

# AGATA WOLNA

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Research Gate: <https://www.researchgate.net/profile/Agata-Wolna>

## 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*

Timmer, K\*. **Wolna, A\***., Szewczyk, J., & Wodniecka, Z. (2025). *Language Context Flexibly Modulates Language Control Mechanisms*. [Preprint] SSRN. <http://dx.doi.org/10.2139/ssrn.5155536>. Under revision in *Cognition*

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

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Casto, C., Small, H., Poliak, M., Tuckute, G., Lipkin, B., **Wolna, A.**, ... & Fedorenko, E. (2025). *The cerebellar components of the human language network*. *Neuron* (in press)

Czarnecka, M., Hryniwiecka, 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](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)

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† denotes an undergraduate mentee

### Invited talks

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**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**

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**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**

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**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.**, Wright†, 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: an 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**

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**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

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

## PROFESSIONAL TRAINING

<b>19 – 30.09.2022</b>	<b>Cognitive Neuroscience Skills Training in Cambridge (COGNESTIC)</b> MRC Cognition and Brain Sciences Unit, University of Cambridge
<b>12 – 17.09.2022</b>	<b>Sixth Summer School on Statistical Methods for Linguistics and Psychology (SMLP)</b> Introduction to Bayesian Data Analysis
<b>16 – 19.05.2022</b>	<b>SPM course in fMRI/VBM data analysis</b> University College London
<b>7 – 11.09.2020</b>	<b>Fourth Summer School on Statistical Methods for Linguistics and Psychology (SMLP)</b> Advanced frequentist statistics (linear mixed effects models with Julia)
<b>17 – 21.06.2019</b>	<b>FSL course in MRI data analysis</b> 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 Invisible – 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 Invisible (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 Invisible
- Summer 2020 – Instructor, *Working with Scientific Texts: Methodological Workshop* (course in Polish), short course (12 h) for the summer school organized by Collegium Invisible 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 Invisible for talented high school students.