

Specialisations and Research Topics  
in Cognitive Sciences  
at **ELTE Budapest**

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X-mas Meeting 2022

## ***Mei:CogSci at ELTE University***

Our students can choose to join the MeiCogSci programme.

A collaborative Masters Program with the contribution of several Faculties and disciplines.

It offers research specialisations from diverse fields of scientific research:

**Cognitive neuroscience** – lead by **István Czigler, Ferenc Honbolygó**

**Human Electrophysiology** – lead by **Zoltán Nádasdy**

**Comparative Ethology** - lead by **Ádám Miklósi, József Topál**

**Cognitive Psychology** – *Numerical Cognition, Attila Krajcsi and Social Minds*  
*Research groups* - **Ildikó Király**

## Research Group of Neurocognitive Development, Hungarian Academy Sciences

István Czigler, Ferenc Honbolygó -  
honbolygo.ferenc@ttk.mta.hu



Institute of Cognitive  
Neuroscience and Psychology



Investigating the neurocognitive mechanisms of **speech perception, reading, music, implicit learning and cognitive control in adults, children and infants**, with a special focus on clinical and developmental aspects, using the latest techniques of brain imaging (EEG, fMRI).

## Human Electrophysiology Group

**Zoltán Nádasdy** –

nadasdy.zoltan@ppk.elte.hu



- Studying the role of **oscillations** in perceptual processes using **EEG**
- Visual consciousness
- Development of **spatial cognition** and its relationship to the theory of mind
- **Time perception** and cognitive representation of time

Stationary and mobile EEG, VR environments



# Family dog project

**Ádám Miklósi** - amiklosi62@gmail.com

**Department of Ethology, ELTE**

<http://familydogproject.elte.hu/>



Eötvös Loránd University  
Department of Ethology



## **Comparative analysis of social cognition in dogs and humans: Interdisciplinary approach**

### **Studying cognitive aging in dogs (Eniko Kubinyi)**

- The development of cognitive test battery to study the emergence of cognitive decline and use it to validate the effect of various treatments on cognitive performance in old subjects

### **Activation of social behaviour in dogs during interaction with autonomous agents (Judit Abdai)**

- Are dogs able to engage in social interaction with an agent?
- Do these interaction resemble human-dog relationship?
- Do dogs remember these agents based on embodiment and behaviour?

### **Interspecific attachment in cats to humans (Marta Gácsi)**

- Comparison of attachment behaviour in cats and dogs by looking at the effect of experience and development

### **Vocal communicative signals in dogs (Tamás Faragó)**

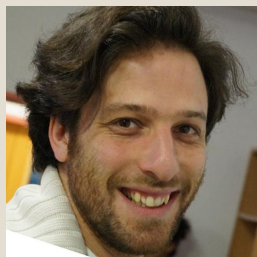
# Social Minds Research Group + Baby Lab



<http://babalabor.hu>



Dr. Ildikó Király  
lab leader



Dr. Bálint Forgács  
post-doc researcher



Dr. Fruzsina Elekes  
post-doc researcher



Dr. Márton Nagy  
adjunct lecturer



Dr. Katalin Oláh  
post-doc researcher



Dr. Sunae Kim  
adjunct lecturer



Réka Pető  
PhD student



Júlia Baross  
PhD student, Lab  
manager



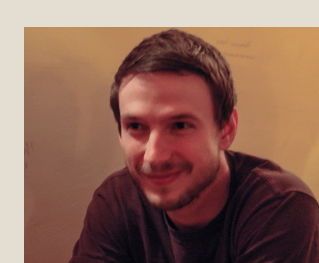
Andrea Hegedűs  
PhD student



Lívía Elek  
research assistant



Krisztina András  
PhD student



Ágoston Galambos  
PhD student



Krisztina Peres  
PhD student



**The main focus of our studies is on different aspects of social cognition and episodic memory. Although our name indicates that we mostly do developmental work, in reality, we investigate most of the topics both in children and adults. Moreover, we are especially interested in the interaction of different social cognitive functions.**

### **THEORY OF MIND**

- Spontaneous processes in perspective taking
- How do we update belief representations?
- Do we compute the beliefs of in-group and out-group members in a different way?



### **NAÏVE SOCIOLOGY**

- What cues do young children use to sort the social world into categories?
- What kind of inferences does group membership warrant for them?



### **EPISODIC MEMORY**

- Conscious and unconscious processes in relational retrieval
- Eye-movements as a measure of relational retrieval
- Episodic updating of belief representations
- Episodic memory in young children





## LANGUAGE ACQUISITION

- The interdependence of theory of mind and language
- Understanding metaphors



## SOCIAL LEARNING

- Who do young children trust when learning novel information?
- Does the group membership of the teacher matter?
- How do children learn about object functions?



## JOINT TASK PERFORMANCE

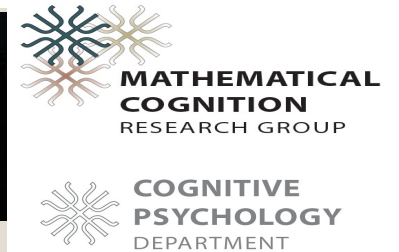
- Encoding of information that is only relevant to a social partner  
(memory and object tracking)





# Mathematical cognition research group

Attila Krajcsi - krajcsi.attila@ppk.elte.hu



The role of number notations in numerical processing

Negative numbers

The development of counting abilities

<https://www.thenumberworks.org/>

Automatic statistical analysis software

<https://www.cogstat.org/>



# ELTE Institute of Psychology Research groups

**Decision-making lab**

**Sleep & Cognition lab** - The heterogeneity of REM sleep, the neurophysiology of Nightmare Disorder

**Cognitive abilities & Individual differences lab** – executive functions and their measurement method

**Human Interaction Research Group  
& Adaptation Research Group** – hypnosis research, effect of suggestive communication



MTA  
Centre  
of Excellence

# Any questions?

Via email: [cogsci@ppk.elte.hu](mailto:cogsci@ppk.elte.hu)

**MSc Program details:**

<https://www.elte.hu/en/computational-and-cognitive-neuroscience-msc>

**INFO FOR VISITING STUDENTS FROM MEI:COGSCI:**

<https://pszi.ppk.elte.hu/en/content/meicogsci-info-for-incoming-students.t.8212>

**Please always cc me, when writing directly to one of the researchers!**

**Thank you for your attention, hope to see you in Budapest soon!**