Seminar Fizičkog odsjeka

Time (s.t.)	Place
Tuesday 21st March, **11:00** h	room **F-201**

Neuroprosthetic technologies to restore movement and communication of people with paralysis

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Paralysis has a severe impact on a patient's quality of life and entails a high emotional burden and life-long social and financial costs. Restoring movement and independence for people with the most severe forms of paralysis remains a challenging clinical problem, currently with no viable solution. Recent demonstrations of brain-computer interfaces, neuroprosthetic devices that create a link between a person and a computer based on a person's brain activity, have brought hope to millions of people with paralysis for their potential to restore movement and communication. While the brain-computer interfaces have steadily improved over the last four decades, recent success in linking brain activity with the newly developed techniques for spinal cord stimulation look to revolutionize locomotor rehabilitation. New approaches in designing neural decoding algorithms, which transform neural signals into computer commands, aim to deliver both stable and accurate control over clinically relevant periods of several months. Preliminary clinical studies suggest that these concepts and technologies are directly translatable to therapeutic strategies for people with paralysis.

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2. Milekovic T, Mehring C (2016) Variance based measure for optimization of parametric realignment algorithms, PLoS One 11(5): e0153773
3. Milekovic T, Truccolo W, Grn S, Riehle A, Brochier T (2015) Local field potentials in primate motor cortex encode grasp kinetic parameters, Neuroimage S1053-8119 (15), 00287-6
4. Milekovic T, Ball T, Schulze-Bonhage A, Aertsen A, Mehring C (2013) Detection of error related neuronal responses recorded by electrocorticography in humans during continuous movements, PLoS One 8:e55235
5. Milekovic T, Fischer J, Pistohl T, Ruescher J, Schulze-Bonhage A, Aertsen A, Ball T, Mehring C (2012) An online brain-machine interface using decoding of movement direction from the human electrocorticogram, J. Neural Eng. 9:046003
6. Milekovic T, Ball T, Schulze-Bonhage A, Aertsen A, Mehring C (2012) Error related electrocorticographic activity in humans during continuous movements, J. Neural Eng. 9:026007

Voditelji seminara FO

Damir Pajić i Ivica Smolić