

Aytaç Karabay

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EXPERIENCE

Research experience

Postdoctoral researcher, New York University, Abu Dhabi, UAE 2022–Present
Advisor: Dr. Daryl Fougine

Postdoctoral researcher, University of Groningen, Groningen, NL 2019–2022
Project: *Hidden brain states underlying efficient representations in working memory*
Advisor: Prof. Elkan G. Akyürek

Research assistant, CUNY-Brooklyn College, New York, USA 2014–2015
Advisor: Dr. Daniel Kurylo
Position: Volunteer assistant in animal-vision psychophysics laboratory

Editorial experience

Junior editor, Journal of Experimental Psychology: Human Perception and Performance 2023–2024
Advisor: Prof. Isabel Gauthier

Teaching experience

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|----------------------------|--------------------|-------------------------|------------|
| Introduction to Psychology | Teaching assistant | New York University AD | 2023 |
| Thinking | Teaching assistant | New York University AD | 2023 |
| Cognition and Attention | Guest lecturer | University of Groningen | 2021; 2022 |
| Academic Skills | Lecturer | University of Groningen | 2018–2019 |
| Honors Research Practicum | Mentor | University of Groningen | 2017–2018 |

EDUCATION

Ph.D., Cognitive Neuroscience, University of Groningen, Groningen, NL 2020
Dissertation: *From stimulus to representation: Target identification in rapid serial visual Presentation*
Promotors: Prof. Elkan G. Akyürek & Prof. Monique M. Lorist

M.A., Experimental Psychology, CUNY-Brooklyn College, New York, USA 2015
Dissertation: *Perceptual grouping by orientation coherence*
Supervisor: Dr. Daniel D. Kurylo

B.A., Psychology, Ankara University, Ankara, TR 2011
Dissertation: *Differences between voluntary and involuntary autobiographical memories*
Supervisor: Prof. Nurhan Er

PUBLICATIONS

Student trainees are underlined
** indicates shared first authorship*

Preprints and submitted papers

Akyürek, E. G., Altınok, A., & **Karabay, A.** Concurrent consumption of cocoa flavanols and caffeine does not acutely modulate working memory and attention. 2024
<https://osf.io/preprints/psyarxiv/49juh>

- Chen, I. *, Buchel, P. *, **Karabay, A.**, van der Mij, R., Mathôt, S., & Akyürek, E. G. Concealed information detection in rapid serial visual presentation with oculomotor measures. 2023
<https://doi.org/10.31234/osf.io/rtyu6>
- Karabay, A.**, Wolff, M. J., **Ruuskanen, V.**, & Akyürek, E. Behaviorally irrelevant feature matching increases neural and behavioral working memory readout: Support for activity-silent working memory. 2023
<https://doi.org/10.1101/2023.09.12.557327>
- Karabay, A.***, Nijenkamp, R.*, Sarampalis, A., & Fougny, D. Introducing ART: a new method of testing auditory memory with circular reproduction tasks. 2023
- Wang, S.**, **Karabay, A.**, & Akyürek, E. G. Which visual working memory model accounts best for target representation in the attentional blink? 2022
<https://doi.org/10.1101/2022.09.15.508098>
- Fougny, D. L., **Karabay, A.**, Alvarez, G., & Brady, T. F. If at first you don't succeed, try, try again: Second chances reveal more information in working memory. 2022
<https://doi.org/10.31234/osf.io/evqtn>

