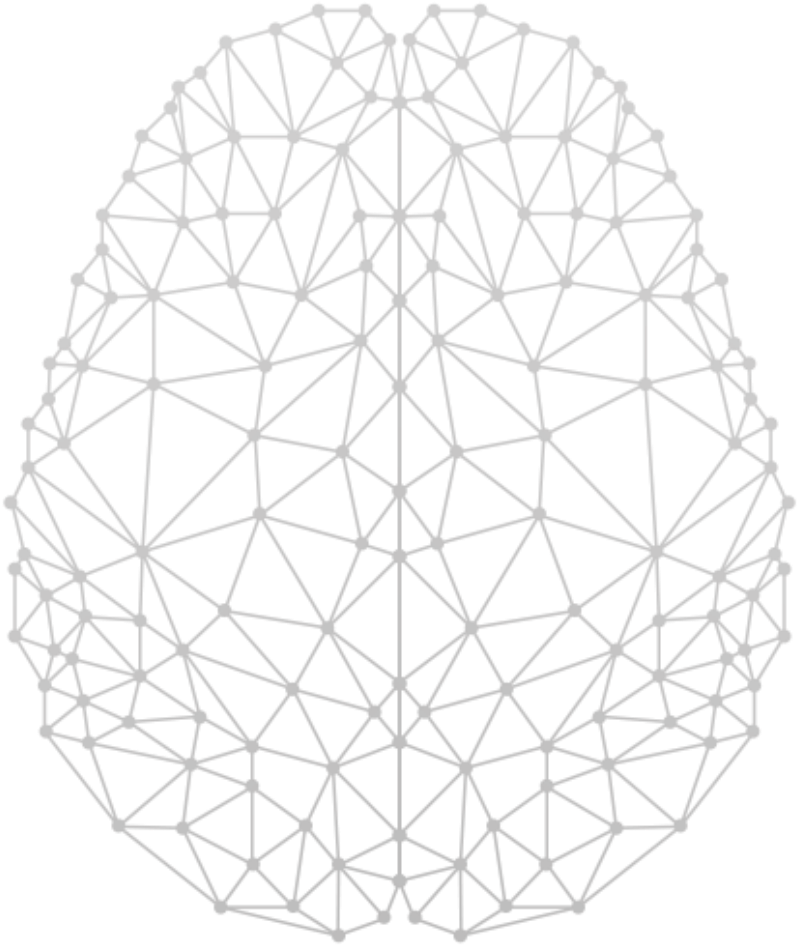
UNIVERSITY OF BELGRADE
Institute for Medical Research
National Institute of Republic of Serbia

http://www.imi.bg.ac.rs/eng



Human Neuroscience
Research Unit

Institute for Medical Research

- Established in 1947 by the Serbian Academy of Science;
- National Institute of Republic of Serbia (2019)
- 11 Research Units & two Centers of Excellence

Human Neuroscience Research Unit

Explore mechanisms and biological correlates of higher cognitive and motor functions in healthy and pathological conditions.

https://neuro.imi.bg.ac.rs

Neurology & Neuropsychiatry

Psychology

Language Rehabilitation

Sport sciences

Psychology

Psychology

Psychology

Rehabilitation

Human Neuroscience Research Unit

Non-invasive brain stimulation (tDCS/TMS)
& Neurophysiological methods (EEG)

Jonos-4 (Electronic Design Medical D.O.O., Serbia)
STMISOLA (BIOPAC Systems, Inc., USA) + **CED 1401 Plus** (Cambridge Electronic Design Limited)
StarStim 32 (Neuroelectrics, Spain)

Magstim 200² and **Magstim Rapid²** stimulators (Magstim Ltd, UK) + **CED 1401 Plus** (Cambridge Electronic Design Limited, UK) + **Ag-AgCl EMG** surface electrodes

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STARSTIM32 (Neuroelectrics, Spain)
SMARTING mobi (mBrainTrain LLC, Serbia)

