PERSONAL DETAILS

Marie CHANCEL
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RESEARCH INTERESTS

My work focuses on how noisy and sometimes conflicting sensory inputs are integrated and merged into a coherent and unique percept of our body. To address this issue, I combine behavioral experiments with computational approaches, electrophysiological measurements, and neuroimaging methods to investigate multiple sides of the question of self-body perception. More recently, I have also started to investigate how sensory uncertainty impacts metacognitive judgments of sensorimotor behavior.

Keywords: Multisensory, Self-body perception, Psychophysics, Modelling, Neuroimagery fMRI, Touch, Proprioception, Vision, Metacognition

WORK EXPERIENCE

01. 2022 – present	Postdoctoral researcher LPNC CNRS, Université Grenoble Alpes
09.2019	Visiting Researcher Wei Ji Ma's Lab (*The computational study of decision-making*), Center for Neural Science & Dept. of Psychology, New York University, USA.
02.2017 – 12.2021	Postdoctoral fellow Brain, Body & Self Laboratory, Dept. of Neuroscience, Karolinska Institute, Stockholm, Sweden.
10. 2016 – 12.2016	Engineer for biological data NIA CNRS, Aix Marseille University, France.
10. 2013 – 09.2016	PhD student LPNC CNRS, Université Savoie Mont Blanc & LNIA CNRS, Aix Marseille Université, France.

EDUCATION & ACADEMIC DEGREE

2013-16	**PhD in Cognitive Psychology and Cognitive Neuroscience** *(Defense: Dec 5th 2016)* Grenoble Alpes University
Title:	Rules of multisensory integration in kinaesthesia and their evolution with aging: Psychophysics & Bayesian approaches.
Lab:	Laboratory of Integrative et Adaptive Neuroscience, NIA, UMR 7260, Marseille Laboratory de Psychology and Neurocognition., LPNC, UMR 5105, Grenoble.
Supervisors:	Prof. Anne Kavounoudias (LNIA) & Prof. Michel Guerraz (LPNC)
2012-13	**Master degree research in Cognitive Sciences** (distinction: very good, rank 1/13), Institut polytechnique (Phelma), Grenoble I, France
2011-12	Master (1st year) in Cognitive and Social Psychology (distinction: good, rank 4/50), Université Pierre Mendès France, Grenoble II, France
2009-11	**Bachelor degree in Psychology**, Université Pierre Mendès France, Grenoble II, France **Bachelor degree in Biology**, Université Joseph Fourrier, Grenoble I, France
2007-09	1st years of Medical school Université Pierre Mendès France, Grenoble II, France
2006-07	Mathematics school (*Classe préparatoire en Math, Physique, Science de l'ingénieure),* La Martinière Monplaisir – Lyon, France

FUNDINGS & AWARDS

2018 Seal of excellence for project proposal, European commission, Horizon 2020 program

2-year post-doctoral fellowship awarded by the Wenner-Gren Foundations (70 000 USD) Project: "My uncertain body: Sensory uncertainty in multisensory mechanisms involved in body ownership".

2017 1-year post-doctoral fellowship from the Karolinska Institute (35 000 USD).

2013 3-year Research grant from the French Ministry Research and Higher Education

PEER-REVIEWED PUBLICATIONS

Chancel, Ehrsson. (*Under review in J. Physiol, JP-RP-2022-284151*). Proprioceptive uncertainty promotes the rubber hand illusion.

Lanfranco, **Chancel,** Ehrsson. (2022, *preprint.*). Quantifying ownership signal processing and decisional factors in the rubber hand illusion. https://psyarxiv.com/uw8gh

1. **Chancel,** Ehrsson*, Ma*. (2022) Uncertainty-based inference of a common cause for body ownership. *eLife*. https://doi.org/10.7554/eLife.77221

2. Mattsson*, Coppi*, Chancel, Ehrsson. (2022). Combination of Visuo-Tactile and Visuo-Vestibular Correlations in Illusory Body Ownership and Self-Motion Sensations. *PLOS ONE* 17(11):e0277080. doi: 10.1371/journal.pone.0277080.

