

Hamit Basgol

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I use psychophysical experiments and computational models to understand cognition and behavior. I am interested in pupil-linked arousal response to environmental changes and how arousal affects perception and cognition.

Education

- 2022 – Present **Neural Information Processing, Graduate Training Centre of Neuroscience, University of Tübingen**, Tübingen, Germany
PhD Student
- 2017 – 2021 **Cognitive Science, Boğaziçi University**, Istanbul, Turkey
Master of Arts Student, GPA: 95.25
- 2012 – 2016 **Psychology, Hacettepe University**, Ankara, Turkey
Bachelor of Arts Student, GPA: 85.76

Work & Research Experience

- 2021 – Present **Experimental Cognitive Science, Tübingen University**, *Research Assistant*.
Project: Robust Vision, CRC 1233: Task-Dependent Top-Down Modulation of Visual Processing
PIs: Dr Volker Franz & Dr Peter Dayan
- 2020 – 2021 **Boğaziçi University**, *Research Assistant*.
Project: A Computational Model of Event Learning and Segmentation: Event Granularity, Sensory Reliability and Expectation
PIs: Dr Emre Ugur & Dr İnci Ayhan
- 2019 – 2021 **VISLAB**, *Lab Member*.
Description: Vision Lab at Boğaziçi University
PI: Dr İnci Ayhan
- 2018 – 2021 **COLORS**, *Lab Member*.
Description: Cognition, Learning and Robotics Lab at Boğaziçi University
PI: Dr Emre Ugur

Skills

- Programming **Python, R, C**
- Tools **PsychoPy, Pavlovia, JASP**, Eyelink 1000, E-Prime 2.0, PEBL, SPSS, Octave, Matlab
- Language Turkish (native), English (fluent), German (simple)

Publications

- Paper H. Basgol, P. Dayan, and V. H. Franz, Violation of Auditory Regularities is Reflected in Pupil Dynamics, 2024, Cortex, 183, 66-86, 2025, doi: 10.1016/j.cortex.2024.10.023
- Paper H. Basgol, I. Ayhan, and E. Ugur, Predictive Event Segmentation and Representation with Neural Networks: A Self-Supervised Model Assessed by Psychological Experiments, 2024, Cognitive Systems Research, 83, 101167, doi: 10.1016/j.cogsys.2023.101167

- Paper H. Basgol, I. Ayhan, and E. Ugur, Time Perception: A Review on Psychological, Computational and Robotic Models, IEEE Transactions on Cognitive and Developmental Systems, 2021, doi: 10.1109/TCDS.2021.3059045
- Conference Publication H. Basgol and E. Ugur, Predicting Human Visual Complexity Judgments via Deep Learning, IEEE 28th Signal Processing and Communications Applications Conference (SIU), 2020, doi: 10.1109/SIU49456.2020.9302050

Conference Presentations

- National H. Basgol, P. Dayan, and V. H. Franz, Violations of Spatiotemporal Visual Regularities lead to Pupil Dilation Responses, Tagung experimentell arbeitender Psycholog:innen; Conference of Experimental Psychologists (TEAP2025), Frankfurt, Germany [accepted poster presentation]
- International H. Basgol, P. Dayan, and V. H. Franz, Pupil dilation responses to the emergence and violation of visual regularities, Interdisciplinary Advances in Statistical Learning, 2024, Donostia San Sebastian, Spain [talk]
- National H. Basgol, P. Dayan, and V. H. Franz, Violations of Visual Regularities Induce Pupil Dilation Responses, Tagung experimentell arbeitender Psycholog:innen; Conference of Experimental Psychologists (TEAP2024), Regensburg, Germany [poster presentation]
- National H. Basgol, P. Dayan, and V. H. Franz, How Much Evidence is Required to Detect Spatiotemporal Visual Regularities?, Neurowissenschaftliche Nachwuchskonferenz 2023 (NeNa 2023), Frankfurt, Germany [poster presentation]
- International H. Basgol, P. Dayan, and V. H. Franz, How Much Evidence is Required to Detect Spatiotemporal Visual Regularities?, Systems Vision Science Summer School and Symposium 2023 (SVS 2023), Tübingen, Germany, summerschool.lizhaoping.org [poster presentation]
- National H. Basgol, P. Dayan, and V. H. Franz, Does Pupil-Linked Arousal to Model Reset Require Attention?, Tagung experimentell arbeitender Psycholog:innen; Conference of Experimental Psychologists (TEAP2023), Trier, Germany [poster presentation]
- International H. Basgol, P. Dayan, and V. H. Franz, Pupil-Linked Arousal is Sensitive to Model Reset but not Model Update, The Psychonomic Society 63rd Meeting (Psychonomics 2022), 2022, Boston, the USA [online poster presentation]
- International H. Basgol, P. Dayan, and V. H. Franz, Is Pupil-Linked Arousal a Marker of Model Violation but not Model Update?, European Conference on Visual Perception (ECVP), 2022, Nijmegen, the Netherlands [poster presentation]
- International H. Basgol, I. Ayhan, and E. Ugur, A Self-Supervised and Predictive Processing-Based Model of Event Segmentation and Learning, Annual Conference of the Cognitive Science Society, Virtual, 2021
- International H. Basgol, I. Ayhan, and E. Ugur, A Computational Model of Event Segmentation and Learning, ISBCS: International Virtual Symposium on Brain and Cognitive Science, Turkey, 2020
- National H. Basgol, P. Dayan, and V. H. Franz, Pupil-Linked Arousal is Sensitive to Model Reset but not Model Update, Cognitive Science Center Tübingen Launch Event, 2022, Tübingen, Germany [poster presentation]
- National H. Basgol, P. Dayan, and V. H. Franz, Investigating Pupil-Linked Arousal to Complex and Statistically Uncertain Auditory Patterns, Tagung experimentell arbeitender Psycholog:innen; Conference of Experimental Psychologists (TeaP2022), 2022, Online [poster presentation]
- National H. Basgol ve E. Ugur, İnsan Görsel Karmaşıklık Kararlarının Derin Öğrenme ile Tahmin Edilmesi, Sinyal ve İletişim Konferansı, Türkiye, 2020
- National H. Basgol ve E. Ugur, Zaman Algısına İlişkin Hesaplamalı Modeller ve Bilişsel Robotbilim Modelleri, Türkiye Robotbilim Konferansı, Türkiye, 2019

