

## Buse Merve Ürgen

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### EDUCATION

PhD Neuroscience (2014 - 2021)  
Bilkent University, Turkey

MSc Cognitive Neuroscience (2011 – 2012)  
University College London (UCL), UK

BA Psychology (2006 – 2011)  
Bilkent University, Turkey

### PROFESSIONAL EXPERIENCE

Assistant Professor (June 2022 – )  
Department of Psychology, TED University, Turkey

Instructor (Feb 2022 – June 2022)  
Department of Psychology, TED University, Turkey

Post-doctoral Researcher (Jan 2021 – Feb 2022)  
National Magnetic Resonance Research Center (UMRAM) &  
Aysel Sabuncu Brain Research Center (ASBAM), Turkey

Researcher/Graduate Student (2017 – 2021)  
Interdisciplinary Neuroscience Program, Bilkent University, Turkey  
*Project: Behavioral and neural investigation of predictive processing in visual perception.*  
*PI: Prof. Hüseyin Boyacı, research funded by TÜBİTAK 1001 (217K163).*

Teaching Assistant (Sep 2014 – Jan 2021)  
Department of Psychology, Bilkent University, Turkey

Research Assistant (2013 – 2016)  
National Magnetic Resonance Research Center (UMRAM), Turkey  
*Project: Assessing structural and functional architecture of the human brain through investigating influences of genetically rooted central nervous system disorders.*  
*PI: Prof. Katja Doerschner, research funded by TÜBİTAK 1001 (112K069).*

## COURSES TAUGHT

Instructor, Dept. of Psychology, TED University, Turkey (2022 – )

PSY200 – Selected Topics in Psychology  
PSY310 – Cognitive Psychology  
PSY312 – Biopsychology  
PSY317 – Sensation and Perception  
PSY318 – Programming for Experimental Psychology (developed and offered in 2023)  
PSY402 – Graduation Paper and Seminar  
PSY413 – Current Topics in Cognitive Psychology

Teaching Assistant, Dept. of Psychology, Bilkent University, Turkey (2014 – 2021)

PSY310 – Perception, Attention, Action  
PSY200 – Cognitive Psychology  
PSY350 – Cognitive and Social Development  
PSY203 – Statistics I  
PSY101 – Introduction to Psychology

## PEER-REVIEWED PUBLICATIONS<sup>+</sup>

**Urgen, B.M.**, Basturk, H.I., Boyaci, H. (under review). A recurrent cortical model can parsimoniously explain the effect of predictions on sensory processes. (\*also in *bioRxiv*  
URL: <https://doi.org/10.1101/2021.02.05.429913>)

Elmas, H. O., Er, S., Rezaki, A. D., Izgi, A., **Urgen, B. M.**, Boyaci, H., & Urgen, B. A. (2025). Predictive processing in biological motion perception: Evidence from human behavior. *Perception*, 03010066251355391. URL: <https://doi.org/10.1177/03010066251355391>

Reichenbach, A., **Urgen, B.M.**, Apostolakis, S., Michlin, L., & Diedrichsen, J. (2022). Factors governing the assignment of visual consequence to the corresponding action. *Journal of Neurophysiology*. URL: <https://doi.org/10.1152/jn.00450.2021>

**Urgen, B.M.**, Boyaci, H. (2021). Unmet expectations delay sensory processes. *Vision Research*, 181, 1-9. URL: <https://doi.org/10.1016/j.visres.2020.12.004> (\*also in *bioRxiv* 2019, <https://doi.org/10.1101/545244>)

Demirayak, P., Karli Oguz, K., Ustun, F.S., **Urgen, B.M.**, Topac, Y., Gilani, I., Kansu, T., Saygi, S., Özçelik, T., Boyaci, H., Doerschner, K. (2021). Cortical connectivity in the face of congenital structural changes – a case of homozygous LAMC3 mutation. *Brain and Behavior*, 1– 18. URL: <https://doi.org/10.1002/brb3.2241>

