

Curriculum Vitae Raul C. Mureşan

Degree: 2006 PhD in theoretical and experimental neuroscience from the Technical University of Cluj-Napoca, in collaboration with the Max Planck Institute for Brain Research in Frankfurt and the Frankfurt Institute for Advanced Studies.

Education and positions:

- 1997 – 2002 Diplomat engineer degree in Computer Science from Technical University of Cluj-Napoca.
- 2002 – 2004 Leader of the research & development team in applied neuroscience at Nivis LLC.
- 2004 – 2006 Visiting postgraduate student at Max Planck Institute for Brain Research in Frankfurt and the Frankfurt Institute for Advanced Studies.
- 2006 – 2008 Postdoc at Max Planck Institute for Brain Research in Frankfurt and the Frankfurt Institute for Advanced Studies.
- 2011 – 2013 Member of Biology Committee of the National Research Council of Romania (CNCS).
- Since 2007 Director at RIST and leader of the Experimental and Theoretical Neuroscience department.

Role in the Project:

The present project will benefit from Dr. Mureşan's expertise in analysis of neuronal data and development of new analysis techniques. Among others, he developed the Oscillation Score, a new method of estimating oscillatory activity in neurons, and contributed significantly to developing the Scaled Correlation method for investigation of correlated activity among different brain sites. He was also involved in implementing a new Transfer Entropy method that can estimate directional informational coupling among selective brain regions. More recently, he critically reviewed the data normalization techniques most frequently used in neuroscience and proposed novel normalization strategies to avoid biased results.

Selected publications:

- Ciuparu A. and **Mureşan R.C.*** (2016), Sources of bias in single-trial normalization procedures. *European Journal of Neuroscience* 43(7):861–869.
- Moca VV, Nikolić D, Singer W, **Mureşan RC***. Membrane resonance enables stable and robust gamma oscillations. *Cerebral Cortex* 24(1):119-142, 2014.
- Nikolić D, **Mureşan RC**, Feng W, Singer W. Scaled correlation analysis: a better way to compute a cross-correlogram. *European Journal of Neuroscience* 35(5): 742-762, 2012.
- Jurjuţ OF, Nikolić D, Singer W, Yu S, Havenith MN, **Mureşan RC***. Timescales of Multineuronal Activity Patterns Reflect Temporal Structure of Visual Stimuli. *PLoS One* 6(2): e16758, 2011.
- Jurjuţ OF, Nikolić D, Pipa G, Singer W, Metzler D, **Mureşan RC***. A color-based visualization technique for multi-electrode spike trains. *Journal of Neurophysiology* 102: 3766-3778, 2009.
- Mureşan RC***, Jurjuţ OF, Moca VV, Singer W, Nikolić D. The Oscillation Score: An Efficient Method for Estimating Oscillation Strength in Neuronal Activity. *Journal of Neurophysiology* 99: 1333-1353, 2008.