Dr. Xiaochen Y. Zheng | 郑晓辰

Ph.D in Cognitive Neuroscience
Research Fellow at Leiden University

🏠 xiaochenzheng.github.io   ✉ zhengxiaochen.psy@gmail.com   in Xiaochen Zheng

Employment

Senior postdoctoral researcher, Department of Cognitive Psychology, Leiden University

The Netherlands
Oct. 2024- Pres.

Lecturer, Faculty of Social Sciences, Leiden University

The Netherlands
Jun. 2025-Pres

Postdoctoral researcher, Donders Center for Cognitive Neuroimaging, Radboud University

The Netherlands
Nov. 2019- Sep. 2024.

Coordinating postdoc, Dutch research consortium *"Language in Interaction"*

The Netherlands
Nov. 2019- Jun. 2024

Predoctoral researcher, Donders Center for Cognition, Radboud University

The Netherlands
Sep. 2015-Aug. 2019

Education

Donders Graduate School for Cognitive Neuroscience &
International Max Plank Research School for Language Science

The Netherlands
Sep. 2015-Aug.2019.

> **Ph.D** in Cognitive Neuroscience

Tilburg University & Radboud University

The Netherlands

> **Research Master** in Language and Communication

Sep. 2013-Aug. 2015

Beijing Normal University

Beijing, China

> **B.S.** in Psychology

Sep.2007-Jul.2011

Publications

Zheng, X. Y., Garvert, M. M., den Ouden, H. E., Horstman, L. I., Richter, D., & Cools, R. (2025). Abstract rule generalization for composing novel meaning recruits the frontoparietal control network. *Imagine Neuroscience*. [Open Access] [data]

Zheng, X. Y. & Piai, V. (2025). Neural oscillations in the aging brain associated with interference control in word production. *Neurobiology of Language*. [Open Access] [data]

Zheng, X. Y., Hebart, M. N., Grill, F., Dolan, R. J., Doeller, C. F., Cools, R., & Garvert, M. M. (2024). Parallel cognitive maps for multiple knowledge structures in the hippocampal formation. *Cerebral Cortex*. [Open Access] [data]

Cui, N., Piai, V., & **Zheng, X. Y.** (2024). Domain-general cognitive control processes in bilingual switching: evidence from midfrontal theta oscillations. *European Journal of Neuroscience.* [Open Access] [data]

Kennis, N., **Zheng, X. Y.,** de Bruin, A., & Piai, V. (2024). Is switching more costly in cued than voluntary language switching? Evidence from behaviour and electrophysiology. *Bilingualism: Language and Cognition*. [PDF] [data]

Zheng, X. Y. & Wynn, S. C. (2022). Midfrontal theta is associated with errors, but no evidence for a link with error-related memory. *Neuroimage: Report*. [Open Access] [data]

Chupina, I., Sierpowska, J., **Zheng, X. Y.,** Dewenter, A., Piastra, M. C., & Piai, V. (2022). Right-hemisphere compensation during word production: A single case of left-hemisphere young stroke. *European Journal of Neuroscience*. [Open Access]

Hustá, C., **Zheng, X.,** Papoutsi, C., & Piai, V. (2021). Electrophysiological signatures of conceptual and lexical retrieval from semantic memory. *Neuropsychologia, 107988*. [DOI] [data]

Piai, V., De Witte, E., Sierpowska, J., **Zheng, X.,** Hinkley, L. B., Mizuiri, D., ... & Nagarajan, S. S. (2020). Language neuroplasticity in brain tumor patients revealed by magnetoencephalography. *Journal of Cognitive Neuroscience, 32*(8), 1497-1507. [Open Access]

Zheng, X. (2020). *Control and monitoring in bilingual speech production: language selection, switching and intrusion.* (Doctoral dissertation, Radboud University, Nijmegen, The Netherlands). [Open Access]

Zheng, X., Roelofs, A., Erkan, H., & Lemhöfer, K. (2020). Dynamics of inhibitory control during bilingual speech *production*: An electrophysiological study. *Neuropsychologia, 140,* 107387. [DOI] [data]

Piai, V. & **Zheng, X.** (2019). Speaking waves: neuronal oscillations in language production. Book chapter for *The Psychology of Learning and Motivation* (Vol. 71, pp. 265-302). Academic Press. [DOI]

Zheng, X., Roelofs, A., & Lemhöfer, K. (2019). Language selection contributes to intrusion errors in speaking: Evidence from picture naming. *Bilingualism: Language and Cognition*, *23*(4), 788-800. [Open Access] [data]

