

Olesia Dogonasheva

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EDUCATION	École normale supérieure, Doctorale Cerveau, cognition, comportement (ED3C), Paris PhD	2024
	HSE University, Psychology department, Moscow PhD	2023
	Alferov University, Nanobiotechnology department, Saint-Petersburg MD in Physics	2020
	ITMO University, Department of higher mathematics, Saint-Petersburg BD in Applied Mathematics and Computer Science	2015
COMPLEMENTARY EDUCATION	Bioinformatics Institute, Saint-Petersburg Statistics, data analysis, machine learning, bioinformatics tools	2020
	Computer Science Center, Saint-Petersburg Algorithms and data structures, C++	2012
PUBLICATIONS	O. Dogonasheva, D. Radushev, B. Gutkin, D. Zakharov, “Dynamical manifold dimensionality as characterization measure of chimera states in bursting neuronal networks”, <i>Communications in Nonlinear Science and Numerical Simulation</i> , 108321, ISSN 1007-5704, 2024	
	O. Dogonasheva, E. Postnikov, A. Lavrova “Shaping spiking patterns through synaptic parameters as revealed by conventional and wavelet-based bifurcation analysis”, <i>The European Physical Journal Special Topics</i> , p. 1-13, 2023	
	O. Dogonasheva, D. Kasatkin, B. Gutkin, D. Zakharov “Multistability and evolution of chimera states in a network of type II Morris-Lecar neurons with asymmetrical nonlocal inhibitory connections”, <i>Chaos: An Interdisciplinary Journal of Nonlinear Science</i> , vol. 32, no. 10, p. 101101, 2022	
	O. Dogonasheva, D. Kasatkin, B. Gutkin, D. Zakharov “Robust universal approach to identify travelling chimeras and synchronized clusters in spiking networks”, <i>Chaos, Solitons and Fractals: the interdisciplinary journal of Nonlinear Science, and Nonequilibrium and Complex Phenomena</i> , vol. 153, p. 111541, 2021	
PREPRINTS	O. Dogonasheva, D. Zakharov, A.L. Giraud, B. Gutkin “Deciphering the Rhythmic Symphony of Speech: A Neural Framework for Robust and Time-Invariant Speech Comprehension”, <i>bioRxiv</i> , 2024.	
	V. Tiselko, O. Dogonasheva, A. Myshkin, N. Khoroshavkina, O. Valba “K-clique percolation in human structural connectome”, <i>arXiv:2210.07218</i> , 2022.	
CONFERENCES	O. Dogonasheva, O. Platonova, D. Zakharov, A.L. Giraud, B. Gutkin “Brain-Rhythm-based Inference (BRyBI) for time-scale invariant speech processing”, <i>FENS</i> , Vienna, Austria, Jun 2024.	
	O. Dogonasheva, O. Platonova, D. Zakharov, A.L. Giraud, B. Gutkin “Rhythmically structured predictive coding enables invariant semantic recovery”, <i>Cosyne</i> , Lisbon, Portugal, Feb 2023.	
	O. Dogonasheva, O. Platonova, D. Zakharov, A.L. Giraud, B. Gutkin “Brain-Rhythm-based Inference (BRyBI) for time-scale invariant speech processing”, <i>Neuroscience (SfN)</i> , Washington, USA, Nov 2023.	
	O. Dogonasheva, D. Zakharov, A.L. Giraud, B. Gutkin “Hierarchical Oscillation as a Mechanisms for Speech Parsing”, <i>Bernstein</i> , Berlin, Germany, Sep 2023.	
	O. Dogonasheva, D. Zakharov, A.L. Giraud, B. Gutkin “Delta-theta-gamma interplay for contextualized speech parsing”, <i>32nd Annual Computational Neuroscience Meeting</i> , Leipzig, Germany, Jul 2023.	
	O. Dogonasheva, B. Gutkin, D. Zakharov “Correlation dimension as a measure of chimera states”, <i>NoDycon</i> , Rome, Italy, Jun 2023.	

O. Dogonasheva, D. Zakharov, B. Gutkin “Brain-Rhythm-based Inference (BRyBI) for time-scale invariant speech processing”, *Cosyne*, Montreal, Canada, Mar 2023.

O. Dogonasheva, B. Gutkin, D. Zakharov “Identification of multistable coherent regimes in spiking neural networks”, *Dynamics Day Europe*, Aberdeen, Scotland, UK, Aug 2022.

O. Dogonasheva, B. Gutkin, D. Zakharov “Calculation of travelling chimera speeds for dynamical systems with ring topologies”, *BF-NAICS 2021: Baltic Forum: Neuroscience, AI and Complex Systems*, Kaliningrad, Russia, Sep 2021.

O. Dogonasheva, B. Gutkin, D. Zakharov “Multistability of coherent states in ring networks of type II neurons with asymmetrical nonlocal inhibitory connectivity”, *30th Annual Computational Neuroscience Meeting*, Jul 2021.

O. Dogonasheva, B. Gutkin, D. Zakharov “A new universal approach for studying synchronization processes in networks of active elements based on adaptive synchronization measure”, *Nonlinear days 2021*, Saratov, Russia, Apr 2021.

