

Ivan Kulagin

Candidate of Science (PhD)

E-mail: ivan.i.kulagin@gmail.com

Home Page: ikulagin.github.io

Mobile: +7-913-772-09-19

Location: Moscow, Russia

Positions and Experience

2013-2018

Siberian State University of Telecommunications and Information Sciences. Novosibirsk, Russia.

- 2014-2018 Senior Lecturer
- 2013-2014 Assistant

Researching:

- Concurrency and synchronization primitives
- Software transactional memory
- Compiler optimizations
- Linux kernel
- Partitioned global address space – PGAS/APGAS (IBM X10 language)
- Optimizing MPI differential (Send/Receive) communications (2011 year)

Teaching courses:

- Theory of Distributed Computer Systems
Functioning Organization
- Operating systems

2015-2018

Rzhanov Institute of Semiconductor Physics Siberian Branch of Russian Academy of Sciences. Novosibirsk, Russia.

- 2016-2018 Junior Researcher
- 2015-2016 Software Engineer

2011-2013

Eltex Enterprise Ltd. Novosibirsk, Russia.
Software Developer

- C, Linux kernel, POSIX Threads, GNU Binutils
- Embedded systems, VoIP, TR-069, client/server applications

Education

- 2013-2016 Post-graduate student in Computer Science, Computer Systems chair, Siberian State University of Telecommunications and Information Sciences, Novosibirsk, Russia.
- 2007-2011 M.S. in Computer Science, Siberian State University of Telecommunications and Information Sciences, Novosibirsk, Russia.
- 2011-2013 B.S. in Computer Science, Siberian State University of Telecommunications and Information Sciences, Novosibirsk, Russia.

Interests

- Compiler construction/optimizations and code generation
- Polyhedral compilation
- Concurrency and multithreaded programming
- High-performance parallel and distributed computing systems
- Parallel programming tools and languages
- Operating systems
- Processor architectures

Skills

- LLVM: extensive experience;
LLVM/Polly: direct experience
 - only Polly Accelerator Code Generation
- GCC: code base knowledge
 - loop vectorization
 - instruction scheduling
 - swing module scheduling
 - hazard recognition
- Software transactional memory
 - GCC STM – libitm: extensive experience
- IBM X10 Compiler: extensive experience (until 2015 year)
- C/C++, x86 ASM, ARM ASM, PTX ISA,
Linux kernel, GNU Binutils;
- MPI, OpenMP, OpenCL, CUDA, POSIX Threads;

Selected Publications (Mostly in Russian)

Dissertation (Thesis)

1. Кулагин И.И. Средства архитектурно-ориентированной оптимизации выполнения параллельных программ для вычислительных систем с многоуровневым параллелизмом // Диссертация на соискание ученой степени кандидата технических наук. Специальность 05.13.15 - "Вычислительные машины и системы". - Новосибирск, СибГУТИ, 2018. Научный руководитель – д.т.н. М.Г. Курносов

Journals

2. Kulagin I., Kurnosov M. Towards critical sections speculated execution of parallel programs on multi-core systems // Izvestiya SFedU. Engineering sciences – 2016. – № 11. – pp. 54-64. (in Russian)
3. Kulagin I., Kurnosov M. Instrumentation and optimization of transactional sections execution in multithreaded programs // Proceedings of the Institute for System Programming. – 2015. – Vol. 27 (6). – pp. 135-150 (in Russian).
4. Kulagin I., Paznikov A. Kurnosov M. Heuristic Algorithms for Optimizing Communications in Parallel PGAS-programs // Journal "Vestnik SibGUTI", 2014, No. 3, pp. 52-66 (in Russian).

Conference/Workshop Proceedings

5. Kulagin I., Kurnosov M. Optimization of conflict detection in parallel programs with transactional memory // Proc. of 10th Annual International Scientific Conference on Parallel Computing Technologies (PCT-2016). – pp. 582-594.
6. Kulagin I., Paznikov A., Kurnosov M. Heuristic Algorithms for Optimizing Communications in Parallel PGAS-programs // Proc. of the 13th International Conference on Parallel Computing Technologies, 2015. – Springer Lecture Notes in Computer Science. Vol. 9251. – pp. 405-409.

Online Links

GitHub: <https://github.com/ikulagin>

LinkedIn: <https://www.linkedin.com/in/ivan-kulagin-4a5a50120>

Phabricator LLVM: <https://reviews.llvm.org/p/ikulagin>

Research Gate: https://www.researchgate.net/profile/Ivan_Kulagin

Facebook: <https://www.facebook.com/ivan.kulagin.1>

VKontakte: <https://www.vk.com/id4057191>