

Alexey Mavrinskiy

Software Developer — C# / .NET · SQL Server · Multi-tier systems

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PROFILE

Software developer with more than twenty years of building line-of-business systems and the databases underneath them. Most of that time has been spent on products that people use all day and cannot afford to have break: a sales system running sixty-odd branches, and a forensic laboratory platform where a mis-tracked sample is not a cosmetic defect. Comfortable across every tier of such a product — desktop client, service layer, T-SQL, REST API — and equally comfortable being the person who finds out why an operation that should take a second takes an hour.

A physicist by training, which is where the habit comes from of not believing a result until it has been measured. It shows up in the work as a preference for profiling over guessing, and for writing down what a system actually does rather than what it was supposed to do.

TECHNICAL SKILLS

Languages	C#, VB.NET, T-SQL, PL/SQL, Delphi, Python, JavaScript, TypeScript, C, VBA
.NET	WinForms, WPF, ASP.NET (MVC and Core), WCF, .NET Remoting, ADO.NET, Entity Framework Core, dependency injection, MSTest
Databases	MS SQL Server 2000–2025 (schema design, stored procedures, views, triggers, query tuning, execution plans), Oracle, MySQL / MariaDB, InterBase, MongoDB, MS Access
Web	Angular, AngularJS, Node.js, PHP, HTML, CSS / SCSS, REST, SOAP / WSDL, JSON, SAML2 SSO
Tooling	Visual Studio, VS Code, JetBrains Rider, Git, SVN, Bitbucket Pipelines, Jira, MSBuild, NuGet, Serilog, DevExpress, Crystal Reports
Platforms	Windows, Linux (LAMP stack deployment), Azure, AWS, Cloudflare, Rackspace, Hyper-V, VMware

PROFESSIONAL EXPERIENCE

Invita Healthcare Technologies — Ottawa, ON

2021 – present

Software Developer (.NET)

Forensic DNA sample-tracking platform — four-tier enterprise system used by crime laboratories

- Develop and maintain a mission-critical four-tier system (desktop client, middleware, service bus, SQL Server data layer) that carries a DNA sample through its entire life: intake, laboratory workflow, chain of custody, upload of the resulting profile to the national DNA index, and the review of the matches that come back.
- Built domain feature modules across multiple state laboratories for statute-driven workflows, national-index upload and match processing, alerts, hit tracking, kit inventory and data entry — each laboratory operating under different legislation from the same codebase.
- Integrated external biometric and law-enforcement services (fingerprint identification, criminal-history repositories) and designed a public REST API for outside consumers.
- Developed and maintained shared libraries used across the product: caching, security and authentication, structured logging, and Excel / Word document generation.
- Reduced critical operations from roughly one hour to fifteen minutes by rewriting application logic and T-SQL objects — eliminating non-SARGable predicates, reworking stored procedures and views, and resolving tempdb collation conflicts.
- Implemented a secure web-based Remote Control Module with SAML authentication, extending the four-tier architecture to the browser.
- Deliver fixes and enhancements across several parallel release branches under a Jira and Bitbucket pull-request workflow.

Environment: C#, VB.NET, T-SQL, ASP.NET (MVC, Core), WinForms, WCF, .NET Remoting, ADO.NET, SQL Server, Serilog, MSBuild, NuGet, Bitbucket Pipelines, MSTest, Crystal Reports, DevExpress, SAML2 SSO

The Printing House — Ottawa, ON

2013 – 2021

Software Developer

Sales Operation Program and surrounding systems, used by 60+ branches across Canada

- Owned the maintenance and evolution of the company's sales system: estimates, work orders, invoices, payment processing, reporting, shipping through several couriers, and transferring a work order to another branch when one was out of capacity.
- Designed and built the company inventory system, a paper-ordering system that compares equivalent products across suppliers and raises purchase orders, and an e-solution for the t-shirt printing service.
- Designed database schemas and wrote the queries, stored procedures, functions, views and triggers behind them in MS SQL Server 2008–2018, including targeted rewrites to improve existing performance.
- Built a web service for custom label printing on Zebra printers, and implemented XPS printing to resolve a compatibility gap between the legacy Visual Basic printing library and the .NET Framework.
- Integrated the Beanstream payment system and connected Magento to the sales system; wrote scripts for Pageflex web-to-print storefronts.
- Developed browser games in SVG and JavaScript as part of a commercial product, simulating physical processes from equations of motion and perspective geometry.
- Built parts of the company's web product in Angular, AngularJS and ASP.NET MVC; prepared UI mock-ups for team discussion; handled customer-reported problems directly.

Environment: C#, Visual Basic, MS SQL Server, ASP.NET, Node.js, Angular, AngularJS, TypeScript, JavaScript, jQuery, SVG, HTML, CSS, REST, SOAP, WSDL, JSON, SVN, Git

Canaflo — Ottawa, ON

2012 – 2013

Web & Software Developer

- Improved front end and back end of two e-commerce sites on Joomla and WordPress, tuning both the PHP and the SQL behind them for load time and database performance.
- Integrated FedEx, UPS and Interac Online web services; built an order-processing application in C# that pulled data from MySQL, called the courier services and printed shipping labels and order details.
- Designed an internal web-based analytics tool for the business development department — lifetime revenue, customer lifetime value, new-versus-returning segmentation by selectable criteria.
- Moved the corporate site to Rackspace Cloud: LAMP stack, load balancer, database replication, performance monitoring and backups.
- Implemented SMS notification for order delivery and automated routine order-processing steps in the site administration.

