Stefan Szomraky



AI Engineering Lead · Industrial & Cloud Software Sr. Dev & Technical Consultant

Szomraky Consulting · .NET / C# · Java · Cloud, Hybrid & On-Premise · Industrial IoT

Email: mail@stsz.de

Location: Berlin, Germany · Barcelona, Spain · Remote

Engagement: Available for freelance client engagements on a contract / project basis.

PROFILE

Independent software architect, technical consultant and team lead with more than 20 years of professional experience in .NET / C# and Java, cloud, hybrid and on-premise systems, and Industrial IoT. I help clients design, build and lead software that has to work in production: from IoT edge devices in factories to global enterprise platforms.

My current focus is AI engineering and automation. I design agentic, multi-model development pipelines and AI integrations that measurably accelerate delivery in real engineering teams, while keeping humans in control of what gets integrated.

I work equally well as an architect and consultant, as a team lead, or as a hands-on lead developer. Quality-first by conviction (TDD / ATDD, automated testing, monitoring): “Document, create integration tests and monitoring, and sleep better!”

AVAILABILITY

AI engineering lead & automation · Team leadership · Industrial & cloud software: lead / senior .NET / C# development · Technical consulting · Software & cloud architecture · Industrial IoT & edge systems · Cloud, hybrid & on-premise systems

FOCUS POINTS

- **Industrial AI software factory:** built a multi-stage software factory for Tesla Automation that turns Jira tickets into tested, reviewed pull requests and per-feature test deployments; development time cut to about one-third.
- **AI team leadership:** lead the MOCS AI team for Tesla Automation as an external freelance consultant; adoption of the software factory is expanding into more branches and teams.
- **Enterprise AI integration:** AI document analysis for hundreds of invoices and order confirmations per day; MCP servers that let employee-facing AI agents answer questions about company data.
- **.NET / C# lead development and architecture:** 15+ years of C# / .NET; currently lead developer and architect of Tesla Automation’s worldwide resource-planning software (ASP.NET, Entity Framework Core, SQL Server, Kubernetes).
- **Industrial IoT at scale:** largely designed a greenfield Azure Industrial IoT platform (IoT Edge, OPC UA, umati) for thousands of connected machines; later added on-premise variants for high-security customers.
- **Long-term client trust:** engagements extended well beyond their initial scope, e.g. from 3 months to about 1.5 years (IconMobile / Procter & Gamble) and from one module to a complete framework (Bundesdruckerei).

PROJECT EXPERIENCE (FREELANCE)

Tesla Automation / Tesla Motors

12/2024 – present

Team Lead / Lead Software Developer / AI Project Lead

Tesla Automation, a division of Tesla, Inc., builds automation and production systems for Tesla’s global manufacturing. I support Tesla Automation as an external freelance consultant in two parallel roles.

MOCS AI Team Lead

Lead the MOCS AI team, setting technical direction and delivering AI engineering and automation solutions.

- **Automated AI software factory (major achievement).** Designed and built a multi-stage pipeline that processes Jira tickets end to end: it refines requirements, asks users clarifying questions, implements the change, creates and runs unit tests,

audits the code, refactors newly generated code, checks architectural conformance, opens Git pull requests and creates per-feature deployments for user testing.

- **Human in the loop.** Users interact with the factory throughout the process, and every change requires human verification before it is integrated.
- **Engineering.** Supports multiple models and multiple AI vendors; runs each job in an isolated Docker container; optimizes caching.
- **Self-improving workflow.** Analyzes recurring code flows, learns from previous execution outcomes and suggests improvements to its own workflow.
- **Measured result.** Typical development time reduced to approximately one-third, measured against developers who were already using Claude or Grok locally. Adoption is expanding into more branches and teams.
- **AI document analysis.** Automated the processing of hundreds of incoming invoices and order confirmations per day.
- **MCP servers for AI agents.** Created Model Context Protocol (MCP) servers that allow employee-facing AI agents to answer questions about company data.

