CURRICULUM VITAE
PhD Olga I. Krivorotko

Date and place of birth:
3 April, 1989, Omsk, USSR.

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Fields of interest:
Mathematical modeling, inverse problems, identifiability, optimization, numerical analysis, ODE, PDE, mathematical physics, big data, data analysis, machine learning, epidemiology, immunology, social processes, mathematical statistics.

Scientific indexes:

h-index	7
WoS ResearcherID	E-5775-2014
Scopus AuthorID	56557032900
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Profile:
Publications: 3 books, 40 papers in journals indexed in Scopus and Web of Science, more than 250 conference presentations.
Research activity: participant of 14 research projects, project manager of five of its.
Teaching 2021-2022: supervised 5 students (1 is PhD, 4 are masters), have two courses in NSU (Tensor Analysis, Mathematical Analysis, Numerical Methods of Solving of Inverse and Ill-Posed Problems).
Organizing activity: Scientific Secretary of the Annual International Scientific Conference and Young Scientists School "Theory and Computational Methods for Inverse and Ill-posed Problems" from 2011.

Education:

06/15	Candidate of science (Ph.D.) on Mathematical modeling, numerical methods and software.
10/11 – 10/14	Ph.D. student Novosibirsk State University, Russia Thesis title: Regularization of the problem of determining sources of vibrations. Scientific advisor: Prof. Sergey I. Kabanikhin, Corresponding Member of the Russian Academy of Sciences.
09/06 – 06/11	High education of Novosibirsk State University, Russia Thesis title: Solving of inverse thermoacoustic problem. Scientific advisor: Prof. Sergey I. Kabanikhin, Corresponding Member of the Russian Academy of Sciences.

Career/Employment:

04/22 – Present	Specialist in system biology, BIOCAD, Saint-Peterburg, Russia
10/15 - Present	Assistant Professor of Chair “Mathematical problems of Geophysics”, Novosibirsk State University, Novosibirsk, Russia o Numerical Methods of Solving of Inverse and Ill-Posed Problems
01/15 – Present	Deputy Head of the joint laboratory “Methods of the development, research and identification of mathematical models of natural science”, Novosibirsk State University, Novosibirsk, Russia
11/2014 – Present	Senior Scientist Researcher, Laboratory of Mathematical Methods of Geophysics, Institute of Computational Mathematics and Mathematical Geophysics SB RAS, Novosibirsk, Russia o Researcher in the field of direct and inverse problems of mathematical physics, medicine and related fields, partially, researcher in the field of the source problems (determining the tsunami and earthquakes sources, thermoacoustic problem), immunology and epidemiology problems, numerical methods, machine learning, data scientist.

09/11 – Present — Assistant Professor of Chair “Higher Mathematics”, Novosibirsk State University, Novosibirsk, Russia
- Tensor analysis (3rd year)
- Differential equations (2nd year)
- Mathematical analysis (1st year)

03/12 – 10/14 — Engineer, Laboratory of Mathematical Methods of Geophysics, Institute of Computational Mathematics and Mathematical Geophysics SB RAS, Novosibirsk, Russia
- Researcher in the field of direct and inverse problems of mathematical physics, medicine and related fields, partially, researcher in the field of the source problems (determining the tsunami and earthquakes sources, thermoacoustic problem).

01/11 – 10/14 — Software Engineer, GeoSystem Ltd., Novosibirsk, Russia
- Developer of software ITRIS (Integrated Tsunami Research and Informational System) for the modeling of natural and man-made hazards (tsunami, earthquake, etc.). A researcher in the field of direct and inverse problems of mathematical physics, image processing.

Graduate Thesis Directed 2022 at Novosibirsk State University:

Masters:

1. Neverov Andrey. A new approach to solving inverse problems for stochastic differential equations arising in economics and finance.
2. Sosnovskaia Mariia. Identification of the parameters of the agent-based model of the spread of virus outbreaks.
3. Antsiforova Anna. Agent-based modeling of tuberculosis propagation in small clusters of endemic Russian region.
4. Shishmareva Julia. Inverse problem of mathematical model for intercellular HIV dynamics.

Ph.D. students:

Zvonareva Tatiana. Regularized algorithm for solving the source problem for the diffusion-logistic model.

Organizing activity:

11/14 – Present — Deputy Chairman of the Council of young scientists of the Institute of Computational Mathematics and Mathematical Geophysics SB RAS, Novosibirsk, Russia

10/11 (3rd), 08/12 (4th), 10/13 (5th), 12/14 (6th), 10/15 (7th), 09/16 (8th), 06/17 (9th) — Scientific Secretary of the Third, Forth, Fifth, Sixth, Seventh, Eighth and Ninth International Scientific Conference and Young Scientists School "Theory and Computational Methods for Inverse and Ill-posed Problems", Novosibirsk, 10-15 October 2011, 5-15 August 2012, 8-13 October 2013, 8-14 December 2014, 19-24 October 2015, 1-7 September 2016, 26 June-2 July 2017, respectively.

