

Balázs TÖRÖK

Personal details

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Education

- Aug 2016 Advanced Topics in Machine Learning Summer School, Copenhagen, Denmark
- May 2016 Machine Learning Summer School, Cadíz, Spain
- Sep 2015- PhD, Psychology, Cognitive Science Department,
Budapest University of Technology and Economics, Budapest, Hungary
Courses on Psychology, Bayesian learning in the brain, Systems Neuroscience
- 2014-2015 BA, Psychology, ELTE
Did not obtain degree, moved to PhD program.
- 2012-2013 Master of Mathematics, St John's College, University of Cambridge, UK
Honours pass with Merit
- 2009-2012 BA (Hons), Mathematics, St John's College, University of Cambridge, UK
Part II 2.1, Part IB 1st Class, Part IA 1st Class

Research Experience

- Jan 2019- Visiting Graduate Student; Computation and Cognition Lab
(Stanford University)
Optimal experiment design for measuring individual differences in intuitive theories using variational inference methods. Under supervision of Noah Goodman.
- Mar 2015- Graduate Student; Computational Systems Neuroscience Lab
(Wigner Research Centre for Physics, Hungarian Academy of Sciences):
Probabilistic models for learning temporal dynamics of the environment. Cognitive tomography: estimating high-dimensional, task-independent representations in humans using low-dimensional behavioural measurements. Dynamic relationship of episodic and semantic memory systems from a general normative learning perspective. Under supervision of Gergő Orbán.
- Oct 2014- Research assistant; Brain, memory and language lab (ELTE)
Implicit statistical learning of probabilistic sequences. Analysis of reaction time data. Measuring and filtering reaction time confounds. Under supervision of Dezső Németh.

Journal publications

- 2017 Balázs Török*, Karolina Janacsek*, Dávid G. Nagy*, Gergő Orbán[^], Dezső Németh[^]. (2017). Measuring and filtering reactive inhibition is essential for assessing serial decision-making and learning. *Journal of Experimental Psychology: General*, 146(4), 529-542.
<http://dx.doi.org/10.1037/xge0000288>
**,[^] these authors contributed equally to this work*

Oral Presentations

- Jun 2018 Kognitív tomográfia reakcióidő adatok felhasználásával. (Cognitive tomography using reaction time data.) *Magyar Pszichológiai Társaság XXVII. Országos Tudományos Nagygyűlése, Budapest, Hungary.*
- Jun 2017 Stimulustól nem függő variabilitás hatása reakcióidő adatokra és azok értelmezésére. (Effects of non-stimulus dependent factors on reaction times and their interpretation.) *Magyar Pszichológiai Társaság XXVI. Országos Tudományos Nagygyűlése, Szeged, Hungary.*

Poster presentations

- Sep 2018 **Török, B.**, Nagy D. G., Janacsek, K., Nemeth, D., Orbán, G.
Inference of dynamic probabilistic internal representations from reaction time data. *Cognitive Computational Neuroscience Conference, Philadelphia, PA, USA*
- Sep 2018 Nagy, D. G., **Török, B.**, Orbán, G.
Semantic Compression of Episodic Memories. *Cognitive Computational Neuroscience Conference, Philadelphia, PA, USA*
- Jul 2018 Nagy, D. G., **Török, B.**, Orbán, G.
Semantic Compression of Episodic Memories. *39th Annual Conference of the Cognitive Science Society, Madison, WI, USA*
- May 2018 **Török, B.**, Nagy D. G., Janacsek, K., Nemeth, D., Orbán, G.
Uncovering complex individual dynamical representations using reaction times in a probabilistic learning task. *X. Dubrovnik Conference on Cognitive Science, Dubrovnik, Croatia*
- Mar 2017 **Török, B.**, Janacsek, K., Nagy, D. G., Orbán, G., Nemeth, D.
Dissecting stimulus-dependent and stimulus-independent factors in an implicit learning task reveals a mixture of performance enhancing and performance eroding processes on different time scales. *Annual Meeting of the Cognitive Neuroscience Society, San Francisco, CA, USA.*
- July 2016 **Török, B.**, Janacsek, K., Nagy, D. G., Orbán, G., Nemeth, D.
Non-stimulus dependent factors are essential when predicting reaction times in an implicit learning task. *International Conference on Memory, Budapest, Hungary.*
- May 2016 **Török, B.**, Janacsek, K., Nagy, D. G., Orbán, G., Nemeth, D.
The length of the within- and between-session breaks differentially affects decline in reaction time performance in a visuo-perceptual learning task. *International Meeting of the Psychonomic Society, Granada, Spain*
Work also presented at the Machine Learning Summer School, Cadíz, Spain.
- July 2016 Horváth, K., Török, C., **Török, B.**, Pesthy, O., Janacsek, K., Nemeth, D.
The consolidation of explicit and implicit probabilistic sequence learning. *International Conference on Memory, Budapest, Hungary.*
- July 2016 Pesthy, O., Horváth, K., Török, C., **Török, B.**, Janacsek, K., Nemeth, D.
Anodal stimulation of the left dorsolateral prefrontal cortex disrupts statistical learning. *International Conference on Memory, Budapest, Hungary.*
- May 2016 Horváth, K., Török, C., **Török, B.**, Pesthy, O., Janacsek, K., Nemeth, D.
Differential consolidation mechanisms are involved in declarative vs. non-declarative form of probabilistic sequence learning. *International Meeting of the Psychonomic Society, Granada, Spain.*

Jan 2016 Németh, D. , Horváth, K., Török, C. , Pesthy, O. , **Török, B.**, Antal, A. , Janacsek, K. Right hemisphere advantage in implicit learning and memory: evidence from transcranial Direct Current Stimulation. *IBRO Workshop, January, Budapest, Hungary.*

Awards, Scholarships

Sep 2018 Student Travel Award, *Cognitive Computational Neuroscience Conference*
Sep 2018 Wigner Travel Grant for *Cognitive Computational Neuroscience Conference*
May 2018 Student Travel Award, *X. Dubrovnik Conference on Cognitive Science*
2018 Magyar Állami Eötvös Ösztöndíj
Awarded by the Hungarian Ministry of Human Resources
6 months grant for visiting student researcher internship abroad
Destination: Computation & Cognition Lab, Stanford University, CA, USA
2017 Béla Julesz Prize
Awarded by the Faculty of Natural Sciences, Budapest University of Technology and Economics
2016-2018 PhD Scholarship, Budapest University of Technology and Economics
2010, 2011 Horne Scholarship of St. John's College, Cambridge
Awarded for achieving a Class I result at the exams

Teaching

2017, 2018 Statistical Learning in the Nervous System
Spring *Teaching assistant*
Course held jointly at multiple universities:
Eötvös Loránd University, Budapest University of Technology and Economics,
Pázmány Péter Catholic University
2017 Spring Uncertainty: Probability Theory in the Natural Sciences
Course held after-school for secondary school students
at Milestone Institute, Budapest
2015 Autumn Statistics Course, teaching assistant
Budapest University of Technology and Economics

Work Experience

2013-2014 Digital editor, International business manager @ Mozaik Education
Building mathematical tools for education, 3D models, applications as well as representation of the educational technology company at education shows, involved in strategy development for entering foreign markets, negotiated partnership agreements, presented software solutions to Ministries of Education in various countries in Europe and the Middle East, mainly GCC.
Jul - Aug 2012 Software Development Internship @ Softwire
Was among 7 who received internship out of 700 applicants. Worked in a team of 6 on an external project for six weeks, picked up new techniques fast, used ASP.NET, C#, php, html, javascript. After internship, I was offered permanent employment.