Jill Kries

Postdoctoral researcher at the Department of Psychology, Stanford University advised by Laura Gwilliams

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Education

- 2018-2023: **PhD in Cognitive Neuroscience, KU Leuven**, Belgium
  Title: Unravelling speech processing mechanisms in aphasia via EEG-based neural tracking and behavioral measures
  Supervisor: Maaike Vandermosten
  Co-supervisors: Robin Lemmens, Tom Francart
- 2016-2017: **MSc in Neuropsychology, Maastricht University**, The Netherlands
  Supervisors: Milene Bonte, Joao Correia
  Trimester abroad for clinical internship at RWTH Aachen University Hospital, Germany
- 2013-2016: **BSc in Psychology, Universite Libre de Bruxelles**, Belgium
  Semester abroad at University of Lausanne, Switzerland

Research position

- 2023-present: **Postdoctoral researcher, Stanford University**, USA
  Advisor: Laura Gwilliams

Publications

Papers - Published

- **Kries, J.**, De Clercq, P., Gillis, M., Vanthornhout, J., Lemmens, R., Francart, T., Vandermosten, M. (2024). Exploring neural tracking of acoustic and linguistic speech representations in individuals with post-stroke aphasia. *Human Brain Mapping, 45(8)*, 1-19. doi: https://doi.org/10.1002/hbm.26676
- **Kries, J.**, De Clercq, P., Lemmens, R., Francart, T., Vandermosten, M. (2023). Acoustic and phonemic processing are impaired in individuals with aphasia. *Scientific Reports, 13(11208)*, 1-15. doi: https://doi.org/10.1038/s41598-023-37624-w
- **Kries, J.*** and Gillis, M.*, Vandermosten, M.$^{\diamond}$, and Francart, T.$^{\diamond}$ (2023). Neural tracking of linguistic speech representations decreases with advancing age. *NeuroImage, 267(119841)*, 1-16. doi: https://doi.org/10.1016/j.neuroimage.2022.119841
- De Clercq, P., **Kries, J.**, Mehraram, R., Vanthornhout, J., Francart, T., Vandermosten, M. (2025). Detecting post-stroke aphasia using EEG-based neural envelope tracking of natural speech. *Accepted in Brain Communications*. doi: https://doi.org/10.48550/arXiv.2303.07739
- De Clercq, P.*, Puffay, C.*, **Kries, J.**, Van Hamme, H., Vandermosten, M., Francart, T., and Vanthornhout, J. (2024). Detecting Post-Stroke Aphasia Via Brain Responses to Speech in a Deep Learning Framework. *IEEE Engineering in Medicine and Biology Society*. doi: https://arxiv.org/pdf/2401.10291

- Mehraram, R., De Clercq, P., **Kries, J.**, Vandermosten, M., Francart, T. (2024). Functional connectivity of stimulus-evoked brain responses to natural speech in post-stroke aphasia. *Journal of Neural Engineering, 21(6)*. doi: 10.1088/1741-2552/ad8ef9
- Mehraram, R., **Kries, J.**, De Clercq, P., Francart, T., Vandermosten, M. (2025). EEG reveals brain network alterations in chronic aphasia during natural speech listening. *Scientific Reports 15(2441)*. doi: https://doi.org/10.1038/s41598-025-86192-8

* shared first authorship ◇ shared last authorship

Papers - Preprints/Under review/In preparation

- **Kries, J.**, De Clercq, P., Vandermosten, M.*, Gwilliams, L.* (*Under review*). The spatio-temporal dynamics of phoneme encoding in aging and aphasia. biorxiv. doi: https://www.biorxiv.org/content/10.1101/2024.10.21.619562v1
- Ergin, I., **Kries, J.**, Gupta, S., and Gwilliams, L. (*Under review*). Measuring Naturalistic Speech Comprehension in Real Time. PsyArxiv. doi: https://doi.org/10.31234/osf.io/93a75
- De Clercq, P., **Kries, J.**, Vanthornhout, J., Gerrits, R., Francart, T., Vandermosten, M.(*Under review*). Neural substrates and behavioral relevance of speech envelope tracking: evidence from post-stroke aphasia. biorxiv. doi: https://www.biorxiv.org/content/early/2024/03/28/2024.03.26.586859
- Ostrand, R., **Kries, J.**, Litovsky, C. and Finley, A.M. (*Under review*). Automatically-computed features of spontaneous speech production predict working memory in people with aphasia.
- Correia, J.M., **Kries, J.**, Hausfeld, L., Gracco, V. and Bonte, M. (2025). EEG reveals online monitoring mechanisms of speech production. biorxiv. doi: https://doi.org/10.1101/2025.03.01.640939
- *In prep:* INTUNE dataset open-source publication: EEG data during natural speech listening and neuropsychological measures in post-stroke aphasia
- *In prep:* Developmental trajectory of speech encoding: Investigating the language hierarchy during comprehension and production using stereoEEG

PhD thesis

- **Kries, J.**, Vandermosten, M. (supervisor), Lemmens, R. (co-supervisor), Francart, T. (co-supervisor) (2023). Unravelling speech processing mechanisms in aphasia via EEG-based neural tracking and behavioral measures.

