Researcher profile (portfolio) form for potential research supervisors of postgraduate track participants in the Global Universities Association International Olympiad for graduate and postgraduate applicants 2023-2024.

University	National Research Tomsk Polytechnic University
English language proficiency	B1
Applicant's postgraduate program	Information systems and technologies
List of research projects of a potential research supervisor (participation/leadership)	Creation of intelligent control systems for hard-to-reach and moving objects; Research on the creation of an intelligent information and telecommunication system for navigation and control of mobile groups and control centers; Performing technological work on the integration of information systems and information arrays, the formation of open data of the Territorial Information System of the Tomsk Region.
List of possible research topics	- Visualization of emergency situations based on agent-based modeling; - Modeling and 3D visualization of the underwater environment and AUV groups; - Authentication of users by analyzing their behavior in VR space

  Research supervisor: Anton Yu. Demin Candidate of Science (National Research Tomsk Polytechnic University)	Natural and exact sciences 1.02. Computer and information sciences. Computer science - theory and methods
	Supervisor's research interests:
	designing and evaluating the quality of programs based on structural and graphic forms;
	parallelization of programs based on graph representations;
	computer graphics;
	designing Internet applications;
	development of modern information systems for monitoring and verification of forest fires.
	Research highlights: Research is carried out in the VR and Gamedesign Labs of the School of Information Technology and Robotics Engineering. The laboratory is equipped with various types of VR helmets, 3D scanner, motion capture system, etc.
	Supervisor's specific requirements: The candidate have to know the basics of linear algebra and analytical geometry, discrete mathematics, have good programming skills, know the game engine
	The main publications of the supervisor. Supervisor has in total, more than 100 publications, including 12 publications in journals indexed by Web of Science, Scopus, RSCI. He has over the past 5 years 3 publications in journals indexed by Web of Science, Scopus, RSC and two Q1-Q2 publications over the past 5 years. Supervisor's main publications: • Singh, S., Mittal, N., Thakur, D., Sing H., Oliva, D., Demin, A. Nature and Biologically Inspired Image Segmentation Techniques//Archives of Computational Methods in Engineering, 2022, 29(3), стр. 1415–1442;

	- Díaz-Cortés, M.-A., Ortega-Sánchez, N., Hinojosa, S., ...Rojas, R., Demin, A. A multi-level thresholding method for breast thermograms analysis using Dragonfly algorithm//Infrared Physics and Technology, 2018, 93, стр. 346–361 - Burtovaya, D., Demin, A., Demeshko, M., Moiseev, A., Kudryashova, A. Simulation of the communication system between an AUV group and a surface station//Journal of Physics: Conference Series, 2017, 803(1), 012027; - Khamukhin, A.A., Demin, A.Y., Sonkin, D.M., ...Perona, G., Kretova, V. An algorithm of the wildfire classification by its acoustic emission spectrum using Wireless Sensor Networks// Journal of Physics: Conference Series, 2017, 803(1), 012067; - Reizlin, V.I., Demin, A.Y., Rybushkina, S.V., Sultanguzin, M.F. On automatic tuning of basis functions in Bezier method//Journal of Physics: Conference Series, 2017, 803(1), 012126.
	Intellectual property rights: - Tomograph Pascal programs; - Building a 3D model of the surface relief based on a height map (Co-author: Sorokin V.A.); - Search for key frames in a video sequence based on the image segmentation method (Co-author: Gorichenko A.V.); - Program for calculating the complete graph invariant (Co-author: Pogrebnoy A.V.); - Graph visualizer (Co-author: Demeshko M.V.).