

Alexey A. Paznikov

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Education

- 2011 – present** **Siberian State University of Telecommunications and Information Sciences**
Ph.D. student at Computer Systems Chair
- 2009 – 2011** **Siberian State University of Telecommunications and Information Sciences**
M.S. in Computer Science (diploma with honours)
- 2005 – 2009** **Siberian State University of Telecommunications and Information Sciences**
B.S. in Computer Science (diploma with honours)
- 1995 – 2005** **Secondary school “Lycee No. 22”, Novosibirsk**

Work Experience

- 2010 – present** **Assistant, Siberian State University of Telecommunications and Information Sciences, Computer Systems Chair**
Research in the field of distributed computing. Parallel programming models and runtime systems. Administration of computer clusters. Teaching.
Thesis: Methods and algorithms of functioning organization of multicluster computer systems
Supervisor: Corresponding Member of RAS, D.Sc., professor V.G. Khoroshevsky
- 2011 – present** **Engineer, A.V. Rzhanov Institute of Semiconductor Physics Siberian Branch of Russian Academy of Sciences, Computer Systems Laboratory**
Research and software development for the functioning organization of distributed computer systems. The main focus is on the developing algorithms and software tools for decentralized scheduling in large-scale distributed computer systems.
- 2011 – 2011** **Summer Intern, Intel**
Investigation of Intel® ArBB, Intel® TBB, Intel® Cilk™ Plus joint use possibilities for the needs of parallel computing.

Projects

GBroker software suite of decentralized parallel programs scheduling in multicluster and grid systems. The suite includes the scheduler GBroker, the client tool GClient, network monitoring tool **NetMon** and the service **DCSMon** for resource discovery and monitoring. The main aim of the decentralizing scheduling is to provide persistence and robustness of large-scale geographically-distributed systems. There were some novel scheduling algorithms developed and deployed in the GBroker scheduler. System composition and workload dynamics of distributed computer systems are taken into account in these algorithms. Computational complexity of them doesn't depend on number of clusters, because the resource search is doing within the scheduler's local neighborhood. This provides the applicability of the scheduler in large-scale computer systems.

Site: gbroker.cpct.sibsutis.ru

MPIGridMap is the software package for optimizing of mapping parallel MPI-programs to geographically-distributed computer systems such as multiclusters and GRID-systems. It realizes hierarchic mapping algorithm which considers all the communication levels of distributed computer systems for minimizing MPI-program's execution time.

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Research Interests

- Architecture and functioning organization of large-scale distributed computer systems (like multiclusters and grids).
- Job scheduling and resource management in the grid-environment.
- Models and algorithms of mapping parallel MPI-programs into computer systems.
- Partitioned global address space models and exascale computing.

Awards and accomplishments

- I Award on II Russian Conference "Supercomputer technology", 2012.
- Award on Youth Science and Innovation Competition (U.M.N.I.K.), 2012.
- III Award on XLVI International Scientific Students Conference. "Students and Progress in Science and Technology", 2008.
- Scholarship of Novosibirsk's City Hall, 2011.
- II Award on XLIX International Scientific Students Conference "Students and Progress in Science and Technology", 2011.
- Siberian State University of Telecommunications and Information Sciences Grant for the research, 2011, 2012.

Selected publications

Academic journals

1. M. Kurnosov, A. Paznikov. Decentralized Scheduling Algorithms of Geographically-distributed Computer Systems, Tomsk State University Journal of Control and Computer Science, vol. 1 (18), pp. 133-142, 2012, Tomsk.

2. V. Khoroshevsky, M. Kurnosov, S. Mamoilenko, K. Pavsky, A. Efimov, A. Paznikov, E. Perishkova. Scalable Toolkit for Parallel Multiprogramming of Spatially-Distributed Computing System, vol. 4, pp. 3-18, 2011, Novosibirsk.

3. M. Kurnosov, A. Paznikov. Software tools of decentralized servicing of parallel MPI-jobs streams in geographically-distributed multicluster computer systems, Tomsk State University Journal of Control and Computer Science, vol. 3 (16), pp. 78-85, 2011, Tomsk.

4. M. Kurnosov, A. Paznikov. Decentralized Service of Parallel Job Streams in Geographically-distributed Computer Systems, Siberian State University of Telecommunications and Information Sciences Journal, vol. 2 (10), pp. 79-86, 2010, Novosibirsk.

Conferences

1. M. Kurnosov, A. Paznikov. Mapping of Parallel Programs in Geographically-distributed Computer Systems on the Basis of Graph Partitioning Methods, Russian Conference "Supercomputer technology", pp. 135-139, 2012, Rostov-on-Don.

2. M. Kurnosov, A. Paznikov. Decentralized Algorithms of Resource Management of Distributed Computer and Grid Systems, International Conference "MIT-2011", 2011, Vrnjacka Banja, Serbia.

3. M. Kurnosov, A. Paznikov. Algorithms of Resource Management of Multicluster Computer Systems, VI Siberian Conference of Parallel Computing, pp. 84-85, 2011, Tomsk.

4. M. Kurnosov, A. Paznikov. Software Tools of Decentralized Service of Parallel MPI-Programs in Geographically-distributed Multicluster Computer Systems, VIII Russian Conference with International Participation "ICAM-2010", p. 15, 2010, Tomsk.

5. M. Kurnosov, A. Paznikov. Modeling of Decentralized Parallel Job Scheduling Algorithms in Geographically-Distributed Multicluster Computer Systems, VIII Russian Conference with International Participation "DICR-2010", p. 7, 2010, Novosibirsk.

6. Paznikov A. Decentralized Parallel Programs Scheduling in Distributed Computer Systems, V Siberian Conference of Parallel Computing, pp. 161-165, 2009, Tomsk.

7. M. Kurnosov, A. Paznikov. Decentralized Scheduling In Distributed Computer Systems, IX International Conference "HPC-2009", pp. 260-265, 2009, Vladimir.

8. M. Kurnosov, A. Paznikov. About Optimization of Mapping Parallel MPI-processes into CPU Cores of Computer Clusters // VII International Conference "HPC-2007", pp. 218-225, 2007, Nizhny Novgorod.

Skills, interests and achievements

- Experienced in Linux system programming and administration. Knowledge of the C/C++ programming languages, including MPI and OpenMPI.
- Basic knowledge in CUDA, Cray Chapel, Python, Perl, SQL.
- Communication and team collaboration skills.
- Good knowledge of English and basic German.
- Interests in art, philosophy, sport.

References

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