Zheng, X. & Lemhöfer, K. (2019). The "semantic P600" in second language processing: When syntax conflicts with semantics. *Neuropsychologia*, 127, 131-147. [DOI] [data]

Zheng, X., Roelofs, A., Farquhar, J., & Lemhöfer, K. (2018). Monitoring language selection errors in switching: Not all about conflict. *PLoS ONE*, 13, e0200397. [Open Access] [data]

Zheng, X., Roelofs, A., & Lemhöfer, K. (2018). Language selection errors in switching: Language priming or cognitive Control? *Language, Cognition and Neuroscience*, 33, 139-147. [Open Access] [data]

Work in progress

Zheng, X. Y., Petukhova, A., Roelofs, J., Garvert, M., den Ouden. H., & Cools, R. (2024). This Paper is "Un-reject-able-ish": Learning and Generalization of Novel Compositional Meanings. [PsyArxiv]

Van Tiel, B., Carcassi, F., & **Zheng., X. Y.** (2024). Word order and the learnability of artificial languages. Proceedings in Society of Cognitive Science. [DOI]

Grants & Scholarships

Veni grant, Netherlands Organisation for Scientific Research (NWO) *(€ 320,000)*	*2024*
2-year grant for a parallel postdoc position, *Language in Interaction* research consortium (co-applicant with Prof. dr. Roshan Cools and Dr. Vitoria Piai)	*2022*
4-year PhD grant, DCC internal round (co-applicant), Donders Centre for Cognition, Radboud University	*2015*
Scholarship for Academic Excellence, Tilburg University *(€ 26,000)*	*2014, 2013*
KNAW Research Assistants Program, Tilburg School of Humanities *(~€ 7,000)*	*2014*
Academic Scholarship, Beijing Normal University *(CNY 1300 = ~€ 170)*	*2010, 2009*

Conference Presentations

Zheng, X. Y., Schoffelen, J-M., Garvert, M. M., den Ouden, H. E. M., Santana Gutiérrez, D., Horstman, L., Richter, D., Piai, V., & Cools, R. (2024). *The neural architecture of compositional generalization.* Poster presentation at the Organization for Human Brain Mapping (OHBM) Annual Meeting, Seoul, South Korea.

Zheng, X. Y., Garvert, M. M., den Ouden, H. E. M., Horstman, L., Richter, D., & Cools, R. (2023). *Decoding the neural architecture of compositional meaning generalization.* Oral presentation at the NVP Winter Conference on Brain & Cognition, Egmond aan Zee, the Netherlands.

Mainetto, E., **Zheng, X. Y.,** Verkes, R-J., den Ouden, H. E. M., Cools, R. (2023). Quantifying the flexibility of neural representations of word meaning. Poster presentation at the NVP Winter Conference on Brain & Cognition, Egmond aan Zee, the Netherlands.

Cui, N., Piai, V., & **Zheng, X. Y.** (2023). Domain-general cognitive control processes in bilingual switching: evidence from midfrontal theta oscillations. Poster presentation at the NVP Winter Conference on Brain & Cognition, Egmond aan Zee, the Netherlands.

Zheng, X. Y., Garvert, M. M., den Ouden, H. E. M., & Cools, R. (2023). *The neural architecture of compositional generalization in language.* Poster presentation at the 15th Annual Meeting of the Society for the Neurobiology of Language, Marseille, France.

Mainetto, E., den Ouden, H. E. M., Merkx, D., Horstman, L., de Haas, A. N., Garvert, M. M., Martin, A. E., Cools, R., & **Zheng, X.**   (2023). *Quantifying the flexibility of knowledge structures in language.* Poster spotlights at The Brain Conference on Structuring Knowledge for Flexible Behaviour, Rungstedgaard, Denmark.

Zheng, X. Y., Garvert, M. M., den Ouden, H. E. M., & Cools, R. (2023). *The neural architecture of compositional generalization: how do we infer the meaning of "un-reject-able-ish".* Poster spotlights at The Brain Conference on Structuring Knowledge for Flexible Behaviour, Rungstedgaard, Denmark. [FigShare][Poster Award]

Petukhova, A., **Zheng, X. Y.,** Roelofs, J, Horstman, L., & Cools, R. **(2023).** *The role of individual differences in the ability of generalizing compositional meaning.* Oral presentation at Psycholinguistics in Flanders conference, Ghent, Belgium.

Zheng, X. Y., Garvert, M. M., den Ouden, H. E. M., & Cools, R. (2023). *The neural architecture of generative compositionality: how do we infer the meaning of "un-reject-able-ish".* Poster presentation at the 30th Anniversary Meeting of Cognitive Neuroscience Society, San Francisco, United States.

