

Marius Bakelis

System Architect & Team Lead

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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.

TECHNICAL SKILLS

Languages	C, C++, PHP, JavaScript, TypeScript, SQL, Lua, VBScript
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
CMS	WordPress, Drupal, Joomla

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)*

Full-stack web platform (like TradingView.com now) for active traders featuring watch lists for stocks, currencies, and commodities, technical signals, trade journals, and technical studies. Sole developer - designed architecture, built the server side (LAMP stack with custom C++ PHP modules), client side (JavaScript/jQuery), and administered the dedicated Ubuntu server.

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
Russian	Professional working proficiency
English	Professional working proficiency
German	Elementary