September 2025

Curriculum Vitae of Stefania Mattioni

GENERAL DATA AND OVERVIEW

Personal Information

Address: Rue Caporal Claes, 1030 Bruxelles (Belgium)

Email address: stefania.mattioni87@gmail.com

Date and place of birth: 09/07/1087, Senigallia (AN), Italy

Citizenship: Italian and Belgian

Native Language: Italian

Other Languages: English (C1); French (C1).

Work interruption

Sept 2020 – Jan 2021: Maternity leave

Dec 2024 – Ongoing: Maternity leave

Current Position

Post Doc and fMRI support researcher, department of experimental psychology, UGent, Belgium

Education

2018: Ph.D in Cognitive Neuroscience. Center for Mind and Brain (CIMeC), University of Trento (Italy). Dissertation title: "How input modality and visual experience affect the representation of categories in the brain". Supervisor: Prof. Olivier Collignon

2013: Professional exam of the psychology profession (*Esame di Stato per la professione di psicologo)*

2012: Master Degree in neuroscience and neuropsychological rehabilitation (110/110). University of Bologna, Cesena (Italy).

2009: Bachelor's degree in Behavioral Science and Social Relations (110/110 cum laude). University of Bologna, Cesena (Italy).

2006: High-school degree. Liceo classico "G.Perticari", Senigallia (AN,Italy)

Professional experiences

Jun 2022 – Ongoing (June2029) : Post Doc fMRI in the department of experimental psychology, UGent, Belgium

Oct 2021 – Jun 2022 : Post Doc in the Hoplab (Prof. Hans Op de Beeck), KU Leuven, Belgium

April 2018-Sept 2021: Post Doc position in the Crossmodal Perception & Plasticity lab (Prof. Olivier Collignon), Université catholique de Louvain, Louvain-la-Neuve, Belgium.

Nov 2013-March 2018 : Ph.D. in Cognitive Neuroscience. Center Brain/Mind CIMec, University of Trento (Italy).

Apr 2013-July 2013 : Research Assistant (Neuroscience) at Prof. Matthew Longo's lab: Body representation Laboratory Department of Psychological Science Birkbeck University of London (UK).

Apr 2013-Oct 2012: Vocational training in the field of brain injury and degenerative diseases in adults (500 hours). Rehabilitation clinic Santo Stefano – Villa Adria, Ancona (Italy).

Oct 2011-Apr 2013: Vocational training in a rehabilitation clinic for children with mental disease (500 hours). Centre "E. Bignamini – Don Gnocchi", Falconara Marittima (AN, Italy).

Jan 2009-July 2009: Internship in Neuropsychology/Neuroscience (300 hours). Centre for Studies and Research in Cognitive Neuroscience (CsrNC), Cesena (Italy). Research activities on affective blindsight in patients and on redundant target effect in healthy subjects.

Digital and Technical Skills

- Excellent knowledge of programming in Matlab;
- Basic knowledge of programming in Python;
- Excellent knowledge of statistical softwares (SPSS, Jasp);
- fMRI data analyses skills:
  - Univariate analysis, GLM (excellent knowledge of SPM software, Matlab);
  - Multivariate pattern classification analysis (Matlab and cosmoMVPA toolbox);
  - Representational Similarity Analysis (Matlab and cosmoMVPA toolbox, I followed the Cambridge RSA workshop 2015 organized by N. Kriegeskorte);
  - Functional connectivity analysis - Psychophysiological Interaction;
  - Structural/morphometry analyses (Freesurfer softaware);
- Behavioral experiment related skills, including design, stimuli delivery (Matlab , Python, Opensesame) and data analysis (Matlab, R).
- Excellent data visualization skills.

SCIENTIFIC ACTIVITIES

Main research interests: Cognitive Neuroscience; Development of cognitive and brain functions; Blindness; Crossmodal plasticity; Sight Restoration; Concepts and language brain representation/processing; functional magnetic resonance imaging - fMRI.