**Urgen, B.M.**, Topac, Y., Ustun, F.S., Demirayak, P., Oguz, K.K., Kansu, T., Saygi, S., Ozcelik, T., Boyaci, H., Doerschner, K. (2019). Homozygous LAMC3 mutation links to structural and functional changes in visual attention networks, *NeuroImage*, 190, 242-253. URL: <https://doi.org/10.1016/j.neuroimage.2018.03.077>

<sup>+</sup>Citations: <https://scholar.google.com/citations?user=Zk5JPVQAAAAJ&hl=tr&oi=ao>

## BOOK CHAPTERS

Urgen, B.M. (2025). Dikkatin nöral mekanizmaları. In Eren Günseli, Alper Açık (Ed.), *Bilişsel işlevlerin amaca yönelik ve adaptif boyutları* (pp. 1-22). Nobel Akademik Yayıncılık.

Urgen, B.M. (2024). Ön bilgi ve beklentilerin görsel algı üzerindeki etkileri: davranış ve hesaplamalı modeller. In Dicle Dövençioğlu (Ed.), *Nörondan algoritmaya davranışı anlamak* (pp. 69–83). Nobel Akademik Yayıncılık.

## PREPRINTS

**Urgen, B.M.**, Boyaci, H. (2026;2011). A recurrent cortical model can parsimoniously explain the effect of predictions on sensory processes. *bioRxiv*.

URL: <https://doi.org/10.1101/2021.02.05.429913>

**Urgen, B.M.**, & Boyaci, H. (2019). When expectations are not met: unraveling the computational mechanisms underlying the effect of expectation on perceptual thresholds. *\*bioRxiv*.

URL: <https://doi.org/10.1101/545244>

## PROJECTS

TÜBİTAK 1002 (Project No: 325K882): “The Interaction of Semantic Meaning and Physical Context in Scene-Object Relations” (2026–2027). (P.I.)

TEDU URF (T-22-B2021-90115): “Behavioral investigation of the factors that govern voting behavior in Turkey” (2023-2024). (P.I.)

## FELLOWSHIPS, AWARDS AND HONOURS

Publication Award, Bilkent University, Turkey (2019)

Travel Support, Neuroscience Program, Bilkent University, Turkey (2019)

European Visual Neuroscience Summer School Fellowship, Germany (2016)

Travel grant of European Visual Neuroscience Summer School, Germany (2016)

Academic Achievement Scholarship, Bilkent University, Turkey (2008 – 2010)

## INVITED TALKS

“Algıyı Bir Çıkarım Süreci Olarak Anlamak: Üst-bilişsel Süreçler Algıyı Nasıl Şekillendiriyor?”. Talk at TEDU, Cognitive Psychology Days (2025).

“Çıkarım süreci olarak algıyı anlamak: Biliş hesaplamalı bir yaklaşım”. Talk at METU, Cognitive Psychology Days (2024).

“Üst seviye mekanizmaların duyuşsal bilgi işleme üzerindeki etkisi”. Talk at Medipol University, Dept. of Psychology (2024).

“Karşılanmayan beklentiler ve duyuşsal süreçlerdeki dinamikler.” Talk at TOBB ETU, Psychology Day, (2024).

“Perception as an inference process: evidence from psychophysics and computational modeling.” Talk at Bilkent University, XI. Neuroscience Days (2023).

“Ön bilgi ve beklentiler erken görsel süreçleri etkiler mi?” Talk at Çankaya University, Cognitive Psychology Day, organized by Çankaya University Psychology Society (2023).

“Ön bilgi ve beklentilerin görsel algı üzerindeki etkileri”. Talk at Hacettepe University, The Science Festival organized by Hacettepe University & Evrim Ağacı (2022).

“The role of expectation and attention in visual perception: Behavioral, computational, and neural investigation of top-down mechanisms in visual perception”. Talk at TED University, Department of Psychology (2021).

