durand.

Msc in Cognitive and Social Psychology (1st year)   **2014**
Université de Grenoble-Alpes, Grenoble, France

Research internship at the LPNC, Grenoble. Supervised by Olivier Pascalis.
Clinical internship in Neuropsychology at the Hospital of Grenoble. Supervised by Eugénie Lhommée.

Bsc in Psychology   **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.

RESEARCH SKILLS

Computer skills
- *Programming:* Matlab, R, C#, Python
- *Neuroimaging:* SPM12, caret5 (software for monkey data), PRoNTo (Pattern recognition toolbox)
- *Stimulus presentation:* EventIDE, jsPsych, PsychToolbox, Eprime
- *Writing:* LaTeX, RMarkdown, Office
- *Graphics editor:* Adobe Illustrator, Photoshop
- *Data and article sharing:* Github, Open Science Framework, bioRxiv
- *Web development:* HTML, CSS, JavaScript

Data analysis
- fMRI data analyses (univariate, retinotopic, and multivariate pattern analyses)

- Psychophysical data modelling
- Eye-tracking analyses

SCIENTIFIC PRODUCTION

Publications

Under review or in preparation

- ManyPrimates et al. (including **Héjja-Brichard, Y.**) (*in prep*) The evolution of primate short-term memory.
- Guiomar, N., Krol, L.R., Combrisson, E., Dubarry, A.-S., Elliott, M.A., François, C., **Héjja-Brichard, Y.**, ... Chaumon, M. (*submitted*). Good Scientific Practice in MEEG research: Progress and Perspectives. [Preprint]

Peer-reviewed journal articles

- Audurier, P., **Héjja-Brichard, Y.**, De Castro, V., Kohler, P.J., Norcia, A.M., Durand, J.-B., Cottereau, B.R. (2021). Symmetry processing in the macaque visual cortex. *Cerebral Cortex*. https://doi.org/10.1093/cercor/bhab358. [Preprint]
- De Castro, V., Smith, A.T., Beer, A.L., Leguen, C., Vayssière, N., **Héjja-Brichard, Y.**, Audurier, P., Cottereau, B.R. & Durand, J.B. (2021). Connectivity of the cingulate sulcus visual area (CSv) in macaque monkeys. *Cerebral Cortex*. https://doi.org/10.1093/cercor/bhaa301
- **Héjja-Brichard, Y.**, Rima, S., Rapha, E., Durand, J.-B. & Cottereau, B.R. (2020). Stereomotion processing in the non-human primate brain. *Cerebral Cortex, 30*(8), 4528-4543. https://doi.org/10.1093/cercor/bhaa055. [Preprint & OSF project]
- Rima, S., Cottereau, B.R., **Héjja-Brichard, Y.**, Trotter, Y. & Durand, J.B. (2020). A new visuotopic cluster in macaque posterior parietal cortex revealed by wide-field retinotopy. *Brain Structure and Function*. https://doi.org/10.1007/s00429-020-02134-2
- Chauhan, T., **Héjja-Brichard, Y.**, & Cottereau, B.R. (2020). Modelling binocular disparity processing from statistics in natural scenes. *Vision Research*, 176, 27-39. https://doi.org/10.1016/j.visres.2020.07.009
- Cottereau, 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, 27*(1), 330–343. https://doi.org/10.1093/cercor/bhw412

Presentations

Invited talks

- **Héjja-Brichard, Y.** (2020). Rethinking our Narratives: The Challenge of Slow Science. LiveMEEG.
- **Héjja-Brichard, Y.** & Mercier M.R. (2018). Data visualisation in cognitive neuroscience: Functional neuroimaging and electrophysiology. Toulouse Data Vizualisation group, Toulouse.
- **Héjja-Brichard, Y.** (2018). Open Science: Why and How? CerCo's Young Scientist Meeting.

Conference talks

- **Héjja-Brichard, Y.** (2021). Workshop on Research Culture based on the Café Culture Kit developped by the Wellcome Foundation. Conférence Science Ouverte Lente Durable, Nantes, France.
- Audurier, P., **Héjja-Brichard, Y.**, Kohler, P.J., Norcia, A.M., Durand, J.-B., Cottereau, B.R. (2019). Processing of rotational symmetry in the non-human primate brain. Annual meeting of the French research group 'GDR Vision', Marseille, France.

