

Roman Bartusiak | Staff Software & ML Engineer / AI Systems Architect

Wrocław, Poland

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Distributed Systems • Performance-Critical Software • AI/ML Platforms • End-to-End Delivery

Profile

I am a staff software and ML engineer with 14+ years building distributed, performance-critical and AI systems. I own systems end to end, from architecture and hands-on implementation through deployment, observability and optimization. My work spans high-throughput backend platforms, agentic AI, NLP, search and graph processing. I also bring CTO/founder experience, 9 publications and 8 R&D projects.

Core strengths

- **Distributed and performance-critical systems:** I design multi-tenant platforms, parallel workflows and data-intensive pipelines for throughput, correctness and resilience.
- **AI/ML research to production:** I build evaluated, deployable agentic AI, NLP, search and graph systems, balancing quality, latency, cost and safety.
- **End-to-end technical ownership:** I lead architecture, implementation, testing, deployment and production iteration while reviewing code and mentoring engineers.

Experience

Panasonic, Global Applied AI

Staff Machine Learning Engineer / AI Platform Architect

Remote

06.2024–08.2026

- Architected and built the core Agent SDK for Kanpai, Panasonic's enterprise agentic AI platform, defining the agent packaging model, runtime contracts, secure deployment flow and developer experience for BYOA/BYOM use cases.
- Designed and built backend services for agent deployment, orchestration and lifecycle management across multi-tenant environments, enabling consistent execution across cloud, on-prem, edge and disconnected operating contexts.
- Created the Agent CLI for packaging, validating and securely deploying agents, including dependency checks, tenant/environment configuration, secrets handling and release safeguards that reduced manual deployment risk.
- Designed and built massively parallel, at-least-once processing for multi-agent invocation workflows, including in-order processing guarantees where required.
- Built observability and evaluation capabilities for agentic workflows, including tenant-scoped monitoring, model latency/cost tracking, API/SDK evaluation hooks and LLM-as-a-judge regression workflows.
- Production-hardened Kanpai's SDK, CLI, Middleware API, backend services and deployment pipelines using CI validation, ArgoCD/Helm automation, RDS integration, regression testing, load/performance testing and tenant-scoped observability.
- Led architecture and code reviews, helping contributors reuse shared capabilities for authentication, model routing, monitoring and releases, while avoiding duplicated infrastructure and unsafe implementation paths.
- Helped scale Kanpai to 20+ agents across 10+ domains, 20+ model families, 30+ training datasets and million-scale training examples, while supporting 70+ concurrent enterprise users during live workshops and hackathons.

StashAway

Staff Engineer

Remote

10.2020–06.2024

- Redesigned investment processing pipelines serving hundreds of thousands of customers, simplifying data flow and execution strategy to make end-to-end runs more than 2x faster.
- Optimized portfolio rebalancing algorithms and batch execution paths, making rebalancing pipelines 2x faster while preserving correctness, auditability and operational controls.
- Owned staff-level architecture for JVM-based investment and platform services, translating broad product and operational requirements into APIs, migration plans and delivery milestones.
- Improved reliability of critical fintech workflows through stronger test coverage, observability, rollback safety and incident follow-up practices.
- Reviewed architecture and critical code paths and mentored engineers on algorithmic complexity, transaction boundaries, data models, performance profiling, test design, safe refactoring, observability and deployment safety.

IamBot (Techstars company)

CTO, Co-founder

Wrocław

05.2017–09.2020

- Co-founded the company and owned the technical roadmap for conversational-AI products, from prototype to customer-facing deployments.
- Built the core NLP/dialogue stack, integration layer and deployment process while hiring, mentoring and leading the engineering function.
- Translated customer discovery into product experiments, prioritizing features that improved delivery speed, bot reliability and measurable customer value.

Causality; FN; Roosters

Founder / Researcher

Remote / Wroclaw

10.2020–present

- Define R&D direction for ML systems with emphasis on causal reasoning, semantic search, synthetic data generation, graph processing and decision-support tooling.
- Write research and grant scopes, convert hypotheses into implementation milestones, and validate prototypes against concrete product and technical risks.
- Maintain hands-on responsibility for architecture, model evaluation, experimental software and technical communication with partners and stakeholders.

Toptal

Staff Full-stack Developer, AI Engineer, Freelancer

Remote

03.2018–present

- Member of Toptal's top-3% global developer network, admitted through their screening process and engaged continuously since 2018.
- Deliver full-stack and AI engineering for client engagements, from problem definition and prototyping through production rollout.
- Work across the stack in Python, Kotlin, Java, Scala and TypeScript/Node.js, deploying on Docker, Kubernetes, Helm and ArgoCD.
- Operate as an external senior/staff engineer: scoping work directly with stakeholders, owning architecture decisions

Wroclaw University of Science and Technology

Research Assistant

Wroclaw

08.2015–09.2016

- Researched distributed processing of networked data and NLP methods, contributing to publications, grant work and experimental software.

Nokia Networks

Software Engineer / Software Architect

Wroclaw

07.2013–07.2015

- Designed and implemented telecom software components, progressing from software engineering to architecture-level responsibility while improving maintainability, testing and code ownership.

Chop-Chop.org

Web Developer

Wroclaw

05.2012–07.2013

- Delivered client-facing web applications and built foundations in frontend/backend delivery, code quality and customer communication.

Selected research credibility

Publications: 9 publications across NLP, graph/network science, distributed data processing and representation learning, including work in *Advances in Neural Information Processing Systems*, *Neurocomputing*, IEEE and Springer LNCS venues.

Selected works: *This is the Way: Designing and Compiling LEPI SZCZE*, a Comprehensive NLP Benchmark for Polish (2022); *WordNet2Vec: Corpora-Agnostic Word Vectorization Method* (2017); *Sentiment Analysis for Polish Using Transfer Learning Approach* (2015).

Grants: 8 research/R&D projects. R&D leader/author for synthetic data generation, semantic search and dialogue systems projects; participant in RENOIR H2020-MSCA-RISE and ENGINE FP7 research projects.

Open source: Creator/developer of SparklingGraph, connecting research on networked data with practical distributed-computing implementation.

Skills

AI / ML: Agentic AI, NLP, semantic search, synthetic data, graph ML, representation learning, model evaluation, LLM evaluation

Systems: Distributed systems, event-driven systems, multi-tenant architectures, high-throughput processing, backend platform design

Programming: Python, Kotlin, Java, Scala, Rust, C++, JavaScript/Node.js, Bash

Platforms / tooling: Docker, ArgoCD, Helm, RDS, Spark, Akka, Micronaut, Spring, GitLab CI, Jenkins, Git

Engineering: System architecture, performance profiling, TDD, DDD, functional programming, observability, CI/CD, safe refactoring

Education

Wroclaw University of Science and Technology

Doctoral studies in Computer Science

Computer Science and Management

2015–2022

Research area: scalable massive networked data processing. Supervisor: Prof. Przemyslaw Kazienko.

Wroclaw University of Science and Technology

MSc, Intelligent Information Systems, 5.5 / A+

Computer Science and Management

2014–2015

Thesis: *Sentiment Analysis and Opinion Mining in Selected Social Platform*.

Wroclaw University of Science and Technology

BSc, Computer Science, 5.5 / A+

Computer Science and Management

2010–2014

Languages

Polish – native; English – full professional proficiency; German – elementary proficiency