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My research focuses on the relationship between rhythm, speech processing, and language acquisition. During my PhD, I conducted research with 3-month-old infants, children with and without language development disorders, and adults learning a L2, with the aim of identifying the temporal mechanisms underlying language processing and their potential educational and clinical applications. I have studied and continue to investigate how auditory, musical, and linguistic rhythmic regularities influence typical and atypical speech perception and production, particularly during early development and second language (L2) learning, using a combination of methods (behavioral and EEG) and analysis (acoustic analysis of speech and EEG signal processing).

Education

PhD in Cognitive Neuroscience (with honors) | Feb 2022 – Apr 2025

Lyon Neuroscience Research Center (CRNL), Claude Bernard Lyon 1 University, France

Master's degree in Neuroscience of Development, Cognition and Addictions (*valedictorian*, very good) |

Sep 2019 – Jul 2021)

University of Picardy, Amiens, France

Bachelor's degree in Biology and Physiology (good) | Sep 2016 – Jul 2018

One-year ERASMUS, University of Liege, Belgique

University of Picardy, Amiens, France

Highschool's degree in Science (good) | Sep 2012 – Jul 2015

Lycée Jean Calvin, Noyon, France

Research experience

Post-doc Researcher in Cognitive Neuroscience | Sep 2025 – Jul 2026

Laboratoire d'Etude de l'Apprentissage et du Développement (LEAD; Laboratory for Research on Learning and Development) CNRS-UMR 5022 – Université Bourgogne Europe, Dijon, France

"Rhythmic priming during language development: Can musical rhythm benefit word learning and word recognition in infants? Does attention to listening to rhythm influence the priming effect in children?"

Supervisor: Dr Barbara Tillmann (CNRS Research Director, LEAD, Université Bourgogne Europe)

Collaborators: Dr Anna Fiveash (Junior Professor Chair, LEAD, Université Bourgogne Europe), Dr Anne Kösem (Researcher at CRNL) and Dr Antonia Goetz (Post-doc Researcher at the MARCS institute for Brain, Behaviour and Development)

Post-doc Researcher in Cognitive Neuroscience | May 2025 – Aug 2025

Lyon Neuroscience Research Center (CRNL) – Claude Bernard Lyon 1 University, France

Labex CORTEX short-term post-doctoral fellowship

Continued analyzing data and writing articles related to my PhD experiments

Supervisor: Dr Anne Kösem

PhD in Cognitive Neuroscience (defended on April 1, 2025) | Feb 2022 – Apr 2025

Lyon Neuroscience Research Center (CRNL) – Claude Bernard Lyon 1 University, France

"Rhythm processing in music and in speech perception and production, from infancy to adulthood"

Joint supervisors: Dr Anne Kösem & Dr Barbara Tillmann

Collaborators: Dr Anna Fiveash, Dr Laurianne Cabrera (Researcher at the Integrative of Cognition Center, INCC, University Paris Cité) Dr Oussama Abdoun (Engineer at CRNL), Dr Nathalie Bedoin (Lecturer at Claude Bernard Lyon 1 University and Lyon 2 Lumière University and Researcher at CRNL) and Dr Anahita Basirat (Full professor at University of Lille)

MSc internship in Neurobiology and Electroencephalography (voluntary internship) | Aug – Oct 2021
BANDLab – Maastricht University, The Netherlands
ERASMUS+ Grant
“*Neurobiology of speech rhythm in musicians and non-musicians*”
Supervisor: Dr Katerina Kandylaki

MSc internship in Developmental Neuroscience (2nd year) | Jan – Jul 2021
Lyon Neuroscience Research Center – Claude Bernard Lyon 1 University, France
“Music and speech processing in children with developmental language disorders”
Joint supervisors: Dr Barbara Tillmann, Dr Nathalie Bedoin and Dr Anna Fiveash

MSc internship in Neuroscience – Literature review (1st year, Covid context) | May – Jun 2020
University Center of Health Research (CURS) – University of Picardy, Amiens, France
“*Cerebral functional connectivity of emotions using electroencephalography*”
Supervisor: Dr Ardalan Aarabi

List of publications

Camici J, Tillmann B, Cabrera L*, & Kösem A*. (in prep). Early speech rhythm tracking of native and unfamiliar speech in 3-month-old infants.

Camici J, Fiveash A, Abdoun O, Bedoin N, Tillmann B*, & Kösem A*. (in prep). Impaired speech rhythm features in Developmental Language Disorder: Effects of rhythmic priming on speech production.

Camici J, Fiveash A, Abdoun O, Tillmann B*, & Kösem A*. (2025). The rhythmic priming effect in second language perception appears reliant on individuals’ musical background. *Acta Psychologica*.

<https://doi.org/10.1016/j.actpsy.2025.105845>

Fiveash A*, Ladányi E*, **Camici J**, Chidiac K, Bush CT, Canette LH, Bedoin N, Gordon RL, & Tillmann B. (2023). Regular rhythmic primes improve sentence repetition in children with developmental language disorder.

