

# Aytaç Karabay, Ph.D.

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## EXPERIENCE

<b>Assistant professor</b> , University of Birmingham Dubai, Dubai, UAE	2025–Current
<b>Visiting scholar</b> , New York University, Abu Dhabi, UAE	2025–2026
<b>Adjunct assistant professor (part-time)</b> , Zayed University, Abu Dhabi, UAE	2024–2025
<b>Postdoctoral researcher</b> , New York University, Abu Dhabi, UAE <i>Supervisor: Dr. Daryl Fougne</i>	2022–2025
<b>Adjunct assistant professor (part-time)</b> , Zayed University, Abu Dhabi, UAE	2024–2025
<b>Postdoctoral researcher</b> , University of Groningen, Groningen, NL <i>Supervisor: Prof. Elkan G. Akyürek</i>	2019–2022
<b>Research assistant</b> , CUNY-Brooklyn College, New York, USA <i>Supervisor: Dr. Daniel Kurylo</i>	2014–2015

### Courses Taught

Research Methods D	Module lead	University of Birmingham	2025
Research Methods B	Module lead	University of Birmingham	2025
Bachelors Thesis	Supervisor	University of Birmingham	2025
Introduction to Psychology	Lecturer	Zayed University	2024
Capstone Project	Supervisor	New York University AD	2022–2025
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
Masters Thesis	Supervisor	University of Groningen	2021; 2022
Bachelors Thesis	Supervisor	University of Groningen	2017–2022
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 <i>Supervisor: Prof. Elkan G. Akyürek</i>	2020
<b>M.A., Experimental Psychology</b> , CUNY-Brooklyn College, New York, USA <i>Supervisor: Dr. Daniel D. Kurylo</i>	2015
<b>B.A., Psychology</b> , Ankara University, Ankara, TR	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
<u>Wang, S.</u> , <b>Karabay, A.</b> , & Akyürek, E. G. Evaluating Working Memory Representations during the Attentional Blink: A Comparative Modeling Approach. <a href="https://doi.org/10.1101/2022.09.15.508098">https://doi.org/10.1101/2022.09.15.508098</a>	2022

Fougnie, 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 papers

**Karabay, A.**, Wolff, M. J., Ruuskanen, V., & Akyürek, E. Behaviorally irrelevant feature matching increases neural and behavioral working memory readout. *Psychophysiology* 62(2). 2025  
<https://doi.org/10.1111/psyp.70020>

Akyürek, E. G., Altınok, A., & **Karabay, A.** Concurrent consumption of cocoa flavanols and caffeine does not acutely modulate working memory and attention. *European Journal of Nutrition*, 64(35). 1–17. 2025  
<https://doi.org/10.1007/s00394-024-03514-8>

**Karabay, A.\***, Nijenkamp, R.\*, Sarampalis, A., & Fougnie, D. Introducing ART: a new method of testing auditory memory with circular reproduction tasks. *Behavior Research Methods*, 56(8), 8330–8348. 2024  
<https://doi.org/10.3758/s13428-024-02477-2>

Guérin, S. M. R., Tarlao, C., & **Karabay, A.** Our Journey as Intern Junior Editors at the Journal of Experimental Psychology: Human Perception and Performance. *Science Editing*, 11(2), 160–163. 2024  
<https://doi.org/10.6087/kcse.345>

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*, 2, 1–20. 2024  
[https://doi.org/10.1162/imag\\_a\\_00173](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>

**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>

**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>

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>

## **Books**

- 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. G. 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. *22nd 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. *22nd 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? *22nd 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 Ogrencileri Kongresi (14th National Conference of Psychology Students)* in Istanbul, Turkey.

