

Can Oluk

Brain Mind Institute, École Polytechnique
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Interests: visual perception, computational neuroscience, ideal-observer and image-computable models.

Appointments

Postdoctoral Researcher, Brain and Mind Institute, EPFL Time course of (conscious) visual processing Principal Investigator: Prof. Michael Herzog	2024 - Present
Postdoctoral Researcher, Laboratoire des systèmes perceptifs, ENS Confidence in motion perception Principal Investigator: Prof. Pascal Mamassian	2023 - 2024

Education

Ph.D. Psychology, The University of Texas at Austin Completed the Center for Perceptual Systems interdisciplinary training program Supervisor: Prof. Wilson S. Geisler	2016-2022
B.A. Psychology, Minor in Philosophy, Bilkent University	2011-2016

Research Experience

Graduate Research Assistant, Center for Perceptual Systems, U.T. Austin Slant perception, Target detection under uncertainty Supervisor: Prof. Wilson S. Geisler	2016 - 2022
Undergraduate Thesis Student, UMRAM, Bilkent University Multiplexed echo planar imaging (fMRI) methods Supervisor: Prof. Huseyin Boyaci	2015 - 2016
Undergraduate Research Assistant, UMRAM, Bilkent University Audiovisual associations, Rapid Motion aftereffects Supervisor: Prof. Hulusi Kafaligonul	2013 - 2016

Publications

Journal Articles

- Oluk, C.**, and Geisler, W. S. (2025). Target identification under high levels of amplitude, size, orientation and background uncertainty. *Journal of Vision*, 25(2):3. [\[PDF\]](#) [\[Code/Data\]](#)
- Oluk, C.**, and Geisler, W. S. (2023). Effects of Target-Amplitude and Background-Contrast Uncertainty Predicted by a Normalized Template-Matching Observer. *Journal of Vision*, 23(12):8. [\[PDF\]](#)

Oluk, C., Bonnen, K., Burge, J., Cormack, L. K., and Geisler, W. S. (2022). Stereo slant discrimination of planar 3D surfaces: Frontoparallel versus planar matching. *Journal of Vision*, 22(5), 6-6. [\[PDF\]](#) [\[Code/Data\]](#)

Oluk, C., Pavan, A., and Kafaligonul, H. (2016). Rapid motion adaptation reveals the temporal dynamics of spatiotemporal correlation between ON and OFF pathways. *Scientific Reports*, 6(1), 1-10. [\[PDF\]](#)

Kafaligonul, H. and **Oluk, C.** (2015). Audiovisual associations alter the perception of low-level visual motion. *Frontiers in Integrative Neuroscience*, 9, 26.

Manuscripts in Preparation

Oluk, C., Szinte, M., Masson, G. S., and Mamassian, P. (in prep). Confidence responses in global motion discrimination task are well predicted by visual reliability.

Book Chapters

Oluk, C., and Herzog, M. H. (Submitted). Discreteness versus continuity of conscious perception. In C. van Leeuwen (Ed.), *Comprehensive Consciousness* (2nd ed.). Elsevier.

Conference Abstracts

Oluk, C. and Geisler, W. S. (2025). Evaluating ideal observers for large target identification tasks under additive white noise. *77th European Conference on Visual Perception*, Mainz, Germany.

Holdsworth, M., Men  tre, M. Q., **Oluk, C.**, and Herzog, M. H. (2025). A continuous adjustment task allows for better understanding of visual feature integration in a Sequential Metacontrast Paradigm. *77th European Conference on Visual Perception*, Mainz, Germany.

Oluk, C. and Geisler, W. S. (2025). Maximum likelihood estimates in visual categorization tasks are biased when pairwise discriminabilities are imbalanced. *Systems Vision Science Symposium*, T  bingen, Germany.

Oluk, C., Szinte, M., Masson, G. S., Mamassian, P. (2024). Confidence responses in global motion discrimination task are well predicted by visual reliability. *Vision Science Society Meeting*, Florida, US.

Oluk, C. and Geisler, W. S. (2021). The Energy-Normalized MAX Observer Approximates the Ideal Observer Under High-levels of Simultaneous Orientation and Scale Uncertainty in White Noise. *Vision Science Society Meeting*, Florida, US.

Oluk, C. and Geisler, W. S. (2020). Ideal Observers for the estimation of disparity in random-pixel stereograms. *Vision Science Society Meeting*, Florida, US.

Oluk, C., and Geisler, W. S. (2019). Effects of Target Amplitude Uncertainty, Background Contrast Uncertainty, and Prior Probability Are Predicted by the Normalized Template-Matching Observer. *Vision Science Society Meeting*, Florida, US.

Oluk, C., Bonnen, K., Burge, J., Cormack, L., and Geisler, W. (2018). Stereo Slant Estimation of Planar Surfaces: Standard Cross-Correlation vs. Planar-Correlation. *Vision Science Society Meeting*, Florida, US.

Kafaligonul, H. and **Oluk, C.** (2014). Audiovisual associations alter the perception of low-level visual motion. *Annual Meeting of the Society for Neuroscience*, Washington, D.C., US.

Kafaligonul, H. and **Oluk, C.** (2014). Altering perception of low-level visual motion by audiovisual associations. *37th European Conference on Visual Perception*, Belgrade, Serbia.

Invited Talks

“Confidence in Global Motion Direction Discrimination” 2024
 Centre IRM - INT, Institut de Neurosciences de la Timone, Aix-Marseille Université

Grants

Principal Investigator, TUBITAK 2209/A 2015 - 2016
“Associative Learning and Motion Induced Plasticity”
 Supervisor: Prof. Hulusi Kafaligonul
 Competitive national undergraduate research grant covering project costs.

Honours and Awards

Lloyd A. Jeffress Memorial Fellowship 2016, 2019
 Bilkent University Comprehensive Scholarship 2011 - 2016
 Full tuition waiver and stipend

Teaching Experience

Guest Lecturer, EPFL Spring 2025
 BIO-483 - Neuroscience: behavior and cognition
 Three-hour lecture on attention and consciousness
 Teaching Assistant, U.T. Austin Spring 2019
 PSY 323 - Perception
 Teaching Assistant, Bilkent University Fall 2013
 CS 121 - Introduction to Computer Tools

Supervision & Mentoring

MSc thesis co-supervision, Université de Strasbourg (hosted at EPFL) 2024 - 2025
 Determinants of the duration of window of integration during the temporal processing of visual stimuli
 Intern supervision, EPFL Spring 2025
 Attention in Sequential Metacontrast Paradigm
 Undergraduate project mentor, EPFL Spring 2025
 TAFKAP-Probabilistic Analysis of Cortical Activity in fMRI.

Service & Memberships

Ad Hoc Reviewer — Journal of Vision (recognized “Exceptionally Good Review,” 2023)
 Ad Hoc Reviewer – Attention, Perception, & Psychophysics
 Vision Science Society 2017-Present

Miscellaneous

Languages: English (advanced), Turkish (native)

Programming Skills: Matlab, Python, L^AT_EX, SPSS, Stata

Last updated: December 20, 2025