

# Melih Barsbey

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## SUMMARY

Computer engineering PhD student with a research focus on probabilistic machine learning: causal inference, model selection in graphical models, and matrix/tensor factorizations. Also an industry practitioner with experience on high dimensional financial data and time series analysis. Background in research and statistical inference in cognitive science.

## EDUCATION

### Boğaziçi University, Istanbul, Turkey

- Ph.D. in Computer Engineering Sep 2015 – Present
  - Focus: Machine learning, Bayesian statistics
  - Advisor: Prof. A. Taylan Cemgil
  - Proficiency completed in Jun 2018
  - Cumulative GPA: 4.00 / 4.00
- M.A. in Psychology Sep 2011 – Aug 2014
  - Focus: Cognitive science of mental representations
  - Cumulative GPA: 4.00 / 4.00
- B.A. in Psychology Sep 2007 – Jun 2011
  - Cumulative GPA: 3.79 / 4.00
  - Change of major at the end of first year from Industrial Engineering to Psychology with a GPA of 3.52 / 4.00

### Robert College, Istanbul, Turkey

- High School

Sep 2002 – Jun 2007

## BUSINESS EXPERIENCE AND ACADEMIC APPOINTMENTS

### Arute Solutions Software Consulting Inc., Istanbul, Turkey

- Senior Data Scientist Sep 2017 – Present
  - Time series analysis on financial interaction data
  - Statistical learning on high dimensional data sets

### Acibadem University, Istanbul, Turkey

- Instructor, Department of Psychology Nov 2014 – Sep 2017
  - Courses Taught: Descriptive and Inferential Statistics, Psycholinguistics

### Boğaziçi University, Istanbul, Turkey

- Research Assistant, Department of Psychology Nov 2012 – Sep 2014
  - Courses Assisted: Statistics for Behavioral Sciences

### University of California, Berkeley, California, U.S.A.

- Visiting Researcher, Department of Psychology Aug 2012 – Oct 2012
  - Researcher in Concepts and Cognition Lab

## AWARDS & SCHOLARSHIPS

- University Entrance Exam; Science and Mathematics National Placement: 50th. Among 1,600,000 participants. 2007
- GRE Scores – Verbal Reasoning: 170 / 170. Quantitative Reasoning: 170 / 170. Analytical Writing: 5.0 / 6.0 2014
- M.A. Scholarship from The Scientific and Technological Research Council of Turkey (TÜBİTAK) 2012 – 2014
- PhD Scholarship from The Scientific and Technological Research Council of Turkey (TÜBİTAK) 2016 – Present

## PUBLICATIONS AND PREPRINTS

### RECENT SUBMISSIONS

- [2] Kurutmaz, M. B.\*, Barsbey, M.\*, Cemgil, A. T., Yıldırım, S., & Şimşekli, U. *Bayesian Model Selection for Identifying Markov Equivalent Causal Graphs*. Paper presented at *Advances in Approximate Bayesian Inference*, 2019. \*Equal contribution
- [1] Cemgil, A. T., Kurutmaz, M. B., Yıldırım, S., Barsbey, M., Şimşekli, U. *Bayesian Allocation Model: Model Selection for Graphical Models with Latent Variables using Polya Urns*, submitted to *Bayesian Analysis*, 2019.

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\*Equal contribution

## CONFERENCES AND OTHER SCIENTIFIC MEETINGS

- [5] Kurutmaz, M. B., Cemgil, A. T., Şimşekli, U., **Barsbey, M.**, & Yıldırım, S. *Bayesian Learning of Non-Negative Matrix/Tensor Factorizations by Simulating Pólya Urns*. Paper presented at Symposium on Advances in Approximate Bayesian Inference, Montréal, Canada, Dec 2018.
- [4] **Barsbey, M.** *Heuristics in an agent-based simulation: Investigating the effect of model complexity on learning performance*. Poster presented at Summer Institute on Bounded Rationality, Berlin, Germany, Jul 2017.
- [3] **Barsbey, M.**, & Lombrozo, T., *Linguistic differences in explanation requests and their effects on the evaluation of explanations: the case of English and Turkish*. Poster presented at the annual meeting of the Cognitive Science Society, Berlin, Germany. Aug 2013.
- [2] **Barsbey, M.**, Coşkun, T., Selçuk, Ş., & Ülkümen, A. D., *Mortality Salience and Self-Defining Memories*. Poster presented at the annual meeting of Center on Autobiographical Memory Research, Aarhus, Jun 2013.
- [1] **Barsbey, M.**, Aktan, D. N., & Bayram, O., *The effect of ambient temperature on decision making processes*. Poster presented at the biennial meeting of the Turkish Psychology Society, Istanbul, Turkey, Apr 2012.

## PREPRINTS

- [2] Cemgil, A. T., Kurutmaz, M. B., Yıldırım, S., **Barsbey, M.**, Şimşekli, U. *Bayesian Allocation Model: Inference by Sequential Monte Carlo for Nonnegative Tensor Factorizations and Topic Models using Pólya Urns*. *arXiv preprint arXiv:1903.04478*. Mar 2019.
- [1] **Barsbey, M.** *Perceptual simulations beyond the sentence: the effect of narrative shifts on perceptual simulations*. Unpublished master's thesis. Boğaziçi University, Istanbul, Turkey, Aug 2014.

## PROGRAMMING AND SOFTWARE SKILLS

- Python, Julia, C/C++
- TensorFlow, Python scientific computation libraries
- MATLAB, SQL, L<sup>A</sup>T<sub>E</sub>X, SPSS

## PROFESSIONAL ACTIVITIES

- Summer Institute on Bounded Rationality: Predictions under Uncertainty,**  
Max Planck Institute on Human Development, Berlin, Germany
- Participant & Researcher

2017

## LANGUAGES

- Turkish (Native)
- English (Advanced)
- German (Intermediate)

[CV compiled on 2019-12-12]