Current collaborations

- Profs D. Maurer & T. Lewis (McMaster Uni.): Multisensory reorganization in cataract-recovery patients.
- Prof ..Hans Op de Beeck (Uni. of Leuven): Representation of sign language in the visual word form area.
- Prof Jorge Jovicich and MRI method group (Uni. Of Trento): Connectivity profile of early and late blind subjects.
- Prof .Robert Hartsuiker (UGent): Lexical and semantic representation across multiple languages.
- Prof. Olivier Collignon (UCLouvain): Studies on crossmodal plasticity, sight recovery and sign language.
- Collaborating in multiple fMRI projects at UGent experimental psychology as fMRI expert (profs Wim Fias, Senne Braem, Tom Verguts, Ruth Krebs, Clay Halroyd, Daniele Marinazzo…)
- Prof. Xiaoqing Gao (Zhejiang University, China): study on brain regions involved in familiar person perception through faces and voices
- Dr. Jodie Davies-Thompson (Swansea University): studies on auditory perception in blind individuals and on sign language in hearing and deaf signers.
- Prof. Arthur Marchewka (Nencki Institute, Poland): study on categorical representation in deaf individuals.

Scholarships for international mobility and grants

2024: **FWO Short Research Stay Abroad Grant**. 20 days at CIMeC – Trento University (Italy)

2022: Grant from Assucopie to support publication fees.

Oct 2021-Sept 2022: **1-year Postdoctoral Fellowship** (PDM Type I) at KU Leuven, awarded to highly ranked applicants on the FWO reserve list, bridging towards a new FWO application.

2020: I was offered a **five-year Principal Investigator position at NeuroSpin and the Vision Institute in France,** collaborating with esteemed researchers such as Stanislas Dehaene, Ghislaine Dehaene-Lambertz, Jose Sahel, Serge Picaud, and Laurent Cohen. (*Declined* due to personal constraints)

2020: FNRS + IPSY travel grant for an abroad meeting (IMRF) in Ulm, Germany.

2019: FNRS + IPSY travel grant for an abroad meeting (OHBM) in Rome, Italy.

2018: IPSY travel grant for an abroad meeting (The blind brain workshop) in Lucca, Italy

Jan 17-Ago 17: Scholarship for Erasmus + Internship project. Université Catholique de Louvain, Louvain-la-Neuve (Belgium).

Jan 10-Jun 10: Scholarship for Erasmus Project. University of Tromsø, Faculty of Health Sciences, Norway.

Distinctions

2024: Best presentation at CAOS conference (Rovereto, Italy).

2015: Best oral presentation at CIMeC Ph.D day.

Invited lectures at universities and institutions

06/22 : *How sensory input and visual experience affect the categorical representation in the ventral occipito-*

temporal cortex. Center for Cognitive Neuroscience Seminar Series, (UGent, Belgium);

01/22 : *How sensory input and visual experience affect the categorical representation in the ventral occipito-temporal cortex.* Plasticity Seminar Series (PI : T. Makin, UCL, London);

10/21 : *How sensory input and visual experience affect the categorical representation in the ventral occipito-temporal cortex.* Brain & Cognition Seminars (KULeuven, Belgium).

04/19: *How sensory input and visual experience affect the categorical representation in the occipital-temporal cortex of sighted and blind.* Laboratory of Biological Psychology (PI: H.Op de Beeck, KULeuven, Belgium).

Lectures at conferences' symposia and workshops

09/25: Symposium: *Brain Plasticity.* Brains united – Neuroscience conference (by the LBI -KULeuven and IONS – UCLouvain). Leuven & Brussels, Belgium.

09/24: Symposium: *Reevaluating Cortical Plasticity: Insights from Congenital Sensory Deprivation*
Italian association of Psychology (AIP) - experimental psychology meeting, University of Messina, Noto, Italy.

09/23: Symposium: *Understanding the Blind Brain.* 16th International Congress of the Polish Neuroscience Society, Torun, Poland .

06/23: Symposium: *Post-natal transient blindness: how does the visual system cope with it?*
International Multisensory Research Forum (IMRF), UCLouvain, Brussels, Belgium (Organizer of the symposium).

05/22: Symposium: *Organization and perturbation of the human ventral occipito-temporal cortex.* Belgian Association for Psychological Sciences (BAPS), KULeuven, Leuven, Belgium (Organizer of the symposium).

09/21: Symposium: *How does visual experience shape representations and transformations along the ventral stream?*
Generative adversarial collaboration at Cognitive Computational Neuroscience. Online meeting.