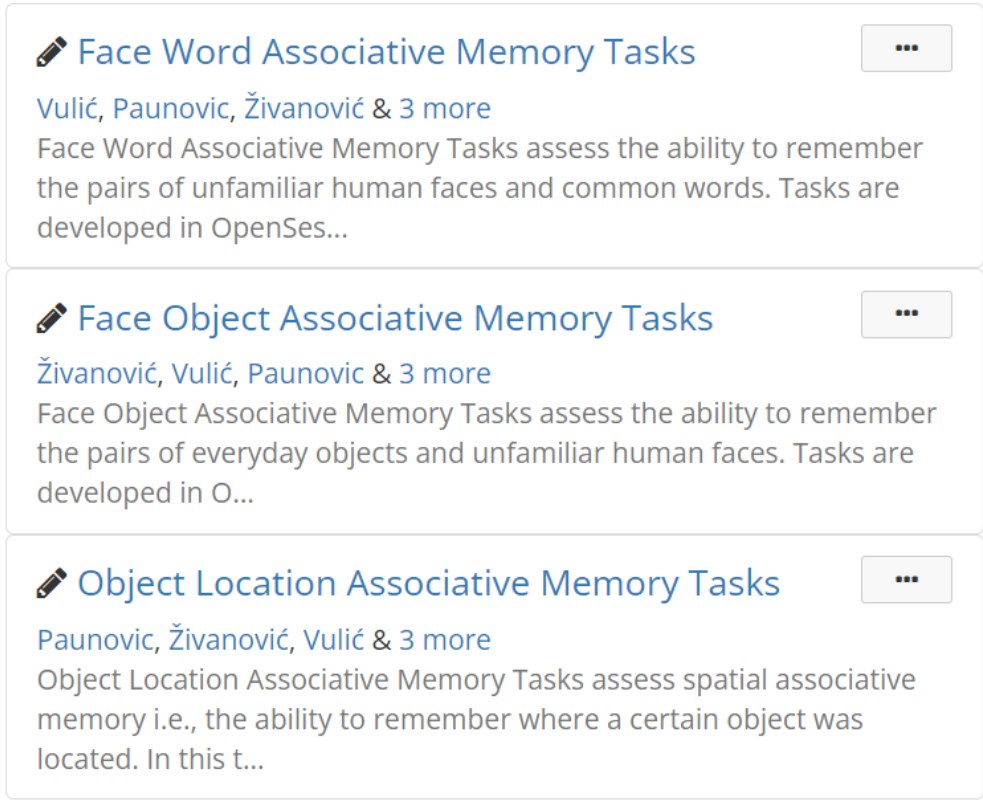
Human Neuroscience Research Unit

Cognitive assessment tools/tasks

We develop, program and standardize tasks/test (and we do it in parallel forms)

https://doi.org/10.17605/OSF.IO/F28AK

OpenSesame (https://osdoc.cogsci.nl/),
TotalAssessment (https://totalassessment.net/)
E-Prime (https://pstnet.com/products/e-prime/).



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Some recent papers:

Vulić, K., Bjekić, J., Paunović, D., Jovanović, M., Milanović, S., & Filipović, S. R. (2021). Theta-modulated oscillatory transcranial direct current stimulation over posterior parietal cortex improves associative memory. *Scientific Reports*, 11, 3013. doi: 10.1038/s41598-021-82577-7

Živanović, M., Paunović, D., Konstantinović, U., Vulić, K., Bjekić, J., & Filipović, S. R. (2021). The effects of offline and online prefrontal vs parietal transcranial direct current stimulation (tDCS) on verbal and spatial working memory. *Neurobiology of Learning and Memory*, 179, 107398. doi: 10.1016/j.nlm.2021.107398

Parciauskaite V, Pipinis E, Voicikas A, Bjekic J, Potapovas M, Jurkuvenas V, Griskova-Bulanova I. Individual Resonant Frequencies at Low-Gamma Range and Cognitive Processing Speed. *Journal of Personalized Medicine*. 2021; 11(6):453. https:10.3390/jpm11060453

Parciauskaite V, Bjekic J, Griskova-Bulanova I. Gamma-Range Auditory Steady-State Responses and Cognitive Performance: A Systematic Review. *Brain Sciences*. 2021; 11(2):217. https://doi.org/10.3390/brainsci11020217

