Curriculum Vitae – Ambra Ferrari, PhD

E-mail	ambra.ferrari@unitn.it
Website	ambrafer.github.io
ORCID	0000-0003-1946-3884
SSD	PSIC-01/B

Professional Experience

01/05/2024 – present **Marie Skłodowska-Curie Postdoctoral Fellow**
Affiliation — CIMeC – Center for Mind/Brain Sciences, University of Trento, Rovereto, Italy
Project — Multimodal conceptual knowledge in preverbal infants (ERP and multivariate decoding of infant and adult EEG)
Supervisor — Prof. Eugenio Parise

01/08/2022 – 30/04/2024 **Postdoctoral Researcher**
Affiliation — Max Plank Institute for Psycholinguistics & Donders Institute for Brain, Cognition and Behaviour, Radboud University, Nijmegen, The Netherlands
Project — Multimodal integration and prediction in face-to-face communication (online audiovisual testing, psycholinguistics, Bayesian linear mixed modelling)
Supervisor — Prof. Peter Hagoort

01/01/2020 – 31/07/2022 **Postdoctoral Researcher**
Affiliation — Donders Institute for Brain, Cognition and Behaviour, Radboud University, Nijmegen, The Netherlands
Project — Statistical learning and predictive processing in the human brain (online testing, signal detection theory, univariate and multivariate fMRI)
Supervisor — Prof. Floris P. de Lange

Education

23/06/2021 **Professional Psychology Qualification (Abilitazione Professionale)**
National examination to access the Italian register of psychologists (Albo)

15/09/2015 – 31/12/2019 **PhD in Computational Cognitive Neuroscience**
Affiliation — Computational Cognitive Neuroimaging Group, School of Psychology, University of Birmingham, Birmingham, United Kingdom
Thesis title — The interplay between attention and multisensory integration (psychophysics, Bayesian computational modelling, univariate and multivariate fMRI and EEG)
Supervisor — Prof. Uta Noppeney

15/09/2014 – 14/09/2015 **Apprenticeship for National Psychology Certification**
Affiliation — G.B. Rossi Hospital, Verona; Sant'Agostino Estense Hospital, Modena, Italy
Activity — Clinical neuropsychology assessment and rehabilitation of cognitive disorders following neural damage; cognitive stimulation and monitoring in Alzheimer's Unit; fMRI mapping of linguistic and motor brain areas prior to neurosurgery (epilepsy and neoplasia patients, both adults and children)
Supervisors — Dr. Valentina Varalta; Dr. Francesca Benuzzi

09/09/2014 **Master's Degree in Cognitive Neuropsychology and Neuroscience**
Passing Grade: 110/110 (cum laude)
Affiliation — School of Cognitive Science, University of Trento, Rovereto, Italy
Thesis title — Investigating cross-modal plasticity in deafness: an fMRI pilot study on global and biological motion perception
Supervisor — Prof. Olivier Collignon

11/09/2012 **Bachelor's Degree in Cognitive Psychology**
Passing Grade: 110/110 (cum laude)
Affiliation — School of Cognitive Science, University of Trento, Rovereto, Italy
Thesis title — Use of a light source for spatial reorientation by the species of fish *Danio Rerio*
Supervisor — Prof. Valeria Anna Sovrano

Teaching and Supervision

01/05/2024 – present | **Guest Lecturer**
Affiliation | Department of Psychology and Cognitive Science, University of Trento
Activity | Cognitive Neuroscience (Prof. Francesco Pavani)
Content: 6 hrs frontal teaching on the computational cognitive neuroscience of multisensory integration (computation, algorithm, implementation)

Affiliation | CIMeC – Center for Mind/Brain Sciences, University of Trento
Activity | Cognitive Neuroscience of Infant Development (Prof. Eugenio Parise)
Content: 6 hrs interactive teaching (Journal Club format) on semantic and pragmatic development in preverbal infancy

01/05/2024 – present | **Co-supervisor of undergraduate and graduate students**
Affiliation | CIMeC – Center for Mind/Brain Sciences, University of Trento, Rovereto, Italy
Activity | Weekly co-supervision of 1 PhD student and 2 undergraduate students for experimental design, data acquisition, data analysis and manuscript preparation (techniques: online testing; psychophysics; MRI; EEG)