Technologies: Agentic AI, LLMs (multi-model, multi-vendor), MCP, Jira, Git, Docker, CI/CD, .NET / C#

Lead Developer & Architect (incl. DevOps) – Worldwide Resource Planning

In parallel: technical lead and architect of the web application used to plan and manage personnel worldwide, so that the right skill sets are deployed to the right projects at the right time.

- Lead the architectural evolution of the application: global visualization and planning of employee activities with real-time updates and forecasting across time zones and departments.
- Introduced acceptance test-driven development (ATDD) and overhauled the testing and infrastructure setup; introduced CI/CD best practices, improving development speed and test coverage.
- Improved the Entity Framework Core data access layer for maintainability and performance.
- Mentor developers and align vision and delivery with stakeholders across teams.

Technologies: .NET, C#, ASP.NET, MS SQL Server, Entity Framework Core, Jenkins, Azure DevOps, Kubernetes, ATDD / Cucumber

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Cloud Solutions Architect / Consultant / Senior Software Developer

06/2022 – 10/2024

Georg Fischer Machining Solutions SA (GF Machining Solutions)

Division of the Swiss industrial group Georg Fischer; leading provider of precision machining and automation solutions (milling, EDM, laser texturing, additive manufacturing) for aerospace, automotive, medical and ICT.

- **Machine Monitor:** real-time visibility of machine parks: job status, KPI graphs, machine messages and statistical analysis of machine events.
- **Sustainability Dashboard:** GF's implementation of machine efficiency evaluation per ISO 14955 / VDMA 34179. Correlates power-sensor data (electricity, compressed air) with machine states and jobs for per-job energy breakdowns; processes hundreds of samples per second and retains them for years (e.g. showing double-digit percentage savings after a filter cleaning).
- Designed microservices that process large data volumes from thousands of machines without vertical scaling.
- **Cloud and on-premise:** built abstraction layers (CosmosDB / MongoDB, Event Hub / RabbitMQ, Azure Data Explorer / InfluxDB) so that high-security aerospace customers can run the portal applications on-premise.
- Moved infrastructure to fully automated Terraform management; introduced SpecFlow testing; responsible for DevOps operations; Linux system engineering and consulting for cloud and on-premise environments.

Technologies: .NET, Azure IoT Edge, Azure Industrial IoT, OPC UA, microservices, REST, Azure Data Explorer (Kusto), Event Grid, Event Hub, IoT Hub, Service Bus, CosmosDB, MongoDB, RabbitMQ, InfluxDB, Terraform, ATDD / Cucumber

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Cloud Solutions Architect / Consultant / Senior Software Developer

12/2020 – 06/2022

Symmedia GmbH (Georg Fischer group)

Greenfield cloud successor to symmedia SP/1, the "Internet of machines" used in over 100 countries for remote service, parts, maintenance and monitoring. Scale at start: several thousand IoT edge devices in connected factories, gigabytes of data per machine for predictive maintenance and quality prediction.

- Together with client and parent-company experts, consulted on and largely designed the cloud and IoT edge infrastructure and most backend services.

- Owned the data path from factory and edge devices through hot and cold paths into Azure Data Explorer and CosmosDB, exposed via federated GraphQL services.
- Designed and built the Azure Industrial IoT edge solution: marketplace for third-party data acquisition and processing apps running shielded on edge devices, deployment, monitoring, reporting, and OPC UA data acquisition.
- Evaluated industrial protocols including umati / OPC UA Machinery, with VDMA and Microsoft. Worked with Microsoft's Azure IoT Edge and Industrial IoT teams on fixes and features; handled public bug reporting (Microsoft IoT, Industrial IoT and Azure Java SDK repositories, Terraform).
- Introduced ATDD with Cucumber and end-to-end integration testing in CI/CD; member of the core QA team. Hybrid Java / .NET code base on Kubernetes, managed with ArgoCD and Terraform.

Technologies: Java 11/17, Spring Boot, .NET, Azure IoT Edge, Azure Industrial IoT, OPC UA, microservices, Kubernetes, GraphQL (Federation), Azure Functions, Azure Data Explorer, Event Grid, Event Hub, IoT Hub, Service Bus, CosmosDB, MongoDB, SQL Server, Terraform, ArgoCD, Azure DevOps, ATDD / Cucumber

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Cloud Solutions Consultant

09/2020 – 10/2020

DHL

- Consulted on the cloud architecture and the .NET microservice framework of a global IoT solution tracking shipments and roll cages; supported cost optimization.

