University	Peter the Great St. Petersburg Polytechnic University
Level of English proficiency	"Upper Intermediate"
Courses and fields of studies offered for applicants	Information technology and telecommunications 2.3.3. Automation and control of technological processes and industry
Projects for potential academic supervision	• Intelligent control algorithms • Adaptive intelligent manufacturing control systems • Aspects of smart manufacturing via agent-based approach
Topics offered for prospective researches	• Development of intelligent systems for dispatching, control and monitoring of industrial enterprises. • Development of intelligent positioning systems based on machine vision technologies. • Development of an intelligent energy management system using artificial intelligence. • Modeling of dynamic trajectory planning for mobile robots based on machine learning methods. • •Intelligent systems for automated control and predictive dagnostics of electromechanical systems. • •Development of methods and algorithms for solving problems of optimization, control, decision-making, and information processing. • •Multi-criteria optimization of production processes.
	Automated control systems
  Research supervisor: Yuriy N. Kozhubaev, PhD, Associate Professor (Peter the Great St. Petersburg Polytechnic University)	Supervisor's research interests • Development of cyberphysical systems, implying a tight interaction between humans and robots, is certainly modern trend. • Cyberphysical systems affect production processes to the extent that they are compared with the Indusry 4.0. • Basic research develops innovative technologies, software and hardware solutions for industrial automation and high-tech control systems
	Study program highlights • PhD Students analyse the interactive environment of cyberphysical and robotic systems and create new solutions and mathematical models of robotics and control systems; they study technologies of remote control of industrial facilities, group control of team behavior of robots and situational control in conditions of uncertainty in the framework of applied developments. • The laboratories of Intelligent Robotics and Cyberphysical Systems, Intelligent Control Systems and Intelligent Industrial Automation Systems were created on the basis of the Educational and Scientific Center "Polytech-Cyberphycs," Peter the Great St. Petersburg Polytechnic University. Laboratories were formed with the support of leading

	manufacturers of industrial automation systems and devices.
	Supervisor's specific requirements: • Mechatronic systems • Robotic systems • Industrial Internet of Things
	Supervisor's publications 20 papers cited in Scopus • Kozhubaev, Y., Yang, R. (2024). Simulation of Dynamic Path Planning of Symmetrical Trajectory of Mobile Robots Based on Improved A* and Artificial Potential Field Fusion for Natural Resource Exploration. Symmetry, 16(7), Article 801. https://doi.org/10.3390/sym16070801. • Kozhubaev, Y., Novak, D., Ershov, R., Xu, W., & Cheng, H. (2025). Research on Navigation and Dynamic Symmetrical Path Planning Methods for Automated Rescue Robots in Coal Mines. Symmetry, 17(6), 875. https://doi.org/10.3390/sym17060875. • Muratbakeev, E., Kozhubaev, Y., Yiming, Y., Umar, S. (2024). Symmetrical Modeling of Physical Properties of Flexible Structure of Silicone Materials for Control of Pneumatic Soft Actuators. Symmetry, 16(6), Article 750. https://doi.org/10.3390/sym16060750. • Muratbakeev, E., Kozhubaev, Y., Novak, D., Kuzmenko, E., Yao, Y. (2025). Research of Control Systems and Predictive Diagnostics of Electric Motors. Symmetry, 17(5), Article 751. https://doi.org/10.3390/sym17050751. Novak, D., Kozhubaev, Y., Kang, H., Cheng, H., Ershov, R. (2025). Intelligent System Study for Asymmetric Positioning of Personnel, Transport, and Equipment Monitoring in Coal Mines. Symmetry, 17(5), Article 755. https://doi.org/10.3390/sym17050755.
	Impacts of Supervisor's research • Russian Federation Patent for Utility Model No. 111119, IPC B65G15/00. Belt Conveyor. • Russian Federation Patent for Utility Model No. 147927, IPC B65G23/44. Belt Conveyor • Russian Federation Certificate of State Registration of Computer Program No. 2014613817 Software Complex for Simulation Model of Belt Conveyormpacts of Supervisor's research/