10/20: Symposium: *New insights on multisensory brain organization from MVPA to laminar fMRI.* International Multisensory Research Forum (IMRF), Ulm, Germany. Cancelled because of Covid-19

05/18: *The balanced act of cross-modal and intra-modal plasticity.* Royal Academies for Sciences and Arts of Belgium, Bruxelles. Symposium : Windows on brain plasticity .

02/16: Workshop on 'Space Perception' at University of Louvain. Louvain-la-Neuve (Belgium).

Selected lectures at conferences (First author)

05/25: Exploring the role of the Visual Word Form Area in processing Sign Language. Psycholinguistics in Flanders (**PiF 2025),** Lille (France). *(Accepted as a talk but canceled due to an extension of maternity leave).*

05/24**:** Impact of a transient period of early blindness on the development of the ventral occipito-temporal cortex. Rovereto Workshop on Concepts, Action and Object: Functional and Neural Perspective (**CAOs**), Rovereto (Itay). Price for best presentation.

01/24: Categorical coding in the ventral occipito-temporal cortex (VOTC) following transient early blindness. European Workshop on Cognitive Neuropsychology (**EWCN**), Bressanone, Italy.

12/23: Exploring the role of the Visual Word Form Area in processing Sign Language. Groupe de Contact FNRS

Psycholinguistique et Neurolinguistique (**GCPN**). Louvain-la-Neuve, Belgium.

06/23: Categorical coding in the ventral occipito-temporal cortex (VOTC) following transient early blindness. 15th meeting of Belgian Society for Neuroscience (**BSN),** Brussels, Belgium.

06/20: How the onset of blindness affects the interplay between crossmodal and intramodal plasticity. Organization for Human Brain Mapping (**OHBM**) Annual Meeting, Online meeting.

04/20: Categorical representation from sound and sight in the ventral occipito-temporal cortex of sighted and blind. **Elife and COVID-19**: Keeping communications open with online research talks, Online meeting.

09/19: Similar categorical representation from sound and sight in the occipito-temporal cortex of sighted and blind. Conference of the European Society for cognitive psychology (**ESCOP**), Tenerife, Spain.

08/19: Similar categorical representation from sound and sight in the occipito-temporal cortex of sighted and blind. European Conference on Visual Perception (**ECVP**), Leuven, Belgium.

06/19: How input modality and visual experience affect the neural encoding of categorical knowledge. Organization for Human Brain Mapping (**OHBM**) Annual Meeting, Rome, Italy.

05/18: The balanced act of crossmodal and intramodal plasticity: Enhanced representation of auditory categories in the occipital cortex of early blind people links to reduced temporal coding. Annual Vision Sciences Society (**VSS**) Meeting, St. Pete Beach, Florida, USA.

10/15: Investigating the functional organization of the ventral visual pathway in blindness. University of Trento, Center for Mind/Brain Sciences (**CIMeC**), Rovereto (TN), Italy; Doctoral School Day. Price for best oral presentation.

Posters presented at conferences (First author)

05/24: Supramodal representation of emotion expression across the face and voice networks. Escan 2024, Ghent, Belgium.

05/24**:** Impact of a transient period of early blindness on the development of the ventral occipito-temporal cortex. Rovereto Workshop on Concepts, Action and Object: Functional and Neural Perspective (CAOs), Rovereto (Itay). Price for best presentation.

01/24: Categorical coding in the ventral occipito-temporal cortex (VOTC) following transient early blindness. European Workshop on Cognitive Neuropsychology, Bressanone, Italy.

11/23: Exploring the role of the Visual Word Form Area in processing Sign Language. Neurocog 2023. Brussels, Belgium.

11/21: How the onset of blindness affects the interplay between crossmodal and intramodal plasticity. Neurocog 2020. Louvain la Neuve, Belgium.

06/20: How the onset of blindness affects the interplay between crossmodal and intramodal plasticity. Organization for Human Brain Mapping (OHBM) Annual Meeting, Online meeting.

06/19: How input modality and visual experience affect the neural encoding of categorical knowledge. Organization for Human Brain Mapping (OHBM) Annual Meeting, Rome, Italy.

10/18: The balanced act of crossmodal and intramodal plasticity: Enhanced representation of auditory categories in the occipital cortex of early but not late blind people links to reduced temporal coding. The blind brain workshop. Lucca - Italy.

