

# Dr. Xiaochen Y. Zheng | 郑晓辰

*Ph.D in Cognitive Neuroscience*

*Research Fellow at Leiden University*

 [xiaochenzheng.github.io](https://github.com/xiaochenzheng)

 [zhengxiaochen.psy@gmail.com](mailto:zhengxiaochen.psy@gmail.com)

 [@xwhyzheng](https://twitter.com/xwhyzheng)

 [Xiaochen Zheng](https://www.linkedin.com/in/Xiaochen-Zheng)

## Employment

Senior postdoctoral researcher, Department of Cognitive Psychology, Leiden University	The Netherlands Oct. 2024- Pres.
Postdoctoral researcher, Donders Center for Cognitive Neuroimaging, Radboud University	The Netherlands Nov. 2019- Sep. 2024.
Coordinating postdoc, Dutch research consortium " <a href="#">Language in Interaction</a> "	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 Planck 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., 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., Papoutsis, 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.**, Garvert, M. M., den Ouden, H. E., Horstman, L. I., Richter, D., & Cools, R. (2024). Abstract rule generalization for composing novel meaning recruits the frontoparietal control network. [\[bioRxiv\]](#)

**Zheng, X. Y.**, Petukhova, A., Roelofs, J., Garvert, M., den Ouden, H., & Cools, R. (2024). This Paper is “Un-rejectable-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. [\[DOI\]](#)

**Zheng, X. Y.** & Piai, V. (2022). Neural oscillations of interference control in the aging brain: evidence from picture-word interference. [\[BioRxiv\]](#)

## **Grants & Scholarships**

<b>Veni grant, Netherlands Organisation for Scientific Research (NWO) (€ 320,000)</b>	2024
<b>2-year grant for a parallel postdoc position, <i>Language in Interaction</i> research consortium (co-applicant with Prof. dr. Roshan Cools and Dr. Vitoria Piai)</b>	2022
<b>4-year PhD grant, DCC internal round (co-applicant), Donders Centre for Cognition, Radboud University</b>	2015
<b>Scholarship for Academic Excellence, Tilburg University (€ 26,000)</b>	2014, 2013
<b>KNAW Research Assistants Program, Tilburg School of Humanities (~€ 7,000)</b>	2014
<b>Academic Scholarship, Beijing Normal University (CNY 1300 = ~€ 170)</b>	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. (2023). *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., Merckx, 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 30<sup>th</sup> 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., Merckx, 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 10<sup>th</sup> 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 19<sup>th</sup> Conference of the European Society for Cognitive Psychology (ESCAP), 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

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- 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

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### PhD student

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

### Master students:

- **Thesis projects:**
  - Ningjing Cui (*Leiden University*) 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
  - **Thesis evaluator** for: Nikita Boers (*Radboud University*) 2022
- **Internship:** Hasan Erkan (*Radboud University*), Anne Billot (*Pierre-and-Marie-Curie University, France*, co-supervised with Dr. Vitória Piai), Julia Egger (*Radboud University*)
- **Lab rotation** (all *Radboud University*): Laura Giglio, Cas Coopmans, Natascha Roos, Natalia Dubinkina, Vivian Vriezekenolk

### Research assistants

- Upasana Shah 2023-present
- Lisa Horstman 2022-2023

### Bachelor students:

- **Thesis projects** (all *Radboud University*): Max Sterling, Rick Alofs, Elena Nicolaou, Daniel Holthuis
- **Honours project** (all *Radboud University*): Kristin Witte (co-supervised with Dr. Kristin Lemhöfer), Puck Lange, Lada Zelinski, Lara Burmeister (co-supervised with Syanah Wynn and Dr. Dennis Schutter)

## Teaching Experience

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- Guest lecturer**, Research Master's Program in Cognitive Neuroscience, Radboud University 2024
  - *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

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<b>Poster Prize</b> , The Brain Conference on Structuring Knowledge for Flexible Behaviour	2023
<b>Postdoc Fellow Award</b> , Cognitive Neuroscience Society 30 <sup>th</sup> Annual Meeting	2023
<b>Travel grant</b> by Erasmus+ Staff Mobility for Training, to Basque Center on Cognition, Brain, and Language, San Sebastian, Spain (about € 800)	2019
Radboud Internationalisation <b>travel grant</b> for outgoing PhD to Rome, Italy (the Organization of Human Brain Mapping, € 800)	2019
<b>Travel grant</b> by École polytechnique fédérale de Lausanne (EPFL) to Lausanne, Switzerland (about € 1000)	2018
<b>Travel grant</b> by Erasmus+ Staff Mobility for Training, to Technical University of Munich, Munich, Germany (about € 600)	2018
Radboud Internationalisation <b>travel grant</b> for outgoing PhD to Vancouver, Canada (Psychonomic Society Annual Meeting, € 1400)	2017
<b>Bronze Winner</b> . “Challenge Cup” Capital College Students Business Plan Competition (Beijing, China)	2010
<b>Scientific Research and Business Operations of College Students</b> , Beijing (CNY 10,000 = ~€ 1,300)	2009
<b>Undergraduate Research Fund</b> , Beijing Normal University (CNY 1,500 = ~€ 200)	2008
<b>Excellent Volunteer</b> . 2008 Summer Olympic Games (Beijing, China)	2008

## Training

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<b>Human Brain Project (HBP) Curriculum</b> : cognitive system for non-specialists, <i>Technical University of Munich (Germany)</i>	2018
<b>Donders (f)MRI Tool-kit</b> : From image acquisition to computation model, <i>Donders Institute (The Netherlands)</i>	2018
<b>Workshop on Bayesian analysis with JASP</b> , <i>International Max Planck Research School (The Netherlands)</i>	2017
<b>Tool-kits of Cognitive Neuroscience</b> , Advanced analysis and source modelling of EEG and MEG data, <i>Donders Institute (The Netherlands)</i>	2016
<b>Psychophysics Toolbox Workshop</b> , <i>University Medical Centre Hamburg Eppendorf (Germany)</i>	2014

## Research Skills

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

## Other Professional (and non-professional) Activities

<b>Ad-hoc Reviewer.</b> 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 <a href="#">Publons</a> for more details.	
<b>Search committee member</b> , scientific director of Donders Centre for Cognitive Neuroimaging	2022
<b>Recruitment committee member/ Vacancy holder</b> , postdoc position at Donders Institute	2022
<b>Recruitment committee member/ Vacancy holder</b> , research assistant position at Donders Institute	2022
<b>Team Member</b> . Donders Research Data Repository project.	2016-2017
<b>Organizing Committee Member</b> . Donders Inclusion Seminar.	2021
<b>Organizing Committee Member</b> . The Donders Discussions - International PhD conference on Cognition and Neuroscience ( <i>Nijmegen, The Netherlands</i> )	2016
<b>Student Assistant</b> . Tilburg School of Humanities and Digital Sciences ( <i>Tilburg University, The Netherlands</i> )	2014-2015
<b>Invited Panellist</b> . Annual neuroscience symposium <b>Synapsium</b> ( <i>Radboud University, The Netherlands</i> )	2021
<b>Contract Translator</b> . Zheng, X., Zhang, L., & Jiang, W. (2016). Health psychology. China Light Industry Press. Beijing, China. (Original copy: Brannon, L., Feist, J., & Updegraff, J. (2013). <i>Health psychology: An introduction to behaviour and health</i> . United States: Cengage Learning.)	2014
<b>Member of Excellent Volunteer Group</b> . Junior Achievement (JA) China	2010
<b>Volunteer</b> . Beijing Western Sunshine Rural Development Foundation ( <i>China</i> )	2010