Journal articles

- Kandemir, G.*, Wolff, M. J. *, **Karabay, A.**, Stokes, M. G., Axmacher, N., & Akyürek, E. G. Concurrent maintenance of both veridical and transformed working memory representations. *Imaging Neuroscience*. 2024
https://doi.org/10.1162/imag_a_00173
- Wang, S.**, **Karabay, A.**, & Akyürek, E. G. Attentional blur and blink: Effects of adaptive attentional scaling on visual awareness. *Consciousness and Cognition*, 117(3), 1–15. 2024
<https://doi.org/10.1016/j.concog.2023.103627>
- Altınok, A., **Karabay, A.**, Balta, G., de Jonge, J., & Akyürek, E.G. Effects of gamma-aminobutyric acid on working memory and attention: A randomized, double-blinded, placebo-controlled, crossover trial. *Journal of Psychopharmacology*, 37(6), 554–565. 2023
<https://doi.org/10.1177/02698811231161579>
- Chen, I. Y., **Karabay, A.**, Mathôt, S., Bowman, H., & Akyürek, E. G. Concealed identity information detection with pupillometry in rapid serial visual presentation. *Psychophysiology*, 60(1). 1-14. 2023
<https://doi.org/10.1111/psyp.14155>
- Altınok, A.**, **Karabay, A.**, & Akyürek, E. G. Acute effects of cocoa flavanols on visual working memory: Maintenance and updating. *European Journal of Nutrition*, 61(3), 1665–1678. 2022
<https://doi.org/10.1007/s00394-021-02767-x>
- Karabay, A.**, **Wilhelm, S. A.**, de Jonge, J., Wang, J., Martens, S., & Akyürek, E. G. Two faces of perceptual awareness during the attentional blink: Gradual and discrete. *Journal of Experimental psychology: General*, 151(7), 1520–1541. 2022
<https://doi.org/10.1037/xge0001156>
- Karataş, O., **Karabay, A.**, & Alici, T. The effects of long-term cocoa flavanols intake on cognitive functions and mood, and the physiological mechanisms underlying these effects: A literature review. *Turkish Psychological Articles*, 25(49). 1–26. 2022
<https://doi.org/10.31828/tpy1301996120211203m000043>
- Karabay, A.**, & Kurylo, D. D. Discriminating global orientation of two element sets. *Journal of Cognition*, 3(1), 1-13. 2020
<https://doi.org/10.5334/joc.127>
- Karabay, A.**, & Akyürek, E. G. Temporal integration and attentional selection of color and contrast target pairs in rapid serial visual presentation. *Acta Psychologica*, 196, 56–69. 2019
<https://doi.org/10.1016/j.actpsy.2019.04.002>
- Karabay, A.**, Saija, J. D., Field, D. T., & Akyürek, E. G. The acute effects of cocoa flavanols on temporal and spatial attention. *Psychopharmacology*, 235(5), 1497–1511. 2018
<https://doi.org/10.1007/s00213-018-4861-4>
- Karabay, A.**, & Akyürek, E. G. The effects of Kanizsa contours on temporal integration and attention in rapid serial visual presentation. *Attention, Perception, & Psychophysics*, 79(6), 1742–1754. 2017
<https://doi.org/10.3758/s13414-017-1333-6>

Book chapters

- Karabay, A.** Duyum ve algı (Sensation and Perception). In . G. ZEREN (Eds.), *Fizyolojik Psikoloji* (Physiological Psychology) (pp. 203–233). Eğiten Kitap. Ankara, Turkey. 2022
- Cotton, R. (2013). *Learning R* (Sünbül, Ö., Sünbül, S. Ö., & **Karabay, A.**, Trans). Pegem Press. 2021
İstanbul, Turkey.

PRESENTATIONS

Talks

Invited talks

- Karabay, A.** Taking a snapshot of the brain: Visual impulse reveals (non)persistent neural activity by perturbation and increasing signal-noise ratio. *CCN meeting, Ghent University* in Gent, Belgium. 08/2022

Conference talks

- Chen, I., Mathôt, S., van der Mij, R., **Karabay, A.**, Bowman, H., & Akyürek, E. Concealed familiar face detection with EEG in rapid serial visual presentation. *23rd Conference of the European Society for Cognitive Psychology (ESCoP)* in Porto, Portugal. 09/2023
- Wang, S., **Karabay, A.**, & Akyürek, E. G. Attentional blur and blink: Effects of adaptive attentional scaling on visual awareness. *23rd Conference of the European Society for Cognitive Psychology (ESCoP)* in Porto, Portugal. 09/2023
- Akyürek, E. G., Kandemir, G., Wolff, M., **Karabay, A.**, & Wilhelm, S. Probing latent working memory representations in EEG. *22st Conference of the European Society for Cognitive Psychology (ESCoP)* in Lille, France. 08/2022
- Chen, I., Buchel, P., **Karabay, A.**, Mathôt, S., & Akyürek, E. G. Concealed familiar face detection with pupillometry in rapid serial visual presentation. *22st Conference of the European Society for Cognitive Psychology (ESCoP)* in Lille, France. 08/2022
- Wang, S., **Karabay, A.**, & Akyürek, E. G. Which working memory model accounts best for target representation during the attentional blink? *22st Conference of the European Society for Cognitive Psychology (ESCoP)* in Lille, France. 08/2022
- Karabay, A.**, Wolff, M. J., Ruuskanen, V., & Akyürek, E. G. A visual impulse reveals memoranda embedded in functional connectivity: Evidence for activity-silent WM states. Symposium *Interactions between sensory representations and cognitive control in working memory* at the *International Conference of Cognitive Neuroscience 2020* in Helsinki, Finland. 05/2022
- Karabay, A.**, Wang, J., Wilhelm, S., Martens, S., & Akyürek, E. G. Two faces of the attentional blink: Gradual and discrete loss of perceptual awareness. *17th NVP Winter Conference* in Egmond, the Netherlands. 12/2019
- Karabay, A.**, Wang, J., Martens, S., & Akyürek, E. G. The attentional blink: Binary or gradual? *21st Conference of the European Society for Cognitive Psychology (ESCoP)* in Tenerife, Spain. 09/2019
- Kandemir, G., **Karabay, A.**, & Akyürek, E. G. Decoding sensory and abstract information from activity silent brain states. *21st Conference of the European Society for Cognitive Psychology (ESCoP)* in Tenerife, Spain. 09/2019
- Karabay, A.**, Saija J., Field, D. T., & Akyürek, E.G. The acute effects of cocoa flavanols on temporal and spatial attention. *The winter conference 2017 of De Nederlandse Vereniging voor Psychonomie* in Egmond, the Netherlands. 12/2017
- Er N., **Karabay, A.**, Kaynar, G., Uysal, M. M., & Boyraz, F. U. İstemli & istemsiz otobiyografik anılarda yaşa bağlı değişimler (Variations of voluntary and involuntary autobiographical memories depending on age). *The 17th National Psychology Congress* in Istanbul, Turkey. 05/2012
- Karabay, A.**, & Çakmak, M.A. Engellenme karşısında verilen tepkiler ile kişilik tiplerinin ve yükleme çeşitlerinin ilişkisi (The relationship between frustration responses, personality types, 12/2009

