

Roman Aleksandrovich Semenov

System Analyst / Solution Architect | Full-Cycle AI Engineer

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Moscow, Russia | Russian citizen, authorized to work in Russia

Not open to relocation; available for occasional business travel

Professional profile

Target role: System Analyst / Architect. Specialization: systems analysis and information systems architecture. Full-time, on-site. Commute time: flexible.

Experience: 20 years and 2 months across industrial software, simulation platforms, systems integration, medical imaging, and AI solutions.

Professional experience

Client and independent projects | Full-Cycle AI Engineer

September 2025 - Present | Moscow

End-to-end development of AI solutions, from problem analysis and architecture through implementation, integration, testing, and preparation of working environments.

- System Design review application: integrated multiple AI models through OpenRouter to analyze and evaluate design and architecture decisions.
- SCADA for small-scale automation: designed and developed a software solution with a built-in AI assistant.
- 0D/1D modeling application: developing a system with an AI-based topology processor and AI assistant.
- AI assistants for Telegram and websites: developed assistants and integration scenarios for user-facing channels.

Designed interactions among LLMs, agents, external services, tools, and data sources. Built solutions using RAG, MCP, and n8n workflows, connecting agents to external tools and context.

Created and maintained specifications for specification-driven development (SDD), recording requirements, architecture decisions, constraints, and acceptance criteria. Agent systems used these specifications to carry out the full development cycle for projects and code, with human-in-the-loop review of key decisions and outcomes.

Stack: LLMs, AI agents, AI routing, RAG, MCP, n8n, Claude Code, Codex, OpenCode, Hermes, Git, Docker, CI/CD, Kubernetes, QA automation, Java, Python, Go, React.

JET LAB LLC | Architect

February 2023 - August 2025 | Moscow | get-lab.ru

Worked on a Russian MRI system. Responsible for systems analysis, solution architecture, and implementation of several software components.

- Decomposed high-level specifications into requirements for an equipment control service; analyzed data exchange formats with the control unit, updated interaction descriptions and diagrams, and checked implementation against design materials.
- Designed and developed a system service using an event-driven data processing model.
- Built separate simulators for six MRI subsystems to run load tests, verify data exchange formats, and validate design decisions.
- Designed a PACS solution for exchanging and storing DICOM medical imaging data, and a physician workstation based on Weasis.
- Produced requirements, use cases, interaction diagrams, and operating guides for the PACS solution and client application.
- Designed DICOM exchange, deployed a PACS server, and developed a Java client for integration.
- Designed the MRI monitoring and centralized logging subsystem; prepared requirements, architecture diagrams, and operating guides; implemented it with Grafana, Prometheus, and Loki.

Stack: Draw.io, PlantUML, ERD, UML, C4, Miro, Structurizr, Visio, Java 17-23, Kafka, NATS, Docker Compose, DICOM, PACS, Grafana, Prometheus, Loki, Cursor, Claude Code, Codex, Kimi, Trae.

JSC JET Engineering & Technology Center | Architect

November 2020 - February 2023 | Moscow | get-sim.ru

Led systems analysis, requirements development, and architecture for the REPEAT platform (repeatlab.ru), combining the roles of systems analyst, architect, and team lead.

- Compared competing products, developed functional and architectural requirements, and aligned them with the CTO.
- Produced technical specifications, subsystem specifications, conceptual design, architecture decisions, a substantial share of detailed design documentation, the roadmap, and implementation plan.
- Helped plan staffing, effort, server capacity, and delivery stages. The resulting materials supported funding from the Russian Foundation for the Development of Information Technology (RFRIT); prepared materials for four project review stages.
- Modeled component interactions and data flows using UML use case, sequence, component, and deployment diagrams, DFD, BPMN, database schemas, context diagrams, and container diagrams.
- Decomposed requirements into tasks for backend, frontend, QA, and DevOps engineers; supported implementation and reviewed server-side code.
- Built a team of 15 specialists and provided technical mentoring.
- Prepared architecture and integration diagrams for external components, new simulation engines, and data sources.
- Designed and developed new platform components: a simulation results archive, multithreaded execution, a graphics engine, results filtering and processing, and external data integration.
- Selected platforms, technology stack, and server hardware; set up Development, Test, Stage, and Production environments; introduced GitLab CI/CD and migrated from SVN to Git.
- Developed test programs and procedures, organized acceptance testing, and introduced GUI and API automation, load, regression, and stress testing.
- Maintained and customized Redmine, including dashboards and financial, labor, and management reports in Ruby and PHP.