3. **Chancel*,** Crucianelli*, Ehrsson. (2022). Modeling tactile pleasantness across skin types at the individual level reveals a reliable and stable basic function. *J. Neurophysiol.* https://doi.org/10.1152/jn.00179.2022

4. **Chancel,** Iriye, Ehrsson. (2022) Causal inference of body ownership in the posterior parietal cortex. *J. Neurosci*. https://doi.org/10.1523/JNEUROSCI.0656-22.2022

5. **Chancel,** Hasenack, Ehrsson. (2021) Integration of predictions and afferent signals in body ownership. *Cognition*, 212, 104722. https://doi.org/10.1016/j.cognition.2021.104722

6. Landelle, **Chancel**, Blanchard, Guerraz, Kavounoudias. (2021) Contribution of muscle proprioception to limb movement perception and proprioceptive decline with ageing. *Current Opinion in Physiology*, 20, 180–185. https://doi.org/10.1016/j.cophys.2021.01.016

7. **Chancel**, Ehrsson. (2020) Which hand is mine? Discriminating body ownership perception in a two-alternative forced-choice task. *Attention, Perception & Psychophysics*. https://doi.org/10.3758/s13414-020-02107-x

8. Ehrsson, **Chancel.** (2019) Premotor cortex implements causal inference in multisensory own-body perception. *Proc Natl Acad Sci* USA. https://doi.org/10.1073/pnas.1914000116

9. Ackerley, **Chancel**, Aimonetti, Ribot-Ciscar, Kavounoudias. (2019) Seeing Your Foot Move Changes Muscle Proprioceptive Feedback. *ENeuro*, *6*(2), ENEURO.0341-18.2019. https://doi.org/10.1523/ENEURO.0341-18.2019

10. **Chancel,** Landelle, Blanchard, Felician, Guerraz, Kavounoudias. (2018) Hand movement illusions show changes in sensory reliance and preservation of multisensory integration with age for kinaesthesia. *Neuropsychologia*. https://doi.org/10.1016/j.neuropsychologia.2018.07.027

11. **Chancel,** Kavounoudias, Guerraz. (2017). What's left of the mirror illusion when the mirror can no longer be seen? Bilateral integration of proprioceptive afferents! *Neuroscience*. https://doi.org/10.1016/j.neuroscience.2017.08.036

12. **Chancel,** Blanchard, Guerraz, Montagnini, Kavounoudias. (2016) Optimal visuo-tactile integration for velocity discrimination of self-hand movements. *Journal of Neurophysiology*, https://doi.org/10.1152/jn.00883.2015

13. **Chancel,** Brun, Kavounoudias, Guerraz (2016) The kinaesthetic mirror illusion: How much does the mirror matter? *Exp Brain Res.* https://doi.org/10.1007/s00221-015-4549-5

14. Brun, Metral, **Chancel,** Kavounoudias, Luyat, Guerraz. (2015) Passive or simulated displacement of one arm (but not its mirror reflection) modulates the involuntary motor behavior of the other arm. *Neuroscience*, 285, 343–355. https://doi.org/10.1016/j.neuroscience.2014.11.036

15. Metral, **Chancel**, Brun, Kavounoudias, Luyat, Guerraz. (2015) Kinaesthetic mirror illusion and spatial congruence. *Exp Brain Res* 233:1463–1470. https://doi.org/10.1007/s00221-015-4220-1

Occasional reviewing: Cognition, Psychological Science, Nature Communications, i-Perception, scientific report, PNAS, Scientific Report, Attention perception, and psychophysics, Cortex, NeuroImage…

TEACHING & SUPERVISION EXPERIENCE

Teaching

2018 - 2021 **Lectures at the Karolinska Institute (1h per year)**.
2nd year of Biomedicine Bachelor: **Cognitive neuroscience approach of language** (≈ 60 students)
Lecture at University of Arts, Crafts and Design (3h in 2019)
3rd years: **Consciousness and Perception** (≈ 40 students)

