AGATA WOLNA

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ACADEMIC POSITIONS

since 2024 **Massachusetts Institute of Technology,** Cambridge MA
McGovern Institute for Brain Research
Postdoctoral Fellow
Supervisor: Evelina Fedorenko

EDUCATION

2018 – 2023 **Jagiellonian University,** Kraków, Poland
PhD in Cognitive Neuroscience
Supervisors: Zofia Wodniecka, Jakub Szewczyk
Thesis: Understanding engagement of language control in bilingual speech production

2013 – 2018 **Jagiellonian University,** Kraków, Poland
Master in Psychology (Inter-faculty Individual Studies in the Humanities and Social Sciences)
Supervisor: Zofia Wodniecka
Thesis: The origins of the L2 after-effect in bilingual language production: an ERP investigation

02 – 06. 2017 **École Normale Supérieure,** Paris, France
exchange student (Erasmus+)
Cognitive Science (Cogmaster program)

GRANTS & FUNDING

2025-2027 Simons Centre for the Social Brain Postdoctoral Fellowship

2022 In search of the neural signature of a native and a second language. Using fMRI to investigate a relationship between a complexity of linguistic processing and neural similarities and differences between the two languages. (209 059 PLN)
Funding agency: National Science Centre (PRELUDIUM grant)
Role: PI

2022 Understanding the engagement of language control in bilingual speech production
Internal grants of the Jagiellonian University supporting early researchers' projects
- Visibility and Mobility grant, 15 000 PLN
- Skills Development and Engagement grant, 11 160 PLN

PUBLICATIONS

* denotes joint first authorship † denotes an undergraduate mentee

Preprints and submitted work

Wolna, A., Wright, A†., Casto, C., Hutchinson, S., Lipkin, B., & Fedorenko, E. (2025). *The extended language network: Language selective brain areas whose contributions to language remain to be discovered*. [Preprint] bioRxiv. https://doi.org/10.1101/2025.04.02.646835. Under revision in *Journal of Neuroscience*

Billot, A., Jhingan, N., Varkanitsa, M., **Wolna, A**., Shain,C., Blank, I., Ryskin, R., Kiran, S., Fedorenko, E. (2025). *The language network ages well: Preserved topography, lateralization, selectivity, and within-network functional connectivity in older brains.* [Preprint] bioRxiv. https://doi.org/10.1101/2024.10.23.619954. Under revision in *Nature Communications*

Lijewska, A*., **Wolna, A*.,** Meliksetian, A., Wodniecka, Z. (2025). *The influence of L2 immersion and L1 reimmersion on reading and grammatical preferences in L1 anaphora.* Under revision in *Bilingualism: Language and Cognition*

Published work

Timmer, K*., **Wolna, A*.,** Szewczyk, J., & Wodniecka, Z. (2025). Language Context Flexibly Modulates Language Control Mechanisms. *Cognition.* https://doi.org/10.1016/j.cognition.2026.106488

Casto, C., Small, H., Poliak, M., Tuckute, G., Lipkin, B., **Wolna, A.,** ... & Fedorenko, E. (2025). *The cerebellar components of the human language network. Neuron.* https://doi.org/10.1016/j.neuron.2025.12.030

Czarnecka, M., Hryniewiecka, K., **Wolna, A.**, Baumbach, C., Beck, J., Vadlamudi, J., ... & Stroh, A. L. (2025). *Association between Cortical Thickness and Functional Response to Linguistic Processing in the Occipital Cortex of Early Blind Individuals*. *Cerebral Cortex, 35*(11), bhaf317. https://doi.org/10.1093/cercor/bhaf317

Casado, A., Walther, J., **Wolna, A.,** Szewczyk, J., Sorace, A., & Wodniecka, Z. (2025). Investigation of long-and short-term adaptations of the bilingual language system to different language environments: Evidence from the ERPs. *Journal of Neurolinguistics, 74*, 101242. https://doi.org/10.1016/j.jneuroling.2024.101242

Timmer, K., **Wolna, A.,** & Wodniecka, Z. (2024). The impact of cues on language switching: do spoken questions reduce the need for bilingual language control? *Bilingualism: Language and Cognition.* 1-19. https://doi.org/10.1017/S1366728924000841

Wolna, A., Szewczyk, J., Diaz, M., Domagalik, A., Szwed, M., Wodniecka, Z. (2024) Domain-general and language-specific contributions to speech production in L2: an fMRI study using functional localizers. *Scientific Reports 14*(57). https://doi.org/10.1038/s41598-023-49375-9

Wolna, A., Szewczyk, J., Diaz, M., Domagalik, A., Szwed, M., Wodniecka, Z. (2024) Tracking components of bilingual language control in speech production: an fMRI study using functional localizers. *Neurobiology of Language.* 5 (2): 315–340. https://doi.org/10.1162/nol_a_00128

