

Alexei Solodovnicov

Group Staff Engineer at TomTom · 20+ years of experience · 2 patents pending

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EXPERIENCE

TomTom Germany GmbH

Nov 2021 – present

Group Staff Engineer

Joined as Senior Engineer and was promoted to Expert, Staff and Group Staff within five years. Team Lead since 2023.

- Came up with, designed and built a drop-in replacement for the production map pipeline. It runs without Databricks and most of the Azure infrastructure, delivers 6TB of Orbis map products **1.5x faster at a tenth of the cost**, and saves **about 200K a year**.
- **Two patents pending** for a two-tier storage design that maps hundreds of billions of items in both directions with **constant-time and amortized constant-time lookups**, the foundation of Orbis map delivery in the OSM PBF format.
- Designed a Bring-Your-Own-Data solution for a team in another business unit at **about \$20 per product** instead of the ~\$2K originally proposed; the work received an **internal collaboration award**.
- Brought the lead time of a Databricks pipeline down **from 31 to 10 hours**.
- Parallelized the world map country cutting, so it takes **10x less time** and **2.5x less compute**.
- Improved the [OpenLR](#) decoding algorithm, cutting **memory use by 60% and runtime by 50%** on production jobs ($O(N \log N)$ to $O(N \log K)$ time for $K \ll N$, $O(1)$ space). Contributed the change back to [tomtom-international/openlr](https://github.com/tomtom-international/openlr).
- **Halved the build time** of the NDS map compiler tool assembly, from 20 to 10 minutes.
- Stood in as **Engineering Manager** for over three months during a leadership change.
- Run sessions in the TomTom **Mentorship Program** on Spark, Databricks, AI and algorithmic problem solving.

NT-ware GmbH (Canon group)

Mar 2016 – Nov 2021

Full-Stack Engineer & Front-End Architect

- Led the move of the product's core from a proprietary scripting engine, with its own language, to a **standard web technology stack** built on the capabilities of the new Canon devices. Built the proof of concept that showed it could work, then negotiated the change through with stakeholders.
- Organized and hosted internal tech sessions for knowledge sharing and professional development.

MolecularHealth GmbH, Insoft Global, EstComputer, KeyIntegrity, BTA Bank, DreamCraft

Oct 2006 – Mar 2016

Software Engineer

- Back-end and front-end work for banks, an online game, EDI/EDIFACT integrations and bioinformatics for personalized medicine; BPM on Oracle BPM Suite and webMethods.
- Reorganized the front-end into modules shared across products; the resulting platform is used by **more than 10 products**.
- Built a WS-Security implementation on ruToken hardware with a custom Diffie-Hellman key exchange.
- Interviewed **over 50 candidates** and grew the team by four developers and eight QA engineers.

SKILLS

Languages

Java, Kotlin, Scala, Python, C++, TypeScript, Bash

Data & Cloud

Apache Spark, Databricks, Hadoop HDFS, Azure, Terraform, Firebase

Web

Next.js, Angular, Sencha ExtJS, CSS/SASS

Practices

System design & architecture, technical leadership, mentoring, Agile / Scrum, budget monitoring

Domain

Automotive maps (OSM, NDS, Overture, TomTom Orbis), OpenLR, Canon MEAP printing/scanning platform