Research Projects:

Years	Sponsorship organization	Grant number and title	Form of participation
2009-2011	Russian Foundation for Basic Research	N. 09-01-00746 “The creation of new numerical methods and studying of well-known methods for solving inverse problems of mathematical physics”	Executor
2012-2014	Russian Foundation for Basic Research	N. 12-01-00773 “Theory and numerical methods of solving the inverse problems of mathematical physics”	Executor
2014	Siberian Branch of Russian Academy of Science	N. 14 “Inverse problems and its application: theory, algorithms and programs”	Executor
2014-2015	Russian Foundation for Basic Research	N. 14-01-31182 “Optimal control in the form of fine inclusions in elasticity problems”	Executor
2015-2017	Russian Foundation for Basic Research	N. 15-01-09230 “The development and research of analogues of Gelfand-Levitan-Krein equations and numerical methods of its solving in application to multidimensional inverse acoustic problems, electrodynamics problems and elasticity theory”	Executor
2016-2017	**Russian Foundation for Basic Research**	**N. 16-31-00189 “The development of parallel algorithms for the numerical solving of direct and inverse problems of wave propagation in the system of the hydrosphere-lithosphere”**	**Project manager**
2016-2017	Russian Foundation for Basic Research	N. 16-31-00382 “The development of numerical algorithms for solving direct and inverse problems in biology and medicine”	Executor
2016-	Russian Foundation for	N. 16-01-00755 “The development of numerical methods for continuation	Executor

2018	Basic Research	solutions to the border of the mathematical physics equations"	
2017-2018	**Grants of President of Russian Federation**	**MK-1214.2017.1 "Research and development of numerical algorithms for solving direct and inverse problems of immunology and epidemiology"**	**Project manager**
2017 - 2019	Russian Foundation for Basic Research	N. 17-52-14004 "Low-Count-High-Quality reconstruction methods for PET and SPECT imaging"	Executor
2017-2018	Russian Foundation for Basic Research	N. 17-51-540004 "Justification of existing and development of new numerical methods for solving inverse and ill-posed problems for elliptic and parabolic equations"	Executor
2018 - 2023	**Russian Scientific Found**	**N. 18-71-10044 "Supercomputer analysis of social, epidemiological and economic processes. Theory, algorithms and software"**	**Project manager**
2018 - 2020	Russian Foundation for Basic Research	N. 18-41-540017 "Development of methods of computer modeling and program code for supercomputer of probabilistic forecast в целях вероятностного прогнозирования abnormal and dangerous natural phenomena in the Novosibirsk region"	Executor
2018-2020	**Russian Foundation for Basic Research**	**N. 18-31-20019 "Direct and inverse problems of social processes: theory, algorithms and software"**	**Project manager**
2019-2020	**Grants of President of Russian Federation**	**MK-814.2019.1 "Analysis and application of machine learning methods to solving of inverse problems using parallel computations on supercomputer"**	**Project manager**
2021-2022	**Russian Foundation for Basic Research**	**N. 21-51-10003 "Inverse Mathematical Modelling in Epidemiology"**	**Project manager**
2021-2022	**Grants of President of Russian Federation**	**MK-4994.2021.1.1 "Agent modeling and forecasting of the spread of the coronavirus epidemic in the regions of the Russian Federation, taking into account the analysis of the effectiveness of containment measures"**	**Project manager**

Academic Awards:

02/20	Prize of the mayor's office of the city of Novosibirsk in the field of science and innovation o For the development of a forecast map for the spread of socially significant diseases in the city of Novosibirsk
12/15	Nominal grant UMNIK for project "Development of the 3D Integrated Scientific Visualization System of Tsunami Forecast"
09/14	Second prize of Lavrent'ev Competition of student and graduate works in mathematics and mechanics o Investigation of combined inverse problem for determining of wave source.
11/13 – 10/14	Nominal grant of BP company for post-graduate students
09/13	First prize of Lavrent'ev Competition of student and graduate works in mathematics and mechanics o Investigation of the problem of determining the sources of wave processes
09/12 – 08/13	The Scholarship of the President of Russian Federation
06/11 – 03/12	Nominal grant of "Baker Hughes BV": o Identified tsunami and earthquake sources
09/11	Second prize of Lavrent'ev Competition of student and graduate works in mathematics and mechanics o Solved the inverse thermoacoustic problem
09/10 – 06/11	Nominal grant of "Baker Hughes BV": o Investigated and solved the inverse thermoacoustic problem using singular value decomposition

Additional Responsibilities, Experience & Skills:

IT Skills: Microsoft Office Programs (Word, Excel, PowerPoint, Visual Studio), Linux Programs (Tecplot, Gnuplot, Gimp, Inkscape), C++/C/Fortran/Python/Matlab, LaTeX.
Language Skills: Russian (native), English (upper-intermediate).