

Name: Alexey A. Sheplyakov

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Date of birth: 19 April, 1978

Place of birth: Kharkov region, USSR

Nationality: Russian Federation

Sex: male

Languages: English (fluent), Russian (mother tongue), Ukrainian (mother tongue)

Education

- October 2001 – October 2004: postgraduate student at University Center of Joint Institute for Nuclear Research
- September 1995 – March 2001: graduate student at Department of Physics and Technology of V.N. Karazin Kharkov National University

Work experience

- **September 2019 – now:** go/C++ developer at RainbowSoft
- **November 2018 – September 2019:** performance analyst at EPAM
Performance analysis and improvement of "low latency" code (software for capital markets). Responsibilities:
 - Designing benchmark scenarios based on real world products usage
 - Choosing relevant metrics and visualization
 - Writing load generators and other test applications, automating benchmarks
 - Identifying bottlenecks, improving the architecture and implementation
 - Tuning the OS (Linux) for low latency/soft real time applicationsProjects:
 - FIXEdge, application server providing FIX (Financial Information eXchange) gateway to multiple protocols (various message queues, REST, etc).Technologies: C++11, Berkeley sockets, boost, Python, ansible, CMake
- **May 2018 – November 2018:** C developer at BaseALT
Responsibilities:
 - Debugging, fixing, and improving Linux' client side AD (Active Directory) integration software, such as SSSD
 - Automation of Samba based Active Directory domains deployment
- **August 2017 – May 2018:** performance analyst at EPAM
- **August 2013 – July 2017:** C++/C/Python developer at Mirantis, Inc.
Projects:
 - Ceph, a distributed object storage, block device, and a POSIX filesystem.Responsibilities:
 - * Debugging and bugfixing (examples: ceph bug #14428, ceph bug #12065, ceph bug #14512)
 - * Troubleshooting production Ceph clusters
 - * Planning and deployment of Ceph clusters according to clients' workload and requirementsTechnologies: C++11, boost, Python, ansible
- Mirantis OpenStack
Responsibilities:
 - * Debugging and fixing race conditions, data corruption, hardware specific, and other "interesting" bugs (commits)
 - * Adjusting OpenStack components according to customers' requirements
 - * Reviewing the codeTechnologies: Python, puppet, POSIX shell, ruby, GNU make
- **November 2012 – August 2013:** C developer at ADB Ukraine
Project: Epicentro Platform, CPE (home router) firmware based on embedded Linux.
Responsibilities:
 - Implementation of user space IPv6 related components (DHCPv6 server and client)
 - Bug fixing (mostly the userspace code)Technologies: C, Berkeley sockets, Linux, IPv6
- **April 2011 – November 2012:** C++ team lead at P-Product, Inc. Projects:
 - CEVA profiler, DSP (digital signal processor) profiler based on a simulator of the target architecture, a part of CEVA IDEResponsibilities:
 - * Design and implementation of raw performance samples processing
 - * Representation of the performance data in the GUITechnologies: C++, Qt4 (in particular QGraphicsScene framework), boost, SQLite
- XMPie uRender, video personalization solution. Responsibilities:
 - * Design and implementation of H264 video streams stitching algorithm (the key feature of the program)
 - * Design and implementation of the GUI
 - * Solving portability issues (the product runs on Mac OS X, Linux, and Windows)

Technologies: libavcodec, Qt4

- **October 2010 – April 2011:** software engineer at Helicon Soft Ltd.

Project: Helicon Remote 2.0, a program for semi-automatic focus and exposure bracketing.

Responsibilities:

- Writing device (photo camera) communication code for Mac OS X and Linux
- Design and implementation of GUI
- Reverse engineering undocumented cameras' commands
- Troubleshooting Mac OS X specific issues

Technologies: libusb, libptp, Canon SDK, Qt4

- **February 2010 – July 2010:** software engineer at Quickoffice, Inc

Project: Qt4 port of Quickoffice mobile office suite

Responsibilities:

- Rewriting Symbian specific code the Qt4 way
- Debugging and fixing obscure bugs (like "widget gets mispositioned after rotating the phone 3 times in a row")

- **November 2008 – January 2010:** software developer at Metalika Publishing House

Project: *Opus Metalicus* – the program which powers the "Metallicheskiy Vestnik" magazine.

Responsibilities:

- Design and implementation of the database schema, triggers, views
- Design and implementation of the GUI
- Deployment, administration, and support of the software

Technologies: Qt4, PostgreSQL

- **November 2004 – November 2008:** research fellow at Bogoliubov Laboratory of Theoretical Physics.

Supervisor: professor D.I. Kazakov

Research topics

- Phenomenology of the Standard Model of elementary particles and its minimal supersymmetric extension
- Application of computer algebra to calculations in perturbative quantum field theory, in particular computation of Feynman integrals with several mass scales

Publications

- A. Bednyakov, D.I. Kazakov, A. Sheplyakov, "On the 2-loop $\mathcal{O}(\alpha_s^2)$ corrections to the pole mass of the t quark in the MSSM." Physics of Atomic Nuclei, 71:343-350, 2008. (preprint: hep-ph/0507139)
- M.Yu. Kalmykov and A. Sheplyakov, "lsjk – a C++ library for arbitrary-precision numeric evaluation of the generalized log-sine functions." Comput.Phys.Commun. 172 (2005) 45-59. (preprint: hep-ph/0411100)
- A. Bednyakov and A. Sheplyakov, "Two-loop $\mathcal{O}(\alpha_s y^2)$ and $\mathcal{O}(y^4)$ MSSM corrections to the pole mass of the b -quark." Physics Letters B, 604:91-97, 2004. (preprint: hep-ph/0410128)

Talks

- The 15th International Conference on Supersymmetry and the Unification of Fundamental Interactions (SUSY07), Karlsruhe, Germany, July 26 - August 1, 2007
Subject: ffnssmssc – a C++ library for superpartner mass calculation and renormalization group analysis of the MSSM (slides)
- International school-workshop "Calculations for modern and future colliders" (CALC-2006), Dubna, Russia, July 15-25, 2006
Subject: Different two-loop correction to the mass of heavy quarks in the MSSM (slides)

Programming languages

- Primary (being used in everyday work): C++, C, Python, Bourne shell, SQL
- Others (used only occasionally): Assembler (x86), ruby, Scheme (mostly guile)

Operating systems: Linux (primary OS since Oct. 1996), Mac OS X

Degrees M.Sc., March 2001

Supervisor: assistant professor V.G. Zima

Diploma thesis title: BFV-BRST quantization of free massless arbitrary spin particle.

Hobbies

- Phenomenology the Standard Model and its supersymmetric extensions.
- Calculation of Feynman integrals with several mass scales.
- Application of computer algebra to calculations in perturbative quantum field theory.
- Non-perturbative quantum field theory.
- GiNaC, a special purpose C++ library for symbolic computations.