05/18: How input modality and visual experience affect the neural encoding of categorical knowledge. 19th Annual International Multisensory Research Forum (IMRF) , Toronto – Canada.

05/18: How input modality and visual experience affect the neural encoding of categorical knowledge and intramodal plasticity for the processing of auditory categories. IPSY Day, UCLouvain – Louvain-la-Neuve, Belgium.

05/18: How input modality and visual experience affect the neural encoding of categorical knowledge. University of Trento, Center for Mind/Brain Sciences (CIMeC), Rovereto (TN), Italy, Concepts, Actions and Objects (CAOs) Workshop.

12/17: How input modality and visual experience affect the representation of categories in the lateralised brain. National Brain Research Centre - Delhi, India, BrainModes.

10/17: How input modality and visual experience affect the representation of categories in the lateralised brain. Rovereto, Italy, Ten years of Mind/Brain sciences at University of Trento.

05/17: A-modal versus Cross-modal: How input modality and visual experience affect the representation of categories in the brain. St. Pete Beach, USA, Annual Meeting of the Vision Sciences Society (VSS).

11/16: Mapping the acoustical and categorical features of sounds in the occipital cortex of blind and sighted people. University of Leuven - KU Leuven, Belgium, Neurocog'16 meeting.

05/16: Features vs Categories: dissociable representation between physical and categorical features of sounds in the occipital cortex of blind people. University of Trento, Center for Mind/Brain Sciences (CIMeC), Rovereto (TN), Italy, Concepts, Actions and Objects (CAOs) Workshop.

Organization of symposia

06/23: Accepted symposium: *Post-natal transient blindness: how does the visual system cope with it?* International Multisensory Research Forum (IMRF), Bruxelles, Belgium.

05/22: Accepted symposium : *Organization and perturbation of the human ventral occipito-temporal cortex.* Belgian Association for Psychological Sciences (BAPS), KULeuven, Leuven, Belgium.

Organization of conferences and workshops

02/26: Member of organising committee for MaRBEL (Magnetic Resonance Belgium) 2026 in Ghent (ongoing organization).

11/25: Neurog2025 conference organized by UGent (ongoing organization).

06/23: International Multisensory Research Forum - IMRF 2023, organized in Brussels.

11/21: Neurog2020 conference organized at UCLouvain.

11/19: 3 days MRI workshop at UCLouvain organized by the CPP lab. Slides & Codes: https://github.com/cpp-lln-lab/fMRI_workshop_201911

ACADEMIC ACTIVITIES

Teaching

2022- Ongoing: **co-lecturer** for the course "Introduction to Neuroimaging" (**UGent** master, experimental psychology department) for the sessions: fMRI basics and fMRI analyses.

Fall 2026: **Invited lecturer** at Université Libre de Bruxelles (ULB), Belgium – 18-hour, one-semester course titled *Psychophysiologie et Neuroimagerie* (temporary replacement during maternity leave).

09/25: A theoretical lecture on fMRI (online) at the European Summer School in Sensory Neuroscience – second edition, Uni of Pisa.

08/23: A theoretical lecture on fMRI and a hands-on session on MVPA analysis at the European Summer School in Sensory Neuroscience – first edition, Pisa.

04/19: Lecture about functional magnetic resonance imaging (fMRI) for Leuven master students class: "Methods in Cognitive Neuroscience". Université Catholique de Louvain (UCLouvain), IPSY, Louvain-la-Neuve, Belgium.

03/15: Lecture for Corso di Laurea Magistrale in Psicologia, "*Metodi di indagine in neuroscienze cognitive e cliniche*". Università degli Studi di Trento, Dipartimento di Psicologia e Scienze Cognitive, Rovereto (TN), Italy.

Supervisory Work

- Master theses:
  - 4 Finished: Karen Cuculiza Mendoza (CIMeC); Aliénor Jochaus du Plessix (UCLouvain); Ludovica Casotto (CIMeC), Marcos Caetano (University of Köln)
- Ph.D theses (co-supervision):
  - 1 Finished: Alice Van Audenhaege (UCLouvain);
  - 5 Pending: Mengqiao Chai (UGent); Jonas Simoens (UGent); Peter Verbeke (UGent); Haopeng Chen (UGent); Nanne Kukkonen (UGent).

