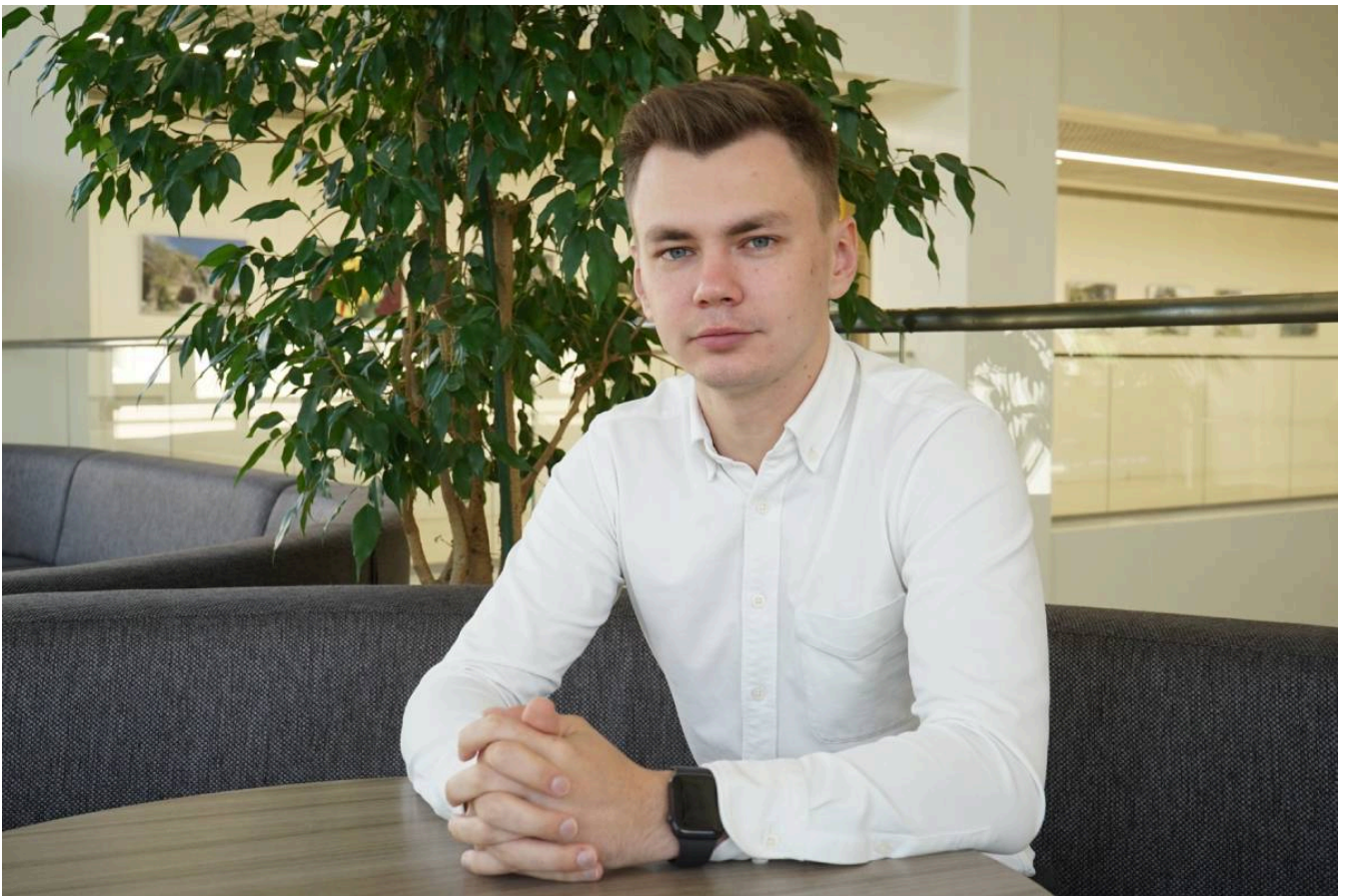


## A youth Laboratory of Digital Modeling of Industrial Systems has been created at SPbPU

Within the frame of the St. Petersburg World-Class Research and Education Center (WRC) program “Artificial Intelligence in Industry,” a new research unit will be created as part of the SPbPU NTI Center. The creation of the youth laboratory of Digital Modeling of Industrial Systems (DMIS) at the SPbPU NTI Center is a part of a large-scale project of the REC and the Artificial Intelligence in Industry Association created to implement its program. One of the goals of the youth laboratory of Digital Modeling of Industrial Systems will be the development and promotion of talented young researchers at SPbPU: the staff will include not only candidates of sciences but also promising students in their final years of graduate and postgraduate studies.



