Caroline Hamery

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CeriaH · Institut Pasteur, Paris, France

Neuroscience researcher specializing in auditory perception, electroencephalography, and physiological signal processing. Drove projects from experimental design through participant data collection, analysis pipelines, and scientific communication. Currently expanding into deep learning.

Skills

Programming & Tools:

- Python (MNE, PsychoPy, Numpy, Pandas, scikit-learn, Whisper)
- R (Shiny, RMarkdown, ggplot2, tidyverse)
- MATLAB (EEGLAB), Loreta
- Java
- HTML, CSS, Javascript
- Version Control, Git, GitHub, GitLab, open-source data sharing
- LaTeX

Research & Technical Expertise:

- Scientific project ownership: grant application, ethical validation, experimental design, data collection, analysis, interpretation, visualization, scientific writing and communication
- Protocol design and implementation, coordination of large-scale experimental setups
- Data management and privacy standards
- EEG acquisition, preprocessing and analysis: microstates, components analysis, source localization, time-frequency analysis, speech decoding
- Currently acquiring expertise in pupillometry
- Statistical modeling, machine learning, data visualization
- Currently expanding expertise in deep learning for physiological signal application

Languages: French (native), English (fluent), German (fluent)

Experience

Postdoctoral Researcher · *Institut Pasteur*, CeriaH, Paris (FR) *2026 - present*

- Developed a normative database and clinical eligibility tool for French CRM speech-in-noise audiometry, deployed as an interactive Shiny app for clinical decision support
- Currently designing a longitudinal clinical protocol to identify EEG biomarkers of listening effort in mild traumatic brain injury patients

PhD Researcher · *ISAE-SUPAERO*, Neuroergonomics & Human Factors, Toulouse (FR) *2022 - 2025*

- Investigated speech intelligibility and listening effort in complex auditory scenes, using behavioral and EEG measures
- Designed and implemented stimulus delivery, data acquisition, and EEG analysis pipelines
- Examined native language effects, executive function correlates, and cognitive training outcomes

Research Engineer · *ISAE-SUPAERO*, Neuroergonomics & Human Factors, Toulouse (FR) *2021 - 2022*

- Developed custom tools for experimental delivery and EEG signal processing across projects in mental flexibility, executive functioning and visual attention.

Mathematics & Physics Teacher · Cours Galilée, Toulouse (FR) *2021*

Research Intern · *ISAE-SUPAERO*, Toulouse (FR) *2020*
- Functional and effective connectivity of mental flexibility networks

Research Intern · *INCI*, Institut of Cellular and Integrative Neuroscience, Strasbourg (FR) *2019*
- Magnetoreception effects on planarian orientation

Research Intern · *GIPSA-lab*, INP Grenoble (FR) *2018*
- Role of temporal cues on speech perception and production

Education

PhD · Neuroscience & Computer Science · *ISAE-SUPAERO*, Toulouse, FR *2022 - 2025*
- Investigation and mitigation of listening effort: an electrophysiological and behavioral approach.

MSc · Joint Master in Neuroscience · *Université de Strasbourg* (FR) & *Albert-Ludwigs Universität* (DE) *2018 - 2020*

BSc · Mathematics & Computer Science for Cognitive Science · *Université de Lorraine*, Nancy, FR *2015 - 2018*

Baccalauréat & Abitur · Deutsch-Französisches Gymnasium, Freiburg-im-Breisgau, DE *2015*
- Mathematics & Physics majors

Publications

Hamery, C. (2025). Influence of the language proficiency on speech intelligibility and listening effort in multi-talker situations. PhD Manuscript, ISAE-SUPAERO, Toulouse, France.

Isnard, V., **Hamery, C.** & Andéol, G. (2026). The SpatCRM: a spatialized speech audiometry to assess unmasking abilities. Demonstration. *International Conference of Cognitive Aircraft Systems, Toulouse (FR).*

Hamery, C., Isnard, V., Lemouton, M., Andéol, G., & Scannella, S. (2026). Comparing Speech Intelligibility and Listening Effort Between Native and Non-Native Languages. *Ear and Hearing*.

Lebely, C., Lepron, E., **Hamery, C.**, Montane, E., Bigarre, I., Lelièvre, A., Martin M., Eymard, M., Peran, P., Bidou, C., Catella, E., Gentilhomme, B., Besse-Armise, R., Scannella, S., De Boissezon, X. (2025). Cognitive remediation combined with brain stimulation after acquired brain injury: A single-case experimental design with 15 individuals. *Annals of Physical and Rehabilitation Medicine*.

Lebely, C., Lepron, E., Bigarre, I., **Hamery, C.**, De Boissezon, X., Scannella, S. (2024). EEG spectral power changes in patients with dysexecutive syndrome following cognitive intervention. *Brain and Behavior*.

Hamery, C., Andéol, G., Scannella, S., Isnard, V. (2024). Influence of the language proficiency on speech intelligibility and listening effort in multi-talker situations. *Journées Perception Sonores, Paris (FR)*.

Chenot, Q., **Hamery, C.**, Truninger, M., Langer, N., Scannella, S. (2024). Investigating the relationship between resting-state EEG microstates and executive functions: A null finding. *Cortex*.

Hamery, C., Bigarré, I., Chenot, Q., Scannella, S. (2024). Multi-level microstates analysis : a Matlab tool. *Microstates Conference, Genève (CH)*.

Chenot, Q.,**Hamery, C.**, Truninger, M., De Boissezon, X., Langer, N., Scannella, S. (2024). EEG resting-state microstates correlates of executive functions. *Open Neuro*.

Hamery, C., Chenot, Q., Lepron, E., Besson, P., De Boissezon, X., Perrey, S., Scannella, S. (2022). Transcranial random noise stimulation enhances retention performance after training of a complex cognitive task. *Neuroergonomics and NYC Neuromodulation Conferences, New York (USA)*.

Hamery, C., Chenot, Q., Lepron, E., Besson, P., De Boissezon, X., Perrey, S., & Scannella, S. (2022). Performance after training in a complex cognitive task is enhanced by HD-tRNS. *Scientific Reports*.