NPJ Science of Learning, 8(1), 23. <https://doi.org/10.1038/s41539-023-00170-1>

[* shared co-first or co-last authors]

Presentations at national and international conferences

Oral presentations

« **Traitement du rythme de la parole altéré dans les troubles développementaux du langage : Effets de l’amorçage rythmique sur la production de la parole** » | 17th Oct 2025

“Impaired speech rhythm processing in Developmental Language Disorder: Effects of rhythmic priming on speech production”

Journée Scientifique d’Orthophonie 2025 – Paris, France

“**Impaired speech rhythm features in Developmental Language Disorder and effects of rhythmic priming on speech production**” | 15–20th Sep 2025

International Conference on Cognitive Neuroscience (ICON) 2025 – Porto, Portugal

Language & Music symposium: Shared and Distinct Auditory Competencies in Language and Music Processing across the Lifespan

Poster presentations

Camici J, Fiveash A, Tillmann B, & Kösem A. (Oct 2024). Rhythmic priming effect on second language processing in adults: when native language and music background influence the effect. French Association for Timing (FAsT). NeuroPSI, Paris, France.

Fiveash A*, Ladányi E*, **Camici J** (poster presenter), & Chidiac K, Bush CT, Canette LH, Bedoin N, Gordon RL, Tillmann B. (Oct 2023). Regular rhythmic primes improve sentence repetition in children with developmental language disorders. Auditory Development Workshop (Audidev). INCC, Paris, France.

Camici J, Fiveash A, Tillmann B, & Kösem A. (Oct 2023). Rhythmic priming effect on grammatical error detection in second language learners of French (Experiment 1 and 2). Time Research Forum 3rd edition (TRF3). Champalimaud Foundation, Lisbonne, Portugal.

Camici J, Fiveash A, Tillmann B, & Kösem A. (May 2023). Rhythmic priming effect on grammatical error detection in second language learners of French (Experiment 1, final results). NeuroFrance. Cité Internationale, Lyon, France.

Camici J, Fiveash A, Tillmann B, & Kösem A. (Apr 2023). Rhythmic priming effect on grammatical error detection in second language learners of French (Experiment 1, preliminary results). *Brain Rhythm and Cortical Computation (BRhyCoCo)*. Institut de l'Audition, Paris, France.

[* shared co-first authors]

Training

EEG data processing and analysis (24h in 1 week) | Sep 2024
Claude Bernard Lyon 1 University, France
EEG preprocessing and analysis with MATLAB / EEGLab

CuttingEEG | 14–16th Dec 2024
Aix-en-Provence, France
EEG/MEG preprocessing and analysis with MATLAB / FieldTrip toolbox

Statistical analysis with R (24h in 1 week) | Aug 2022
Lyon Neuroscience Research Center, France
Inferential statistics and generalized linear mixed models

Scientific integrity in research (15h)

Research ethics (15h)

Online trainings on FUN MOO

Scientific skills

Expertise in EEG signal processing, infant/children/adults data acquisition, and advanced statistical modeling
Experienced in research combining neurophysiological and behavioral methods
Skilled in project coordination, participant recruitment, and interdisciplinary collaboration

Behavioral experiments

Experimental design & data acquisition

- Designed and conducted behavioral experiments with children (aged 5-13) both neurotypical and with neurodevelopmental language disorders, as well as with neurotypical adults
- Collected and processed behavioral data with a focus on language and cognitive performance

Data analysis & methods

- Applied ANOVA, regression, and correlation analyses
- Built generalized linear mixed models (GLMM) from data with different distributions (binary, categorical, continuous)
- Conducted acoustic analyses of vocal productions (e.g., rhythmic measures)
- Performed principal component analysis (PCA) to extract and interpret key dimensions

EEG experiments

Experimental design & data acquisition

- Designed and conducted an EEG study with infants aged 3 and 9 months
- Co-authored the ethics application and contributed to the successful submission
- Authored and obtained a mobility grant for a 4-month (in Paris) and 2-month (in Sydney) research projects
- Created and managed the recruitment campaign: handled calls, participant screening, scheduling, and parent communication
- Collected EEG data from infants using BrainVision EEG and EGI systems

Data analysis & methods

- Performed advanced signal analysis (Amplitude Spectrum, Power Spectrum, PSD)
- Analyzed oscillatory brain activity through speech–brain coherence (Envelope, Gammatone, Spectral Flux)
- Analyzed Event-Related Potentials (ERPs)
- Conducted cluster-based permutation tests
- Built and tested GLMMs

Software

R (statistical analysis), Python (programming experiments, statistical analysis), MATLAB and EEGLAB (EEG preprocessing and analysis), Praat and Audacity (acoustic analysis of speech signal), Opensesame and Eprime (experiment creation)

Teaching and mentoring experience

Teaching

« **Music and Language Difficulties: From Prevention to Remediation** » (1.5 hours) | 12 Feb 2026

Laval University (Quebec City, Canada)