Technologies: .NET, microservices, Azure IoT Hub, App Service, Functions, Event Grid, Stream Analytics, Event Hub, Service Bus, ASP.NET Core, geofencing

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Software Developer / Team Lead

09/2019 – 06/2020

Mister Spex

- Built a stock and reservation tracking microservice (availability, delivery times) for Europe's largest online optician, with full CI/CD, full API specification test coverage, auto-scaling and nightly benchmarks.
- Designed an event-based integration architecture (Event Grid, Service Bus), a microservice template and a "rule book" for connecting services; trained on-site developers in .NET Core and ATDD.

Technologies: .NET Core, Azure App Service, Functions, Front Door, Event Grid, Event Hub, Service Bus, MongoDB, Docker, SpecFlow

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Software Developer

05/2019 – 07/2019

eatat System AG / Aveato

- Helped a business caterer meet a critical deadline for migrating its high-availability platform to Azure and microservices; backend development, cloud knowledge transfer and Scrum process improvements.

Technologies: ASP.NET Core, Azure Functions, SignalR, WebSockets, RabbitMQ, MongoDB, CosmosDB, Elasticsearch, Docker, Angular

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Technical Consultant

11/2018 – 03/2019

Berlin-based start-up (under NDA)

- Low-latency video streaming, processing and storage, video teleconferencing and payment systems.

Technologies: .NET, Azure, AWS (video), WebRTC, RTMP, SRT, MPEG-2 TS, WebSockets, JavaScript

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Developer and Technical Project Manager (Backend)

05/2017 – 10/2018

IconMobile, for Procter & Gamble (Oral-B)

- Hired to resolve performance problems in the backend of a connected-toothbrush app; rewrote it for testability, scalability and monitoring, added brushing analytics, and took over the backend TPM role.
- Made the backend GDPR compliant, migrated it to Azure and documented it fully; acted as neutral mediator between P&G's many service providers. Contract extended from 3 months to about 1.5 years.

Technologies: .NET, Web API, SQL Server, Azure App Service, Queues, Storage, Service Bus, JavaScript

Lead Developer

09/2016 – 02/2017

Bundesdruckerei (German Federal Printing Office)

- Replaced an ASP.NET 1.1 platform for high-security product life-cycle management: new framework (MVC, Entity Framework 6, Angular 2, TypeScript), rights management and provisioning, central OAuth2 single sign-on, UI redesign, and staff training.
- Specified legacy behavior as Gherkin acceptance tests signed off by the client; introduced Scrum with Jira. Scope grew from one module to the complete framework.

Technologies: ASP.NET MVC, IIS, Entity Framework 6, Angular 2, TypeScript, HTML5 / LESS, SPA, IoC / DI

Lead Developer (team of 5) – Loan Quality Assessment (LQA v3)

09/2014 – 07/2016

Rabobank International, Risk and Finance IT

- Architecture, UI / UX and development of a greenfield ASP.NET MVC 5 single-page application used around the clock worldwide, including locations with poor connectivity; replaced fragile Word-based reporting with structured data entry, in-browser rich text editing and server-side PDF generation. Concepts adopted as department standards.

Technologies: ASP.NET MVC 5, JavaScript, TypeScript, HTML5 / LESS, SPA, client-side caching, document storage, PDF generation, Scrum

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Lead Developer (team of 2) – Compliance Application (CAFE)

06/2013 – 09/2014

Rabobank International, Risk and Finance IT

- Compliance system for 45,000 employees (EBA and Rabobank rules, monitoring of employee stock trading) at the bank's highest security level: immutable, auditable data and prevention of concurrent edits. Introduced document storage and TypeScript to the department.

Technologies: ASP.NET MVC 5, TypeScript, document storage, versioning, reporting, multi-language

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CTO / Co-founder

03/2012 – 04/2014

7pressplay.com (7 VOF)

- Technical architecture and most of the development of a dance-video platform: ASP.NET MVC, Umbraco, MongoDB, Solr; video delivery on Linux / Lighttpd; custom upload and transcoding pipeline (.NET, Linux, Amazon EC2 / S3, FFmpeg).