and attribution). *The 14th Ulusal Psikoloji Ogrencileri Kongresi (14th National Conference of Psychology Students)* in Istanbul, Turkey.

Posters

- Sasin, E., Zhou, Y., **Karabay, A.**, Shrestha, S., & Fougny, D. Where's Waldo in the mind: Accessing perceptual and semantic attributes in perception and working memory. *The Vision Sciences Society Meeting 2024* in Florida, USA. 05/2024
- Chen, I., Mathôt, S., van der Mij, R., **Karabay, A.**, Bowman, H., & Akyürek, E. Concealed familiar face detection with EEG in rapid serial visual presentation. *the 45th European Conference on Visual Perception (ECVP)* in Paphos, Cyprus. 08/2023
- Fougny, D., **Karabay, A.**, Nijenkamp, R., & Sarampalis, A. Introducing ART: a new method of testing auditory memory with circular reproduction tasks. *The Vision Sciences Society Meeting 2023* in Florida, USA. 05/2023
- Chen, I., **Karabay, A.**, Mathôt, S., Buchel, P., van der Mij, R., Bowman, H., & Akyürek, E. Concealed familiar face detection with oculomotor measures and EEG in rapid serial visual presentation. *The Vision Sciences Society Meeting 2023* in Florida, USA. 05/2023
- Karabay, A.**, Kandemir, G., Kovács, E.R., & Akyürek, E.G. Pinging attentional task rules: Neural mechanisms underlying attending and suppressing in visual search tasks. *The 22st Conference of the European Society for Cognitive Psychology (ESCoP)* in Lille, France. 08/2022
- Altınok, A., **Karabay, A.**, Lorist, M. M., Weiden, D., & Akyürek, E.G. The acute effects of caffeine and cocoa flavanols on working memory and attention. *The 22st Conference of the European Society for Cognitive Psychology (ESCoP)* in Lille, France. 08/2022
- Chen, I., Buchel, P., **Karabay, A.**, Mathôt, S., Bowman, H., & Akyürek, E. G. Concealed information detection with pupillometry in rapid serial visual presentation. *The International Conference of Cognitive Neuroscience 2020* in Helsinki, Finland. 05/2022
- Karabay, A.**, Wolff, M. J., Ruuskanen, V., & Akyürek, E. G. Visual impulse perturbation: Neural sonar or just noise-reducer? *The 18th NVP Winter Conference* in Egmond, the Netherlands. 04/2022
- Chen, I., **Karabay, A.**, Mathôt, S., Bowman, H., & Akyürek, E. G. Concealed identity information detection with pupillometry in rapid serial visual presentation. *The 18th NVP Winter Conference* in Egmond, the Netherlands. 04/2022
- Wang, S., **Karabay, A.**, & Akyürek, E. G. (2022, April). Which working memory model accounts best for target representation in the attentional blink? *The 18th NVP Winter Conference* in Egmond, the Netherlands. 04/2022
- Altınok, A., Balta, G., **Karabay, A.**, & Akyürek, E. G. The effects of gamma-aminobutyric acid (GABA) on working memory and attention. *The 18th NVP Winter Conference* in Egmond, the Netherlands. 04/2022
- Kandemir, G., **Karabay, A.**, & Akyürek, E. G. Seeing double? Activity-silent maintenance of mental rotation products and their originals. *The 17th NVP Winter Conference* in Egmond, the Netherlands. 12/2019
- Altınok, A., **Karabay, A.**, & Akyürek, E. G. The acute effects of cocoa flavanols on visual working memory. *The 21st Conference of the European Society for Cognitive Psychology (ESCoP)* in Tenerife, Spain. 09/2019
- Kandemir, G., **Karabay, A.**, & Akyürek, E. G. Decoding visual working memory before and after mental operations. *The BCN Winter Meeting* in Twente, the Netherlands. 02/2019
- Karabay, A.**, & Akyürek, E. G. Target color and contrast influences temporal attention in rapid serial visual presentation. *The International meeting of the Psychonomics Society in Amsterdam*, Netherlands; *the 40th European Conference on Visual Perception (ECVP)* in Berlin, Germany. 08/2017
- Karabay, A.**, & Akyürek, E. G. Kanizsa effects on temporal integration and attention. *The Heymans Symposium* in Groningen, the Netherlands. 04/2017