Theses Supervised

- BSc Linus Rappold, 16 December 2024, The effect of prior information on pupil dilation responses linked to model reset. University of Tübingen, Main Supervisor: Dr Volker H. Franz
- BSc Florian Leonhard Raab, 08 September 2023, Is pupil-linked arousal response sensitive to the violation of visual regularities? University of Tübingen, Main Supervisor: Dr Volker H. Franz
- BSc Emilie Ferdinand, 17 April 2023, Does environmental complexity modulate pupil dilation response linked to model reset? University of Tübingen, Main Supervisor: Dr Volker H. Franz

Colloquium Talks

- Global Time Perception & Event Segmentation, December 22, 2023, Cognitive Science (COGS500 / CMPE489), PI: Emre Ugur, Bogazici University, Istanbul, Turkey [online]
- Local Pupil Dilation Responses to Auditory and Visual Uncertainties, November 11, 2023, Neuro-Cognitive Modeling Group, PI: Dr Martin Butz, University of Tübingen, Tübingen, Germany
- Global Pupil Dilation Responses to Auditory and Visual Uncertainties, September 08, 2023, Attention & Perception Lab, PI: Dr Cathleen Moore, the University of Iowa, Iowa, USA [online]
- Local The Modulation of Pupil Dilation Response Associated with Model Reset, April 25, 2023, Neural Information Processing, PI: Dr Felix Wichmann, University of Tübingen, Tübingen, Germany

Summer Schools, Workshops, and Online Courses

- Summer School Modeling Altered Time Experiences in Human and Hybrid Collectives, Timing Research Forum (TRF) Summer School, July 23 – 27, 2023, Chios, Greece
- Workshop Open Science Workshop by Andrew Webb, April 10 – 12, 2024, Graduate Training Centre of Neuroscience, Tübingen, Germany
- Summer School Systems Vision Science Summer School & Symposium, August 14 – 24, 2023, Tübingen, Germany, summerschool.lizhaoping.org
- Workshop Research Data Management in Psychology, March 26, 2023, TEAP2023, Trier, Germany
- Online Course Computational Social Science Methods (October, 2020), Coursera by Martin Hilbert, University of California, Davis - coursera.org/verify/WHVXUW32PSSV
- Online Course Computational Neuroscience (October, 2020), Coursera by Rajesh P. N. Rao and Adrienne Fairhall, University of Washington - coursera.org/verify/P47G4UEX6A27
- Online Course Neural Networks and Deep Learning (September, 2018), Coursera by Andrew Ng, deeplearning.ai - coursera.org/verify/NKW9A5KY4ZNY

Courses Supervised/Taught

- 3 Conducting team projects with BSc students, University of Tübingen
- 1 Cognitive Science - B, University of Tübingen

Peer Review Contributions, # of Papers

- 1 Behaviour & Information Technology, Taylor & Francis
- 2 CogSci Events, Cognitive Science Society
- 2 Neuroscience and Biobehavioral Reviews, Elsevier
- 1 IEEE Robotics and Automation Letters
- 1 IEEE Development and Learning
- 1 I-Perception, Sage Journals