Conference presentations

- **Kries, J.** (2024). The spatio-temporal dynamics of speech feature encoding and decoding in aging and aphasia. Presentation at the workshop "Exploring Temporal Response Functions (TRFs) in Real-World Speech Processing", Delmenhorst, Germany, 12/9/2024-12/10/2024.
- **Kries, J.**, De Clercq, P., Vandermosten, M., Gwilliams, L. (2024). How lexical predictability affects neural dynamics of phoneme representations in neurotypicals and individuals with aphasia. Presentation at the Psychologie und Gehirn (PuG) conference, Hamburg, Germany, Symposium "Exploring the Layers of Language Prediction: From Phonemes to Paragraphs", 5/30/2024-6/1/2024.
- **Kries, J.**, De Clercq, P., Gillis, M., Vanthornhout, J., Lemmens, R., Francart, T., Vandermosten, M. (2023). Exploring neural tracking of acoustic and linguistic speech features in individuals with post-stroke aphasia. Presentation at the annual meeting of the Academy of Aphasia, Reading, UK, 10/21/2023-10/23/2023.

- **Kries, J.**, De Clercq, P., Gillis, M., Mehraram, R., Lemmens, R., Francart, T., Vandermosten, M. (2022). EEG-based neural tracking of linguistic speech representations in people with post-stroke aphasia. Poster "slam" presentation at the annual meeting of the Society for the Neurobiology of Language, Philadelphia, USA, 10/6/2022-10/8/2022.
- **Kries, J.**, Lemmens, R., Francart, T., Vandermosten, M. (2019). Neural tracking of speech processing in persons with aphasia. Presentation at the Belgian scientific stroke workshop, Leuven, Belgium, 9/20/2019.

Invited talks

- **Kries, J.** (2025). Understanding speech & language encoding through the lens of aphasia. FriSem, Department of Psychology, Stanford University, USA, 4/2025.
- **Kries, J.** (2025). The spatio-temporal dynamics of speech feature encoding in aging and aphasia. UC Berkeley, Knight Cognitive Neuroscience Research Lab, USA, 1/27/2025.
- **Kries, J.** (2025). The spatio-temporal dynamics of speech feature encoding in aging and aphasia. Stanford Center for Computer Research in Music and Acoustics (CCRMA), USA, 1/17/2025.
- **Kries, J.** (2024). The spatio-temporal dynamics of speech feature encoding and decoding in aging and aphasia. KU Leuven, Belgium, 12/17/2024.
- **Kries, J.** (2024). Speech encoding in aging and aphasia. University of Luxembourg, Belval Esch-sur-Alzette, Luxembourg, 6/20/2024.
- **Kries, J.** (2024). Neural dynamics of speech encoding in individuals with aphasia and older adults. EEG topics seminar, Stanford University, USA, 5/3/2024.
- **Kries, J.** (2023). How listening to a story can reveal speech processing impairments in individuals with post-stroke aphasia. University of Algarve, Portugal, 5/2/2023.

Symposium

- **Kries, J.** (2024). Leveraging intracranial recordings for detailed insights into language processing: Bridging gaps and advancing understanding. Symposium at the annual meeting of the Society for the Neurobiology of Language, Brisbane, AUS, 10/24/2024-10/26/2024. https://www.neurolang.org/2024/symposia/?id=7. Invited speakers: Matthew Leonard (University of California San Francisco), Gregory Cogan (Duke University), Stephanie Ries (San Diego State University), Anna Mai (Max Planck Institute for Psycholinguistics).

Conference poster presentations

- **Kries, J.**, De Clercq, P., Vandermosten, M., Gwilliams, L. (2024). The spatio-temporal dynamics of phonetic encoding in aging and aphasia. Poster at the annual meeting of the Society for the Neurobiology of Language, Brisbane, AUS, 10/24/2024-10/26/2024.
- Ergin, I., **Kries, J.,** Gupta, S., Gwilliams, L. (2024). Introducing a real-time measure of comprehension during natural speech listening. Poster at the annual meeting of the Society for the Neurobiology of Language, Brisbane, AUS, 10/24/2024-10/26/2024.
- **Kries, J.**, De Clercq, P., Vandermosten, M., Gwilliams, L. (2024). The spatio-temporal dynamics of speech feature encoding in aging and aphasia. Poster at the Cognitive Computational Neuroscience conference, Boston, MA, USA, 08/08/2024.
- **Kries, J.**, De Clercq, P., Vandermosten, M., Gwilliams, L. (2024). Leveraging temporally-resolved neural data and machine learning to study speech processing impairments in aphasia. Poster at the Stanford Data Science conference, Stanford, CA, USA, 05/07/2024.

