

# Aytaç Karabay

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## EXPERIENCE

### Research experience

<b>Postdoctoral researcher</b> , New York University, Abu Dhabi, UAE Advisor: Dr. Daryl Fougine	2022–Ongoing
<b>Postdoctoral researcher</b> , University of Groningen, Groningen, NL Project: <i>Hidden brain states underlying efficient representations in working memory</i> Advisor: Prof. Elkan G. Akyürek	2019–2022
<b>Research assistant</b> , CUNY-Brooklyn College, New York, USA Advisor: Dr. Daniel Kurylo Position: Volunteer assistant in animal-vision psychophysics laboratory	2014–2015

### Editorial experience

<b>Junior editor</b> , Journal of Experimental Psychology: Human Perception and Performance Advisor: Prof. Isabel Gauthier	2023–2024
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### Teaching experience

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

<b>Ph.D., Cognitive Neuroscience</b> , University of Groningen, Groningen, NL Dissertation: <i>From stimulus to representation: Target identification in rapid serial visual Presentation</i> Promotors: Prof. Elkan G. Akyürek & Prof. Monique M. Lorist	2020
<b>M.A., Experimental Psychology</b> , CUNY-Brooklyn College, New York, USA Dissertation: <i>Perceptual grouping by orientation coherence</i> Supervisor: Dr. Daniel D. Kurylo	2015
<b>B.A., Psychology</b> , Ankara University, Ankara, TR Dissertation: <i>Differences between voluntary and involuntary autobiographical memories</i> Supervisor: Prof. Nurhan Er	2011

## PUBLICATIONS

*Student trainees are underlined*  
*\* indicates shared first authorship*

### Preprints and submitted papers

Chen, I. *, Buchel, P. *, <b>Karabay, A.</b> , van der Mij, R., Mathôt, S., & Akyürek, E. G. Concealed information detection in rapid serial visual presentation with oculomotor measures. <a href="https://doi.org/10.31234/osf.io/rtyu6">https://doi.org/10.31234/osf.io/rtyu6</a>	2023
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- 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. <https://doi.org/10.1101/2023.09.12.557327> 2023
- Karabay, A.\***, Nijenkamp, R.\*, Sarampalis, A., & Fougny, D. Introducing ART: a new method of testing auditory memory with circular reproduction tasks. 2023
- 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. <https://doi.org/10.1101/2022.10.28.514218> 2022
- Wang, S.**, **Karabay, A.**, & Akyürek, E. G. Which visual working memory model accounts best for target representation in the attentional blink? <https://doi.org/10.1101/2022.09.15.508098> 2022
- 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. <https://doi.org/10.31234/osf.io/evqtn> 2022

### **Journal articles**

- Wang, S.**, **Karabay, A.**, & Akyürek, E. G. Attentional blur and blink: Effects of adaptive attentional scaling on visual awareness. *Consciousness and Cognition*. [in press; preprint link <https://doi.org/10.31234/osf.io/zncfu>] 2024
- 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. <https://doi.org/10.1177/02698811231161579> 2023
- 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. <https://doi.org/10.1111/psyp.14155> 2023
- 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. <https://doi.org/10.1007/s00394-021-02767-x> 2022
- 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. <https://doi.org/10.1037/xge0001156> 2022
- 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. <https://doi.org/10.31828/tpy1301996120211203m000043> 2022
- Karabay, A.**, & Kurylo, D. D. Discriminating global orientation of two element sets. *Journal of Cognition*, 3(1), 1-13. <https://doi.org/10.5334/joc.127> 2020
- 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. <https://doi.org/10.1016/j.actpsy.2019.04.002> 2019
- 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. <https://doi.org/10.1007/s00213-018-4861-4> 2018
- 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. <https://doi.org/10.3758/s13414-017-1333-6> 2017

### **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

## 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 yüklem çeşitlerinin ilişkisi (The relationship between frustration responses, personality types, and attribution). *The 14th Ulusal Psikoloji Öğrencileri Kongresi (14th National Conference of Psychology Students)* in Istanbul, Turkey. 12/2009

## Posters

- 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
- Fougne, 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, Brooklyn College* in New York, USA. 05/2015
- 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

*Psychology Ph.D. council member*, University of Groningen, the Netherlands. 2016–2019

## 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