

# ÁGOSTON TÖRÖK

researcher & data scientist

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## EXPERIENCE

### Data scientist and R&D Lead

Synetiq Ltd.

Aug 2015 – ongoing

Budapest, HU

Understanding human emotions in biosignal data with machine learning and statistical tools.

- Took part in the development of a large scale analysis pipeline that handles 200 new testers' physiological data every month
- Used hidden Markov modeling, deep learning, ensemble models to find emotional states
- I also function as the R&D Lead and am responsible for the growth of our "know-how"

### Research fellow

Institute for Computer Science and Control, Hungarian Academy of Sciences

Jan 2017 – ongoing

Budapest, HU

Working on interdisciplinary research between computer science, cognitive science and psychology.

- Developing a research program to study the cognitive aspects of autonomous cars
- Carrying out research to explore how multisensory perception works in virtual reality
- Teaching Multivariate statistics, Introduction to spatial cognition, and supervising thesiswork at ELTE

### Research associate

Brain Imaging Centre, RCNS, Hungarian Academy of Sciences

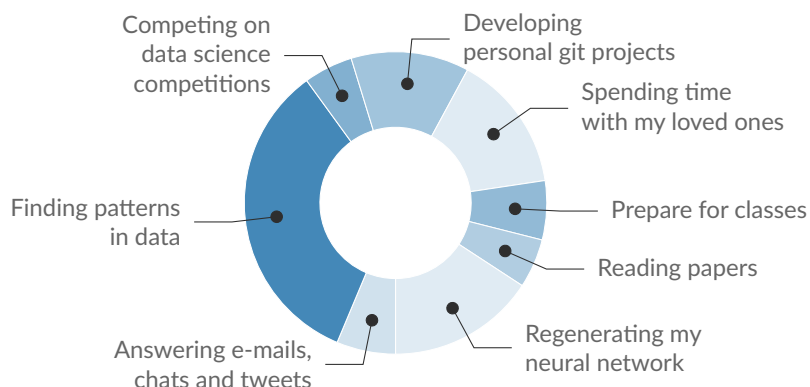
Sept 2013 – Dec 2016

Budapest, HU

Established own research direction on the field of spatial cognition.

- Learnt to use and analyze EEG, eyetracking, and behavioural data
- Won 4 research grants, 5 travel grants and took part in several research projects in Europe and overseas
- Done research projects at UCL; UTexas, Austin, Aix-Marseille University, Technion, University of Oldenburg

## A DAY OF MY LIFE



## LIFE PHILOSOPHY

"Everything is theoretically impossible, until it is done."

## MOST PROUD OF



### Leading a team

I've been leading a team of four people with a wide variety of expertise



### Keynote speaker

I was honoured to be invited to give a plenary talk at IEEE Cognitive Incommunications Conference 2017



### Interdisciplinary link

I successfully worked together with engineers, geographers, psychologists, linguists, and mathematicians

## STRENGTHS

Hard-working (17/24)

Creative

Fast learner

EEG

GSR

HR

Eyetracking

Python

R

Matlab

JS

Unity3D

HMD

CAVE

Augmented Reality

## LANGUAGES

Hungarian

English

Italian



## EDUCATION

### PhD in Cognitive Psychology

Eötvös Loránd University

Sept 2011 – Dec 2016

Thesis: Spatial perception and cognition, insights from experiments in virtual reality