- **Kries, J.**, De Clercq, P., Mehraram, R., Lemmens, R., Francart, T., Vandermosten, M. (2023). Cluster-based delineations of aphasia profiles using EEG measures of acoustic and linguistic speech encoding. Poster at the annual meeting of the Society for the Neurobiology of Language, Marseille, FR, 10/24/2023-10/26/2023.
- Finley, A.M., **Kries, J.**, Litovsky, C., Ostrand, R. (2023). Hold that thought: Linguistic features of spontaneous discourse production predict working memory in people with aphasia. Poster at the annual meeting of the Academy of Aphasia, Reading, UK, 10/21/2023-10/23/2023.
- **Kries, J.**, De Clercq, P., Lemmens, R., Francart, T., Vandermosten, M. (2023). How cognitive impairment in individuals with aphasia affects test measures throughout the course of an experimental protocol. Poster at FENS Regional Meeting, Albufeira, Portugal, 05/03/2023-05/05/023.
- **Kries, J.**, De Clercq, P., Gillis, M., Mehraram, R., Vanthornhout, J., Lemmens, R., Francart, T., Vandermosten, M. (2022). People with post-stroke aphasia display decreased speech envelope tracking. Poster at the Academy of Aphasia, Philadelphia, USA, 10/23/2022-10/25/2022.
- **Kries, J.**, De Clercq, P., Gillis, M., Mehraram, R., Lemmens, R., Francart, T., Vandermosten, M. (2022). EEG-based neural tracking of linguistic speech representations in people with post-stroke aphasia. Poster at the Annual meeting of the Society for the Neurobiology of Language, Philadelphia, USA, 10/06/2022-10/08/2022.
- **Kries, J.**, Gillis, M., Francart, T., Vandermosten, M. (2021). Predictive speech processing evolves across the adult lifespan. Poster/presentation at the Annual meeting of the Society for the Neurobiology of Language, virtual, 10/05/2021-10/08/2021.
- **Kries, J.**, Lemmens, R., Francart, T., Vandermosten, M. (2021). How listening to a story can reveal temporal speech processing difficulties in people with post-stroke aphasia. Poster at the European Stroke Organization Conference, virtual, 09/01/2021-09/03/2021.
- **Kries, J.**, Gillis, M., Lemmens, R., Francart, T., Vandermosten, M. (2020). Connected speech analysis reveals delayed sound encoding in aphasia. Poster at the Annual meeting of the Society for the Neurobiology of Language, virtual conference, 10/21/2020-10/24/2020.
- **Kries, J.**, Francart, T., Vandermosten, M. (2020). Assessing auditory and phonemic processing in persons with aphasia. Poster at the Academy of Aphasia, virtual conference, 10/18/2020-10/20/2020.
- **Kries, J.**, Gillis, M., Vanthornhout, J., Francart, T., Vandermosten, M. (2019). Neural tracking of semantics in natural speech. Poster at the Science of Aphasia, Rome, Italy, 09/23/2019-09/26/2019.
- **Kries, J.**, Correia, J.M., Hausfeld, L., Gracco, V., Bonte, M. (2019). EEG reveals online monitoring mechanisms of speech production. Poster at the Childbrain Conference, Leuven, Belgium, 02/05/2019-02/07/2019.
- De Clercq, P., **Kries, J.**, Mehraram, R., Vanthornhout, J., Francart, T., Vandermosten, M. (2022). Decreased neural envelope tracking in individuals with post-stroke aphasia. Presented at the Society for neuroscience conference, San Diego, California.
- Mehraram, R., **Kries, J.**, De Clercq, P., Francart, T., Vandermosten, M. (2022). EEG reveals emphasized scale-free network properties in aphasia compared to the healthy condition during natural speech listening. Presented at the Society for Neuroscience 2022, San Diego, California.
- Mehraram, R., **Kries, J.**, De Clercq, P., Francart, T., Vandermosten, M. (2022). Aphasia is associated with inter-hemispheric functional hyperconnectivity while listening to natural speech. Presented at the Organization for Human Brain Mapping, Glasgow (UK).
- Vanthornhout, J., Gillis, M., Lesenfants, D., Accou, B., Decruy, L., Verschueren, E., Van Canneyt, J., Geirnaert, S., **Kries, J.**, Bonin, E., Somers, B., Van Hirtum, T., Francart, T. (2020). Decoding brain responses to auditory stimulation: applications in diagnostics. Presented at the Leuven Brain Institute: Scientific Meeting, virtual.