“The effect of expectations on visual perception”. Talk at Middle East Technical University (METU), Department of Psychology, METU Sense Lab (2021).

## CONFERENCE PRESENTATIONS AND ABSTRACTS

Urgen, B.M., Basturk, H.I., Boyaci, H. [Talk]. A recurrent cortical model accounts for neural and behavioral effects of expectation on perceptual processes. I. National Neuroimaging Congress, Ankara, Turkey, 2023.

Urgen, B.M., Basturk, H.I., Boyaci, H. [Talk]. Hesaplamalı modelleme ile ön bilginin duyuşal süreçler üzerindeki davranışsal ve nöral etkilerini anlamak. VII. National Experimental-Cognitive Psychology Symposium, KKTC, 2023.

Urgen, B.M., Basturk, H.I., Boyaci, H. [Talk]. A recurrent cortical model accounts for neural and behavioral effects of expectation on perceptual processes. National Neuroscience Congress (USK), Bolu, Turkey, 2023.

Elmas, H.O., Aydin, B., Er, S., Rezaki, A.D., Izgi, A., Urgen, B.M., Boyaci, H., Urgen, B.A. [Poster]. The effect of prior knowledge on biological motion perception. Annual Meeting of Vision Sciences Society (VSS), Florida, USA, 2022. DOI: <https://doi.org/10.1167/jov.22.14.3847>

Elmas, H.O., Aydin, B., Er, S., Rezaki, A.D., Izgi, A., Urgen, B.M., Boyaci, H., Urgen, B.A. Predictive processing in biological motion perception. International Symposium on Brain and Cognitive Sciences (ISBCS), Turkey, 2022 (virtual).

Urgen, B.M., Boyaci, H. [Poster]. Sensory processes are delayed when expectations are not met. Annual Meeting of Vision Sciences Society (VSS), Florida, USA, 2021.

Urgen, B.M., Boyaci, H. [Poster]. Effect of expectation on perceptual processes: evidence from behavior and a mechanistic cortical model. National Neuroscience Congress (USK), Ankara, Turkey, 2020.

Urgen, B.M., Boyaci, H., A recurrent cortical model unveils the computational mechanisms underlying the effect of expectations on sensory processes [Poster]. 7th International Symposium on Brain and Cognitive Science (ISBCS), Turkey, 2020.

Urgen, B.M., Boyaci, H. [Poster]. Unmet expectations delay sensory processes. Dynamics in Vision and Touch (DyViTo) Workshop, Cappadocia, Turkey, 2019.

Urgen, B.M., Boyaci, H. [Poster]. Unraveling the computational mechanisms underlying the effect of expectation on perceptual thresholds. National Experimental-Cognitive Psychology Symposium, Istanbul, Turkey, 2019.

Boyaci H., Urgen, B.M. [Talk]. A recursive Bayesian updating scheme to model the effect of prediction on individuation. European Conference on Visual Perception (ECVP), Trieste, Italy, 2018.

Urgen, B.M., Boyaci, H. [Poster]. A recursive Bayesian updating scheme to model the effect of prediction on individuation. Annual Meeting of Society for Neuroscience (SfN), San Diego, USA, 2018.

Urgen, B.M., Boyaci, H. [Poster]. Behavioral evidence of predictive processing in visual perception. 5<sup>th</sup> International Symposium on Brain and Cognitive Science (ISBCS), Istanbul, Turkey, 2018.

Urgen, B.M., Boyaci, H. [Poster]. Effect of object category prediction on individuation. European Conference on Visual Perception (ECVP), Berlin, Germany, 2017.

Urgen, B.M., Ustun, F.S., Demirayak, P., Karli-Oguz, K., Doerschner, K. [Poster]. Cortical structural changes and visual functional outcomes associated with homozygous LAMC3 mutation. 14<sup>th</sup> National Neuroscience Congress (USK), Ankara, Turkey, 2016.