Casado, A., Walther, J., **Wolna, A.,** Szewczyk, J., Sorace, A., Wodniecka, Z. (2023) Advantages of visiting your home country: how brief reimmersion in their native country impacts migrants' native language access. *Bilingualism Language and Cognition,* 1–12. https://doi.org/10.1017/S136672892300024X

Wolna, A., Łuniewska, M., Haman, E., Wodniecka, Z. (2022) Polish norms for a set of coloured drawings of 168 objects and 146 actions with predictors of naming performance. *Behaviour Research Methods*, 1-27. https://doi.org/10.3758/s13428-022-01923-3

Casado, A., Szewczyk, J., **Wolna, A.,** Wodniecka, Z. (2022) The relative balance between languages predicts the degree of engagement of global language control. *Cognition*, 226, 105169. https://doi.org/10.1016/j.cognition.2022.105169

Wolna, A., Wodniecka, Z. (2022) Bilingual brain: a review of the most important findings. *Neuropsychiatry & Neuropsychology*. *Neuropsychiatry & Neuropsychology, 17*(1-2). https://doi.org/10.5114/nan.2022.117089

Wolna A, Durlik J, Wodniecka Z. (2022) Pronominal anaphora resolution in Polish: Investigating online sentence interpretation using eye-tracking. *PLoS ONE 17*(1): e0262459. https://doi.org/10.1371/journal.pone.0262459

Wodniecka, Z., Casado, A., Kałamała, P., Marecka, M., Timmer, K., **Wolna, A.** (2020). The dynamics of language experience and how it affects language and cognition. In *Psychology of Learning and Motivation* (Vol. 72, pp. 235-281). Academic Press. https://doi.org/10.1016/bs.plm.2020.02.005

Wolna, A. (2017). Lateralisation of language processing–right hemisphere contribution to understanding and analysing language. *Neuropsychiatry & Neuropsychology, 12*(1). https://doi.org/10.5114/nan.2017.68897

CONFERENCE PRESENTATIONS (selected)

† denotes an undergraduate mentee

Invited talks

Wolna, A. (2025). Mapping functional variability in the brain: functional precision imaging as a window to study language and its relation to speech perception and production. Polonium Foundation Meeting at MIT, 8.11.2025.

Talks

Wolna, A. (2025). Mapping functional variability in the brain: functional precision imaging as a window to study language and its relation to speech perception and production. OHBM, Brisbane, 25-28.06.2025. Symposium talk at *Precision Mapping of Individual Human Brains* panel

Wolna, A., Timmer, K., Szewczyk, J., Wodniecka, Z. (2023) Language context modulates the asymmetry of switch costs and reverse dominance effects in the language switching paradigm. ESCOP, Porto, 6-9.09.2023. Talk

Wolna, A., Szewczyk, J., Diaz, M., Domagalik, A., Szwed, M., Wodniecka, Z. (2022) Brain basis of speech production in the native and a second language: an fMRI study using functional localizers. Neuronus IBRO Neuroscience Forum, Kraków, 15-17.10.2022. Talk

Wolna, A., Szewczyk, J., Diaz, M., Domagalik, A., Szwed, M., Wodniecka, Z. (2022) Why does exposure to a second language hamper access to the native language? Deconstructing neural bases of L2 after-effect using functional localizers. ESCOP, Lille, 29.08-1.09.2022. Talk

Wolna, A., Szewczyk, J., Diaz, M., Domagalik, A., Szwed, M., Wodniecka, Z. (2021) How second language use impacts speech production in the native language: an fMRI study using functional localizers. Aspects of Neuroscience 2021, Warsaw, 26-28.11.2021. Talk (best talk award)

Posters

Wolna, A., Wright†, A., Wodniecka, Z., Fedorenko, E. (2025) From Words to Stories: Engagement of language-specific and domain-general neural mechanisms in native and second language comprehension. Cognitive Neuroscience Society, Boston, 29.03-01.04.2025. Poster

Wolna, A., Wrigth†, A., Lipkin, B., Fedorenko, E. (2024) The extended language network: A large-scale characterization of language-responsive regions beyond the core fronto-temporal network. Society for Neurobiology of Language, Brisbane, 24-26.10.2024. Poster

Wolna, A., Szewczyk, J., Diaz, M., Domagalik, A., Szwed, M., Wodniecka, Z., Fedorenko, E. (2023) Broca is alive and well: an articulation-selective area in the left inferior frontal gyrus, distinct from nearby language and Multiple Demand areas. Society for Neurobiology of Language, Marseille, 24-26.10.2023. Poster

Wolna, A., Szewczyk, J., Diaz, M., Domagalik, A., Szwed, M., Wodniecka, Z. (2022) Why does exposure to a second language hamper access to the native language? Deconstructing neural bases of L2 after-effect using functional localizers. IMPRS, Nijmegen, 1-3.06.2022. Poster

Wolna, A., Szewczyk, J., Diaz, M., Domagalik, A., Szwed, M., Wodniecka, Z. (2022) Why does exposure to a second language hamper access to the native language? Deconstructing neural bases of L2 after-effect using functional localizers. Cognitive Neuroscience Society, San Francisco, 23-26.04.2022. Poster

