

Igor Mitrofanov
Senior Full-Stack Engineer
SaaS platforms, business tools, mobile apps, and scientific and engineering software.

brief@igmit.com Yerevan, Armenia (UTC+4) · open to remote work

I'm a full-stack engineer with 15+ years of experience building SaaS platforms, marketplaces, internal business tools and mobile apps, mainly with Python/Django, Vue/Nuxt and React Native. I usually own the whole product, from data model and backend to the user interface. I also hold a PhD in chemical engineering, so I'm comfortable when a product involves hardware, mathematical models or scientific algorithms.

Highlights

Multimodal freight platform. Led development at Click2Rail: routing across rail, road and sea, partner integrations and real-time updates.

Business tools with AI agents. Built a CRM dashboard and MCP-connected agent tools that a school and a chemical laboratory use in their daily work.

Medical radar systems. Built signal-processing algorithms, firmware and applications for data collection, analysis and live control.

MiXCR. Co-developed the sequencing analysis tool, including alignment algorithms, clone assembly and its testing suite. The paper has been cited over 1,000 times.

Most of my client work is covered by NDAs, so the descriptions here focus on my contributions without sharing private code or data.

Experience

Independent software developer

Jul 2026 – present

Self-employed

Independent products, client work and research collaborations. I use coding agents for implementation, automated testing and research, and build MCP interfaces that connect agents to business data and tools.

Business systems and agent tools

An AmoCRM dashboard used in day-to-day operations across a school, bringing together leads, payments and operational data. A personal CRM for the school director is exposed through an MCP server and accessed from Hermes Agent on the web and in Telegram. Both are in regular use.

A documentation workspace used regularly by a chemical laboratory head. Hermes Agent, Codex and SearXNG help work through technical documents, find and check standards, and draft documentation; a web app provides navigation across the material.

Django · Flask · FastMCP · AmoCRM · Hermes Agent · Codex · SearXNG · Telegram

Poker trainer with a voice coach

An Android and iOS app in Russian, not yet released. Players ask questions by push-to-talk and receive streamed LLM coaching. Speech recognition and synthesis run on-device through sherpa-onnx; a BiLSTM exported to ONNX predicts Russian word stress. Equity and pot odds are computed locally and supplied to the model as structured context.

React Native · Expo · ONNX · sherpa-onnx · DeepSeek

Solubility in supercritical CO_2

A Python library and Django + Nuxt web app for supercritical extraction calculations. Includes a curated database of about 1,100 compounds and 30,000+ experimental measurements, correlations fitted to literature data, and a CatBoost model for compounds with limited or no experimental data. The app lets researchers explore and compare data and models. Work in progress.

Python · NumPy · CatBoost · Django · Nuxt

Molecules from UNIFAC groups

A research collaboration: generates chemically valid molecules from UNIFAC, Constantinou-Gani or Abdulelah-Gani first-order groups and identifies their second-order groups. Built on RDKit and ugropy, with a small web demo and automated testing across large sets of group combinations.

Python · RDKit · ugropy · Flask

Senior Software Engineer

Aug 2022 – Jun 2026

Special Medical Solutions

Software, firmware and algorithms for mm-wave radar systems used in medical monitoring.

- Researched and implemented signal-processing and machine-learning algorithms for radar data analysis.
- Built applications for radar control, data storage and analysis.
- Built a PyQt desktop tool for collecting, analysing and visualising data, and refined it with volunteers in hospitals and universities.
- Developed a wireless radar setup: C firmware for data collection and battery monitoring, a Django server on a Raspberry Pi, and a Nuxt web app for live control with real-time updates.
- Developed a React Native mobile application for internal use.
- Wrote firmware for several PCBs and took part in designing and assembling the hardware.

Python · PyQt · Django · Nuxt · React Native · C · signal processing · ML

Full Stack Engineer

May 2021 – Dec 2022

Givaudan · contract

Laboratory journal web application in Django and Nuxt: multi-user data collection, visualisation of mathematical models that predict properties from the collected data, user management and access control, and a REST API into internal company systems.

Django · Nuxt

Lead Developer

Jun 2019 – May 2022

Click2Rail, Paris · contract

Led development of a multimodal freight platform connecting carriers, shippers, vessel owners, container providers and freight forwarders.

- Route search across rail, road and sea, with optimal pathfinding through transport-mode changes.
- First- and last-mile delivery suggestions; container rental and management.
- Live notifications over WebSockets and partner APIs that sync data with customers' internal systems.
- Internal dashboards and data tools; Google Maps, geo-data services and automated email.

Django · DRF · Channels · PostgreSQL/PostGIS · Redis · Neo4j · Nuxt

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Software Developer

Oct 2018 – Aug 2019

Comvics, Moscow

Control software for high-pressure reactors: motor speed, temperature and pressure sensors over Modbus in C# and Python, a Django + Nuxt control panel on a Raspberry Pi for remote operation, and a computer-vision MVP that watches the reactor's visual cell.

Django · Nuxt · C# · Modbus

Lead Software Engineer

Jun 2016 – Jul 2019

Rocknmob, Moscow

CRM tools for managing participants in mass music events, the public website and social-network integrations. I still maintain the Vue front end.

Researcher / Software Developer

May 2016 – Jun 2019

Mendeleev University of Chemical Technology of Russia, Moscow

Aerogels research: applications and algorithms modelling the inner structure of aerogels with cellular automata. Explored NLP tools for extracting facts from scientific papers.

Research Scientist

Oct 2013 – Jun 2014

Institute of Bioorganic Chemistry

Co-developed MiXCR, a tool for T- and B-cell receptor sequencing data: a seed-and-vote aligner combined with Needleman-Wunsch and Smith-Waterman variants, clone assembly, report generation and a randomised test suite. Also built a web report viewer on Play and Knockout.js. MiXCR became one of the leading tools in its field and is still actively used; the paper has been cited over 1,000 times.

Java · sequence alignment · Play · Knockout.js

Early Stage Researcher

Nov 2010 – Apr 2013

Technical University of Denmark, Kongens Lyngby

Built the Solvent Selection Framework for ICAS, a suite of chemical-engineering design tools: solvent selection for organic synthesis, solvent and mixture design for pharmaceuticals, ionic liquids. Lead developer of ICAS releases. Presented at five international conferences and co-authored a paper on the framework.

C# · C++ · Fortran

Skills

Backend
Python · Django · DRF · Channels · FastMCP · PostgreSQL/PostGIS · Neo4j · Redis

Frontend, mobile
Nuxt · Vue · TypeScript · React Native · Expo · Capacitor · PyQt

Data, ML
NumPy · pandas · CatBoost · ONNX · RDKit · signal processing · thermodynamic modelling

Systems, hardware
C · embedded firmware · Modbus · Raspberry Pi · mm-wave radar · sensors and PCBs

Infrastructure
Docker · Playwright · AWS S3

Languages
Russian · English

Education

PhD, Chemical Engineering (Systems Design)

2016 – 2022

Mendeleev University of Chemical Technology of Russia

MSc, Chemical Engineering and Computer Science

2005 – 2010

Mendeleev University of Chemical Technology of Russia

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