

## FRANCESCA CANTONI

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*I'm very curious about the strong power of music on the brain-body system. I'm also interested in the educational field and how we can use music to promote cognitive processes and foster connections with others.*

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### EDUCATION

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| Since January 2024<br>(defense planned for<br>Dec 2026) | <b>PhD in Music Cognition</b> , LEAD - Université Bourgogne Europe, CNRS, Dijon, France.<br>Thesis: <i>Novel Musical Approaches to Beat Perception, Production, and Reward Assessment in Children</i><br>Supervisor: Barbara Tillmann; Co-supervisor: Anna Fiveash                                                   |
| 2021 - 2023                                             | <b>Master in Psychology, Neuroscience and Human Sciences</b> , University of Pavia, Italy. Graduated with distinction (110/110 cum laude).<br>Thesis: <i>The Influence of Social Appreciation on Musical Pleasure: A Behavioral Study</i><br>Supervisor: Laura Ferreri                                               |
| 2017 - 2020                                             | <b>Bachelor in Psychosocial Sciences of Communication</b> , University of Milan-Bicocca, Italy. Graduated with distinction (110/110 cum laude).<br>Thesis: <i>Analysis of the Correlation between Relative Pitch and Absolute Pitch in Individuals with different Musical Training</i><br>Supervisor: Natale Stucchi |

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### RESEARCH EXPERIENCE

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| Jan 2026 - March 2026 | <b>Erasmus Traineeship</b> , Laboratory of Move'N'Brains, University of Turin, Italy<br>Project: <i>Validating the use of an accelerometer and MediaPipe with Motion Capture system as a new method for testing rhythmic production abilities specifically for children.</i><br>Supervisors: Andrea Cavallo, Eugenio Scaliti<br>Acquired Skills: <ul style="list-style-type: none"><li>• Designed and conducted the experiment independently</li><li>• Created musical stimuli using GarageBand</li><li>• Use of E-Prime</li><li>• Collected and synchronized multimodal motion capture data (Vicon system, two accelerometers, two video cameras)</li><li>• Preprocessed kinematic data in Nexus</li><li>• Developed Python pipelines for movement analysis using MediaPipe, and MATLAB scripts for statistical analyses</li></ul> |
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Oct 2023 - Dec 2023

**Research Fellow**, Laboratory of Neuroscience of Perception and Action, IIT Rome, Italy

Project: *The role of music and caregiver movement on infants using full-body motion capture techniques (Vicon)*

Supervisors: Giacomo Novembre, Félix Bigand, Trinh Nguyen

Acquired Skills:

- Recruited and tested caregiver-infant dyads
- Collected motion capture data using Vicon system
- Preprocessed kinematic data in Nexus
- Assisted in testing participants with EEG and portable eye-tracking (Tobii)

Jan 2023

**Research Assistant**, Live Musical Experiment, Brain Cognition & Plasticity Unit (Barcelona), University of Pavia, and Symphony Orchestra of Milan, Italy

Project: *Live experiment exploring musical pleasure, curiosity, and memory during orchestral performances*

Acquired Skills:

- Provided technical support during live concert-experiment sessions
- Assisted in data collection and management during the performance
- Participated in post-experiment discussions with researchers

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## PUBLICATIONS

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**Cantoni, F.**, Iorio, C., Götz, A., Tillmann, B., & Fiveash, A. (in press). Brain plasticity: Musical development in infancy and childhood. In *The Oxford Handbook of Music Neuroscience and Neurorehabilitation* (Chap. 11). Oxford University Press.

**Cantoni, F.**, Mandernach, E., Tillmann, B., Fiveash, A. (under review). *Do the Musicians Play Well in Rhythm Together? A New Beat Alignment Task to Assess Rhythmic Abilities in Children (the popBAT)*. [Preprint available on PsyArXiv : [https://osf.io/preprints/psyarxiv/yjzft\\_v1](https://osf.io/preprints/psyarxiv/yjzft_v1)]

**F. Cantoni**, L. Ferreri, A. Fiveash, B. Tillmann (in prep). *A Child-Friendly Adaptation of the Barcelona Music Reward Questionnaire (eBMRQc): Measuring Musical Pleasure Directly in Children*.