Stack: Redmine, Draw.io, PlantUML, UML, ERD, C4, Structurizr, Visio, Java, Python, React, Docker, GitLab.

Moscow Plant FIZPRIBOR LLC | Engineer

February 2018 - August 2020 | Moscow | fizpribor.ru

Deputy development lead for the Vershok software platform. Responsible for systems and some business analysis, task assignment for one team, and technical product support.

- Supported proposals to Russian industrial companies: identified and analyzed prospective customers' needs and defined options to adapt the platform to their processes and infrastructure.
- Formalized business, functional, and system requirements; produced technical and subsystem specifications, detailed design documentation, product and integration documentation, and test and acceptance procedures.
- Prepared comparative analyses of products and technologies, including the strengths and limitations of the Vershok platform.
- Designed and developed Vershok components for Unix-like and real-time systems.
- Maintained engineering infrastructure, created developer environments, and improved CI/CD.
- Participated in industry exhibitions, analyzed new market and customer requests, and helped prepare presentations, technical materials, and demos.

Stack: Draw.io, Visio, UML, C/C++, Python, CI/CD, Unix-like and real-time systems, SCADA, industrial control systems, real-time databases.

JSC ELVEES Research and Development Center | Software Engineer

July 2017 - February 2018 | Moscow | multicore.ru

Developed embedded software for ARM and MIPS systems against defined technical requirements and specifications for DSP cores and interfaces.

- Migrated an existing software suite to MIPS: web interface, database, video analytics algorithms, and utilities.

- Added support for IP cameras and new MIPI CSI sensors; developed a GStreamer data provider for the video analytics subsystem.
- Developed and adapted C/C++ components and configured cross-compilation and builds with CMake and Buildroot.

JSC RASU | Lead Engineer

May 2016 - July 2017 | Moscow | rasu.ru

Developed integration solutions for CAD, SCADA, and industrial control systems in the nuclear power sector. Gathered and aligned technical requirements, designed component interactions, and defined exchange formats.

- Analyzed integration and interface requirements, documented and updated specifications for custom exchange protocols, and verified data transformation and transfer between systems.
- Developed an adapter to process CAD data and generate exchange formats for lower-level systems, including logging of signal and alarm changes.

JSC VNI AES | Senior Software Engineer

May 2011 - May 2016 | Moscow | vniiaes.ru

Collected and analyzed requirements and designed and developed industrial software for the nuclear power sector.

- Worked with technical and subsystem specifications and maintained protocols for data exchange among simulators, information and computing systems, CAD, and databases.
- Developed clients for MongoDB, Tarantool, Aerospike, MySQL, and PostgreSQL; addressed node synchronization and industrial control data archiving.
- Developed communications software between simulators and the PORTAL/SAIPMS information and computing system at Novovoronezh NPP Unit 2 and Balakovo NPP Unit 4, including signal, timestamp, and data-quality processing.
- Contributed to high-reliability and safety-related display software: drivers, HMI, frame generation, bootloader, and installation images.
- Implemented integrations with Intergraph SmartPlant Foundation and CAD products: TEF adapters, imports from Oracle and SmartPlant P&ID, consolidated reports, process diagram completion statistics, and manufacturer task checks.