PhD Jury Member:

09/25 PhD Jury Member for the thesis of Shengjie Xu, UGent (department of cognitive psychology; PIs: S. Braems & T. Verguts)

06/24 PhD Jury Member for the thesis of Freya Acar, UGent (department of data analysis; PI: Prof B. Moerkerke).

12/23 Jury Member for the thesis of Chiu-Yueh Che, KULeuven (department of cognitive psychology; PI: Prof. H. Op de Beeck);

PhD Guidance Committee Member:

2024 – ongoing PhD Guidance Committee Member for three PhD students at UGent (department of experimental psychology, PIs: Prof. Talsma, Fias & Bogaerts)

2022 – ongoing Organiser of the Internal fMRI Seminar (monthly), Department of Experimental Psychology, UGent, Belgium

2022 – ongoing Member of WISHeD (wellbeing, inclusivity, sustainability, health, and diversity) group, Department of Experimental Psychology, UGent, Belgium

2022 – ongoing Member of internal committee to select 1-year post-doc, Department of Experimental Psychology, UGent, Belgium

SERVICES TO THE SCIENTIFIC COMMUNITY

Ad-Hoc Reviewer

- Acta Psychologica / Cerebral Cortex / Cortex / eLife / Human Brain Mapping / Journal of Neuroscience / Neuroimage / Scientific Reports

Outreach Activities

- Researchers' night Unitn Trento 2015
- Organization of Ph.D day 2015 at Cimec (Trento Uni)
- Since July 2022, member of WISHeD (wellbeing, inclusivity, sustainability, health, and diversity) group at UGent, experimental psychology department.

PUBLICATIONS

- First author on 5 out of 14 peer-reviewed publications. H-index:10

1. **Mattioni, S.**, & Longo, M. R. (2014). The effects of verbal cueing on implicit hand maps. *Acta psychologica*, *153*, 60-65.
2. Longo, M. R., **Mattioni, S.**, & Ganea, N. (2015). Perceptual and conceptual distortions of implicit hand maps. *Frontiers in human neuroscience*, *9*.
3. Bottini, R., **Mattioni, S.**, & Collignon, O. (2016). Early blindness alters the spatial organization of verbal working memory. *Cortex*, *83*, 271-279.
4. Van Ackeren, M. J., Barbero, F. M., **Mattioni, S.**, Bottini, R., & Collignon, O. (2018). Neuronal populations in the occipital cortex of the blind synchronize to the temporal dynamics of speech. *eLife*, *7*.
5. Battal, C., Rezk, M., **Mattioni, S.**, Vadlamudi, J., & Collignon, O. (2019). Representation of auditory motion directions and sound source locations in the human planum temporale. *Journal of Neuroscience*, 2289-18.
6. **Mattioni S.**, Rezk M., Battal C., Bottini R., Cuculiza Mendoza K.E., Oosterhof N. N., Collignon O. (2020). Categorical representation from sound and sight in the ventral occipito-temporal cortex of sighted and blind. *eLife*, DOI: 10.7554/eLife.50732.

7. Rezk M., Cattoir S., Battal C., Occelli V., **Mattioni S**., Collignon O. (2020). Shared representation of visual and auditory motion directions in the human middle-temporal cortex. *Current Biology*, DOI: 10.1016/j.cub.2020.04.039.
8. Gurtubay-Antolin, A., Battal, C., Maffei, C., Rezk, M., **Mattioni, S**., Jovicich, J., & Collignon, O. (2021). Direct Structural Connections between Auditory and Visual Motion-Selective Regions in Humans. *Journal of Neuroscience*, 41(11), 2393-2405.
9. Battal, C., Gurtubay-Antolin, A., Rezk, M., **Mattioni, S**., Bertonati, G., Occelli, V., Roberto Bottini, Stefano Targher, Chiara Maffei, Jorge Jovicich, & Collignon, O. (2022). Structural and functional network-level reorganization in the coding of auditory motion directions and sound source locations in the absence of vision. *Journal of Neuroscience*. 42(23), 4652-4668.
10. **Mattioni S**., Rezk M., Battal C., Vadlamudi J., Collignon O. Impact of blindness onset on the representation of sound categories in occipital and temporal cortices. (2022) eLife. DOI : 10.7554/eLife.79370.
11. **Mattioni, S**., & Battal, C. (2022). Generalization and Idiosyncrasy: Two Sides of the Same Brain. The Journal of Neuroscience, 42(47), 8755.
12. **Mattioni, S**. (2024). Exploring brain representations through the lens of similarity structures. Nature Reviews Psychology, 1-1.
13. Van Audenhaege, A., **Mattioni, S**., Cerpelloni, F., Gau, R., Szmalec, A., & Collignon, O. (2025). Phonological representations of auditory and visual speech in the occipito-temporal cortex and beyond. *Journal of Neuroscience*, *45*(26).
14. Chen, H., Verbeke, P., **Mattioni, S.,** Calderon, C. B., & Verguts, T. (2025). Neural and computational evidence for a predictive learning account of the testing effect. *PNAS*.