Urgen, B.M., Demirayak, P., Ustun, F.S., Doerschner, K. [Poster]. Visual distraction in a patient with abnormal occipital gyration – an eye-tracking study. Annual Meeting of Vision Sciences Society (VSS), Florida, USA, 2015.

Urgen, B.M., Boyaci, P., Ustun, F.S., Oguz, K.K., Gilani, I., Boyaci, H., Topac, Y., Doerschner, K. [Poster]. Morphometric Analysis of the Effects of LAMC3 Mutation on Cortical Structure. Annual Meeting of the Organization for Human Brain Mapping (OHBM), Hamburg, Germany, 2014.

Boyaci, P., Gilani, I., Urgen, B.M., Ustun, F.S., Topac, Y., Oguz, K.K., Boyaci, H., Doerschner, K. [Poster]. Effect of LAMC3 Mutation on White Matter Architecture: a Diffusion Tensor Imaging (DTI) study. Annual Meeting of the Organization for Human Brain Mapping (OHBM), Hamburg, Germany, 2014.

Ustun, F.S., Boyaci, P., Gilani, I., Urgen, B.M., Topac, Y., Boyaci, H., Doerschner, K. [Poster]. Effects of LAMC3 mutation on default mode network: A resting state fMRI analysis. Annual Meeting of the Organization for Human Brain Mapping (OHBM), Hamburg, Germany, 2014.

Ors, A., Abaci Turk, E., Urgen, B.M., Boyaci, H, and Doerschner, K. [Poster]. Mapping of Somatosensory Cortex using fMRI. 16<sup>th</sup> Annual Congress of Turkish Society for Magnetic Resonance (TMRD), Istanbul, Turkey, May 19-21, 2011.

## THESES

Ürgen, B. M. (2021). *Behavioral and Computational Investigation of the Effect of Prior Knowledge on Visual Perception* (Doctoral dissertation, Bilkent Üniversitesi (Turkey)).

Ürgen, B. M. (2012). *Taking the Measure of the Factors which Influence the Assignment of Agency during Online Motor Control* (Master's dissertation, University College London (United Kingdom)).

## ADMINISTRATIVE DUTIES

Vice Chair (2025 – )

Department of Psychology, Faculty of Arts and Sciences, TED University

Member (2025 – )

Internationalization Commission | Uluslararasılaştırma Komisyonu, TED University

Erasmus+ Coordinator (2023 – )

Department of Psychology, Faculty of Arts and Sciences, TED University

Advisory Board, Member (2023 – )

Department of Psychology, Bilkent University

Erasmus Student Network Society Advisor (2023 – )

TED University

Website Administrator (2019 – 2022)

Computational and Biological Vision Group: <http://vision.bilkent.edu.tr>

Department of Psychology, Bilkent University: <http://www.psy.bilkent.edu.tr>

Aysel Sabuncu Brain Research Center (ASBAM): <http://beyin.bilkent.edu.tr>

Neuroscience Program, Bilkent University: <http://neuro.bilkent.edu.tr/>

## **WORKSHOPS AND COURSES ATTENDED**

EEG Course (supported by the British Academy via Newton Funding)

Aysel Sabuncu Brain Research Center, Bilkent University, Turkey, 2018.

European Visual Neuroscience (from spikes to awareness) Summer School

Schloss Rauschholzhausen in Hessa, Germany, 2016.

## **MEMBERSHIPS**

Society for Neuroscience (SfN), Vision Sciences Society (VSS), University College London Alumni Association, Bilkent University Alumni Association

## **OTHER INFORMATION**

### **Languages**

English (fluent), Turkish (native)

### **IT Skills**

Programming Languages: MATLAB

Softwares & Toolboxes: FreeSurfer, SPM, The Decoding Toolbox (MVPA), BRAPH (toolbox for structural and functional connectivity analysis), DMAT (toolbox for Drift-diffusion model analysis for behavioral data), Psychtoolbox, PsychoPy, Palamedes (toolbox for analyzing psychophysical data), JASP, SPSS.