

SENIOR SOFTWARE / AI ENGINEER

ROMAN GIRIN, Ph.D.

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PROFESSIONAL SUMMARY

Senior Software & Applied AI Engineer with 20+ years of experience specializing in high-load backend systems, enterprise cloud migrations, and production-grade AI infrastructure. Combines an advanced academic foundation (**Ph.D. in Applied Neural Networks & Instrumentation**) with decades of hands-on mastery across the .NET ecosystem, microservices, and applied machine learning (Python, PyTorch, LLMs).

KEY SKILLS & TECH STACK

- **Programming Languages:** C#, Python, SQL (T-SQL, PL/pgSQL), C++
- **Platforms & Frameworks:** .NET 8 / Core / Framework, ASP.NET, Entity Framework Core, Django REST Framework
- **Software Architecture & Patterns:** Monolith-to-Microservices, Domain-Driven Design (DDD), Event-Driven Architecture (EDA), CQRS, Saga, Outbox, RESTful API, HATEOAS, SOLID, GoF
- **AI Orchestration & Systems Integration (.NET):** MS Semantic Kernel, LLMs API, RAG, pgvector (Vector Search), Lunary (Production Performance & Observability)
- **Applied ML & MLOps Frameworks (Python):** PyTorch, Hugging Face Transformers, LoRA Fine-Tuning, OpenCV, TorchVision, Scikit-Learn, EleutherAI (post-fine-tuning re-evaluation)
- **Message Brokers & Streaming:** Azure Event Grid, Azure Queues, Kafka, RabbitMQ
- **Databases:** MS SQL, PostgreSQL, noSQL Azure Table Storage
- **Cloud, DevOps & Observability:** Docker, Azure Kubernetes Service (AKS), Azure Container Apps, Azure DevOps (CI/CD pipelines)
- **Testing & Engineering Culture:** xUnit, NSubstitute, Test-Driven Development (TDD), RAG Semantic Search Testing, LLM Function Invocation Testing
- **AI Productive Tools:** Claude Code, LM Studio

PROFESSIONAL EXPERIENCE

River Logic, Inc. | Seattle, USA (Remote)

Senior Modeling Software .NET Developer / AI Engineer | **March 2014 – Present**

- **Architecture Modernization:** Spearheaded the architectural transition from a legacy 2-tier to 3-tier architecture. Migrated Business Logic Layer (BLL) from database-tier (MSSQL T-SQL) into the .NET application layer (C#), improving system maintainability resulting in a 30% reduction in support ticket volume. Implemented compatibility with PostgreSQL.

- **Windows to Linux Migration:** Spearheaded the core codebase migration from .NET Framework to cross-platform .NET 8, implementing a modern asynchronous programming model (`async/await`) that slashed system resource utilization by 15%.
- **Distributed microservices in Cloud:** Decomposed an on-premise monolith into high-load microservices deployed on Azure Container Apps and Azure Kubernetes Service (AKS). Designed inter-service communication using REST and asynchronous messaging EDA (Azure Event Grid / Queues), ensuring distributed data consistency via Saga, CQRS, and Outbox patterns.
- **AI Orchestration into .NET Ecosystem:** Architected and deployed production enterprise RAG systems leveraging vector embeddings (`pgvector`). Built an MS Semantic Kernel plugin to integrate core software via ASP.NET 8 REST HATEOAS API, enabling secure LLM assistant integration.
- **Python-Driven LLM Infrastructure:** Conducted target R&D and executed open-source LLM fine-tuning via LoRA using the Transformers library (Python, PyTorch) to customize, optimize, and align open-source models for domain-specific enterprise workflows.
- **Interoperability:** Developed critical components in C++ to seamlessly integrate CLR-managed and native code.
- **Engineering culture:** Practice DDD, SOLID, GoF. Established testing standards by implementing comprehensive unit and integration testing (xUnit, NSubstitute) and Test-Driven Development (TDD). Managed build and deployment workflows via Azure DevOps pipelines.
- **Team upskilling:** Introduced agentic AI workflows (Claude Code) across the engineering team, raising development velocity.

Samara State Technical University | Samara, Russia

Computer Vision Engineer (Part-Time / Fellowship) | September 2017 – September 2019

- **System Design:** Engineered a machine vision diagnostic system utilizing Deep Convolutional Neural Networks (CNNs) to automate the detection of broken railway fasteners and bindings using Python, PyTorch, OpenCV, TorchVision, and CUDA/cuDNN acceleration.
- **MLOps:** Gathered imaging dataset for CNN training, successfully managed severe data class imbalances by implementing synthetic generation and augmentation techniques via `imbalanced-learn` (SMOTE).
- **Integration & Async Backend:** Tied the machine vision engine directly into enterprise infrastructure via a custom REST HATEOAS API (Django REST Framework) and asynchronous messaging streams (Kafka/RabbitMQ). The successful production rollout in JSC RPC InfoTrans led to a 60% average increase in registered defect detection accuracy.

VDcom | Samara, Russia

Senior Software Specialist (Promoted for Outstanding Performance) | May 2010 – March 2014

- **Outstaffing at Sberbank CIB:** Developed backend functionality on the Diasoft platform for the investment banking business.

- **High-load Databases:** Designed, developed, and optimized complex stored procedures, ER-models and data-tier components for high-load transaction systems across Sybase ASE and MSSQL database engines.
- **Technical Estimation:** Conducted technical analysis and pre-sale engineering evaluations for resource and cost estimation.

ACS – VolgaEVMcomplex | Samara, Russia

Project Manager / .NET Developer | February 2006 – May 2010

- **Systems Analysis & Design:** Partnered with clients to formalize requirements into detailed Technical Specification Documents (TSDs) for large-scale business process automation.
- **Full-Stack C# Engineering:** Managed end-to-end Enterprise Content Management (ECM) implementations while actively writing custom C# extensions and core integration modules.

EDUCATION & RESEARCH

Samara State Technical University (SamSTU) | Samara, Russia

Ph.D. (K.T.H.) in Technical Sciences | *Specialization: Applied Neural Networks* | **Graduated 2019**

- **Thesis:** “Intelligent informational measuring system for thermography-based diagnostic of technical objects based on artificial neural networks.”
- **Research Portfolio:** Published academic insights available at ResearchGate <https://www.researchgate.net/profile/roman-girin/research> .

Samara State Technical University (SamSTU) | Samara, Russia

Engineer's Degree (5-year Specialist Degree with Honors) | **Graduated 2002**

CERTIFICATIONS & PORTFOLIO

- **Languages:** English (Full Professional Proficiency / C1), Russian (Native)
- **Certifications:** Federal Financial Markets Service (FFMS) Qualification Certificate for Financial Market Specialists (2008)
- **Portfolio:** <https://romangirin.github.io/>
- **Pet projects:** Designed, implemented, and deployed into production a series of pet projects; detailed descriptions and demos are available upon request.