

Preface

This volume contains the papers presented at PSI 2014: 9th Ershov Informatics Conference held during June 24–27, 2014 in St. Petersburg, Russia.

PSI is the premier international forum in Russia for academic and industrial researchers, developers, and users working on topics relating to computer, software, and information sciences. The conference serves to bridge the gaps between different communities whose research areas are covered by but not limited to foundations of program and system development and analysis, programming methodology, and software engineering and information technologies.

The previous eight PSI conferences were held in 1991, 1996, 1999, 2001, 2003, 2006, 2009, and 2011, respectively, and proved to be significant international events. Traditionally, PSI offers a program of keynote lectures, presentations of contributed papers, and workshops complemented by a social program reflecting the amazing diversity of the Russian culture and history.

The PSI conference series is dedicated to the memory of the pioneer in theoretical and system programming research: academician Andrei Petrovich Ershov (1931–1988). Andrei Ershov graduated from the Moscow State University in 1954. He began his scientific career under the supervision of Alexandr Lyapunov. After that Andrei Ershov worked at the Institute of Precise Mechanics and Computing Machinery, and then became director of the Theoretical Programming Department at the Computing Center of the USSR Academy of Sciences in Moscow. In 1958 the Department was reorganized into the Institute of Mathematics of the Siberian Branch of the USSR Academy of Sciences, and by the initiative of the academician Sergei Sobolev Ershov was appointed the head of this department, which later became part of the Computing Center in Novosibirsk Akademgorodok. The first significant project of the Department was aimed at the development of the ALPHA system, an optimizing compiler for an extension of Algol 60 implemented on a Soviet computer M-20. Later the researchers of the Department created the Algibr, Epsilon, Sigma, and Alpha-6 programming systems for the BESM-6 computers. The list of achievements also include the first Soviet time-sharing system AIST-0, the multi-language system BETA, research projects in artificial intelligence and parallel programming, integrated tools for text processing and publishing, and many more. A.P. Ershov was a leader and a participant of these projects. In 1974 he was nominated Distinguished Fellow of the British Computer Society. In 1981 he received the Silver Core Award for services rendered to IFIP. Andrei Ershov's brilliant speeches were always in the focus of public attention. Especially notable was his lecture on "Aesthetic and Human Factor in Programming" presented at the AFIPS Spring Joint Computer Conference in 1972.

This edition of the conference attracted 80 submissions from 29 countries. We wish to thank all their authors for their interest in PSI 2014. Each submission was reviewed by three experts, at least two of them from the same or closely related discipline as the authors. The reviewers generally provided high-quality assessment of the papers and

often gave extensive comments to the authors for possible improvement of their contributions. As a result, the Program Committee has selected for presentation at the conference 17 high-quality papers as regular talks, 11 papers as short talks, and 2 papers as system and experimental talks. A range of hot topics in computer science and informatics is covered by five keynote talks given by prominent computer scientists from various countries.

We wish to express our gratitude to all the persons and organizations who contributed to the conference: the authors of all the papers for their effort in producing the materials included here; the sponsors for their moral, financial, and organizational support; the Steering Committee members for their coordination of the conference, the Program Committee members and the reviewers who did their best to review and select the papers, and the members of the Organizing Committee for their contribution to the success of this event and its great cultural program.

The Program Committee work was done using the EasyChair conference management system.

December 2015

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Perspectives of System Informatics

9th International Ershov Informatics Conference, PSI

2014, St. Petersburg, Russia, June 24-27, 2014.

Revised Selected Papers

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2015, XIII, 415 p. 106 illus., Softcover

ISBN: 978-3-662-46822-7