Curriculum vitae

Hi, my name is Bogdan.

I'm a software developer with 8+ years of backend experience, mostly in Haskell and Python, and 3+ years of team management experience. I also have experience with frontend (mostly React), distributed systems and machine learning. However, for me, technology is just a way to solve problems that can make the world a little better.

Areas of my main interests:

- robotics in various fields,
- renewable energy,
- waste recycling,
- agrotechnics,
- efficient transport (including electic vehicles).

Experience

Software developer

👉 Nortal / *Belgrade, Serbia*

🗓️ 08.2022 – current time

🔧 Python, Kubernetes, Kafka

Working on a digitalization for the NEOM city.

Senior software developer

👉 The Anylogic Company / *Saint-Petersburg, Russia*

🗓️ 09.2021 – 08.2021 / *11 months*

🔧 Java, Python, Docker, Gitlab, NSIS

Played a key role in redesigning a standalone application for all OS platforms with a 20-year history of development.

Fixed a bottleneck in the development and release pipeline by setting new a new IaC infrastructure and build pipeline, based on Gitlab solution.

Head of bioinformatics software development group

👉 BIOCAD / *Saint-Petersburg, Russia*

🗓️ 02.2019 – 08.2021 / *2 years 7 months*

🔧 Haskell, Python, React, RabbitMQ, Gitlab, Kubernetes

Our team developed two dedicated services for storing and connecting diverse biological data generated during drug discovery, including antibodies, plasmids, viruses, clustering results, sequence annotations, and so on.

We also have developed a couple of dozen algorithms for labs that simplify and speed up the process from computer-based sequences to physical proteins or viruses. Additionally, we created a lab-friendly service

with a React and NextJS frontend, incorporating Haskell and Python algorithms that operate across multiple servers through the Kubernetes queue and API.

Lead software developer

👉 BIOCAD / *Saint-Petersburg, Russia*

🗓️ 01.2018 – 01.2019 / *1 year 1 month*

🔧 Haskell, Python, Neo4j, Mongo

Developed an algorithm to find valid details in other 3D structures for inspiration in rational *in silico* modeling, utilizing the entire PDB database. A poster with this algorithm was presented at PEGS 2019.

Collaborated with the Matrosov Institute for System Dynamics and Control Theory to create optimization methods, enabling faster identification of local extremum in protein structures compared to standard approaches. Published the article "Algorithms for local minimization of 3D molecules OPLS force field" (see below in the articles).

Led a team in creating a project management service using MongoDB and Haskell on the backend, along with React on the frontend, to streamline projects coordination.

Senior software developer

👉 BIOCAD / *Saint-Petersburg, Russia*

🗓️ 01.2017 – 12.2017 / *1 year*

🔧 Haskell, Python, ZeroMQ, Neo4j

Together with my team, we created an algorithm for the protein folding problem. The quality of the resulting 3D antibody structure prediction algorithm is comparable to Rosetta Software and Schrödinger Software.

Created a message bus for efficient task distribution based on ZeroMQ with bindings for Haskell and Python.

Software developer

👉 BIOCAD / *Saint-Petersburg, Russia*

🗓️ 05.2016 – 12.2016 / *8 months*

🔧 Scala, Julia, MySQL, Docker

Wrote in Scala:

- backend for a service for storing and connecting various biological items
- backend for a proprietary authorization and authotication system that was only changed to Keycloak and Azure in 2019
- Sun Grid Engine-based solution for high-load server

Wrote in Julia:

- basecalling algorithm for converting raw data into DNA sequence

Junior software developer

👉 Laser Systems / *Saint-Petersburg, Russia*

🗓️ 07.2015 – 04.2016 / *10 months*

🔧 Qt

Developed a position algorithms for laser tools and created a module for connecting various components of the product via protobuf protocol.

Mathematician

👉 Kotlin-Novator / *Saint-Petersburg, Russia*

🗓️ 01.2015 – 06.2015 / *6 months*

🔧 Python, LaTeX

Worked on solving aircraft navigation problems and developed algorithms for trajectory optimization.

Junior web-developer

👉 Mr.Brooks Private Marketing / *Saint-Petersburg, Russia*

🗓️ 12.2013 – 12.2014 / *1 year*

🔧 WordPress, JavaScript, CSS, Adobe Illustrator

Created websites using WordPress CMS and customized them with JavaScript. Additionally, I collaborated with designers to create a new font.

Education

Saint Petersburg State University, Russia

🗓️ 09.2010 – 06.2015

Mathematics and Mechanics Faculty

Diploma of Specialist in Mathematical Physics

Saint Petersburg State University, Russia

🗓️ 09.2011 – 08.2014

Faculty of Military Studies

Lieutenant

Diplomas and certificates

- 2009, ICYS, Silver Medal in Mathematics, Pszczyna, Poland
- 2010, ICYS, Gold Medal in Mathematics, Bali, Indonesia
- 2010, Intel ISEF, Third place in Mathematics, San Jose, USA
- 2021, Deep learning specialization on Coursera (certificate):
  - Neural Networks and Deep Learning
  - Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization
  - Structuring Machine Learning Projects
  - Convolutional Neural Networks
  - Sequence Models
- 2022, Modern Robotics: Mechanics, Planning, and Control Specialization
  - Foundations of Robot Motion

Presentations

02.2019 Think like a graph / Думай как граф (in Russian)

Presentation from *FProg SPb* meeting about Neo4j database and Haskell libraries to work with it.

Articles

- (2017) Nazarov A.I., Neterebskii B.O. *The Multiplicity of Positive Solutions to A Quasilinear Equation Generated By The Il'in–Caffarelli–Cohn–Nirenberg Inequality.* J Math Sci 224, 448–455. https://doi.org/10.1007/s10958-017-3427-z
- (2018) Yakovlev Pavel, Anikin Anton, Bolshakova Olga, Gasnikov Alexander, Gornov Alexander, Ermak Timofei, Makarenko Dmitrii, Morozov Vladimir, Neterebskii Bogdan. *Algorithms for local minimization of 3D molecules OPLS force field.* https://arxiv.org/abs/1810.03358
- (2022) Irina Isakova-Sivak, Ekaterina Stepanova, Victoria Matyushenko, Sergei Niskanen, Daria Mezhenskaya, Ekaterina Bazhenova, Elena Krutikova, Tatiana Kotomina, Polina Prokopenko, Bogdan Neterebskii, Aleksandr Doronin, Elena Vinogradova, Kirill Yakovlev, Konstantin Sivak, and Larisa Rudenko. *Development of a T Cell-Based COVID-19 Vaccine Using a Live Attenuated Influenza Vaccine Viral Vector.* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9318028/