01/09/2020 – 30/04/2024 | **Co-supervisor of undergraduate and graduate students**
Affiliation | Max Plank Institute for Psycholinguistics & Donders Institute for Brain, Cognition and Behaviour, Radboud University, Nijmegen, The Netherlands
Activity | Organization and supervision of training activities for 3 lab rotation undergraduate students; weekly co-supervision of 2 PhD students for experimental design, data acquisition, data analysis and manuscript preparation (techniques: online testing; psychophysics; MRI)

01/10/2017 – 31/07/2018 | **Co-supervisor of undergraduate students**
Affiliation | School of Psychology, University of Birmingham, United Kingdom
Activity | Co-supervision of 1 undergraduate student for research internship and dissertation (techniques: psychophysics; electrodermal activity and pupillometry recordings)

01/10/2016 – 31/07/2017 | **Teaching assistant**
Affiliation | School of Psychology, University of Birmingham, United Kingdom
Activity | Delivery of practical workshops on statistics for undergraduate students

01/10/2013 – 31/07/2014 | **Teaching assistant**
Affiliation | School of Cognitive Science, University of Trento, Rovereto, Italy
Activity | Delivery of practical workshops on statistics for undergraduate students

Academic Service

08/2023 – present | **Review Editor**
Frontiers in Psychiatry – Section Social Neuroscience

12/2021 – present | **Ad-hoc reviewer**
Activity | Peer-review (Cereb Cortex; Imaging Neurosci; J Cog Neurosci; Psych Science; Ann NY Acad Sci; Neuropsychologia; Plos One; Front Neurosci; Front Hum Neurosci; J Exp Psy: HPP; Q J Exp Psy; Mult Res; Lang Cogn Neurosci; J Applied Psycholing); External PhD examiner for: CIMeC, University of Trento (Italy); Sapienza University (Italy)

01/10/2021 – 30/09/2022 | **Postdoctoral representative**
Affiliation | Donders Centre for Cognitive Neuroimaging, Donders Institute for Brain, Cognition and Behaviour, Radboud University, Nijmegen, The Netherlands
Activity | Onboarding of new postdocs; organization of Brown Bag Meetings; co-organization of Donders Career Day 2021; organization of postdocs social activities; organization of postdoc information centre on the institute intranet

01/09/2021 – 31/07/2022 | **Journal Club organizer and chair**

Affiliation	Predictive Brain Lab, Donders Institute for Brain, Cognition and Behaviour, Radboud University, Nijmegen, The Netherlands
Activity	Organization of annual calendar and chairing of biweekly meetings

Publications and Manuscripts

<u>Papers and preprints</u>

Ferrari, A., Hagoort, P. (2024, accepted). Beat gestures and prosodic prominence interactively influence language comprehension. *Cognition*.

Ferrari, A., Filippin, L., Buiatti, M., Parise, E. (2024). WTools: a MATLAB toolbox for time-frequency analysis. *bioRrxiv*.

Nazli, I., **Ferrari, A.**, Huber-Huber, C., & de Lange, F. P. (2024). Forward and backward blocking in statistical learning. *PLoS One*, *19*(8), e0306797.

Benetti, S.*, **Ferrari, A.***, Pavani, F. (2023). Multimodal processing in face-to-face interactions: a bridging link between psycholinguistics and sensory neuroscience. *Frontiers in Human Neuroscience*. 17:1108354. ***shared first authorship**

Ferrari, A., Richter, D., & de Lange, F. (2022). Updating contextual sensory expectations for adaptive behaviour. *The Journal of Neuroscience*, *42*(47), 8855-8869.

Ferrari, A., & Noppeney, U. (2021). Attention controls multisensory perception via two distinct mechanisms at different levels of the cortical hierarchy. *PLoS biology*, *19*(11), e3001465.

Benetti, S., Zonca, J., **Ferrari, A.**, Rezk, M., Rabini, G., & Collignon, O. (2021). Visual motion processing recruits regions selective for auditory motion in early deaf individuals. *NeuroImage*, *230*, 117816.