**F. Cantoni**, L. Entzmann, M. Edalati, E. Fullone, A. Fiveash, B. Tillmann (in prep.). *Eyes Don't Lie: Pupil Responses Reveal Sensitivity to Beat Violations and Rhythmic Entrainment in Music Beyond Explicit Judgments*.

**F. Cantoni**, V. Berrada, E. Scaliti, C. Becchio, M. Crepaldi, A. Cavallo, A. Fiveash, B. Tillmann (in prep.). *Validation of a Child-Friendly Method for the Assessment of Rhythm Production Abilities*.

## CONFERENCES & PRESENTATIONS

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### International Conferences

- June 16-19<sup>th</sup>, 2025 Jyväskylä, Finland, 20<sup>th</sup> *Rhythm Perception & Production Workshop (RPPW20)*: poster presentation *Do the Musicians Play Well in Rhythm Together? A New Beat Alignment Task to Assess Rhythmic Abilities in Children*
- June 11-13<sup>th</sup>, 2025 Oslo, Norway, 18<sup>th</sup> *International Conference of Students of Systematic Musicology (SysMus25)*: poster presentation *Behind the Beat: Investigating the Cognitive and Musical Foundations of “Au Fond du Temps”*
- June 13-16<sup>th</sup>, 2024 Helsinki, Finland, *Neuromusic VIII conference*: poster presentation *Unveiling Rhythmic Abilities in Children: A Comprehensive Review and Novel Assessment Approach*

### National Conferences

- June 8-9<sup>th</sup>, 2026 Grenoble, France, *édition 2026 des Rencontres Jeunes Chercheurs.euses du LPNC et du LIP/PC2S*: invited oral presentation *Getting in Sync: Novel Approaches to Assessing Rhythm and Its Connection to Language in Children*
- Sept 11-13<sup>th</sup>, 2025 Turin, Italy, 31<sup>st</sup> *Congress of the Italian Association of Psychology – Experimental Section*: symposium organizer, symposium chair and symposium talk *Do Musicians Play Well in Rhythm Together? A New Beat Alignment Test to Assess Rhythmic Abilities in Children*, and mini-talk *A Child Version of the Barcelona Music Reward Questionnaire*
- Oct 17-18<sup>th</sup>, 2024 Saclay, France, *FAST (French Association for timing) Conference*: poster presentation *Unveiling Rhythmic Abilities in Children: A Comprehensive Review and Novel Assessment Approach*

### Workshops and Summer Schools

- Jun 2026 Summer School, Music Cognition Lab, University of Pavia: *Music & the Brain – From research to clinical societal impact.*
- Sept 2025 Pavia, Italy, *Focused Working Group Rhythm & Reward*: invited oral presentations *A More Musical Approach to Beat Perception and Production Tasks for School-Aged Children* and *A Child Version of the Extended Barcelona Music Reward Questionnaire*

- Apr 2025 Amiens, France, *Workshop Rhythm Across the Lifespan Through Multiple Lenses*: invited oral presentation *Developing a More Musical Approach to Beat Perception and Production Tasks for School-Aged Children*
- Nov 2024 Marseille, France, *NeMO-CAMP workshop on Neuroscience and Music Ontology*: invited oral presentation *Assessing Rhythmic Abilities in Children: A More Musical Version of the Beat Alignment Task*
- Sept 2024 Dijon, France, *Workshop Rhythm in Music and Speech across the Lifespan*, Université Bourgogne Europe: invited oral presentation *Rhythmic Abilities in Children: New Perspectives for Assessment*

