

Marius Bakelis

System Architect & Team Lead

Vilnius, Lithuania | (+370) 659 95979 | m.bakelis@gmail.com | linkedin.com/in/mariusbakelis

PROFESSIONAL SUMMARY

System architect and full-stack developer with 28 years of continuous experience designing and building large-scale engineering software for the construction industry. Deep expertise in C/C++ systems programming, complemented by modern web development with React.js and PHP. Proven ability to lead architecture for long-lived products - including a flagship application used daily by thousands of structural engineers across Europe. Currently leading the modernization of a 30+ year C++ codebase into a scalable web-based cloud-native engineering platform. Uses AI-assisted tooling (Cursor, Claude, and similar) daily for design, review, and delivery.

TECHNICAL SKILLS

| | |
|-------------------------|--|
| Languages | C, C++, C#, PHP, JS/TS |
| Frontend | React.js, HTML/CSS, wxWidgets, MFC/Win GUI |
| Backend | PHP (with custom C++ extensions), Node.js, Next.js, MySQL, WAMP/LAMP |
| Architecture | System design, modular architecture, cloud migration, API design, legacy modernization |
| Tools & Platforms | Visual Studio, Visual Studio Code, Git, Docker, Linux (Ubuntu) server administration |
| AI-assisted development | Daily use of Cursor, Claude, and similar for design, review, and research. Long-term optimistic: AI will automate much routine engineering and operational work so teams focus on harder problems; clear-eyed about quality, safety, and governance. |

WORK EXPERIENCE

Software Development Team Lead / Architect / Developer

January 2024 - Present

Matrix Software / StruSoft (StruSoft Group) - Vilnius, Lithuania

Leading architecture and development of a new scalable web platform to bring Matrix Software's engineering tools to the browser.

- Architecting a multi-application React.js frontend with shared component libraries and design systems
- Designing a PHP backend that integrates performance-critical C++ business logic as native PHP extensions
- Ensuring the shared C++ core framework serves both the legacy desktop application and the new web platform
- Defining architectural standards for modularity, independent testability, and long-term maintainability
- Designing external APIs for third-party application integration
- Leading and mentoring the development team on architecture and best practices

Software System Architect / Developer

January 2010 - January 2024

Matrix Software (StruSoft Group) - Vilnius, Lithuania

Owned system architecture for MatrixFrame and related engineering products, making key design decisions across the full technology stack.

- Designed and maintained the core C++ framework powering structural analysis software used by thousands of engineers daily
- Architected the internal forces calculation engine and results presentation layer
- Built a flexible HTML-based reporting engine with PDF export capabilities
- Implemented a macro/scripting language system (VBScript), later leading migration to Lua
- Developed advanced Windows GUI components for complex engineering workflows
- Initiated the cloud migration strategy - developing C++ modules as PHP extensions for server-side deployment
- Made long-term architectural decisions ensuring maintainability of a 30+ year codebase

Senior Software Developer

February 1998 - January 2010

Matrix Software (StruSoft Group) - Vilnius, Lithuania

Core C++ developer on MatrixFrame - structural analysis software compliant with Eurocode and NEN standards, used across the Netherlands, Lithuania, Israel, and beyond.

- Developed calculation engines, framework components, and GUI modules in C++/Visual C++/MFC
- Built foundational architecture and framework code that remains in active use today
- Contributed to software adopted by technical universities including TU Delft, TU Eindhoven, VGTU Vilnius, and the Technion (Haifa)
- Helped establish Matrix Software as a government-accepted standard for structural engineering in the Netherlands

KEY PROJECT HIGHLIGHTS

SimplexFrame / SimplexApps Suite - solutions.matrix-software.biz (*stage/testing*)

Next-generation cloud-based engineering product suite, bringing structural analysis and design tools to the browser. Built as a collection of React.js single-page applications with a shared component library and design system on the frontend, powered by high-performance C++ calculation engines running server-side as native PHP extensions. Designed for scalability, real-time responsiveness, and seamless migration of proven desktop calculation logic to a modern cloud-native delivery model.

MatrixFrame / MatrixTools / MatrixFloor - matrix-software.com

Flagship structural analysis desktop software suite for professional engineers. Used daily by thousands of engineers at contractors, architects, and engineering offices. Cooperated with the Dutch Government to produce nationally accepted software. Deployed at major technical universities across Europe and Israel. The C++ core framework developed for this suite now also powers the SimplexApps cloud platform.

fatalyse (*Personal Project*)

Side project centered on technical analysis for markets, with a light traders-community / social feel - an early-stage experiment, not a trading or order-execution platform. Included watchlists, chart-oriented workflows, tinkering with signals and studies, and simple journaling plus admin basics. Built solo: LAMP stack with targeted C++ PHP extensions where data work was heavier, JavaScript/jQuery on the client, self-hosted Ubuntu. It stayed a starting point; later industry products ([TradingView](#)-style charting and community) largely realized the fuller scope I had sketched for myself but never finished.

EDUCATION

Master's Degree in Computer Science

Vilnius Gediminas Technical University - Vilnius, Lithuania | 1999 - 2001

Bachelor's Degree in Computer Science

Vilnius Gediminas Technical University - Vilnius, Lithuania | 1995 - 1999

LANGUAGES

| | |
|------------|----------------------------------|
| Lithuanian | Native |
| English | Professional working proficiency |
| German | Elementary |
| Russian | Fluent (prefer not to use) |