Zheng, X. Y., Garvert, M. M., Roelofs. J., den Ouden, H. E. M., & Cools, R. (2022*). This poster is un-ignorABLE-ish: Learning and generalization of novel compositional meanings.* Poster presentation at The 5th Multi-disciplinary Conference on Reinforcement Learning and Decision Making, Providence, United States. [FigShare]

Zheng, X. Y., Hebart, M. N., Behrens, T. E. J., Dolan, R. J., Doeller, C. F., Cools, R., & Garvert, M. M. (2022). *Parallel cognitive maps for statistical and semantic relationships in the hippocampal formation.* Blitz talk at Annual meeting at British Association for Cognitive Neuroscience, Birmingham, United Kingdom. [FigShare]

Kennis, N., **Zheng, X. Y.,** de Bruin, A., Piai, V. (2022). The electrophysiology of voluntary and cued language switching: evidence from event related potentials and neuronal oscillations. Poster presentation at the 4th International Symposium on Bilingual and L2 Processing in Adults and Children. Tromsø, Norway.

Zheng, X., Hebart, M. N., Behrens, T. E. J., Dolan, R. J., Doeller, C. F., Cools, R., & Garvert, M. M. (2022). *Parallel cognitive maps for statistical and semantic relationships in the hippocampal formation.* Poster presentation at the NVP Winter Conference on Brain & Cognition, Egmond aan Zee, the Netherlands.

Mainetto, E., den Ouden, H. E. M., Merkx, D., de Haas, A. N., Garvert, M. M., Martin, A. E., Cools, R., & **Zheng, X.** (2022). *Mental representations of word meaning in a sentence context.* Poster presentation at the NVP Winter

Conference on Brain & Cognition, Egmond aan Zee, the Netherlands. [FigShare]

van Tiel, B. & **Zheng, X.** (2022). *Learning structure in language: Experimental evidence from artificial language learning.* Poster presentation at the NVP Winter Conference on Brain & Cognition, Egmond aan Zee, the Netherlands.

Zheng, X. & Piai, V. (2021). *Neural oscillations of interference control in the aging brain: evidence from picture-word interference.* Short talk presentation at the International Workshop on Language Production. Virtual meeting.

Zheng, X., Roelofs, A., Erkan, H., & Lemhöfer, K. (2019). *The N2 changes during switching but not repetition of language in bilingual picture naming.* Poster presentation at the Organization for Human Brain Mapping (OHBM) Annual Meeting, Rome, Italy.

Zheng, X. (2018). *Error monitoring and language control.* Oral presentation at FutureUp! BMI & Partners Annual PhD Students Neuroscience Symposium, Lausanne, Switzerland.

Zheng, X., Roelofs, A., Farquhar, J & Lemhöfer, K. (2018). *Monitoring of language selection errors in switching: Not all about conflict.* Poster presentation at the 10th International workshop on language production, Nijmegen, The Netherlands.

Zheng, X., Roelofs, A., Witte, K., & Lemhöfer, K. (2018). *Involuntary Switching and Language Control: In Search for a New Paradigm, or Two*. Poster presentation at the Interdisciplinary Approaches in the Language Sciences Conference, Nijmegen, The Netherlands.

Zheng, X., Roelofs, A., Farquhar, J., & Lemhöfer, K. (2017). *Error Monitoring in Language Switching: All about Conflict?* Poster presentation at the Annual Meeting of Psychonomic Society, Vancouver, Canada.

Zheng, X., Roelofs, A., Farquhar, J., & Lemhöfer, K. (2017). *Monitoring Language Selection Errors in Switching: All about Conflict?* Oral presentation at the Conference on Multilingualism, Groningen, The Netherlands.

Zheng, X., Roelofs, A., & Lemhöfer, K. (2016). *Language selection errors in switching: enhancement or inhibition?* Poster presentation at the Conference on Multilingualism, Ghent, Belgium.

Zheng, X., & Lemhöfer, K. (2015). *"The mouse that chased the cat": reversed anomalies in second language processing.* Poster presentation at the NVP Winter Conference on Cognition, Brain, and Behaviour, Egmond aan Zee, the Netherlands.

Zheng, X., & Lemhöfer, K. (2015). *"Semantic P600" in second language processing: when syntax conflicts with semantics.* Oral presentation at the 19th Conference of the European Society for Cognitive Psychology (ESCOP), Paphos, Cyprus.

Zheng, X., Krahmer, E., Goudbeek, M., & Cozijn, R. (2015). *What we see tells what we say: combining eye movement and reference production.* Poster presentation at the 12th International Symposium of Psycholinguistics, Valencia, Spain.