## **Posters**

- Karabay, A.**, & Fougny, D. Evidence against levels of processing theories of visual awareness. 07/2024  
*Asia Pacific Conference On Vision 2024* in Singapore.
- 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. 05/2024  
*The Vision Sciences Society Meeting 2024* in Florida, USA.
- Chen, I., Mathôt, S., van der Mij, R., **Karabay, A.**, Bowman, H., & Akyürek, E. G. Concealed familiar face detection with EEG in rapid serial visual presentation. 08/2023  
*45th European Conference on Visual Perception (ECVP)* in Paphos, Cyprus.
- Fougny, D., **Karabay, A.**, Nijenkamp, R., & Sarampalis, A. Introducing ART: a new method of testing auditory memory with circular reproduction tasks. 05/2023  
*The Vision Sciences Society Meeting 2023* in Florida, USA.
- Chen, I., **Karabay, A.**, Mathôt, S., Buchel, P., van der Mij, R., Bowman, H., & Akyürek, E. G. Concealed familiar face detection with oculomotor measures and EEG in rapid serial visual presentation. 05/2023  
*The Vision Sciences Society Meeting 2023* in Florida, USA.
- Karabay, A.**, Kandemir, G., Kovács, E.R., & Akyürek, E. G. Pinging attentional task rules: Neural mechanisms underlying attending and suppressing in visual search tasks. 08/2022  
*The 22nd Conference of the European Society for Cognitive Psychology (ESCoP)* in Lille, France.
- 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. 08/2022  
*The 22nd Conference of the European Society for Cognitive Psychology (ESCoP)* in Lille, France.
- Chen, I., Buchel, P., **Karabay, A.**, Mathôt, S., Bowman, H., & Akyürek, E. G. Concealed information detection with pupillometry in rapid serial visual presentation. 05/2022  
*The International Conference of Cognitive Neuroscience 2020* in Helsinki, Finland.
- Karabay, A.**, Wolff, M. J., Ruuskanen, V., & Akyürek, E. G. Visual impulse perturbation: Neural sonar or just noise-reducer? 04/2022  
*The 18th NVP Winter Conference* in Egmond, the Netherlands.
- Chen, I., **Karabay, A.**, Mathôt, S., Bowman, H., & Akyürek, E. G. Concealed identity information detection with pupillometry in rapid serial visual presentation. 04/2022  
*The 18th NVP Winter Conference* in Egmond, the Netherlands.
- Wang, S., **Karabay, A.**, & Akyürek, E. G. (2022, April). Which working memory model accounts best for target representation in the attentional blink? 04/2022  
*The 18th NVP Winter Conference* in Egmond, the Netherlands.
- Altınok, A., Balta, G., **Karabay, A.**, & Akyürek, E. G. The effects of gamma-aminobutyric acid (GABA) on working memory and attention. 04/2022  
*The 18th NVP Winter Conference* in Egmond, the Netherlands.
- Kandemir, G., **Karabay, A.**, & Akyürek, E. G. Seeing double? Activity-silent maintenance of mental rotation products and their originals. 12/2019  
*The 17th NVP Winter Conference* in Egmond, the Netherlands.
- Altınok, A., **Karabay, A.**, & Akyürek, E. G. The acute effects of cocoa flavanols on visual working memory. 09/2019  
*The 21st Conference of the European Society for Cognitive Psychology (ESCoP)* in Tenerife, Spain.
- Kandemir, G., **Karabay, A.**, & Akyürek, E. G. Decoding visual working memory before and after mental operations. 02/2019  
*The BCN Winter Meeting* in Twente, the Netherlands.
- Karabay, A.**, & Akyürek, E. G. Target color and contrast influences temporal attention in rapid serial visual presentation. 08/2017  
*The International meeting of the Psychonomics Society in Amsterdam, Netherlands; the 40th European Conference on Visual Perception (ECVP)* in Berlin, Germany.
- Karabay, A.**, & Akyürek, E. G. Kanizsa effects on temporal integration and attention. 04/2017  
*The Heymans Symposium* in Groningen, the Netherlands.

**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

Travel Grant from University of Birmingham for attendance to VSS 2025 (**1,400 £**). 2025

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 the 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

## PEER REVIEW & EDITORIAL CONTRIBUTIONS

### **Editorial experience**

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

### **Grant Reviews**

National Science Foundation (NSF), USA 2024

### **Journal Reviews**

Attention, Perception, & Psychophysics

Acta Psychologica

Journal of Cognition

## SELECTED CERTIFICATES

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

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

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