Russian Academy of Sciences
Program Systems Institute

The Program Systems Institute, RAS was founded in 1984 by a decree issued by the USSR government. The foundation aimed at the development of computer science in the country. Today's PSI, RAS is a leading research institute in the realm of information technologies.

PSI, RAS conducts research in the following fields

Artificial Intelligence Research Center

 Methods of representation and mining of knowledge by intelligent systems. Methods of semantic search and analysis of semi-structured data. Dynamic intelligent systems and software tools in building dynamic systems that use expert and empirical data. Methods of intelligent control over complex systems behavior in a dynamic environment. Software tools for managing complex movements and procuring secure convergence and concatenation of complex technical objects. Bit-parallel algorithms and computational structures.

Research Center for Multiprocessor Systems

 Supercomputer and multiprocessor software. Func–tional programming, supercompilation and metacom–putation theories, and their applications to practical programming. Differential geometry and the Vasiliev knot invariants theory. Technologies for building regi–onal computer networks. Computer-assisted and dis–tance learning.

Medical Informatics Research Center

 Information technologies of treatment and diagnostics support. Research design and development. Modeling of medical institution activities. Conceptual models of automated support of patient's electronic Medical Card. Conceptual models of visualization of medical information. Medical data storage, integration and presentation methods. Medical standards and data exchange me–thods. Integration of telemedicine methods into medical information system. Implementation of the Interin PROMIS medical information system for large-scale medi–cal institutions.

Control Processes Research Center

 The extension principle in control theory. Algorithms and software tools for modeling and control. Aircraft flight optimization. System analysis of regional deve–lopment strategies. Innovative processes control. Geometric control theory. Control of oscillations.

System Analysis Research Center

 Optimal control methods for irreversible thermodynamic systems and estimations of extreme performance of these systems. Mathematical models and optimal pro–cesses in irreversible microeconomics. Optimal control of temperature fields and energy saving problems (cooling in of supercomputers, energy saving in house-building). Problem on equivalence of differential equations. Geometrical conditions of solvability of convolution equations.

Scientific- and Educational Center

 Use of information technologies in pre-school and primary school education (Primary school "Poche-mouchka"). Use of information technologies in edu-cational projects and based on international contacts between children (The Aylamazyan International Childrens' Computer Center, UNESCO Associated School).