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.

<table>
<tr><td>University</td><td>Tomsk Polytechnic University</td></tr>
<tr><td>English language proficiency</td><td>A2</td></tr>
<tr><td>Applicant’s postgraduate program</td><td>2.3.1 – System analysis, management and information processing,
2.3.2 – Computing systems and their elements,
2.3.3 – Automation and control of technological processes and production</td></tr>
<tr><td>List of research projects of a potential research supervisor (participation/leadership)</td><td>Synthesis methods for speed-optimal control systems for dynamic objects.
Modern methods of identification of objects of control systems.</td></tr>
<tr><td>List of possible research topics</td><td>Computing systems and their controls,
Automation and control of technological processes on programmable controllers, Optimal speed control.</td></tr>
<tr><td rowspan="5"> 
Research supervisor:
Aleksandr Anatolyevich Shilin,
DSc (Tech), Professor
Institute of Power Engineering
Department of Electric Drives and Equipment Tomsk Polytechnic University
Doctor of Science, Federal State-Funded Institution of Higher Education – Tomsk State University of Control Systems and Radioelectronics</td><td>Automated control systems</td></tr>
<tr><td>Supervisor’s research interests Development of theory and applied methods in process control systems based on micro-controllers. Optimal control of dynamic systems.</td></tr>
<tr><td>Research highlights (if applicable):
Most of the topics are related to work on existing control systems and the practical implementation of the main scientific results</td></tr>
<tr><td>Supervisor’s specific requirements:
a good level of knowledge of mathematical analysis, linear algebra and differential equations; software ownership:
MatLab, SciLab,
GnuPlot
Linux, Debian</td></tr>
<tr><td>Supervisor’s main publications and total number of publications in journals indexed by Web of Science, Scopus, RSCI - 8:
Zakamaldin A.A., Perevoshchikov F.V.,Shilin A.A., Efficient use of electric energy when operating a ball mill with a constant rotation speed // Bulletin of the Tomsk Polytechnic University Geo Assets Engineering. – 2023. – T. 334. – №. 9. – C. 115-127.
Shilin A.A., Bukreev V.G., Perevoshchikov F.V. Synthesis and implementation of λ-approach of slide control in heat-consumption system // Научно-технический вестник информационных технологий, механики и оптики. 2022. №3. URL: https://cyberleninka.ru/article/n/synthesis-and-implementation-of-approach-of-slide-control-in-heat-consumption-system (дата обращения: 16.09.2022).
Tsvetkov N. et al. Hardware and Software Implementation for Solar Hot Water System in Northern Regions of Russia / N Tsvetkov, S. Boldyryev, A. Shilin, Y. Krivoshein, A. Tolstykh //Energies. – 2022. – T. 15. – №. 4. – C. 1446.(article)
Zakamaldin A. A., Shilin A. A. Neural simulation of ball mill grinding process //IOP Conference Series: Materials Science and Engineering. – IOP Publishing, 2020. – T. 795. – №. 1. – C. 012010.</td></tr>
</table>

	5. *Shilin A., Petrushkin A., Bukreev V. Method for measuring motor speed obtained from the spectral characteristics of current consumption form // 2018 International Conference on Industrial Engineering, Applications and Manufacturing (ICIEAM). – IEEE, 2018. – C. 1-6.* 6. *Zakamaldin A.A., Shilin A.A. Control Strategy of Ball Mill Based on Disturbance Observer and a Virtual Analyzer of Overload. Proceedings of the Southwest State University. 2022;26(3):112-128. (In Russ.)* 7. *Prohorov S.V., Shilin A.A., Primochkin I.A. Synthesis of an Algorithm for Diagnosing the Operation of Drying Chamber Electric Drives According toTemperature Sensors. Proceedings of the Southwest State University. 2021;25(4):70-83. (In Russ.)* 8. *Nguyen V.V., Shilin A.A., Momot P.M. PLC-based lumber humidity measurement method. Proceedings of the Southwest State University. 2021;25(1):110-121. (In Russ.)*
	Intellectual property rights:The main results of scientific activity are implemented in a programmable logic controller developed by the author, which is produced in batch production.