



СИБИРСКИЙ
ФЕДЕРАЛЬНЫЙ
УНИВЕРСИТЕТ

SIBERIAN
FEDERAL
UNIVERSITY

Portfolio of scientific supervisors of the participants of the postgraduate track of the International Olympiad of the Global Universities Association

University	Siberian Federal University
Level of English proficiency	C2
Educational program and field of the educational program for which the applicant will be accepted	2.3.1 Systems analysis, control and information processing, statistics
List of research projects of the supervisor (participation/ leadership)	“Hybrid methods of modeling and optimization in complex systems” (Mega-grant of the Ministry of Education and Science of the Russian Federation 075-15-2022-1121”, 2022-2024). “Fast approximate nearest neighbor search for vector databases”, Huawei company, 2024-2025 (leadership). “Methods for constructing predictive and recommender systems based on evolutionary calculations, logical and cluster data analysis”, grant of the President of the Russian Federation NSH-421.2022.4 for state support of scientific schools, 2022-2023 (participation). “Hybrid methods of modeling and optimization in complex systems”, Mega-grant of the Ministry of Education and Science of the Russian Federation 075-15-2022-1121”, 2022-2024 (participation). “Research and evaluation of the efficiency of functioning of complex heat supply systems in Russia based on the DEA method to improve the performance indicators of the fuel and energy complex and reduce environmental pollution indicators through the creation of an automated decision support system”, RSF ‘Graduate Students’ 20-37-90013, 2020-2022 (leadership).
List of the topics offered for the prospective scientific research	• Hybrid methods and algorithms for decision support • GERT-network planning and management of production processes • Methods of estimation of efficiency of complex systems functioning • Greedy algorithm for finding Pareto-optimal patterns • Optimization methods for generating multiversion software • System analysis of efficiency of complex technical systems • Hybrid methods of forecasting complex processes

 Research supervisor: Alena A. Stupina, Doctor of Technical Science, Siberian State Aerospace University named after academician M. F. Reshetnev	Computer Science, Artificial Intelligence
	Supervisor's research interests: The scope of scientific interests includes the development of optimization algorithms and machine learning (artificial intelligence), in particular - methods of cluster analysis, random search. Methods of factor analysis, prediction theory, logical data analysis, self-configuring optimization algorithms, as well as application of the above methods in technical systems, in medicine, in economics and other fields.
	Research highlights: Close interaction with research centers in Serbia (University of Nis), Greece (National and Kapodistrian University of Athens) and other countries. We expect that work is carried out on behalf of large telecommunications corporations.
	Supervisor's specific requirements: Computer programming skills, in any language.
	Supervisor's main publications: 1. Investigating the cost stickiness behavior of organizations after the economic recession caused by the COVID-19 pandemic / Stanimirović, P.S., Stupina, A.A., Ghorbani, S., Khamnei, H.J., Yildirim, F. Journal of Infrastructure, Policy and Development, 2024, 8(7), 3864. 2. Computing Tensor Generalized Bilateral Inverses / Behera, R., Sahoo, J.K., Stanimirović, P.S., Stupina, A., Stupin, A. Communications on Applied Mathematics and Computation, 2024. 3. Principles for forming environmentally safe and economically effective sustainable development of geo resources. Kaung, P.A., Isakov, A.E., Panfilov, I.A., Tynchenko, V.V., Stupina, A.A. Mining Informational and Analytical Bulletin, 2024, (7-1), pp. 159–175. 4. Generalized core-EP inverse for square matrices. Sitha, B., Sahoo, J.K., Behera, R., Stanimirović, P.S., Stupina, A.A. Computational and Applied Mathematics, 2023, 42(8), 348. 5. Algorithm for application of a basic model for the data envelopment analysis method in technical systems. Pokushko M., Stupina A., Medina-Bulo I., Ezhemanskaya S., Kuzmich R., Pokushko R. Algorithms. 2023. T. 16. № 10. C. 460.
	Results of intellectual activity: 1. 3D interactive model viewer / Stupina A.A., Orlov V.A., Suprun P.S. Certificate of registration of the computer program RU 2023668965, 06.09.2023. 2. Access control and management system using static optical tags / Stupina A.A., Orlov V.A., Suprun P.S. Certificate of

	registration of the computer program RU 2023669645, 18.09.2023. 3. Information system of initial data formation for dea method on the basis of multiple regression model / Pokushko M.V., Stupina A.A., Sokolov V.A., Kuzmich R.I. Certificate of registration of the computer program RU 2023680119, 26.09.2023 4. Intelligent system of planning, management and control of construction production processes “Sroy Planner” / Guriev E.S., Kulbizhekov M.S., Guriev I.S., Stupina A.A. Certificate of registration of the computer program RU 2022611957, 04.02.2022.
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