Pierre Labendzki, MA MSc, PhD

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December, 2025

Position

2025-2028 Post-Doctoral researcher, University of East London, UK.

Education

2021-2025 PhD in Developmental Cognitive Science: University of East London, UK.
Thesis on: “Caregivers’ scaffolding of infant attention, through multimodal dynamic complexity levels”
Supervisors: Prof Sam Wass and Dr Louise Goupil

2020-2021 Master in Computer Music: Université Gustave Eiffel, France.
Master thesis on: “Information theory and complexity for musical analysis.” Supervisor: Dr Kevin Dahan.

2018-2021 Master in Engineering: Ecole Supérieure d'Ingénieurs Paris-Est, France.
Audiovisual analysis, signal processing, psychoacoustics. Thesis on “Development of speech in noise perception and amplitude modulation tracking” Supervisor: Dr Laurianne Cabrera BabyLab, Integrative Neuroscience and Cognition Center, CNRS.

2016-2018 Preparatory Classes to “Grande École”: Lycée César Baggio, France.
Mathematics, physics, chemistry, engineering and computer science.

Publications

Labendzki, P., Goupil, L. & Wass, S. Temporal patterns in the complexity of child-directed song lyrics reflect their functions. *Commun Psychol* 3, 48 (2025). https://doi.org/10.1038/s44271-025-00219-4

Labendzki Pierre, Perapoch Amadó Marta, Viswanathan Narain K, Northrop Tom J, Ives James, Lancaster Katie L, Greenwood Emily, Esposito Giovanni, Phillips Emily AM, Jones Emily JH, Goupil Louise, Wass Sam V (2025) From salience to semantics: multilevel hierarchical contingencies organise parent-infant joint attention eLife 14:RP109024. https://doi.org/10.7554/eLife.109024.1

M. J. Peñaherrera, P. Labendzki, G. Esposito, L. Goupil and S. Wass, "Measuring predictability in the home environment using daylong audio recordings*," 2025 IEEE International Conference on Development and Learning (ICDL), Prague, Czech Republic, 2025, pp. 1-7, doi: 10.1109/ICDL63968.2025.11204360.

Marta Perapoch Amadó, Emily Greenwood, James Ives, **Pierre Labendzki**, Ira Marriott HaresignTom J. Northrop, Emily A.M. Phillips, Narain K. Viswanathan, Megan Whitehorn, Emily J.H. Jones, Sam V. Wass, 2023, The neural and physiological substrates of real-world attention change across development.eLife12:RP92171 https://doi.org/10.7554/eLife.92171.1

Perapoch Amadó, M., Phillips, E. A. M., Esposito, G., Greenwood, E.1, Ives, J., **Labendzki, P**., Lancaster, K., Northrop, T. J., Viswanathan, N. K., Gök, M., Peñaherrera,M. J., Jones E. J. H., Wass S. V. Who leads and who follows? The pathways to joint attention during free-flowing interactions change over developmental time. Developmental Sciences (2025).

Irene Lorenzini, **Pierre Labendzki**, Clémence Basire, Marielle Hababou-Bernson, Axelle Calcus, Laurianne Cabrera; Neural processing of auditory temporal modulations in awake infants. J. Acoust. Soc. Am. 1 September 2023; 154 (3): 1954–1962. https://doi.org/10.1121/10.002084510.2

In Preparation

Pierre Labendzki, Emily Greenwood, Gio Esposito, Narain Viswanathan, Tom Northrop, James Ives, Marta Perapoch Amadó, Susanne Reisner, Xiangyi Ma, Louise Goupil, Sam Wass. Form-function relationships in frequency, amplitude and semantic complexity in infant-directed speech. Developmental Science, 2024 **[Under-review]**

Emily E.M Phillips; Louise Goupil; James E. Ives; **Pierre Labendzki**; Megan Whitehorn; Ira Marriott Haresign; Sam V. Wass, Examining speech-brain tracking during early bidirectional, free-flowing caregiver-infant interactions, Developmental Cognitive Neuroscience, 2024 **[Submitted]**

Esposito, G., Greenwood, E., **Labendzki, P.**, Lancaster, K., Necef, I., Northrop, T., … Wass, S. (2025, August 12). Vocalisation is Progressively Decoupled From Autonomic Arousal Over The First Two Years of Life. https://doi.org/10.31234/osf.io/3hrqt_v2 **[Submitted]**

Ives James, **Labendzki Pierre**, Perapoch Amadó Marta, Greenwood Emily, Viswanathan Narain, Northrop Tom, and Wass Sam V., 2022. "At Which Low Amplitude Modulated Frequency Do Infants Best Entrain? A Frequency Tagging Study." bioRxiv: 2022-12.10.3 **[Under-review]**

Reisner Susanne, Nguyen Trinh, **Pierre Labendzki**, Hoehl Stefanie, Markova Gabriela, 2024. “The Reciprocal Relationship between Maternal Infant-directed Singing and Infant Gaze.” **[accepted]**

Skills

Computer Science

- Signal processing: audio-visual analysis, acoustic and semantic processing, video-motion tracking, physiological signals processing (dual-EEG, ECG, actigraphy), interpersonal synchrony computations, musical features extraction.
- Complexity analysis / Information theory: acoustic and semantic complexity, dynamic and cumulative complexity information estimate through lossless compression, normalised information distance.
- Machine learning : speech classification (voice activity detection and voice type classifier), variational auto-encoder, convolutional neural network.
- Programming: Python (OpenCV, TensorFlow, Keras, mmpose); Matlab; C/C++; Max/MSP

Languages

French (native), English (fully professional), Spanish (B1)