O. Dogonasheva, G. Novikov, “A new method for the molecular geometry optimization during the quantum-chemical modeling of chemical and biochemical reactions”, *SPbOpen 2019*, Saint-Petersburg, Russia, Apr 2019.

O. Dogonasheva, I. Popov “Solution of spectral problems for quantum graphs with delta potentials of spiral types in a magnetic field”, *IV Congress of young scientists of Russia*, Saint-Petersburg, Russia, 2015.

O. Dogonasheva, I. Popov “DNA topology quantum graphs in a magnetic field”, *Mathematical Challenge of Quantum Transport in Nanosystems*, Saint-Petersburg, Russia, 2014.

PATENTS	Patent for a computer program No. 2022684705,	2022
	Software package for the identification of dynamical regimes in spiking neural networks	
	Patent for a computer program No. 2022684101,	2022
	Software package for calculation of the chimera state speed in spiking neural networks	
	Patent for a computer program No. 2021616670,	2021
	Software package for automatic simulation of chemical reactions networks during the deposition of molecular coatings on surfaces	
	Patent for a computer program No. 2020615220,	2020
	Software package ReaNet for automatic modeling of thermal chemical and photochemical reactions	
AWARDS & SCHOLARSHIPS	Vernadsky Fellowship Award,	2021-2024
	Ambassadeur de France en Russie	
	Idea Foundation Fellowship,	2021-2023
	Research Center "IDEAS"	
	Stipendium,	2020
	Freien Universität Berlin, Germany	
	Winner of the competition "Start - Digital Technology",	2020
	Innovation Promotion Fund, Moscow, Russia	
	Prizewinner in the "International gemini Mars design competition",	2016
	The Mars society, USA	
SCHOOLS & INTERNSHIPS	Junior Scientists Workshop on Recent Advances in Theoretical Neuroscience (smr 3943),	2024
	Workshop on Computational neuroscience in Trieste, Italy	
	Bio-inspired deep learning,	2024
	Workshop on Simulation-Based Inference (SBI) in Mainz, Germany	
	Neurobridges,	2022
	Scientific School in Cluny, France	
	Mathematics, Theoretical Physics and Mathematical Methods of Data Analysis in Neuroscience,	2021
	Scientific School in Sirius Mathematics Center, Sochi, Russia	

	Neuromatch Academy, Summer school in Computational Neuroscience	2020
	Bioinformatics Summer School, MIPT, Moscow, Russia	2019
INVITED TALKS	LaCNS Group, the Donders Centre for Cognitive Neuroimaging, Radboud University, “Brain-Rhythms-Based Inference (BRyBI) model for Contextualized Speech Parsing”	2023
	Institute of Radio-engineering and Electronics RAS, Saratov, Russia, “Travelling chimera states in the ring of II-type Morris-Lecar neurons with asymmetric nonlocal inhibitory connections”	2020
TEACHING EXPERIENCE	HSE University, Moscow <ul style="list-style-type: none"> • Advanced Calculus, assistance • Theoretical neuroscience, seminars • Brain and Mind, seminars 	2021 – 2022
	ITMO University, Saint-Petersburg <ul style="list-style-type: none"> • Higher mathematics, 3-terms course • Probability theory and mathematical statistics, 2-terms course 	2014 – 2017
RESEARCH EXPERIENCE	Researcher, Institut de l’Audition, Pasteur Institute, Paris <ul style="list-style-type: none"> • Study brain rhythms influence on speech coding 	2024 – 2026
	Researcher, Group for Neural Theory, LNC2, École Normale Supérieure, Paris <ul style="list-style-type: none"> • Study brain rhythms influence on speech coding 	2022 – 2024
	Junior researcher, CCDM, Higher School of Economics, Moscow <ul style="list-style-type: none"> • Study synchronization processes and chimera states in spiking neural networks 	2020 – 2023
	Project at Skoltech, Moscow <ul style="list-style-type: none"> • Discovery of allosteric binding site in G protein-coupled receptors 	2020
	Project at Bioinformatics Institute, Saint-Petersburg <ul style="list-style-type: none"> • Phenome-wide functional analysis of human genetic association data 	2019
	Assistant, Nanobiotechnology laboratory, Alferov University, Saint-Petersburg <ul style="list-style-type: none"> • Development of optimization algorithms to automatic search of chemical reaction pathways • Implementation of a genetic algorithm for the amino acid substitutions selection in the chromophore to increase the absorption coefficient • Implementation of machine learning algorithms to optimize force field parameters 	2018 – 2020
	Assistant, Department of higher mathematics ITMO University, Saint-Petersburg <ul style="list-style-type: none"> • Solving spectral problems for spiral-type quantum graphs 	2014 – 2017
	Technician, Mathematical modelling department, Scientific Center for Robotics and Technical Cybernetics, Saint-Petersburg <ul style="list-style-type: none"> • Solution for the inverse kinematics problem for a six-chain robot manipulator • Ice dynamics modelling as a part of the project of rescue robots on the oil platforms 	2014 – 2015
	▪ Professor Boris Gutkin Director of Research at the Centre National pour la Recherche Scientifique (CNRS) France, Director, Group for Neural Theory, Laboratoire de Neuroscience Cognitive, INSERM U960, DEC, ENS 29 rue d’Ulm Paris 75005 boris.gutkin@ens.fr	