The activities of the new research team will be aimed at developing a comprehensive methodology and software tools for digital modeling of sociotechnical and production systems in order to solve the problem of making informed decisions in value creation process management.

The Laboratory’s scientific approach involves synthesizing traditional research tools for sociotechnical and production systems with a range of modern digital

modeling tools. From October 2021 to December 2023, the staff of the Laboratory of Digital Modeling of Industrial Systems is planning to develop a complex of standard simulation models of production processes for the priority sectors of the economy based on hybrid modeling and dynamic forecasting technologies, as well as scenarios of their use for the optimization of the companies.

The new unit will be headed by Alexey GINTSYAK, who is currently heading the scientific and analytical working group on digital modeling of socio-economic systems at the Industrial Data Stream Processing Systems (IDSPS) laboratory of the SPbPU NTI Center.

The projects of Alexey Gintsyak's working group include R&D on modeling the regional tourist system of the RF and forecasting tourist flows to assess the economic effect of investments in the interests of the RF executive authorities, a commercial project for a machine-building holding to develop algorithmic and software tools for the optimization of distributed production, and others.

Since 2018, the SPbPU PSPOD Lab has been part of the SPbPU National Technology Initiative (NTI) Center of Competence for New Manufacturing Technologies. And since 2018, digital modeling and design projects for sociotechnical and industrial systems have been developed under the leadership of Alexey BOROVKOV, Vice-Rector for Digital Transformation at SPbPU and Head of the SPbPU World-class Scientific Center for Advanced Digital Technologies.

Scientific and methodological support of the CMIS laboratory will be provided by Lev UTKIN, doctor of engineering, professor of the Higher School of Artificial Intelligence at the Institute of Computer Science and Technology, a leading scientist in the areas of decision-making in conditions of incomplete information and machine learning, author of more than 150 publications in international journals, a regular reviewer of leading international magazines on artificial intelligence and decision-making theory.

Companies from the world-class St. Petersburg Research and Education Center, primarily Gazprom Neft and the NTI Center Consortium, will be involved in the approbation of research and development results to ensure full coverage of management approaches in the context of industries. The involvement of companies from different industries will allow us to study industry specifics of practices of digital modeling approaches and develop on their basis industry solutions within a common methodology framework.

I am proud of Alexey Gintsyak's achievements, and I am very pleased that our NTI Center will be implementing a project on digital modeling of industrial systems. The uniqueness of this project lies in the possibility to develop full-fledged, comprehensive methodological support for industrial enterprises when making management decisions using digital modeling technologies and platforms, commented Marina BOLSUNOVSKAYA, Head of the Industrial Data Streaming Systems Laboratory at the STI Center of SPbPU.

For reference:

A world-class scientific and educational center (REC) is an association of federal state educational institutions of higher education and (or) scientific organizations with organizations operating in the real sector of the economy. RECs are created to fulfill the Decree of the President of Russia on the [world-class scientific and educational centers](#) and following the RF Government Decree “On the measures of state support for world-class scientific and educational centers based on the integration of higher education organizations and scientific organizations and their cooperation with the enterprises of the real economy sector.”

The REC’s program includes providing world-class research and development, obtaining new competitive technologies and products and their commercialization, as well as training personnel to solve major scientific and technological problems in the interests of the development of science and technology sectors on the priorities of scientific and technological development of Russia.

St. Petersburg Research and Education Center “Artificial Intelligence in Industry” was created in November 2020. The St. Petersburg Research and Education Center combines key technical universities and scientific organizations of the city with leading organizations of the real economy sector (Gazprom Neft, Concern Electropribor, Speech Technology Center, and Concern Granit-Electron).

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