

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.

EDUCATION

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

RESEARCH EXPERIENCE

Jan 2026 - March 2026	Erasmus Traineeship , Laboratory of Move'N'Brains, University of Turin, Italy 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> Supervisors: Andrea Cavallo, Eugenio Scaliti Acquired Skills: • Designed and conducted the experiment independently • Created musical stimuli using GarageBand • Use of E-Prime • Collected and synchronized multimodal motion capture data (Vicon system, two accelerometers, two video cameras) • Preprocessed kinematic data in Nexus • Developed Python pipelines for movement analysis using MediaPipe, and MATLAB scripts for statistical analyses
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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

PUBLICATIONS

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, Z., Fiveash, A., Tillmann, B. (under review). *The popBAT: A New Beat Alignment Task to Assess Beat Perception Abilities in Children*. [Preprint available on PsyArXiv: https://osf.io/preprints/psyarxiv/yjzft_v1]

Cantoni, F., Ferreri, L., Mandernach, Z., Bulland, A., Fiveash, A., & Tillmann, B. (under review). *Musical Hedonia in Children: The Child-directed extended Barcelona Music Reward Questionnaire (eBMRQc)*. [Preprint available on PsyArXiv: https://doi.org/10.31234/osf.io/zfg62_v2]

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

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

F. Bigand, T. Nguyen, **F. Cantoni**, R. Bianco, L. Trainor, G. Novembre (under review).
Movement conveys communicative functions in caregiver-infant musical interactions.

CONFERENCES & PRESENTATIONS

International Conferences

- June 16-18th, 2026 London, England, *Understanding the Role of Reward in Language Learning* : **oral presentation** *From Musical Pleasure to Language Learning: Individual Differences in Music Reward Sensitivity as a Window into the Link Between Rhythmic Abilities and Language Skills in Children*
- June 16-19th, 2025 Jyväskylä, Finland, 20th *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 11-13th, 2025 Oslo, Norway, 18th *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 13-16th, 2024 Helsinki, Finland, *Neuromusic VIII conference*: **poster presentation** *Unveiling Rhythmic Abilities in Children: A Comprehensive Review and Novel Assessment Approach*

National Conferences

- Oct 22-23rd, 2026 Lyon, France, 2nd *FAST (French Association for timing) Conference*: **poster presentation** *Moving in Time: Novel Musical Approaches to Assessing Rhythm Production and its Link to Language in Children*
- June 8-9th, 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 11-13th, 2025 Turin, Italy, 31st *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 17-18th, 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*

TEACHING

Sept - Nov 2025 Université Bourgogne Europe, Dijon, France: **Course** on Memory (Psychology) for Second-Year Bachelor Students (36 hours, 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).

GENERAL PUBLIC AND OUTREACH

Oct 10-11 th 2026	Dijon, France, <i>Fête de la Science, Village des sciences de Dijon</i> , Organizer of the <i>Keep the Beat</i> stand and science outreach facilitator .
July 3 rd 2026	Dijon, France, Lab visit, oral 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 th , 2025	Dijon, France, <i>FORTHEM Researcher Grand Prix 2025</i> , presentation and competition for early-career researchers from FORTHEM partner universities, selected to represent the Université Bourgogne Europe.
Oct 8 th , 2025	Dijon, France, Café Polyglotte: public talk for a general audience , promoting science communication in multilingual contexts <i>When Music Helps to Understand Children's Language Abilities</i>
Sept 26 th , 2025	Dijon, France, <i>Nuit des Jeunes Chercheurs et Chercheuses 2025</i> : public talk for a general audience <i>When Music Helps to Understand Children's Language Abilities</i>
Apr 16 th , 2025	Varese, Italy: oral presentation to students at high school Liceo Scientifico G. Ferraris <i>Music and the Brain: Emotions, Pleasure, and Rhythm in Human Evolution and Development</i>
March 2025	Dijon, France, <i>Experimentarium</i> : oral presentation to small groups of French students <i>When Music Helps to Understand Children's Language Abilities</i>
June 6 th , 2024	Dijon, France, 29 th edition of <i>Forum des Jeunes Chercheurs (FJC)</i> , organized by the Environnement-Santé doctoral school of Université Bourgogne Europe: poster presentation <i>Rhythmic Ability in Children: A Comprehensive Review and Novel Assessment Approach</i>
May 17 th , 2024	Milan, Italy, 13 th session of the seminar <i>Gioco e ri-scrittura del mondo</i> (Play and Re-writing the World), organized by the University of Milan and the Fonds Ricœur in Paris: oral presentation <i>Music as an Aesthetic Experience Between Pleasure, Play, and Movement</i>

SUPERVISION & CO-SUPERVISION

Nov - Dec 2025	Short-term internship (3rd-year Bachelor's student): Lutrat Antoine
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Oct - Dec 2025	Short-term internship (3rd-year Bachelor's student): Léa Patoz
Nov 2025	Short-term internship (2nd-year Bachelor's student): Solène Guyot
Nov 2025	Short-term internship (2nd-year Bachelor's student): Ellie Gaudillière
Jan - Mar 2025	Short-term internship (2nd-year Bachelor's student): Anne-Sophie Boodhoo
Nov - Dec 2024	Short-term internship (2nd-year Bachelor's student): Kabir Gufoni
2024	Master's thesis supervision (1st year Master's student): Romane Eydan Thesis topic: <i>Validation of a new task for assessing rhythmic abilities in children</i>
Avril 2024	Short-term internship (2nd-year Bachelor's student): Violette Amiot

TECHNICAL SKILLS

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: GarageBand

ADDITIONAL INTERESTS

Music

Since 2021	Pianist, multi-instrumentalist, composer, and singer in <i>EFFETTI</i> , 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 <i>Hebel</i> , 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.
Scientific Communication	Engaging non-expert audiences through accessible and captivating presentations.
Education	Powerful and essential tool for meaningful societal change; exploring the use of music to enhance cognitive processes, creativity, and foster social connections.
Writing	Exploring storytelling, expressive formats, and creative communication.
Hiking and Nature 2019	Camino de Santiago, Spain. Enjoying the interplay between physical challenge and mental relaxation.
Connections	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> .

LANGUAGES

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