2016-17 **'Approach through problematic' (APP 1 day) in Aix-Marseille University**
Presenting psychophysics to three students, supervise them will they design and conduct a short psychophysical experiment to explore one aspect of tactile perception

2013-16 **Teacher at Savoie Mont Blanc University (128h)**
1st year of Psychology Bachelor: **Introduction to Cognitive Psychology** (≈ 300 students)
Fake memories, DRM paradigm. Working memory, double encoding. Origins of language.
2nd year of Psychology Bachelor: **Movement & Perception** (≈ 200 students)
Sensory role of muscles, muscle spindles and vibration method. Sensori-motor learning & Cerebellum. Physiology and histology of muscles, and surface electromyogram (EMG).

**Qualification* *(French certification to apply for teaching position): Section CNU 16 et 69 in 2017, renewed in 2022.*

Supervision

2021 E. Såge (90%, with Pr. Henrik Ehrsson), Bachelor Student, 3-month summer internship
2019 L. Påvénius (90%, with Pr. Henrik Ehrsson), Bachelor Student, 3-month summer internship
2018 B. Hasenack (90%, with Pr. Henrik Ehrsson) Master Student, 9-month internship.
P. Kern (90%, with Pr. Henrik Ehrsson) Bachelor Student, 3-month summer internship.
2015 C. Landelle (30%, with Pr. Anne Kavounoudias) Master student, 3-month internship.

COMMUNICATIONS

Talks

Chancel
Inference mechanisms for multisensory mechanisms involved in body ownership
Invited seminar at the Gonda Brain Center – Bar-Ilan University, Israel – October 2022

Chancel, Ehrsson
My Uncertain Body: proprioceptive uncertainty and body ownership.
Association for the Scientific Study of Consciousness. Amsterdam – July 2022

Chancel
Sensory uncertainty in multisensory mechanisms involved in body ownership
Invited seminar at the LICAE – UFR STAPS, Université Paris Nanterre – February 2022

Chancel, Ehrsson, Ma

Body ownership as an uncertainty-based inference of a common cause.
*BRnet 2021 – the third Body Representation Network workshop***.** Online – July 2021

Chancel, Hasenack, Ehrsson
Integration of predictions and afferent signals in body ownership.
*European Society for Cognitive and Affective Neuroscience***.** Online – June 2021

Chancel, Ehrsson, Ma
Uncertainty-based inference of a common cause for body ownership.
*Association for the Scientific Study of Consciousness***.** Online – June 2021

Chancel, Ehrsson
A new psychophysical paradigm to quantitatively assess body ownership in the rubber hand illusion paradigm.
*International Multisensory Research Forum***.** Toronto – June 2018

Chancel.
Sensory integration for own body motion perception
Workshop "New perspectives on embodiment and self-location". Marseille - November 2016

Chancel, Landelle, Blanchard, Félician, Guerraz, & Kavounoudias.
Multisensory reweighting for kinesthesia in older adults
International workshop on aging in the neuro-musculo-skeletal system. Marseille - March 2016

Posters

Chancel, Iriye, Ehrsson
Neural signature for causal inference of body ownership in the posterior parietal cortex.
Organization for Human Brain Mapping. Glasgow – June 2022

Chancel, Hasenack, Ehrsson
Vision-elicited tactile predictions contribute to body ownership: evidence from psychophysics and the rubber hand illusion. *Virtual-FENS* – July 2020

Chancel, Ehrsson
A new psychophysical paradigm to directly quantify the perception of body ownership during the rubber hand illusion.
SfN neuroscience 2018. San Diego – November 2018

Chancel, Blanchard, Montagnini, Guerraz, & Kavounoudias.
Does visuo-tactile integration for perception of self-hand movement follow Bayesian rules?
Somato-sensory club. FR 3C. Marseille - December 2016

