

Denis Shelomovskii

Software developer

E-mail: [verylonglogin \[at\] gmail \[dot\] com](mailto:verylonglogin@gmail.com) Location: Mannheim, Germany Personal webpage: denis.sh

Employment history (in reverse chronological order)

- December 2020–March 2022, Software Engineer in **Yandex N.V.**
Back-end development for **Yandex.Eda** platform (C++ for logic, Redis and SQL for DB, Python for tests). Tech led a few major features, e.g. robotic delivery support. Implemented a lot of product features for highload services of Yandex.Eda. Found and fixed many cases of service misbehavior saving significant amount of money for the company.
Product page: <https://eda.yandex/>
- January 2017–November 2020, Software development for **Ephere Productions Inc.**
Worked on **Ornatrix**, a hair/fur modeling plugin for 3D editors (written in C++, huge codebase). Main contribution: analysis of used algorithms/approaches and proposing/ implementing better ones fixing known and not-yet-discovered usability and performance issues; designing & development of core functionality for upcoming new project.
Product page: <https://ephere.com/plugins/autodesk/maya/ornatrix/>
- 2016, Freelance, various small projects
Projects developed: couple of small image analysis projects (D); simple speech analysis software (C#); in-browser 3D editor (TypeScript for client, D for server parts).
- 2014–2015, Designing & development of **GeoAid Tunnelling** software for **LLC KIPS-2**
GeoAid Tunnelling is an editor (written in D) for tunnel rings surveying process automation.
Challenges solved: Railway track curvature makes it impossible to have exact numerical expression for track points (as function is non-elementary) and instead few first terms of Maclaurin series are commonly used as approximation. But this gives no theoretical bound on error of such estimation. To ensure numeric result correctness I have precisely calculated upper bound for this approximation error using Taylor series with Lagrange remainder and implemented this logic into software.
Product page: <http://geoaid.ru/tunnelling/>
- 2013–2014, Designing & development of **GeoAid Levelling** software for **LLC KIPS-2**
GeoAid Levelling is a graphical editor (written in D) for creating and analyzing surveying networks.
Challenges solved: I have reduced levelling task to a least squares problem and numerically solved it using BLAS routines. In contrast, other software gives approximate and not always correct solution.
Product page: <http://geoaid.ru/levelling/>
- 2010–2011, Designing & development of **GInMA** software for **LLC Deoma**
GInMA is 2D & 3D dynamic geometry system (written in D) with its own simple script language. *GInMA* was presented at international mathematical conferences ATCM 2011, ICGG 2012, ATCM 2012.
Product page: [WebArchive: http://deoma-cmd.ru/en/Products/Geometry/GInMA.aspx](http://deoma-cmd.ru/en/Products/Geometry/GInMA.aspx)
- 2007–2008, Designing & development of **InMA** software for **LLC Deoma**
InMA is a plugin based electronic textbook framework (written in C#) including all required

infrastructure (written in C++ and later in D).

Product page: [WebArchive: http://deoma-cmd.ru/en/Products/Algebra/](http://deoma-cmd.ru/en/Products/Algebra/)

Skills

Programming languages

- C++ (up to C++17) – proficient, over 10 years of industry experience;
- D – proficient, 8 years of experience (2007–2015), took part in development of D language itself;
- Python – 5 years of experience, mainly use it for tests in industry, also played with ML;
- C# – proficient up to C# 3.0, over 10 years of experience (2006–2016);
- Some industry experience in development for GPU using CUDA and OpenCL;
- Occasional industry experience with JavaScript and TypeScript, PHP, Go, x86 assembly language.

Machine learning

Studied the following machine learning courses for 1 year in 2019: ML, deep learning, NLP, and image processing. Good understanding of CNN, RNN, ResNet, Seq2Seq (including Attention), and GAN.

Familiar with RL. Good knowledge of TensorFlow (both TF1 and TF2, also TensorFlow.js), familiar with PyTorch. Good knowledge of Python (both 2 and 3).

Other hard skills

Proficient in Git. Able to profile code, including analysis of generated machine instructions. Able to analyze and fix other programmers' code. Good understanding of concurrent execution (on process, thread, and fiber levels) and ability to write parallel algorithms. Familiar with PostgreSQL and Redis databases. Strong math skills and knowledge of classic algorithms and data structures.

Soft skills

Able to understand what I know and what I don't know and a habit to read docs/articles/source code/analyze algorithms/perform research in latter case instead of creating possibly incorrect solution relying on “this probably works that way”.

Education

- 2008–2010, Moscow Institute of Physics and Technology (MIPT), department of Applied Mathematics and Control, area of study: applied mathematics and physics. Unfinished, voluntary terminated education in 2010.
- 2018–2019, Listener at Yandex School of Data Analysis (YSDA), listened to 4 half-year courses: Machine Learning (ML), Deep Learning (DL), Natural Language Processing (NLP), Computer Vision (CV).

Non-commercial activities

List of personal open-source projects: denis.sh/proj/open-source

Pet-projects, e.g. RNN language model for text suggestion: denis.sh/ml/suggest

Other's projects with noticeable author participation: D language standard library [phobos](https://phobos.dlang.org/) and runtime library [druntime](https://druntime.dlang.org/), years of participation: 2011–2014.