KONSTANTIN NARKHOV

CONTACTS

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EDUCATION

National Research Nuclear University MEPhI (Moscow Engineering Physics Institute)

Post-garduate study/course at **Scientific Research Institute of System Development**

ABOUT ME

I am an professional in the field of real-time systems programming, development modeling software for embedded systems, test automation and software verification. I am working on formalized description of multithreaded applications, development of automated software generation facilities & monitoring tools for multithreaded real-time applications. I'm a Raku (Perl6) enthusiast as well, work on module porting and contributing. My code: https://gitlab.com/pheix

HIGH SCHOOL

Sept 1999 - Feb 2005: National Research Nuclear University MEPhI (Moscow Engineering Physics Institute), faculty of Cybernetics, department №12 "Computer systems and technologies" (KSiT). The department offers the bachelors and masters degrees of "Informatics and computer technology" (09.03.01 and 09.04.01). Disciplines studied within the course: circuit and system engineering, programming languages and technologies[1].

Graduation thesis: "Development of hosting platform for Internet providers" [2]. Supervisor: Vasilyev N.P. [3]. Thesis technologies & features: Windows 2000 Server (MS SQL Server, MS IIS, ISAPI, ASP, WSH) & Delphi 6. Thesis grade: excellent. Developed under the diploma project software was integrated by "M35 Network Provider" in Nov 2005.

Graduating specialty: 09.03.01-01 "Computing machines, complexes, systems and networks" [4].

POST-GRADUATE

Apr 2007 - Aug 2009: Scientific Research Institute of System Development. Disciplines studied within the course: DSP programming & embedded real-time systems programming. Advanced english language course at The Institute of Linguistics, Russian Academy of Sciences. Advanced philosophy course at Institute of Philosophy, Russian Academy of Sciences.

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SPEAK

English: EFSET – Advanced/Proficient; CEFR – C1/C2

Polish: A2/B1

JOB/SKILLS

Scientific Research Institute of System Development: senior scientis
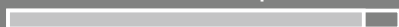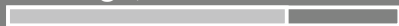
MultiSafePay: backend developer

C

Perl

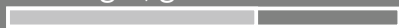**Linux:** admin/setup/use

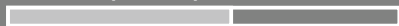**Linux:** bash, awk, make

Linux: git, docker

Linux: gtk, glib

Linux: qt, eclipse

LANGUAGES

English: advanced level: reading articles & documentation, writing. Speaking at an intermediate level. Education at school, university and post-graduate (in general more than 10 years). I've passed an intensive 2-year training course "English First". EFSET — Advanced/Proficient, CEFR — C1/C2.

Polish: A2/B1 level. I've passed a 2-year training course at Polish Cultural Center in Moscow [5].

JOB

Scientific Research Institute of System Development

- Sept 2005 - Aug 2009: engineer;
- Aug 2009 - Dec 2015: junior scientist;
- Dec 2015 - Mar 2017: deputy chief designer;
- Mar 2017 - present: senior scientist.

MultiSafePay

- June 2020 - present: remote backend developer

SKILLS

- Software development for hard real-time embedded systems;
- System data transfer libraries development (for RT OS, libraries provide data transmission over high-speed channels: Ethernet, RapidIO);
- Unit tests development (for RT OS, performance tests for RapidIo, Ethernet, VGA, MIL-STD-1553, RS232 / 485, I2C, QBus, VME);
- Multi-threaded programming (POSIX.1-2008);
- Monitoring tools development (for multi-threaded applications that are running on multiprocessor /cluster systems);
- Visual environments development for Linux-like systems (glib, gtk, qt, plug-ins for Eclipse [6]);
- Parsers and text data analysis tools programming (C, Perl, Awk);
- Development, maintenance and support of compilation and assembly systems for distributed projects (make, automake, autoconf, kbuild);
- Git & Continuous Integration (CI-scripts/tests, shared runners for Gitlab);
- Docker: OS-level virtualization containers, Docker-in-Docker.