Preprint

- **Mattioni S**., Rezk M., Gao X., Nam.J, Liu Z., Gau R., Goffaux V., Costantino A.I., Op de Beeck H., Lewis TR., Maurer D., Collignon O. (2024). The impact of a short period of early visual deprivation on the categorical representation in the occipital cortex. *BioRxiv*. (*Under review in Nature Communications)*
- Simoens, J., Braem, S., Verbeke, P., Chen, H., **Mattioni, S.,** Chai, M., Schuck N.W. & Verguts, T. (2025). Two time scales of adaptation in human learning rates. *bioRxiv*, 2025-06. (*Under review in eLife*)

Articles in preparation (first-author)

- **Mattioni S**., Rezk M., Battal C., Collignon O. What multivariate pattern analyses can and cannot tell about abstraction in the brain. (*In prep.)*
- **Mattioni S.** & Hartsuiker R. fMRI multivariate pattern analyses to investigate the lexical representation in the brain across multiple languages. (*Review in prep.)*
- **Mattioni S**., Van Audenhaege A., Op de Beeck H., Collignon O. Exploring the role of the Visual Word Form Area in processing Sign Language. (*In prep.)*

- **Mattioni S.**, Falagiarda F., Gau R., Rezk M., Battal C., Van Audenhaege A., Collignon O. Supramodal representation of emotion expression across the face and voice networks. (*In prep.)*

Articles in preparation (Collaborator)

- Giraudet E., **Mattioni S.**, Lettieri G., Huart C., Collignon O. A nose without scent: knowledge of smell in people with congenital anosmia. *(In prep).*
- Chen H. , Simoens J., Verbeke P., **Mattioni S.**, Buc Calderon C., Verguts T. Predictive Learning as the Basis of the Testing Effect. (*In prep.)*
- Kukkonen N., **Mattioni S.,** Krebs R. Neural dynamics of effort evaluation versus allocation. *(In prep)*
- Verbeke P., Chen H., Simoens J., **Mattioni S.**, Chai M., Braem S., Verguts T. Exploiting task relations for generalization: Beyond independent latent states. *(In prep.)*
- Zheng, T., **Mattioni, S.,** Collignon, O., Gao, X. Involvement of uni-modal and multi-modal brain regions in familiar person perception through faces and voices. (*Under review in Human Brain Mapping*)
- Talwar, S., **Mattioni, S.**, Giraudet, E., Calce, R.P, Barbero, F., Barilari, M., Collignon, O. Multi-level reorganization in the temporal dynamics of sound processing in early blind people. *(In prep.)*
- A brief period of postnatal visual deprivation permanently alters visual motion processing in early visual regions. Rezk, M., **Mattioni, S.,** Nam, J., Liu, Z.X., Gao, X., Lewis, T., Maurer, D., Collignon, O. *(In prep.)*

Articles in the Press

- Stefania M. (2020). Natura Vs Esperienza. Come si adatta la parte visiva del cervello quando manca la vista. Uno studio del CIMeC pubblicato da eLife (Unitrento MAG).

Other manuscripts

- Mattioni, S. (2009) Effects of redundancy of the target in the development of facial expressions. Unpublished Bachelor's thesis, University of Bologna (Supervisor: Prof. E. Làdavas).
- Mattioni, S. (2012) *Multisensory integration effects on spatial orientation in children*. Unpublished Master's thesis, University of Bologna (Supervision: Prof. E. Làdavas).
- Mattioni, S. (2018) *How input modality and visual experience affect the representation of categories in the brain*. Unpublished Ph.D dissertation,CIMeC, University of Trento (Supervisor: Prof. O. Collignon).