Wolna, A., Wodniecka, Z. (2020). How does the second language affect the word retrieval in the native language? An ERP investigation of bilingual speech production mechanisms. Neuronus 2020 IBRO Neuroscience Forum, Kraków, 8-11.12.2020. Poster (best poster award)

Wolna, A., Szewczyk, J., Kałamała, P., Wodniecka, Z. (2020) The origin of the second language after-effect in bilingual language production: and ERP investigation. Cognitive Neuroscience Society meeting, online, 2-5.05.2020. Poster

Wolna A., Szewczyk J., Casado A., Wodniecka Z. (2019) In search of factors influencing L2 after-effect in picture naming. ESCOP, Spain, 25-28.09.2019. Poster

Wolna, A., Szewczyk, J., Kałamała, P., Walther, J., Wodniecka, Z. (2018). The "production P2" effect primarily reflects training in picture naming. The 24th Annual Conference on Architectures and Mechanisms for Language Processing, Berlin, 6-8.09.2018. Poster

HONORS & AWARDS

2025	Patrick McGovern Travel and Technology Award
2023	Travel Award, Society for Neurobiology of Language
2021	Scientific Committee Award for the best talk, Aspects of Neuroscience, Warsaw

2021	Best poster Award in Cognitive Neuroscience panel, Neuronus 2020 IBRO Neuroscience Forum, Kraków
2018, 2022	Scholarship of the Chancellor of Jagiellonian University for best PhD students
2018	Andrzej de Bauvale'a Award for the best master thesis defended in 2018 in the Institute of Psychology at the Jagiellonian University
2016, 2017	Scholarship of Polish Ministry of Science and Higher Education for best students
2014-2017	Scholarship of the Chancellor of Jagiellonian University for best students

PROFESSIONAL TRAINING

19 – 30.09.2022	**Cognitive Neuroscience Skills Training in Cambridge (COGNESTIC)** MRC Cognition and Brain Sciences Unit, University of Cambridge
12 – 17.09.2022	**Sixth Summer School on Statistical Methods for Linguistics and Psychology (SMLP)** Introduction to Bayesian Data Analysis
16 – 19.05.2022	**SPM course in fMRI/VBM data analysis** University College London
7 – 11.09.2020	**Fourth Summer School on Statistical Methods for Linguistics and Psychology (SMLP)** Advanced frequentist statistics (linear mixed effects models with Julia)
17 – 21.06.2019	**FSL course in MRI data analysis** Oxford Centre for Functional MRI of the brain

TEACHING

Invited lectures

- Fall 2024, Spring 2025, Fall 2025: *Second language learning in bilinguals,* Georgia Tech, PSYC2760: Human Language Processing (lecturer: Anya Ivanova)

Teaching assistant (Jagiellonian University):

- 2020: *Life in 2 Languages: Cognitive aspects of bilingualism and second language learning*
- 2022: *Life in 2 Languages: Cognitive aspects of bilingualism and second language learning*

Guest lectures:

- 2022, 2023: *Life in 2 Languages: Cognitive aspects of bilingualism and second language learning.* Lecture on the neural bases of bilingualism

Supervision of undergraduate students

- 2024-2025: Aaron Wright (BCS Research Scholars Program)
- 2024-2025: Alex Papazov (Harvard undergraduate student)

REVIEWER SERVICE

Ad-hoc reviewer for: Nature Communications, Cognition, Imaging Neuroscience, Human Brain Mapping, Cerebral Cortex, Brain Imaging and Behavior, Behavior Research Methods, Journal of Psycholinguistic Research, Acta Psychologica

COMMUNITY ENGAGEMENT

Member of Collegium Invisibile – an academic society supporting the scholarly development of students (since 2017)

- 2022/2023: Board Member.
- 2021: Coordinator of a summer school for high school students organized by Collegium Invisibile (incl. coordination of 10 workshops, organization of 5 lectures by expert of different domains of science and humanities, recruitment and communication with the students)

Teaching and tutoring:

- Biweekly supervision of talented high school students supporting their research interests (one student in 2022/2023, two students in 2020/2021, one student in 2018/2019)
- 2020/2021 – Instructor, *Cognitive Psychology, Psycholinguistics and Research methods* (course in Polish), two short courses (14h) for high school students – holders of the scholarship of Krajowy Fundusz na Rzecz Dzieci.
- Summer 2020 – Invited lecture, *Consequences of bilingualism – how does the mind of a bilingual work?* summer school organized by Collegium Invisibile
- Summer 2020 – Instructor, *Working with Scientific Texts: Methodological Workshop* (course in Polish), short course (12 h) for the summer school organized by Collegium Invisibile for talented high school students.
- Summer 2019 – Instructor, *Language, Mind, and Brain: Introduction to psycholinguistics* (course in Polish), a short course (12 h) for the summer school organized by Collegium Invisibile for talented high school students.