### M.A. in Cognitive Psychology

Eötvös Loránd University

Sept 2006 – June 2011

## SELECTED PUBLICATIONS

### Journal Articles

- Török, Ágoston, Andrea Kóbor, et al. "Temporal dynamics of object location processing in allocentric reference frame". In: *Psychophysiology*, n/a–n/a. ISSN: 1469-8986. DOI: 10.1111/psyp.12886.
- Nadasdy, Zoltan et al. (2017). "Context-dependent spatially periodic activity in the human entorhinal cortex". In: *Proceedings of the National Academy of Sciences*. DOI: 10.1073/pnas.1701352114.
- Török, Ágoston, Elisa Raffaella Ferrè, et al. (2017). "Up, Down, Near, Far: An Online Vestibular Contribution to Distance Judgement". In: *PLOS ONE* 12.1, pp. 1–12. DOI: 10.1371/journal.pone.0169990.
- Honbolygó, Ferenc et al. (2016). "ERP correlates of prosody and syntax interaction in case of embedded sentences". In: *Journal of Neurolinguistics* 37, pp. 22–33.
- Török, Ágoston, Daniel Mestre, et al. (2015). "It sounds real when you see it. Realistic sound source simulation in multimodal virtual environments". In: *Journal on Multimodal User Interfaces* 9.4, pp. 323–331.
- Török, Ágoston, Orsolya Kolozsvári, et al. (2014). "Effect of stimulus intensity on response time distribution in multisensory integration". In: *Journal on Multimodal User Interfaces* 8.2, pp. 209–216.
- Török, Ágoston, T Peter Nguyen, et al. (2014). "Reference frames in virtual spatial navigation are viewpoint dependent". In: *Frontiers in human neuroscience* 8.

### Conference Proceedings

- Török, Ágoston (2016). "From human-computer interaction to cognitive infocommunications: a cognitive science perspective". In: *Cognitive Infocommunications (CogInfoCom), 2016 7th IEEE Conference on*. IEEE, pp. 343–348.
- Persa, György et al. (2014). "Experimental framework for spatial cognition research in immersive virtual space". In: *Cognitive Infocommunications (CogInfoCom), 2014 5th IEEE Conference on*. IEEE, pp. 587–593.
- Török, Ágoston, István Sulykos, et al. (2014). "Comparison between wireless and wired EEG recordings in a virtual reality lab: Case report". In: *Cognitive Infocommunications (CogInfoCom), 2014 5th IEEE Conference on*. IEEE, pp. 599–603.

## SCHOLARSHIPS & AWARDS

- 2017 - Best Session Award at IEEE CIC 2017
- 2017 - 1st place at the Telekom Leading Data Hackathon
- 2016 - Qusp prize at the IEEE Brain & Vision Hackathon
- 2016 - 28th place on the Senior Data Science competition
- 2013 - Junior researcher fellowship, Hungarian Academy of Sciences
- 2013 - Campus Hungary Scholarship
- 2011 - Scholarship by the Student Union of Benedictine Schools
- 2010 - Scholarship granted by the Republic

## PROJECTS

### Twisted Gravity: Assessing visuo-vestibular cues integration for the perception of gravity



[EPS, UK](#)

 Jan '17 - ongoing  London, UK

We study gravity perception using Oculus Rift and galvanic vestibular stimulation

### The significance of spatial reference frames in cognitive visualization

[ELTE Multidisciplinary Grant](#)

 Jul '16 - ongoing  Budapest, HU

Using eyetracking and virtual reality to find new ways for cartographic visualization

### Neurocogspace

[KTIA-AIK-12-1-2013-0037](#)

 Jun '13 – May '15  Budapest, HU

Creating a new virtual research platform where researchers can work together

- Took part in the development of a custom xml interface for Virca
- Studied EEG recording during locomotion

### The gender dimension in Conceptual Modeling

[EU Fp7 - 262044](#)

 Sept '14 - Jan '15  Technion, Haifa, Israel

Researching gender dimensions in navigation

- Built a conceptual model in OPM for the neural background of navigation

### VERTAX

[EU Fp7 - 262044](#)

 Sept '14 – Dec '14  UCL, London, UK

Studied distance perception on the vertical axis in virtual reality

- Found the explanation for the vertical distance illusion

### VENTRIVIR

[EU Fp7 - 262044](#)

 May '14 – Sept '14  Aix-Marseille Univ., FR

Studied how in-car warning systems interact with attention

- Designed a virtual reality paradigm in Unity3D