### General public and outreach

- Planned for Mai 2026 Dijon, France, Lab visit, presentation and discussion for and with a class of the third-grade level pupils (CE2) of a Dijon elementary school who have participated in experiments for my PhD.
- Nov 6<sup>th</sup>, 2025 Dijon, France, *FORTHEM Researcher Grand Prix 2025*, presentation and competition for early-career researchers from FORTHEM partner universities, selected to represent the Université Bourgogne Europe.
- Oct 8<sup>th</sup>, 2025 Dijon, France, Café Polyglotte: public talk for a general audience, promoting science communication in multilingual contexts *When Music Helps to Understand Children's Language Abilities*
- Sept 26<sup>th</sup>, 2025 Dijon, France, *Nuit des Jeunes Chercheurs et Chercheuses 2025*: public talk for a general audience *When Music Helps to Understand Children's Language Abilities*
- Apr 16<sup>th</sup>, 2025 Varese, Italy: oral presentation to students at high school Liceo Scientifico G. Ferraris *Music and the Brain: Emotions, Pleasure, and Rhythm in Human Evolution and Development*
- March 2025 Dijon, France, *Experimentarium*: oral presentation to small groups of French students *When Music Helps to Understand Children's Language Abilities*
- June 6<sup>th</sup>, 2024 Dijon, France, 29<sup>th</sup> edition of *Forum des Jeunes Chercheurs (FJC)*, organized by the Environnement-Santé doctoral school of Université Bourgogne Europe: poster presentation *Rhythmic Ability in Children: A Comprehensive Review and Novel Assessment Approach*
- May 17<sup>th</sup>, 2024 Milan, Italy, 13<sup>th</sup> session of the seminar *Gioco e ri-scrittura del mondo* (Play and Re-writing the World), organized by the

University of Milan and the Fonds Ricœur in Paris: oral presentation *Music as an Aesthetic Experience Between Pleasure, Play, and Movement*

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## TEACHING

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- Sept - Nov 2025                      Université Bourgogne Europe, Dijon, France: Course on Memory (Psychology) for Second-Year Bachelor Students (36 hours, taught in French).
- October 8th, 2025                      Université Bourgogne Europe, Dijon, France: lecture titled *New Musical Assessment of Rhythm Perception and Production in Children* during the Master's Course *Fundamental Aspects of Learning and Training - Cognitive Neuroscience of Music* held by Professor Emmanuel Bigand (2 hours, in French).
- Mar 13th, 2025                      Université Bourgogne Europe, Dijon, France: lecture *Music and Aging* during the course *TER Normal and Pathological Aging* (2 hours, in French).

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## TECHNICAL SKILLS

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Experimental Design: OpenSesame, PsychoPy  
Motion Capture: Vicon, MediaPipe, Accelerometer, Tapping Task (Arduino)  
Eye Tracking: EyeLink  
Data Analysis: Python, R Studio, JASP, MATLAB  
Audio Editing: Audacity  
Music Production: Cubase, GarageBand

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## ADDITIONAL INTERESTS

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### Music

- Since 2021                      Pianist, multi-instrumentalist, composer, and singer in *EFFETTI*, an electro-pop/indie music project.  
Instagram: @\_\_effetti
- 2020 - 2022                      Pop/Rock Piano and Keyboard Studies, Conservatory of Music Giuseppe Verdi, Milan, Italy.  
Maestro: Danilo Madonia.
- 2017 - 2021                      Member of the Female Chamber Choir *Hebel*, collaborating in various performances, including with opera singer Andrea Bocelli at the Arena di Verona in 2017.  
Conductor: Alessandro Cadario.  
Instagram: @corodacamerahebel

2015 - 2021	Pianist, multi-instrumentalist, and composer in <i>The Flame</i> , a female pop music project.
2009 - 2021	Private piano studies in classical, pop, and jazz, including improvisation. Maestri: Fabio Sioli, Livia Rigano, Ferdinando Baroffio.
<b>Scientific Communication</b>	Engaging non-expert audiences through accessible and captivating presentations.
<b>Education</b>	Powerful and essential tool for meaningful societal change; exploring the use of music to enhance cognitive processes, creativity, and foster social connections.
<b>Writing</b>	Exploring storytelling, expressive formats, and creative communication.
<b>Hiking and Nature</b> 2019	Camino de Santiago, Spain.  Enjoying the interplay between physical challenge and mental relaxation.
<b>Connections</b>	Strong belief that humans are fundamentally relational beings; cognition, learning, creativity, and life in general emerge through connections - between synapses, between people, and between people and objects or the natural environment. In this sense, <i>we are all synapses</i> .

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## LANGUAGES

- **Italian** – Native
- **English** – Fluent
- **French** – Fluent