Environment: PHP, JavaScript, jQuery, C#, MySQL, Linux (CentOS, Debian), Apache, Joomla, VirtueMart, WordPress, Git

Maison Mikaza — Ottawa, ON

2011 – 2012

Web Developer

- Rebuilt an e-commerce site with shopping cart, catalogue search and order processing in PHP, MySQL, JavaScript and CSS3; helped grow it into one of the more visited furniture store sites of its kind.
- Normalized the database and carried out extensive query optimization; rewrote front-end HTML and CSS to pass validation and implemented the SEO work that had been missed.
- Developed a product cataloguing application in C#.

Tech Gemini — Ottawa, ON

2011

Database Developer

- Wrote advanced SQL for management reporting and scripts for database import and export; troubleshoot and tuned existing queries.
- Maintained several databases and their reporting tools in parallel: availability, permissions, performance monitoring, backup, recovery and replication.

Max Planck Institute for Polymer Research — Mainz, Germany

2008 – 2010

Technical Officer (scientific software)

- Developed applications for scientific computation and physical-process simulation in Delphi, C# and VBA — thermoelectric power in carbon nanotubes, X-ray scattering, and visualization of the resulting data.
- Modified instrument service and control software written in C to extend its functionality; analysed experimental data in Maple, MathCAD and MATLAB.
- Prepared reports and presentations; trained personnel on the software and instruments.

Kadrovyy Reserv Ltd. — Chelyabinsk, Russia

2007 – 2008

Database Developer

- Worked in a team of six supporting eleven company branches: advanced SQL, triggers, stored procedures, cursors and user-defined types, plus automation of routine work in VBA and Delphi.
- Built the database conversion pipeline with Data Transformation Services, integrating the data of all eleven branches into one reporting picture; produced reports over Cognos cubes.

Engineering Diagnostic Centre (public corporation) — Chelyabinsk, Russia

2003 – 2006

Software Developer

- Responsible for database programming, administration and management in Delphi with InterBase and MS SQL Server 2000; designed and implemented all internal and client-facing solutions, including networked applications.
- Built a workplace-assessment application covering magnetic and electric field exposure, chemical, sanitary, light and noise parameters — collecting, storing and analysing the measurements and generating the reports. It cut the assessment cycle from a week to a day.
- Planned and applied database security measures, backup, recovery and replication; wrote user documentation and ran training sessions.

Chelyabinsk State Pedagogical University, Computer Science Department

2002 – 2003

System Administrator / Developer

- Developed a client-server network monitoring application in Delphi, and a teaching application for physical principles in Delphi with OpenGL.
- Ran desktop administration and network maintenance; supported programmers and ran training sessions.

RESEARCH BACKGROUND

Before software became the day job, physics was the job. I hold a Ph.D. in physics and mathematics (2006) for work on thermoelectric power in carbon nanotubes, and spent four years as a research scientist at the Max Planck Institute for Polymer Research in Mainz, working on organic semiconductors and the self-assembly of discotic liquid crystals. Roughly thirty publications came out of it, thirteen of them articles in international peer-reviewed journals including *JACS*, *Chemistry of Materials*, *Advanced Energy Materials* and *Macromolecules*.

It is not decoration on a developer's résumé. Research is where I learned to instrument a system before forming an opinion about it, to treat a measurement that disagrees with the model as information rather than noise, and to write things down so that somebody else can reproduce them. *A separate résumé covering the research work in full, with the publication list, is available on request.*

EDUCATION

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| 2006 | Ph.D. in Physics and Mathematics — Chelyabinsk State Pedagogical University, Russia. Dissertation: <i>Thermoelectric Power in Carbon Nanotubes</i> . |
| 2000 | M.Sc. in Physics and Mathematics — Magnitogorsk State University, Russia. |

PERSONAL PROJECTS

- **Papyrion** — a PDF reader for Windows (C#, .NET 10, WPF) that keeps reading position, notes and highlights in sync across machines through a folder in the user's own cloud storage, with no server and no account: each device writes only its own file, so write conflicts cannot occur. Books are identified by content hash rather than filename. An in-

house PDF parser is being developed behind an interface so the third-party renderer can be swapped out without touching the application.

- **NetObserver** — a home-network monitor for Windows (.NET 10, WPF, SharpPcap/Npcap): live device inventory, presence history, new-device alerts and on-demand port scanning, working both with and without elevation.
- **Logika** — an Android game (Kotlin, Jetpack Compose) implementing Bulls and Cows with a Knuth-minimax solver, a live count of remaining candidates, and serverless duels encoded into a thirteen-character checksum-framed code.
- **Arduino electronics** — scheduled aquarium lighting with phone control, room lighting driven from a TV remote, a radio-controlled car rebuild, and a spectrometer currently in progress.

LANGUAGES

English · Russian · German · basic French