Open Science

- On OSF: Processed data of the project "A neurodiagnostic measure for aphasia: Capturing speech processing mechanisms via neural tracking"; includes behavioral and encoding model data. doi: 10.17605/OSF.IO/6T2JA https://osf.io/6t2ja/

Science Outreach

- **Kries, J.**, Blockmans, L. (2022). How language is processed in the brain: from reading development to brain lesion. Lecture presented at the info day *Brain research at KU Leuven/UZ Leuven*, Belgium, 3/16/2022.
- **Kries, J.** (2021). How listening to a story can help us diagnose aphasia. https://tinyurl.com/SFOJillKries
- Iverson, E., **Kries, J.**, Schevenels, K., Vanden Bempt, F., Blockmans, L. (2020). Spotlight on Young Researchers: Understanding how language manifests in the brain.
  https://tinyurl.com/SpotlightFNRJillKries
- **Kries, J.**, Dieudonné, B., Starovoyt, A., Samsel, A., Somers, B., Borgers, C., Vanden Bempt, F., Fierens, G., Van Canneyt, J., Schevenels, K., Blockmans, L., Economou, M., Van Herck, S., Geirnaert, S., Arras, T., Stevens, V., Stroobants, K., Putzeys, T., David, W., Francart, T., Wouters, J., van Wieringen, A., Vandermosten, M., Ghesquière, P., Bertrand, A., Verhaert, N. (2019). The brilliant brain between your ears. Contribution to Belgian Science Day.

Grants and Awards

- 2024: Travel award for the Society for the Neurobiology of Language meeting
- 2023: Travel award for the Academy of Aphasia meeting
- 2019-2023: Full PhD funding by the National Research Fund Luxembourg, AFR individual grant reference: 13513810

Teaching

Guest lecturer:

- "Language Neuroscience Seminar" taught by Prof. Laura Gwilliams, Stanford University (Fall quarter 2024)

Teaching assistant:

- "Clinical reasoning" taught by Prof. Maaike Vandermosten, KU Leuven (2020)

Master thesis supervision:

- Pauline Bakkers, MSc Speech-Language Pathology, KU Leuven (2018-2020)
- Fenne Vander Rasieren, MSc Speech-Language Pathology, KU Leuven (2018-2020)
- Anke Heremans, MSc Speech-Language Pathology, KU Leuven (2019-2021)
- Frauke De Vis, MSc Speech-Language Pathology, KU Leuven (2019-2021)
- Ines Robberechts, MSc Speech-Language Pathology, KU Leuven (2020-2022)
- Laura Van Den Bergh, MSc Speech-Language Pathology, KU Leuven (2020-2022)

Student researcher supervision:

- Nicolas De Cleene, MSc Medicine, KU Leuven (2019)
- Naomi Pollet, MSc Medicine, KU Leuven (2020)

Workshop "Brain Imaging Data Structure (BIDS)", KU Leuven, Tutor and event co-organizer (September 2021)

Service

2023-present: Peer-review for Cortex, Scientific Reports, Plos One, Imaging Neuroscience, European Journal of Neuroscience, Frontiers in Human Neuroscience
2024-present: Member of the Stanford Psychology Department Diversity Committee
2020-2023: Trainee representative at the board of the Department of Neuroscience, KU Leuven

Community events

Event organizer

- Symposium in April 2024: Bay Area Language Processing Interest Group - A half day symposium to bring together language researchers from various institutions located in the Bay Area, consisting of a line-up of 6 speakers from Stanford, UCSF, UC Berkeley and UC Davis, as well as a keynote lecture (https://linktr.ee/baylanguageprocessing)
- Aphasia day 2023 at KU Leuven: Community event for study participants consisting of an art exhibition by a person with aphasia; workshops about mental health and communication training with partners; reception and sing-along live music
- Aphasia day 2022 at KU Leuven: Community event for study participants consisting of presentation of study results, reception and sing-along live music

Training and Qualifications

Programming languages

Python, MATLAB, R

Languages

English - fluent
Luxembourgish - native
German - fluent
French - fluent
Dutch - fluent
Spanish - beginner

Extra-curricular

- 2017-2018: Educational advisor for children at Centre Noomdo, NGO *Le soleil dans la main*, Burkina Faso
- 2013-2018: Substitute teacher in primary schools in Luxembourg (occasionally)
- 2016-2018: Camp organizer for children aged 6 to 16, 3 camps, Service National de la Jeunesse Luxembourg, Groupe Animateur
- 2009-2019: Camp counsellor for children aged 4 to 12, 18 camps, Service National de la Jeunesse Luxembourg, Groupe Animateur