Hickman, L. J., Keating, C. T., **Ferrari, A.**, & Cook, J. L. (2021). Skin conductance as an index of alexithymic traits in the general population. *Psychological Reports*, 00332941211005118.

Beierholm, U., Rohe, T., **Ferrari, A.**, Stegle, O., & Noppeney, U. (2020). Using the past to estimate sensory uncertainty. *eLife*, *9*, e54172.

Noppeney, U., Jones, S. A., Rohe, T., **Ferrari, A.** (2018). See what you hear - How the human brain forms representations across the senses. *Neuroforum*, A169-A181.

Lee, S. A., **Ferrari, A.**, Vallortigara, G., & Sovrano, V. A. (2015). Boundary primacy in spatial mapping: Evidence from zebrafish (Danio rerio). *Behavioural processes*, *119*, 116-122.

<u>Manuscripts in preparation</u>

Ferrari, A.*, Mazzi, G.*, Mencaroni, M. L., Valzolgher, C., Pavani, F., Benetti, S. Prior expectations guide multisensory integration during face-to-face communication.

Degano, G.*, **Ferrari, A.***, Noppeney, U. Audiotactile encoding of music in the human brain.

Ferrari, A., de Lange, Akrami, A. Comparing statistical learning and reinforcement learning: function, computation and neural implementation.

Ferrari, A.*, Meijer, D.*, Noppeney, U. Attention selection and switching in multisensory causal inference.

Chen Y., **Ferrari A.**, Hagoort, P., Bocanegra, B., Poletiek, F. Statistical learning of a hierarchical centre-embedded structure: influence of Zipf distribution and semantic biases.

Conferences proceedings

Ferrari, A., Degano, G., Noppeney, U. (2024). Audiotactile encoding of music in the human brain. Nanosymposium talk at SfN Neuroscience 2024, Chicago, IL (USA). 05/10/2024 – 09/10/2024

Ferrari, A., Mazzi, G., Mencaroni, M. L., Valzolgher, C., Pavani, F., Benetti, S. (2024). Bayesian Causal Inference governs multisensory integration during face-to-face communication. Poster presented at the Highlights in the Language Sciences Conference, Nijmegen, The Netherlands. 08/07/2024 – 11/07/2024

Poletiek, F., Chen Y., **Ferrari A.**, Hagoort, P., Bocanegra, B. (2024). Statistical learning of a hierarchical centre-embedded structure: influence of Zipf distribution and semantic biases. Talk presented at the Interdisciplinary Advances in Statistical Learning Conference, San Sebastián, Basque Country, Spain.
05/06/2024 – 07/06/2024

Mazzi, G., Mencaroni, M. L., Rabini, G., Tommasini, M., Valzolgher, C., Pavani, F., **Ferrari, A.**, Benetti, S. (2024). Face-to-face social interaction in the human brain: assessing the role of a lateral processing pathway. Poster presented at the Concepts, Actions and Objects (CAOs) Workshop, Rovereto, Italy. 09/05/2024 – 11/05/2024

Ferrari, A., Mazzi, G., Mencaroni, M. L., Valzolgher, C., Pavani, F., Benetti, S. (2024). Prior expectations guide multisensory integration during face-to-face communication. Poster presented at the Concepts, Actions and Objects (CAOs) Workshop, Rovereto, Italy. 09/05/2024 – 11/05/2024

Ferrari, A., Hagoort, P. (2023). Interactive effects of prosody and beat gestures on spoken language comprehension. Talk presented at the 19th NVP Winter Conference on Brain and Cognition, Egmond aan Zee, The Netherlands.
14/12/2023 – 16/12/2023

Chen Y., **Ferrari A.**, Hagoort, P., Bocanegra, B., Poletiek, F. (2023). Learning hierarchical centre-embedded structures: influence of distributional properties of the input. Poster presented at the 19th NVP Winter Conference on Brain and Cognition, Egmond aan Zee, The Netherlands. 14/12/2023 – 16/12/2023

Ferrari, A. (2023). How does audiovisual prosody influence spoken language comprehension? Poster presented at the 15th Annual Meeting of the Society for the Neurobiology of Language, Marseille, France. 24/10/2023 – 26/10/2023