Zheng, X. & Lemhöfer, K. (2015). *Shallow processing in L2 comprehension: An EEG study in German-Dutch Bilinguals.* Oral presentation at Psycholinguistics in Flanders conference, Marche-en-Famenne, Belgium.

Invited Talks

The neural mechanisms of learning and generalization of word meanings. Invited talk at Young Scholars Salon, Fudan University, China. June 2024.

The neural architecture of generative inference. Informal talk at the Human Information Processing lab group (online), University of Oxford, United Kingdom. February 2023.

Neural oscillation of interference control in the aging brain: evidence from spoken word production. Informal talk at the Neuronal Oscillations lab group (online), University of Birmingham, United Kingdom. November 2022.

The speaking brain: How do we control our languages in use? Invited talk at the Ticc Colloquium, Department of

Communication and Cognition, Tilburg University, The Netherlands. October 2022.

How do we control our languages? Invited talk at the LACG meeting, Language and Cognition Group, Leiden University, The Netherlands. September 2022.

How do we control our languages? Invited talk at IMPRS conference: Interdisciplinary Approaches in the Language Sciences, Max Planck Institute for Psycholinguistics, Nijmegen, The Netherlands. June 2022.

Coffee OF tea: the neural mechanism of cognitive control in bilingual switching. Psychology Seminars (online). School of Biological and Behavioural Sciences, Queen Mary University of London, United Kingdom. October 2021.

The neural mechanism of cognitive control in language production, International Young Scholars Forum (online). School of Psychology, Northwest Normal University, Gansu, China. June 2021.

Supervision Experience

PhD student
- Elena Mainetto (*Radboud University*)
  co-supervised with Prof. Roshan Cools and Dr. Hanneke den Ouden   *2020 - pres*

Master students:
- **Thesis projects:**
  - Bo Tordoir *(Leiden University, MSc Applied Cognitive Psychology)*   *2025*
  - Jade Pinkney *(Leiden University, MSc Applied Cognitive Psychology)*   *2025*
  - Ningjing Cui *(Leiden University, Research Master Psychology)*   *2023*
  - Anna Petukhova *(Radboud University)*   *2022-2023*
  - Nora Kennis *(Radboud University)*
    co-supervised with Dr. Vitória Piai and Dr. Angela de Bruin   *2021-2022*
  - Jonne Roelofs *(Radboud University)*   *2021*
  - Cecilia Husta *(University of Groningen)*   *2019*
    co-supervised with Dr. Vitória Piai
- **Internship**: Hasan Erkan (*Radboud University*), Anne Billot (*Pierre-and-Marie-Curie University, France, co-supervised with Dr. Vitória Piai*), Julia Egger (*Radboud University*), Estelle Coelingh (*Utrecht University*)
- **Lab rotation** (*all Radboud University*): Laura Giglio, Cas Coopmans, Natascha Roos, Natalia Dubinkina, Vivian Vriezekolk

Research assistants
- Daniela Santana Gutiérrez   *2024*
- Upasana Shah   *2023-2024*
- Lisa Horstman   *2022-2023*

Bachelor students:
- **Thesis projects**
  - *Rajeev Nathie (Leiden University, BSc Data Sciences and AI)*
  - *Max Sterling, Rick Alofs, Elena Nicolaou, Daniel Holthuis (Radboud University*
- **Honours project**
  - *Line Cernota (Leiden University, BSc Psychology)*
  - *Kristin Witte (Radboud University)*

     o   *Puck Lange, Lada Zelinski, Lara Burmeister (Radboud University, co-supervised with Syanah Wynn and Dr. Dennis Schutter)*

Teaching Experience

Lecturer & Course coordinator, Bachelor's Program in Data Science and AI, Leiden University   *2025-pres.*
- *Cognitive Neuroscience for AI*
- *Cognitive Modelling*

Lecturer & Course coordinator, Bachelor's Program in Psychology, Leiden University   *2024-pres.*
- *Cognitive Neuroscience*
- *Applied Cognitive Psychology*

Guest lecturer, Research Master's Program in Cognitive Neuroscience, Radboud University   *2024-2025*
- *Cognitive control and decision making*
- *Neurobiology of language*

Lecturer/Tutor, Bachelor's Program in Psychology, Radboud University   *2016-2018*
- *General introduction to Psychology*
- *Brain and Cognition*
- *Research Project 3: Brain & Cognition*

Tutor. Donders Institute for Brain, Cognition and Behaviour   *2019, 2020*
- *Tool-kit of Cognitive Neuroscience: Advanced Analysis and Source Modelling of EEG and MEG Data*