Chancel, Blanchard, Montagnini, Guerraz, & Kavounoudias.
Does visuo-tactile integration for perception of self-hand movement follow Bayesian rules?
*Workshop Pobabilistic Inference and the Brain***.** Collège de France. Paris - September 2015

Chancel, Landelle, Blanchard, Félician, Guerraz, & Kavounoudias.
Reshaping sensory reliance when multisensory systems decline: effect of Aging
*16th International Multisensory Research Forum***.** Pisa - June 2015

Chancel, Landelle, Blanchard, Félician, Guerraz, & Kavounoudias.
Reshaping sensory reliance when multisensory systems decline: effect of Aging
*12ème colloque des neurosciences***.** Montpellier - May 2015

Chancel, Blanchard, Montagnini, Guerraz, & Kavounoudias.
Does visuo-tactile integration for perception of self-hand movement follow Bayesian rules?
*15th International Multisensory Research Forum***.** Amsterdam - June 2014

DISSIMINATION EVENTS AND ASSOCIATIVE COMMITMENT

2022

Speaker for the event "Body and Identity: Metamorphosis in the Digital Age?".
Part of the international UK–Russia Creative Bridge program 2021–2022 supported by the Cultural and Education Section of the British Embassy in Moscow. *https://newnowbymanege.com/bodyidentity*

2021

Blog post.
Opinion papers for the Swedish Research Council blog and the Karolinska Institute Career Service blog

2020 – 2021

Vice chair for Community Building and Peer Support in KIPA (Karolinska Institute Post-doc Association).

2017 – 2019

Art-science collaboration with Maria Euler (http://mariaeuler.com/) on the project "Andra Handen"

Active member of KIPA (Karolinska Institute Post-doc Association).
In charge of the "Career Outside of Academia" event in 2018 and 2019.

Speaker for the event "What does a scientist look like?".
Public event organized in Stockholm by the Women in Science organization.

2013 – 2016:

Vice-president and founding member of the association for young researchers of the research federation in Marseille (AJC3C, FR 3512).
I actively participate to the organization of different events. First, monthly meetings between PhD student and postdoctoral fellows where each member had the opportunity to present his or her topic of research, a specific study, or a methodological issue. We also organized each first Wednesday lunch break a *'Neurolunch',* a video-conference projection (Collège de France, TedTalks,) followed by a debate. Finally, we offered rehearsal opportunities with active feedback for PhD defenses and conference talks.

Volunteer several years in a raw during popular science events.
Animation and lab visits for middle and high school in Marseille ('La semaine du cerveau' - Brain's week - and 'La fête de la science' - science celebration - in 2014 and 2015).

SCIENTIFIC TRAINING

- Modern statistic with R (2020, 5-day course, Måns Thulin)
- fMRI Visiting fellowship course (2018, 5-day course, Martinos Center, Boston, USA)
- MR driving license course (2018, Karolinska MR center, Stockholm, Sweden)
- MathWorks seminar (2016, intern workshop, LNIA, Marseille, France)
- Statistic and programming on R (2015, PhD program, INT, Marseille, France)
- Signal processing on Python (2015, PhD program, INT, Marseille, France)
- Initiation to fMRI data processing on SPM (2014, PhD courses, LPNC, Grenoble, France)

OTHER SKILLS AND TRAINING

- Introduction to Teaching and Learning in Higher Education (2021, Karolinska Institute, Stockholm, Sweden)
- Scientific writing (2019, Karolinska Institute, Stockholm, Sweden)
- Grant writing course (2017, Karolinska Grant Service course, Stockholm, Sweden)
- Career management courses (2013-2016).

Software and coding languages: MatLab, R, JavaScript, Codamotion, Adobe Photoshop

LANGUAGES

1. French: Native
2. English: Proficient in reading, writing, and speaking (Level C2, Grenoble Alpes Université)
3. Swedish, German, Spanish: Beginner (Level A1/A2)