Conference posters

- Audurier, P., **Héjja-Brichard, Y.**, Kohler, P.J., Norcia, A.M., Durand, J.-B., Cottereau, B.R. (2019, Oct.). Processing of symmetry in the non-human primate brain. Society for Neuroscience, Chicago, USA.
- De Castro, V., LeGuen, C., **Héjja-Brichard, Y.**, Audurier, P., Cottereau, B.R., Durand, J.-B. (2019, Oct.). Functional and structural connectivity of the cingulate sulcus visual (CSv) area in macaque monkeys. Society for Neuroscience, Chicago, USA.
- **Héjja-Brichard, Y.**, Bruzzone, S.E.P., Rapha, E., Durand, J.-B., Cottereau, B.R. (2019, Sept.). Influence of natural statistics on depth perception. Predictive Brain Conference, Marseille, France.
- **Héjja-Brichard, Y.**, Rima, S., Rapha, E., Durand, J.-B., Cottereau, B.R. (2018, Nov.). Stereomotion processing in the non-human primate brain. Society for Neuroscience, San Diego, USA.
- Rima, S., Cottereau, B.R., **Héjja-Brichard, Y.**, Trotter, Y., Durand, J.-B. (2017, Nov.). Wide-field retinopy reveals a new visuotopic cluster in IPS. Society for Neuroscience, Washington DC, USA.
- **Héjja-Brichard, Y.**, Rima, S., Durand, J.-B., Cottereau, B.R. (2017, Aug.). Stereomotion processing in the non-human primate brain. European Conference on Visual Perception, Berlin, Germany.
- **Héjja-Brichard, Y.**, Rima, S., Trotter, Y., Banks, M.S., Durand, J.-B., Cottereau, B.R. (2015, Oct.). Adaptation to the 3D properties of the environment in non-human primates. GDR Vision annual forum, Grenoble, France.

TEACHING EXPERIENCE

Temporary teaching assistant (2019-2020) for Bsc Psychology students (1st year) - 48 hrs
Department of Psychology, Université Toulouse Jean Jaurès, Toulouse, France. Tutorial classes.

Graduate teaching assistant (2015-2018) for Bsc Biology students (2nd and 3rd years) - 193 hrs
Department of neuroscience and behavioural science, Université Paul Sabatier, Toulouse, France. Practical works and tutorial classes.

2019-2020
      Introduction to Psychophysiology (PSYC, 1st year)   TD: 48h

2017-2018
      Nervous and cerebral functions (BCP, 3rd year)   TD: 4h & TP: 33h
      Behavioural ecology (BOPE, 3rd year)   TP: 27h

2016-2017
      Neurophysiology (BCP, 2nd year)   TD: 4h
      Nervous and cerebral functions (BCP, 3rd year)   TD: 4h & TP: 36h
      Behavioural ecology (BOPE, 3rd year)   TP: 21h

2015-2016
      Neuroscience (BCP, 2nd year)   TP: 24h
      Nervous and cerebral functions (BCP, 3rd year)   TD: 6h & TP: 28h
      Behavioural ecology (BOPE, 3rd year)   TP: 6h

PSYC: Psychology; BCP: Cell Biology and Physiology; BOPE: Organisms, Populations, and Ecosystems Biology
TD: tutorial classes; TP: practical works/labs

Student supervision
- 2019: Master's student in Neuroscience, Università degli studi di Trieste, Italy - Psychophysics
- 2018: Master's student in Neuroscience, University of Bordeaux, France - fMRI analyses

EXTRACURRICULAR ACTIVITIES

Lab Community Involvement

o Organisation of the first edition of the Lab Student Day (2019)
o Co-creation of a Welcome Kit for new students and postdocs (2019)
o Student representative at the Lab Council (2017-2018)
o Organisation of the Lab Winter School (2017, 2018)

o Co-organisation of a conference to promote open, slow, and sustainable scientific practices for the French speaking community: SOLD21 (July 2021)
o Ambassador for the Center for Open Science: COS (2018-present)
o Development of a collective with other young researchers to promote open and slow science

Personal Implication in Science Popularisation

o Public presentation on visual illusions (March 2019) for the Brain Awareness Week in Toulouse.
o Public presentation on the study of 3D vision in animals (February 2017), Museum de Toulouse.
o Article for the Science Museum of Toulouse (2017, in French) about the evolution of 3D vision in animals: Y. Héjja-Brichard & B.R. Cottereau "Evolution et vision : le vivant a de la profondeur !"
o 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 and participation in various events of science popularisation. Former Communications manager.
o Member of FRESCO, a French organisation uniting at the national level all the regional organisations involved in popularising cognitive science. The FRESCO also has projects on its own. There, I am part of the Perspectives team that aims to create a new magazine targeting different audiences.

Complementary Skills and Training

o **Languages** – French (native), English (full proficiency), German (good command in speaking, level B2), Spanish (basic communication skills, level B1).
o **Methodological improvement** – Workshops in statistical analyses and in ethics; Summer school on Deep Learning (Neuromatch Academy, a 3-week program with tutorials and group projects, August 2021)
o **Certification** – Experimental research design in non-human primates - June 2016 (CNRS Marseille); "Introduction to Biosafety", "Animal Biosafety", "Hazard Communication", "Wildlife Research", "Training for Investigators, Staff and Students Handling Biohazards" - November 2021 (UMBC via the CITI program)