Griskova-Bulanova I., Sveistyte K. and Bjekić, J. (2020). Neuromodulation of Gamma-Range Auditory Steady-State Responses: A Scoping Review of Brain Stimulation Studies. *Frontiers in Systems Neuroscience.* 14(41). doi: 10.3389/fnsys.2020.00041

Bjekić, J., Čolić, M. V., Živanović, M., Milanović, S. D., Filipović, S. R. (2019). Transcranial direct current stimulation (tDCS) over parietal cortex improves associative memory. *Neurobiology of Learning and Memory*, 157(1), 114–120. doi: 10.1016/j.nlm.2018.12.007

Bjekić, J., Vulić, K., J., Živanović, M., Vujučić, J., Ljubisavljević, M., Filipović, S.R. (2019). The immediate and delayed effects of single tDCS session over posterior parietal cortex on face-word associative memory. *Behavioural Brain Research*, 366, 88-95. doi: 10.1016/j.bbr.2019.03.023

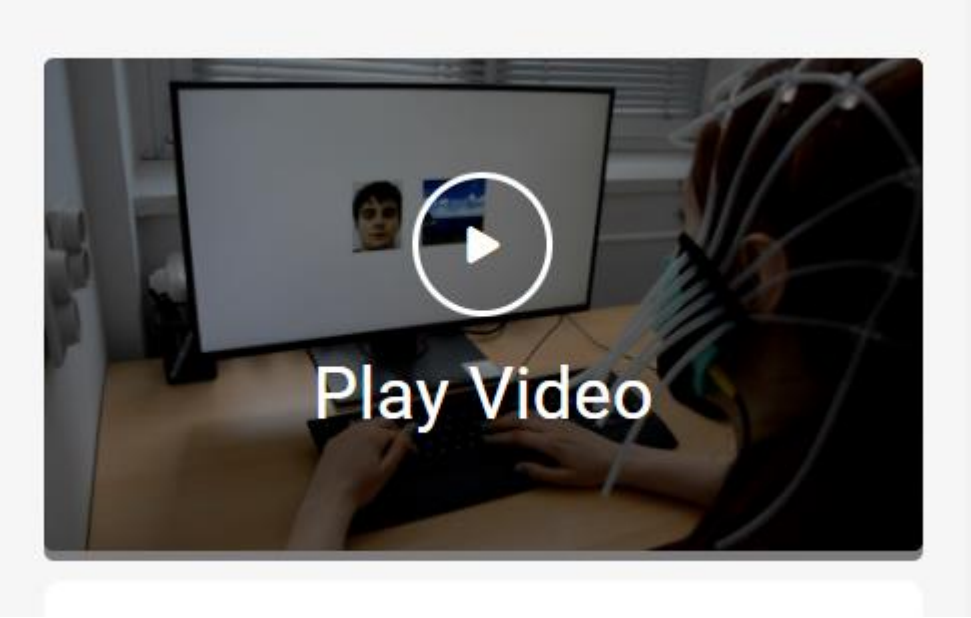
Human Neuroscience Research Unit

MEMORYST
From brain waves to memory boost: Memory enhancement by personalized frequency-modulated noninvasive brain stimulation (2020 - 2022)

THE MEMORYST PROJECT IS FUNDED BY
Science Fund
of the Republic of Serbia

https://www.jove.com/t/62681

Bjekić, J., Živanović, M., Filipović, S. R. Transcranial Direct Current Stimulation (tDCS) for Memory Enhancement. *J. Vis. Exp.* (175), e62681, doi:10.3791/62681 (2021)



Human Neuroscience Research Unit

2021 – MA student from Uni Zagreb (2 weeks during MEMORYST data collection)

2021-2022 (in lab)

- Oct 2021 – Dec 2021 – EEG signal processing (a lot!)
- Nov 2021: tDCS data collection (higher cognitive functions)
- Nov – April 2021: TMS data collection (associative memory)
- May – Oct 2022: Combined EEG-tDCS data collection (inhibition/impulsivity)

for 6 ECTS
(180hours)
talk to Oliver ☺

Fingers crossed:

- Center for NIBS (Horizon Europe)

Online/virtual collaboration:

- Multi-country associative memory assessment (COST Acton driven initiative) expression of interest email Oct 2021

Thank you.

Jovana Bjekic

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