Dimitrije Marković

CURRENT AFFILIATION	Chair of Neuroimaging, Psychology Department, TU Dresden, Dresden.

CONTACT INFORMATION

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EDUCATION

Doctorate in Theoretical Physics - *Dr. phil. nat* (May 2013)
Goethe University, Institute for Theoretical Physics,
Frankfurt am Main, Germany.
- Mentor: Prof. Dr. Claudius Gros
- Title: "Power laws and adaptation in complex systems"

Diploma in Theoretical and Experimental Physics (September 2007)
Faculty of Physics, Belgrade University, Belgrade, Serbia.
- Mentor: Dr. Milan Petrović
- Title: "Solitons in quasi-periodic photonic lattices"

CAREER

since 06/14 Postdoc at Institute of General Psychology,
Technical University Dresden, Dresden, Germany.

2013 - 2015 Guest researcher at MPI for Human Cognitive and
Brain Sciences, Leipzig, Germany.

2013-2014 Postdoc at Biomagnetic center,
University clinic Jena, Jena, Germany.

2008-2013 Research fellow at Institute for Theoretical Physics,
J.W. Goethe University, Frankfurt am Main, Germany.

PUBLICATIONS

- D. Marković, J. Gläscher, P. Bossaerts, J. O'Doherty, and S. Kiebel. *"Modeling the evolution of beliefs using an attentional focus mechanism"*, PLoS Comput Biol 11(10): e1004558, 2015.
- D. Marković, C.Gros *"Power laws and Self-Organized Criticality in Theory and Nature"*, Physics Reports 536 (2), 41-74, 2014.
- D. Marković, A. Schuelein, C.Gros *"Criticality in conserved dynamical systems: Experimental observation vs. exact properties"*, Chaos: An Interdisciplinary Journal of Nonlinear Science 23, 1,013106, 2013.
- D.Marković, C. Gros, *"Intrinsic adaptation in autonomous recurrent neural networks"*, Neural Computation, 24, 2, 523–541, 2012.
- C. Gros, G. Kaczor, D. Marković *"Neuropsychological constraints to human data production on a global scale"*, European Physical Journal B, 85, 1, 1–5, 2012.
- D. Marković, C. Gros, *"Self-organized chaos through heterostatic optimization"*, Phys. Rev. Lett. 105, 068702, 2010.
- D. Marković, C. Gros, *"Vertex routing models"*, New Journal of Physics 11 073002, 2009.

- Bayesian learning and decision making
- Reinforcement learning
- Complex and adaptive dynamical systems
- Computational principles of neuronal dynamics
- Cognitive neuroscience

- Institute for Theorethical Physics, Goethe University, Frankfurt a.M, Germany Seminar on Complex and Cognitive Systems (June 2015), Title: "Computational mechanisms underlying decision making in complex environments".
- Frankfurt Institute for Advanced Studies, Frankfurt a.M, NeuroBioTheory Seminar (December 2012), Title: "Power-laws and neural avalanches: theory and experiment".
- Institute for Cognitive Science, Neurobiopsychology Department, Osnabrück University, Osnabrück , Germany (September 2012), Title: "Spontaneous activity in autonomous recurrent neural networks with intrinsic plasticity"

Oral presentations

- "Intrinsic plasticity in autonomous recurrent neural networks", D. Marković and C. Gros, Bernstein Conference Computational Neuroscience, Berlin, Germany (2010).

Poster presentations

- "Updating beliefs in a probabilistic Wisconsin Card Sorting Task", D. Marković, J. Gläscher, P. Bossaerts, J. O'Doherty, S. Kiebel. FENS-Hertie Winnter School, "The Neuroscience of Decision Makin", Obergurgl, Austria (2015).
- "Structure and attention guide the inference of hidden causes", D. Marković, J. Gläscher, P. Bossaerts, J. O'Doherty, S. Kiebel. Autonomous Learning Summer School, MPI for Mathematics in Sciences, Leipzig, Germany (2014).
- "Updating beliefs in a hidden cause task", D. Marković, J. Gläscher, P. Bossaerts, J. O'Doherty, S. Kiebel. OHBM 2014 Annual Meeting, Hamburg, Germany (2014).
- "Spontaneous activity in neural networks with intrinsic plasticity", D. Marković and C. Gros, 8th FENS forum of neuroscience, Barcelona, Spain (2012).
- "Self-organization in ARNN with non-synaptic plasticity", D. Marković and C. Gros, COSYNE, Salt Lake City, Utah, USA (2011).
- "Self-organized chaos through heterostatic optimization", D. Marković and C. Gros, CogSys, Zurich, Switzerland (2010).
- "Vertex Routing Models", D. Marković and C. Gros, Complex dynamics in large-scale interacting brain networks, Dresden, Germany (2009).

- FENS-Hertie Winnter School, "The Neuroscience of Decision Making", January 20015. Obergurgl, Austria.
- Autonomous Learning Summer School, September 2014. MPI for Mathematics in Sciences, Leipzig, Germany.
- Intrinsic Motivations: From Brains to Robots , December 2012. FIAS, Frankfurt am Main, Germany.
- Cognitive Science and Machine Learning Summer School, May 2010. Sardegna Ricerche, Pula, Italy.
- Complex Dynamics in Large-Scale Interacting Brain Systems, June 2009. International Seminar, Max-Planck-Institute for Physics of Complex Systems, Dresden, Germany.
- Barcelona Cognition, Brain, and Technology summer school, September 2008. Institute of Audio-Visual Studies (IUA), Universitat Pompeu Fabra, Barcelona, Spain.
- CERN summer student programme, June - August 2007. CERN - European Organization for Nuclear Research, Geneva, Switzerland.

- Serbian (native)
- English (fluent)
- German (conversationally fluent)