Award, Travel grants & Other funding's

Poster Prize, The Brain Conference on Structuring Knowledge for Flexible Behaviour   *2023*

Postdoc Fellow Award, Cognitive Neuroscience Society 30th Annual Meeting   *2023*

Travel grant by Erasmus+ Staff Mobility for Training, to Basque Center on Cognition, Brain, and Language, San Sebastian, Spain (about € 800)   *2019*

Radboud Internationalisation **travel grant** for outgoing PhD to Rome, Italy (the Organization of Human Brain Mapping, € 800)   *2019*

Travel grant by École polytechnique fédérale de Lausanne (EPFL) to Lausanne, Switzerland (about € 1000)   *2018*

Travel grant by Erasmus+ Staff Mobility for Training, to Technical University of Munich, Munich, Germany (about € 600)   *2018*

Radboud Internationalisation **travel grant** for outgoing PhD to Vancouver, Canada (Psychonomic Society Annual Meeting, € 1400)   *2017*

Bronze Winner. "Challenge Cup" Capital College Students Business Plan Competition (Beijing, China)   *2010*

Scientific Research and Business Operations of College Students, Beijing *(CNY 10,000 = ~€ 1,300)*   *2009*

Undergraduate Research Fund, Beijing Normal University *(CNY 1,500 = ~€ 200)*   *2008*

Excellent Volunteer. 2008 Summer Olympic Games (Beijing, China)   *2008*

Training

Human Brain Project (HBP) Curriculum: cognitive system for non-specialists**,** *Technical University of Munich (Germany)*   *2018*

Donders (f)MRI Tool-kit: From image acquisition to computation model, *Donders Institute (The Netherlands)*   *2018*

Workshop on Bayesian analysis with JASP, *International Max Planck Research School (The Netherlands)*   *2017*

Tool-kits of Cognitive Neuroscience, Advanced analysis and source modelling of EEG and MEG data**,** *Donders Institute (The Netherlands)*   *2016*

Psychophysics Toolbox Workshop, *University Medical Centre Hamburg Eppendorf (Germany)*   *2014*

Research Skills

Research Methods	(f)MRI, MEG, EEG, Eye-tracking, Experiment design
Programming	Matlab, Python, R, bash scripting
Software Packages	Fieldtrip, SPM, Neurobs Presentation, PsychoPy, SPSS, JASP
Languages	Chinese *(native in Mandarin and Wu)*, English *(working proficiency)*, Dutch *(CEFR C1)*

Other Professional (and non-professional) Activities

Ad-hoc Reviewer. Brain and Language; Psychological Review; Journal of Experimental Psychology: General; Journal of Experimental Psychology: Learning, Memory and Cognition; Neuropsychologia; eNeuro; Lingua; International Journal of Bilingualism; PeerJ; Psychological Research; Applied Psycholinguistics; Frontiers in Human Neuroscience; Journal of Cognitive Psychology; Journal of Neurolinguistics; Quarterly Journal of Experimental Psychology; Cognitive Neuropsychology; Journal of Cognitive Neuroscience; Cognition.   *2018-pres.*

See my Publons for more details.

Search committee member, scientific director of Donders Centre for Cognitive Neuroimaging   *2022*

Recruitment committee member/ Vacancy holder, postdoc position at Donders Institute   *2022*

Recruitment committee member/ Vacancy holder, research assistant position at Donders Institute   *2022*

Master Thesis Prize Committee, *Institute of Psychology, Leiden University*   *Sinc. 2025*

Team Member. Donders Research Data Repository project.   *2016-2017*

Organizing Committee Member. Donders Inclusion Seminar.   *2021*

Organizing Committee Member. The Donders Discussions - International PhD conference on Cognition and Neuroscience (*Nijmegen, The Netherlands*)   *2016*

Student Assistant. Tilburg School of Humanities and Digital Sciences (*Tilburg University, The Netherlands*)   *2014-2015*

Invited Panellist. Annual neuroscience symposium **Synapsium** (*Radboud University, The Netherlands*)   *2021*

Contract Translator. Zheng, X., Zhang, L., & Jiang, W. (2016). Health psychology. China Light Industry   *2014*

Press. Beijing, China. (Original copy: Brannon, L., Feist, J., & Updegraff, J. (2013). *Health psychology:*

An introduction to behaviour and health. United States: Cengage Learning.)

*Member of **Excellent Volunteer Group**.* Junior Achievement (JA) China   *2010*

Volunteer. Beijing Western Sunshine Rural Development Foundation (*China*)   *2010*