Performance Consultant

10/2012 – 03/2013

113online.nl, Amsterdam

- Load testing and optimization of the Drupal portal of the Dutch suicide prevention hotline for sudden peaks of up to 100,000 visitors per hour; set up Git / Gitolite source control.

Software Developer

08/2012 – 12/2012

Vtality B.V., Utrecht

- Re-architecture of the BLOXS business software product (ASP.NET MVC, Knockout, SQL Server); hour registration module and back-office interface for a client with 7,000 employees; TFS-based development process.

PROJECT EXPERIENCE (EMPLOYEE)

Senior Software Developer, Innovation / R&D

10/2010 – 03/2012

NetMatch / NetAssist B.V., Amsterdam

Prototypes, proofs of concept and feasibility studies for travel-industry clients (e.g. TUI, Hapag, Corendon, Zoover): social media integration, natural language text analysis, cloud computing (Windows Azure), .NET 4, WCF, WF, SQL Server.

IT Department Manager / Software Architect

09/2008 – 09/2010

Hotelplan Management AG, Zürich

Managed the Customer and Platform Solutions department of Switzerland's second-largest tour operator; led pan-European projects with subsidiaries in the UK and Italy, including relaunches of the major brands' booking sites and consolidation onto central platforms; architect and technical advisor across projects.

Software Developer / Software Architect

10/2005 – 08/2008

Lexware GmbH & Co. KG, Freiburg

Core architecture team of Germany's leading small-business finance software publisher: introduced aspect-oriented programming (PostSharp) and IoC / DI (Castle MicroKernel extensions); C++ / Java / C# interoperability; managed external development partners in Belarus, Croatia and Romania; code reviews and coding guidelines.

Software Developer / Administrator

08/2002 – 10/2005

!zip EDV-Beratungs GmbH, Neustadt

Industrial automation software: ported the Siemens WinCC (SCADA) data manager from C++ to C# / Managed C++; QA product ! zipTest&Doc in C#; process control systems for Kolbenschmidt; remote-maintenance network for Stadtwerke Gießen.

Software Developer (internships and part-time)

06/1998 – 07/2002

AIK Electronics Austria, Klagenfurt

CAD/CAM support software and system administration (Solaris, VAX, Linux) at a PCB manufacturer; Linux-routed ISDN interconnect of plants in Austria, the UK and Hungary; Java simulation of CNC drilling programs.

SKILLS

AI engineering & automation (current focus)

Agentic software development · AI software factories (ticket-to-pull-request automation) · multi-stage, multi-model, multi-vendor LLM workflows · Model Context Protocol (MCP) server development · AI agents for enterprise data · AI document analysis (invoices, order confirmations) · workflow automation with Jira, Git and CI/CD · AI-assisted testing, code audit, refactoring and architecture conformance checks · isolated execution in Docker · LLM caching optimization · human-in-the-loop review

Leadership & consulting

Team leadership (AI and development teams) · technical leadership · architecture and technology consulting · mentoring and training · stakeholder alignment · Scrum / agile · IT department management · management of external development partners

Architecture

Software and cloud solutions architecture · microservices · event-driven architecture · cloud, hybrid and on-premise systems · REST, GraphQL (Federation, DGS), SOAP / RPC · contract-first design · high availability and scalability

Cloud & DevOps

Microsoft Azure (App Service, Functions, Service Bus, Event Grid, Event Hub, IoT Hub, IoT Edge, Industrial IoT, Data Explorer, CosmosDB, Front Door, Stream Analytics, Container Services) · AWS (EC2, S3, video) · Google Cloud · Docker · Kubernetes · ArgoCD · Terraform · Azure DevOps · Jenkins · Git · Team Foundation Server · monitoring

Industrial IoT

Azure IoT Edge · Azure Industrial IoT · OPC UA · umati / OPC UA Machinery · MQTT · edge app marketplaces · time-series data · energy efficiency per ISO 14955 / VDMA 34179 · SCADA (Siemens WinCC)