Karabay, A., & Kurylo, D.D. Perceptual grouping by orientation coherence. *The Science Day*, 05/2015
Brooklyn College in New York, USA.

Er, N., **Karabay, A.,** Kaynar, G., Uysal, M. M., & Boyraz, F. U. Autobiography of aging mind: age-related effects on voluntary and involuntary autobiographical memories. *The IX International Cognitive Neuroscience Meeting* in Istanbul, Turkey. 04/2012

SUPERVISED MASTER THESES

Ruuskanen, V. *Investigating the functionality of visual impulses in decoding working memory using matching and non-matching impulse stimuli.* University of Groningen, the Netherlands. 2022

Bapoğlu, O. A. *Pinging individual features of multi-feature objects: an EEG study.* University of Groningen, the Netherlands. 2021

RELEVANT SKILLS

Technical skills: JASP (*advanced*); SPSS (*advanced*); R (*advanced*); Matlab (*moderate/advanced*); Python (*moderate/advanced*); OpenSesame (*advanced*); E-prime (*advanced*); MS Office (*advanced*); Memory modeling; EEG; Multivariate Pattern Analysis; GitHub; Classification; WordPress

Language skills: Turkish (*native*); English (*professional*); Dutch (*beginner*)

GRANTS & FELLOWSHIPS

YLSY Fellowship from Ministry of National Education, Turkey. Complete coverage of tuition, stipend, and partial coverage of research costs for masters and Ph.D. degrees (**200.000\$**). 2011–2019

AWARDS

Open research award for the study ‘Concealed familiar face detection with pupillometry in rapid serial visual presentation’, by Open Science Programme, University of Groningen, Groningen, the Netherlands. 2022

Best poster presentation award in Searching for the Working Memory Engram workshop with the presentation ‘A visual impulse reveals memoranda embedded in functional connectivity: Evidence for activity-silent WM states’, Groningen, the Netherlands. 2022

ORGANIZED WORKSHOP & SEMINARS

Searching for the Working Memory Engram, University of Groningen, the Netherlands. 05/2022
Organized an international hybrid workshop with prof. Elkan G. Akyürek.

Introduction to Python/OpenSesame, Leibniz Institute for Psychology, Germany. 08/2020
Worked as a tutor for the workshop by dr. Sebastiaan Mathôt. Topics: Introduction to Python/Numerical Python, Introduction to OpenSesame, Advanced numerical Python, Building online experiment, Collecting data, Analyzing with Python.

Mindwise Science Communication Workshop, University of Groningen, the Netherlands. 2019; 2020
Organized a workshop with Mindwise Science Communication PhD Committee.

ORGANIZATIONAL EXPERIENCE

Ph.d. and postdoc representative, Department of Experimental Psychology, University of Groningen, the Netherlands. 2021–2022

Mind-wise science communication Ph.D. committee member, University of Groningen, the Netherlands. 2018–2021

SELECTED CERTIFICATES

Teaching and mentoring in academic learning communities, Teaching Unit Psychology of University of Groningen, Groningen, the Netherlands. 2018

Multivariate pattern analyses (MVPA) in EEG/MEG, Experimenteel-Psychologische Onderzoekschool, Amsterdam, the Netherlands. 2018

Autumn school: Attention, Experimenteel-Psychologische Onderzoekschool, Amsterdam, the Netherlands. 2018