Stack: UML, C/C++, .NET, SQL, NoSQL, SmartPlant Foundation.

Education

Ulyanovsk State University, Ulyanovsk - Specialist degree in Physics, Faculty of Physics and Technology.

Languages

Russian: native. English: B2 (upper intermediate).

Skills

Solution architecture; systems analysis and design; functional and non-functional requirements; architecture decision records; technical specifications and detailed design documentation; C4, UML, ERD, DFD, BPMN; use cases and user stories; APIs, REST, GraphQL, SOAP, gRPC, OpenAPI/Swagger; Kafka, NATS; SQL, PostgreSQL, NoSQL; Docker, Kubernetes, CI/CD, observability, QA automation; LLMs, AI agents, RAG, MCP, n8n, OpenRouter, Claude Code, Codex, Cursor, Kimi, OpenCode, Hermes, LM Studio, Ollama; React, Java, Go, Python, C/C++.

Additional information

I am a solution architect and systems analyst specializing in complex information and industrial systems, simulation platforms, industrial control systems, and integration solutions. I connect customer requirements, architecture, software implementation, and infrastructure into coherent technical solutions.

I have built products from the ground up: analyzing problems, requirements, and constraints; selecting platforms, technology stacks, and hardware; designing architecture; decomposing work; supporting development and testing; establishing infrastructure; and bringing systems into production.

My technical background enables me to assess architecture feasibility at the level of API contracts, protocols, data models, code, and infrastructure. I have led teams of up to 15, established IT processes, CI/CD, and working environments, reviewed code, mentored engineers, and worked with customers, CTOs, and backend, frontend, QA, and DevOps teams.

I cover the full systems analysis cycle: gathering, refining, analyzing, and agreeing on business, functional, non-functional, and system requirements; producing technical specifications, detailed design documents, and ADRs; creating UML, ERD, BPMN, and C4 models, use cases, user stories, integration diagrams, and deployment diagrams; assigning development tasks; and supporting implementation, acceptance, and technical reporting.

I have three years of practical experience applying generative AI to architecture and development. My current project work is as a Full-Cycle AI Engineer. I have created SDD specifications that enable agent systems to carry out the full cycle of project and code development.

Core capabilities:

- Solution architecture: system, functional, component, integration, data, and deployment architecture; distributed and event-driven systems; solution design, ADRs, and platform and technology selection.
- Systems analysis and requirements: elicitation, analysis, formalization, alignment, and management of functional, non-functional, and system requirements; use cases, user stories, acceptance criteria, and work decomposition.
- Project documentation: technical and subsystem specifications, detailed design documentation, ADRs, conceptual designs, roadmaps, API documentation, test procedures and acceptance protocols, operating guides, UML, ERD, BPMN, DFD, C4, database schemas, PlantUML, Mermaid, Draw.io, and Miro.
- AI and agent development: full-cycle AI engineering, LLMs, AI agents, AI routing, RAG, MCP, n8n, SDD, human-in-the-loop workflows, Claude Code, Codex, Cursor, LM Studio, and Ollama.
- Architecture and integrations: APIs, REST, JSON, XML, SOAP, gRPC, GraphQL, Swagger/OpenAPI, Postman, Kafka, NATS, DICOM, OPC UA, FMI, MQTT, and Modbus.
- Data, BI, and reporting: SQL, PostgreSQL, relational and NoSQL databases, data models and sources, analytical and management reporting, and dashboards.
- Processes and tools: Jira, Confluence, Git, GitLab, Agile, Scrum, CI/CD, acceptance testing, test automation, and load testing.
- Leadership and communication: team leadership, customer and CTO collaboration, task assignment, code review, team building, resource planning, and technical mentoring.
- Business analysis: business requirements, product analysis and comparison, and customer needs discovery.
- Technical foundation: Java, Go, Python, C/C++, React, Docker, Kubernetes, Linux, Grafana, Prometheus.