Ferrari, A. (2023). Towards a neurocognitive model of multisensory processing in face-to-face communication. Talk presented at the 21st International Multisensory Research Forum, Brussels, Belgium. 27/06/2023 – 30/06/2023

Mazzi, G., **Ferrari, A.**, Valzolgher, C., Tommasini, M., Pavani, F., Benetti, S. (2023). Domain-general Bayesian causal inference in multisensory processing of face-to-face interactions. Poster presented at the Concepts, Actions and Objects (CAOs) Workshop, Rovereto, Italy. 04/05/2023 – 06/05/2023

Ferrari, A., Richter, D., & De Lange, F. P. (2022). Updating contextual visual expectations. Talk presented at the European Conference on Visual Perception (ECVP 2022), Nijmegen, The Netherlands.
28/08/2022 – 01/09/2022

Nazli, I., **Ferrari, A.**, Huber-Huber, C., & De Lange, F. P. (2022). Is statistical learning error-driven? Poster presented at the 4th International Conference on Interdisciplinary Advances in Statistical Learning, San Sebastian, Spain.
01/06/2022 – 03/09/2022

Nazli, I., **Ferrari, A.**, Huber-Huber, C., & De Lange, F. P. (2022). Is statistical learning error-driven?. Poster presented at the 18th NVP Winter Conference on Brain and Cognition, Egmond aan Zee, The Netherlands.
28/04/2022 – 30/04/2022

Richter, D., **Ferrari, A.**, & De Lange, F. P. (2022). The neural signatures of incidental and intentional statistical learning. Talk presented at the 18th NVP Winter Conference on Brain and Cognition, Egmond aan Zee, The Netherlands. 28/04/2022 – 30/04/2022

Ferrari, A., & Noppeney, U. (2019). Attention influences how the brain integrates audiovisual signals into spatial representations. Poster presented at the 25th Annual Meeting of the Organization for Human Brain Mapping (OHBM 2019), Rome, Italy. 09/06/2019 – 13/06/2019

Ferrari, A. (2019). Neural mechanisms of attention in multisensory decision-making. Talk presented at the Oscillations Workshop, Centre for Human Brain Health, Birmingham, UK. 10/05/2019

Ferrari, A. (2018). The interplay between attention and multisensory integration. Talk presented at the Attention & Oscillations Workshop, Centre for Human Brain Health, Birmingham, UK. 16/11/2018

Benetti, S., Zonca, J., Rabini, G., **Ferrari, A.**, Foa, V., Rezk, M., & Collignon, O. (2017). Functional selectivity for visual radial motion processing in the temporal auditory cortex of early deaf individuals. Poster presented at the Ten Years of Mind/Brain Sciences at the University of Trento, Rovereto, Italy. 19/10/2017 – 21/10/2017

Ferrari, A., & Noppeney, U. (2017). Endogenous modality-specific attention influences sensory reliability during multisensory integration. Poster presented at the Ten Years of Mind/Brain Sciences at the University of Trento, Rovereto, Italy. 19/10/2017 – 21/10/2017

Ferrari, A., & Noppeney, U. (2017). The role of endogenous modality-specific attention in multisensory integration. Poster presented at the International Multisensory Research Forum (IMRF 2017), Nashville, TN, USA. 19/05/2017 – 22/05/2017

Ferrari, A., & Noppeney, U. (2017). The role of endogenous modality-specific attention in multisensory integration. Poster presented at the Festival of Neuroscience, British Neuroscience Association (BNA), Birmingham, UK. 10/04/2017 – 13/04/2017

Organization of Scientific Meetings

Chairing of Nanosymposium "Cross-modal processing in humans" at SfN Neuroscience 2024, Chicago, IL, USA. 05/10/2024 – 09/10/2024.

