# Caroline Hamery

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CeriaH - Institut Pasteur, Paris, France

*Working on electrophysiological and behavioral aspects of listening effort in complex sound environments. Specialization in data science and signal processing.*

## Academic & Work Experience

**Post doctoral researcher**, CeriaH - Centre de recherche et d'innovation en audiologie humaine, *Institut Pasteur*, Paris (FR) — *2026 - now*

**PhD Candidate**, ISAE-SUPAERO - Institut Supérieur de l'Aéronautique et de l'Espace, *Institute of Aeronautics and Space*, Neuroergonomics and Human Factor Team, Toulouse (FR) — *2022 - 2025*
Investigation and mitigation of listening effort: an electrophysiological and behavioral approach.
Supervised by Sébastien Scannella (ISAE-SUPAERO)
In collaboration with Guillaume Andéol (IRBA - Institut de Recherche Biomédicale des Armées, *French Armed Forces Biomedical Research Institute*)

**Research Assistant**, ISAE-SUPAERO, Neuroergonomics and Human Factor Team, Toulouse (FR) — *Feb.2021 - Sep.2022*
Working on different research projects: mental flexibility, visual attention, electrophysiology and behavioral experiments

**Mathematics & Physics Teacher**, Cours Galilée, Toulouse (FR) — *Feb. - June 2021*
Middle and high school students

**Research Intern**, ISAE-SUPAERO, Human Factor Team, Toulouse (FR) — *Jan. - Jul.2020*
Functional and effective connectivity of mental flexibility networks
Supervised by Sébastien Scannella

**Research Intern**, INCI - Institut des Neurosciences Cellulaires et Intégratives, *Institut of Cellular and Integrative Neuroscience*, Strasbourg (FR) — *Feb. - Mar. 2019*
Magnetoreception effects on planarians orientation.
Supervised by Hervé Cadiou

**Research Intern**, GIPSA - Grenoble Images Parole Signal Automatique INP, *Image Speech automatic Signal*, Grenoble (FR) — *Apr. - Jul. 2018*
Role of temporal cues on speech perception and production.
Supervised by Jean-Luc Schwartz & Vincent Aubanel

## Education

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

**BSc - Mathematics and Computer Science for Cognitive Science**, — *2015 - 2018*
Université de Lorraine, Nancy (FR)

**Baccalauréat & Abitur**, Deutsch-Französisches Gymnasium, — *2008 - 2015*
Freiburg-im-Breisgau (DE)
Mathematics and Physics majors

## Skills

</> Programming Languages: Python (PsychoPy, MNE), R (ShinyApp, Rmarkdown), Matlab (EEGlab, Signal Processing), Loreta, Java, JASP, LaTeX

⚙ Research Tools:

- Signal processing, data analysis, data interpretation
- Statistics, machine learning
- Behavioral Measures: EEG, EoG, ECG
- EEG analysis: components (ICA), microstates, source localization, time frequency domain
- Design and implementation of experimental protocols
- Scientific literature review and bibliography management
- Knowledge of research ethics and data privacy standards
- Coordination of large-scale experimental setups involving numerous participants
- Version Control: GitHub, Gitlab and open source data base sharing platforms (OSF)
- Graphic design, data visualization
- Scientific writing, poster design, oral presentation

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

## Publications


Bigarre, I., Chenot, Q., Hamery, C., Lebely, C., De Boissezon, X., & Scannella, S. (2024). Perspectives d'utilisation des micro-états eeg comme marqueurs de rééducation fonctionnelle chez quatorze patients avec lésion cérébrale acquise. *Congrès de la Sofmer, Toulouse (FR)*.

Chenot, Q., Hamery, C., Lepron, E., Besson, P., De Boissezon, X., Perrey, S., & Scannella, S. (2022). Performance after training in a complex cognitive task is enhanced by high-definition transcranial random noise stimulation. *Scientific Reports*, *12*(1), 4618. https://doi.org/10.1038/s41598-022-08545-x

Chenot, Q., Hamery, C., Truninger, M., Langer, N., De boissezon, X., & Scannella, S. (2024). Investigating the relationship between resting-state eeg microstates and executive functions: A null finding. *Cortex*. https://doi.org/10.1016/j.cortex.2024.05.019

Hamery, C., Andeol, G., Scannella, S., & Isnard, V. (2023). Influence of the language proficiency on speech intelligibility and listening effort in multi-talker situations. *Journées Perception Sonore, Paris (FR) 2023*. https://doi.org/10.13140/RG.2.2.16597.44000

Hamery, C., Bigarré, I., Chenot, Q., & Scannella, S. (2024). Multi-level microstates analysis: A matlab tool. *Microstates Conference, Genève (CH)*. https://doi.org/10.13140/RG.2.2.24319.21923

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, Ney-York (USA)*.

Hamery, C., Lemouton, M., Isnard, V., Andéol, G., & Sébastien, S. (2025). Comparing speech intelligibility and listening effort between native and non-native languages: Application to french listeners. *Ear and Hearing*. https://doi.org/https://doi.org/10.1097/aud.0000000000001738

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., & Boissezon, X. D. (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*, *68*(1), 101892. https://doi.org/10.1016/j.rehab.2024.101892

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*, *14*(11), e70148. https://doi.org/10.1002/brb3.70148

## Teaching Experience

*Most of the teaching was carried out at ISAE-SUPAERO, for engineering students, international master's programs, and specialized master's tracks.*

**Auditory Perception**, ISAE-SUPAERO
Practical work. Introduction and testing of audiometry. Correction of student's report on hearing.

**EEG experimentation in flight**, ISAE-SUPAERO
Practical work. Installation and use of dry EEG and ECG systems in flight, followed by simple data analysis.

**Electrocardiography**, ISAE-SUPAERO
Practical work. Hands-on work with ECG data applied to aeronautics, including software use and physiological data analysis.

**Scientific experimentation (Matlab)**, ISAE-SUPAERO
Practical work. Use of Matlab for behavioral data acquisition, analysis, and interpretation of data on flexibility tasks.

**Experimentation protocols**, ISAE-SUPAERO
Lecture for specialized master's program on experimental protocol design, covering theoretical, ethical, and practical aspects.

**Python**, ISAE-SUPAERO
Practical work for engineering students using Python to analyze aeronautical data.

**Statistics (R)**, ISAE-SUPAERO
Practical work for engineering students using R to analyze data, applying theoretical concepts from the statistics course.

## References

**Sébastien Scannella** : sebastien.scannella@isae-supaero.fr
**Guillaume Andéol** : guillaume.andeol@def.gouv.fr