Languages

C# / .NET / .NET Core (expert) · Java (incl. Spring Boot) · C / C++ / Managed C++ · TypeScript / JavaScript · Python · Ruby · Perl · Shell · SQL

Frameworks & web

ASP.NET Core · ASP.NET MVC · ASP.NET · Web API · IIS · Entity Framework (Core) · LINQ · ADO.NET · Spring Boot · SignalR · WebSockets · Angular · Knockout · jQuery · HTML5 / CSS / LESS · Umbraco

Data, messaging & search

Microsoft SQL Server · Azure Data Explorer (Kusto) · Azure CosmosDB · MongoDB / Atlas · InfluxDB · PostgreSQL · MySQL · SQLite · RabbitMQ · Azure Service Bus · Apache Solr · Elasticsearch · Endeca · faceted search

Quality & methods

TDD · ATDD · specification by example · Cucumber · SpecFlow · Gherkin · integration and end-to-end testing · IoC / dependency injection · aspect-oriented programming · Scrum

Platforms

Linux / Unix (incl. AIX, Solaris) · Windows · Linux system engineering

Industries

Industrial manufacturing and automation · Industrial IoT · automotive · logistics · finance and banking · government / high security · travel · e-commerce · catering · video streaming · consumer IoT

Skill level overview

Skill	Level	Experience
C# / .NET, .NET Core	Expert	15+ years · current
AI engineering, agentic development, MCP	Experienced	current
Software architecture	Experienced	8+ years · current
Cloud computing (Azure, AWS, Google Cloud)	Experienced	10+ years
ASP.NET, MVC, ASP.NET Core	Experienced	13 years · current
Microsoft SQL Server	Experienced	10 years · current
Test-driven development (TDD, ATDD), Cucumber, SpecFlow	Experienced	8 years · current
Unix / Linux development	Very experienced	15+ years
Windows development	Very experienced	15+ years
IoT, IoT Edge, Industrial IoT, Azure IoT	Experienced	3+ years
Event Grid, Event Hub, Service Bus	Experienced	5 years
Java (pure and Spring)	Experienced	4 years
Azure CosmosDB, MongoDB, NoSQL	Experienced	3–4 years
Azure Data Explorer (Kusto)	Experienced	2 years
GraphQL, GraphQL Federation	Experienced	2 years
REST, web services, RPC, SOAP	Experienced	5 years
Kubernetes, ArgoCD, Terraform	Experienced	2+ years · current
OPC UA, umati	Working knowledge	2 years
ADO.NET, LINQ, Entity Framework	Experienced	7 years · current
JavaScript, TypeScript, HTML5, CSS	Experienced	7–8 years
C / C++ / Managed C++	Experienced	5 years
MySQL, PostgreSQL, SQLite	Experienced	2 years

EDUCATION

Diploma in Technical Computer Science (Internet Engineering and Telecommunication) 1997 – 06/2002

HTL-HIT, Klagenfurt, Austria

Higher technical college (HTL) with an engineering focus. Graduation project: user-searchable process-data archive for Bayer, interfacing with the SCADA systems controlling the factory processes.

LANGUAGES

German: native · **English:** fluent (daily business use) · **Dutch:** fluent (daily business use) · **Spanish:** A2 level (learning)

PRIVATE PROJECTS AND INTERESTS

Projects: Home automation from custom hardware to openHAB and touch panels · Wi-Fi messaging device on Arduino and Azure IoT (MQTT) with companion web app · own small operating systems for i386 (16 / 32 bit) · Simple IPX Bridge (IPX over TCP/UDP, GPL) · communication libraries for .NET (e.g. ICQ.NET) · PIC microcontroller projects.

Interests: Sports, yoga, motorbikes (KTM), travel, languages, art and photography, electronics tinkering.

REFERENCES

Marius Burger, CTO, Symmedia GmbH · marius.burger@symmedia.de
Sebastian Fischer, Software Architect, Symmedia GmbH · fischer@symmedia.de
Zeljko Hajdinjak, IT Project Manager, Mister Spex · Zeljko.Hajdinjak@misterspex.de