Co-organization and chairing of the symposium "Multisensory processing in face-to-face communication" at the 21st International Multisensory Research Forum, Brussels, Belgium. 27/06/2023 – 30/06/2023

Organization and chairing of the symposium "How do we learn and predict structure in the world?" at the 18th NVP Winter Conference on Brain and Cognition, Egmond aan Zee, The Netherlands. 28/04/2022 – 30/04/2022

Communication and Dissemination

11/09/2024	**Article in UniTrento Magazine**
Activity	Outreach article titled "Prima delle parole" to present and promote my research activities to the UniTrento community and beyond
29/11/2023	**Blog post in Het Talige Brein**
	Outreach article titled "How can we communicate with babies?" to share my passion for the study of multimodal communication from the first years of life
18-19/03/2023	**Volunteer at InScience Film Festival**
Place	Nijmegen, The Netherlands
Activity	Accreditations and info desk management during annual science film festival
28/11/2022	**Guest speaker at Scientificast podcast**
Activity	Invited interview on the cognitive neuroscience of multimodal integration and learning by Italian top-chart science podcast
23/09/2021	**Guest speaker at Youtube channel for science outreach**
Activity	Invited live talk on the cognitive neuroscience of learning by Italian Youtube channel dedicated to science dissemination and outreach (IlariaFMath)
2017 – 2019	**Pint of Science event manager**
Place	Birmingham, United Kingdom
Activity	Organization of 3 editions of an annual science festival (create and manage team of 5 volunteers; book venue and 6 speakers; organize and deliver science demos (e.g. perceptual illusions); host event
2016 – 2019	**Open days volunteer**
Place	School of Psychology, University of Birmingham, United Kingdom
Activity	Laboratory demonstrations (piezo-tactile stimulation; eye tracking) during university open days for high school students and their families

Grants & Awards

2024	**SfN Training and Professional Development Award ($2500)**
	Scholarship awarded based on outstanding academic profile to attend SfN Neuroscience conference in Chicago, USA
2023	**Marie Skłodowska-Curie European Postdoctoral Fellowship (€189.000)**

Multimodal meanings for conceptual communication before and beyond spoken language (MultiMeans)

2019	**Guarantors of Brain Travel Grant (£500)**	
	Financial support to attend OHBM conference in Rome, Italy	
2016	**Merit prize (€2,700)**	
	Scholarship awarded for outstanding achievement during MSc course	
2014	**Merit prize (€2,700)**	
	Scholarship awarded for outstanding achievement during BSc course	

Skills

Trainings Donders Centre for Cognitive Neuroimaging (Nijmegen, NL): 3T Siemens MRI scanner operator qualification (2021: ~80h scanning)

Centre for Human Brain Health (Birmingham, UK): 3T Philips MRI scanner operator qualification (2017-2019: ~150h scanning)

Technical Knowledge

Program	Area	Knowledge
MATLAB	Programming language	Advanced
Python	Programming language	Advanced
Jupyter Notebook	Python coding Interface	Advanced
SPM	MATLAB MRI data analysis	Advanced
FSL	Python MRI data analysis	Good
The Decoding Toolbox	MATLAB MRI data analysis	Advanced
FreeSurfer	Python MRI data analysis	Good
SPSS	Data analysis	Good
Bambi	Python Bayesian modelling	Advanced
Eyelink	Eye-tracking data acquisition	Advanced
BIOPAC Student Lab	Physiological data acquisition	Basic
PsPM	Psycho-physiological data analysis	Basic
Psychtoolbox	MATLAB experiment builder	Advanced
NBS Presentation	Experiment builder	Advanced
Gorilla	Online experiment builder	Advanced
Academic Prolific	Online experiment recruitment	Advanced
PsychoPy	Python experiment builder	Basic
Inkscape	Vector graphics editor	Good

Creative and networking skills **04/2021 – 06/2022**: Creator and host of joint group meetings for the Predictive Brain lab (PI: Floris P. de Lange). Tasks: design structure of event; establish connection with other labs; organize panel of speakers across labs; host meetings. Established network of PIs: Lucia Melloni, Lars Muckli, Jan Theeuwes, Athena Akrami, Stefan van der Stigchel.

07/10/2019: Creator and host of academic skills workshop "What Next? Career tips for PhD students" at the School of Psychology, University of Birmingham, UK. Tasks: design structure of event; organize panel of speakers; organize refreshments through university funds; host meetings.

Languages **Italian** (native speaker); **English** (proficient user)

Last modified: 14.12.2024