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SENIOR DEVELOPER IN PROJECTS

Projects at Scientific Research Institute of System Development:

- Automated generation utilities for real-time applications (AGURA) — certified visual environment for real-time applications development;
- Library for pipelined data transmition under RapidIO communication environment;
- Thread monitoring library for multi-threaded application runtime control;
- General multi-threaded programming technology for real-time OS;
- Supervisory control and data acquisition (SCADA) applications, utilities and service tools for prorgammable logic controllers (PLC);
- Remote prorgammable logic controllers (PLC) debugging and maintenance tools for AGURA IDE;
- Industrial automation use cases with PLC: gas stations, oil pumping stations.

Projects at MultiSafePay:

- Pay after Delivery (PAD) is unique after payment method provided for Dutch merchants. The product is fully developed by MultiSafepay. The online payment method allows online consumers to receive their order first and pay after [7].

PRESENTATIONS

- Participation in Conference on Information Security Problems "Perspective-2009" [8], [9];
- Participation in Congress of young scientists of Russian Academy of Sciences [10];
- Participation in seminar "Design and Implementation Problems of Basic Hardware and Software" with a talk "Esterel SCADE — software development solution for real-time systems" [11];
- Participation in seminar "ARP 4754A & DO-178C Compliant Model Based System & Software Engineering" [12];
- Participation in 20th St.Petersburg blockchain community meetup with a talk "Private PoA networks on Parity Ethereum" [13];
- Participation in Swiss Perl Workshop 2019 with a talk "Pheix: Perl6-based CMS with data storing on blockchain" [14];
- Attending the Open Innovations Forum 2019, participant at session "MusicTech. AI - new big superstar" [15];
- Attending the Audio Developers Conference 2019 [16];
- Participation in German Perl Workshop 2020 with a talk "Querying the Ethereum blockchain nodes with Raku" [17];
- Participation in 26th St.Petersburg blockchain community meetup with a talk "Raku application: interacting with Ethereum network" [18];
- Participation in The Perl Conference in the Cloud 2020 with a talk "Creating secure decentralized content management systems on Ethereum blockchain with Raku" [19].

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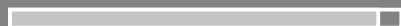
SCIENTIFIC PUBLICATIONS

- Proceedings of the Conference on Information Security Problems "Perspective-2009". Volume 1, page 177 — "Programming in real-time systems: automation and security" [9];
- "Source code generator for real-time systems". Programmnye produkty i sistemy, № 4, pages 24–30, 2010 [20];
- "Techniques provided for valnerabilities reduction in special real time software". Programmnye produkty i sistemy, № 3, pages 89–95, 2012 [21];
- "Realization of controlled execution principle for realtime applications". Proceedings of SRISA RAS, Volume 5, №2, pages 113–121, 2015 [22];
- "Monitor Library for multi-threaded Programs". Proceedings of SRISA RAS, Volume 7, №1, pages 70–74, 2017 [23];
- "Handling exceptions using the monitor librarty". Proceedings of SRISA RAS, Volume 7, №4, pages 96–101, 2017;
- "Software implementation of special IEC61131-3 data types at monitor library". Proceedings of SRISA RAS, Volume 8, №6, pages 66–74, 2018.
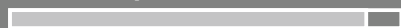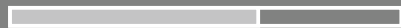
ADVANCED SKILLS

I've advanced experiense in:

- **Perl:** parser development, practical modular development skills, OOP in Perl (native classes, Moose, Moo), unit testing, profiling, Selenium, static perlcritic analysis;
- **Perl:** I'm developing my own CMS - Pheix CMS [24];
- **Perl:** acceleration & optimization of web applications — integration with Redis (basic skills in development for caching servers);
- Raku/Perl6: porting **Pheix,** developing and contributing modules **Net::Ethereum**, **Router::Right**, **LZW::Revolunet**, **HTTP::UserAgent**, **MagickWand**;
- **XML, XSD, JSON**: writing parsers, development validation schemes;
- HTML5 / CSS3 / JS;
- **MariaDB, PostgeSQL**: support/administration/operation/SQL;
- **Front-end**: responsive layout with Bootstrap 4 [25] and Material Design Lite [26], Riot.JS, React and React Native;
- **Ethereum blockchain**: Parity/Geth/Prysm clients, Solidity smart contracts, PoA networks deployment [27];
- Devices development (based on PIC microcontrollers by Microchip Technology Inc.): calculating electrical circuits, Hi-Tech PicC and MPAsm with MpLabX IDE, simulation in CAD Proteus, self-made circuit boards (Sprint Layout, photoresist technology), board soldering skills incl. installation of SMD-components, microcontroller programming skills: duty cycle, interrupt processing, external interfaces: i2c, rs232, sensors, displays, drives;
- Website development, layout & design at personal web-design studio [28];
- **GitLab**: support/administration/operation, CI/CD tools, runners, downstream triggers;

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HOBBIES

THESAURUS

FREE TIME

It's fun to make music, expecially when music makes you:

- Condemned Cell[**29**];
- Utopia [**30**];

I am the one, who likes cars — repair/tuning/etc. I am blogging about repairs, cross-model fitments & funny car stories [**31**].

LINKS & CREDITS

1.   http://dozen.mephi.ru
2.   https://nick.mephi.ru
3.   https://narkhov.pro/download/thesis/devel-hosting-platform-for-providers.final.pdf
4.   http://eis.mephi.ru/AccGateway/get.ashx?d=09.03.01&s=11
5.   https://narkhov.pro/download/cert/polish/instytut-polski-w-moskwie-vse-certifikaty.pdf
6.   https://eclipse.narkhov.pro/tsagspo
7.   https://www.multisafepay.com/solutions/payment-methods/pay-after-delivery/
8.   http://www.sfedu.ru/pls/rsu/gallery.gallery_show?p_phg_id=2141
9.   https://narkhov.pro/download/papers/perspective_2009.pdf
10.   https://www.ras.ru/digest/showdnews.aspx?id=d613b956-1829-439d-8432-52ea72a6ca96
11.   https://narkhov.pro/download/papers/scade-development-solution-for-rt-systems.pdf
12.   http://www.aviationunion.org/news_second.php?new=169
13.   https://narkhov.pro/video-s-dvadcatogo-yubilejnogo-mitapa-soobshchestva-blokchejn-razrabotchikov-sankt-peterburga.html
14.   https://narkhov.pro/swiss-perl-workshop-2019.html
15.   https://rg.ru/2019/10/22/na-otkrytyh-innovaciiah-obsudili-muzyku-sozdannuiu-iskusstvennym-intellektom.html
16.   https://adc19.sched.com/knarkhov
17.   https://narkhov.pro/querying-the-ethereum-blockchain-nodes-with-raku-gpw2020.html
18.   https://narkhov.pro/vzaimodejstvie-s-uzlami-ethereum-iz-prilozhenij-na-yazyke-raku.html
19.   https://narkhov.pro/creating-secure-decentralized-content-management-systems-on-ethereum-blockchain-with-raku.html
20.   http://www.swsys.ru/index.php?page=article&id=2605
21.   http://www.swsys.ru/index.php?page=article&id=3221
22.   https://narkhov.pro/download/papers/monitoring-library-2015.pdf
23.   https://narkhov.pro/download/papers/monitoring-library-2017.pdf
24.   https://pheix.org/
25.   https://bitbucket.org/apopheoz/rekana-html-markup
26.   https://perl.pheix.org/mdl/
27.   https://narkhov.pro/chastnye-poa-seti-na-baze-parity-ethereum-part-4.html
28.   https://apopheoz.ru/
29.   https://condemnedcell.com
30.   https://utopia.band/
31.   https://rdtiburon.ru/