Online seminar organized by Dr. Jonathan Bolduc for Master's and PhD students

Developmental psychology (24 hours) | Jan – Jun 2026

Université Bourgogne Europe, Dijon, France

Students in 2nd year of Bachelor's degree in Psychology

Research methodology (15 hours) | Jan – Jun 2026

Université Bourgogne Europe, Dijon, France

Students in Master's degree in Teaching, Education and Training

Mental health in adolescents (9 hours) | Jan – Jun 2026

Université Bourgogne Europe, Dijon, France

Students in Master's degree in Teaching, Education and Training

Inferential statistics (90 hours) | Feb 2023 – May 2025

Lyon 2 Lumière University, France

Students in 2nd year of Bachelor's degree in Psychology

Mentoring

2024

Master (2nd year): Supervision of a 6-month internship

Alizée Crozat (Claude Bernard Lyon 1 University, France)

2023

Bachelor (3rd year): Primary supervision of a 2-month internship

Chloé Miet (University of Picardy, Amiens, France)

Grants

AFRAN

Call for initiatives 2025 (AU\$4,000) | Oct 2025 – Dec 2025

Australian French Association for Research and Innovation (AFRAN)

Financial support for our Franco-Australian collaborative project with Dr Antonia Goetz at the MARCS institute for Brain, Behaviour and Development, Western Sydney University, Australia

International Visiting Scholar Program 2025 (AU\$3,500) | Oct 2025 – Dec 2025

The MARCS institute for Brain, Behaviour and Development, Western Sydney University, Australia

2-month research project in collaboration with Dr Antonia Goetz

Labex CORTEX short-term post-doctoral fellowship | May 2025 – Aug 2025

4-month salary for a postdoc in the same laboratory as the PhD project with Dr Anne Kösem, CRNL, Lyon, France

Mobility Grant 2023 (4,500€) | Sep 2023 – Jan 2024

Neurodis foundation

5-month funding for a collaborative research project with Dr Laurianne Cabrera at INCC, Paris, France

Public outreach

Article

Bonnet P*, & Camici J*. (October 20, 2023). "Pourquoi change-t-on de voix lorsqu'on parle aux bébés ?" / "Why do we change our voice when talking to babies?". *Cortex mag*. <https://www.cortex-mag.net/pourquoi-change-t-on-de-voix-lorsquon-parle-aux-bebes/>

[* shared co-first authors]

Languages

French: Native

English: Fluent

Portuguese: Basic notions

Other relevant work experience for developmental research

Internship in a Portuguese school as an assistant professor | Oct – Dec 2021

Fundação CEBI, Alverca, Portugal

Integrated into the running of a private school with students aged 1 to 18

Participated in music sessions for toddlers and suggested appropriate songs

Helped to organize and teach music, art, and Portuguese classes for elementary school children

Organized and led French, English, arts, and music classes (including a Christmas concert) for teenagers

Communicated with Portuguese children

Director of a leisure center | Jul – Aug 2020

CC2V, Thourotte, France

Worked in a health crisis context

Managed a team of 9 monitors, conducted interviews

Built trusting relationships with children (aged 3 to 12), parents, and monitors

Assessed their needs, adapted daily schedules, and offered alternatives when necessary

Music Teacher - Trumpet | Sep 2017 – Jun 2018

Music School, Doullens, France

Assessed the instrumental and theoretical abilities of children aged 6 to 10

Found exercises suited to the students' level

Built trusting relationships with children and parents

Carried out musical projects to develop self-confidence and personal commitment

Facilitator in leisure center and summer camps | all holidays from 2016 to 2020

CC2V, Thourotte, France

Adapted speech, daily routines, and activities for children aged 3 to 12

Organized summer camps for teens aged 10 to 17

Encouraged independence, sharing, respect, and kindness

Established relationships of trust between monitors, children, and parents

Camp counselor | Feb – Jul 2016

Diabolo association, Sailly-le-Sec, France

Organized ski and summer camps for teens aged 10 to 15 from foster homes and families

Was attentive and understanding about the family's history

Encouraged independence, sharing, respect, and kindness

Educator for adults with motor and mental disabilities | Aug 2015

Château Le KINNOR, Fervaques, France

Accompanied residents in their daily lives during a 1-month stay

Developed and implemented tailored projects

Encouraged patience, tolerance, expression and autonomy

Established collaborations and trustworthy relationships

Referees

Dr Barbara Tillmann

CNRS Research Director | Laboratory for Research on Learning and Development (LEAD), Université

Bourgogne Europe, Dijon, France

Master's thesis supervisor, PhD co-supervisor and current postdoctoral supervisor

barbara.tillmann@cnrs.fr

Dr Anne Kösem

Inserm Researcher | Lyon Neuroscience Research Center (CRNL), Claude Bernard Lyon 1 University, Lyon, France

PhD main supervisor

anne.kosem@inserm.fr

Dr Anna Fiveash

Junior Professor Chair | Laboratory for Research on Learning and Development (LEAD), Université Bourgogne Europe, Dijon, France

Master's thesis co-supervisor

A.Fiveash@westernsydney.edu.au

Dr Laurianne Cabrera

CNRS Researcher | Babylab INCC, Paris, France

Lead supervisor of a PhD mobility project

laurianne.cabrera@parisdescartes.fr