Irina Nosal

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SUMMARY

Lead AI Engineer with PhD, building production-ready AI products with expertise in NLP, search, matching, and recommendations. 15+ years in Tech (Telecom, InfoSec, ML), 8+ years in software development (Python, MATLAB, C, Assembler, SQL), including 5+ years of commercial experience. 5+ years in research, 5+ years in applied AI/ML. 8+ publications. H-index: 4.

WORK EXPERIENCE

Lead AI Engineer — HAQQ Network   Mar 2024 – present

Blockchain ecosystem HAQQ with capital of $200 million and more then 200 employees.

Expert chatbot for messenger   **Tech Lead AI Engineer**

– Led a cross-functional product team of 5+ people. We evolved from a basic vector-based RAG to specialized retrieval methods, including SQL for stats and entity lookup, work with real-time sources.
– Built cross-domain benchmarks and a quality evaluation framework. Coordinated multiple teams.

Voice assistant for messenger   **Architect, LLM Engineer**

– Developed routing for multi-agent architecture. Developed an algorithm for spoken contact name recognition, handling variant spellings from different languages.

LetAI / Nutrition Estimation Agent   **Solo Lead AI Engineer**

– Developed multimodal LLM-based agent from scratch as a production service: designed strict structured I/O schemas, implemented the full request→LLM→postprocess pipeline (validation, errors, caching), integrated tracing/monitoring, and hardened reliability (rate/length limits, timeouts, error typing).
– Built and iterated the evaluation pipeline (benchmarks + automated judging + manual review) to compare model versions and track quality/latency for nutrition extraction.

Fashion / AI Stylist   **Solo Lead AI Engineer**

– Designed and built from scratch an LLM-based AI stylist service that takes outfit requests and generates a complete look (items + combinations) with consistent style, fit, color harmony, weather/temperature, etc.
– Built a multimodal LLM garment attribute extractor (style/fit/texture/pattern/color/seasonality) and created the labeled image dataset.
– Created a knowledge capture workflow from expert videos (transcription + structured extraction).

LipSync Video   **Solo Lead AI Engineer**

– Designed and implemented an end-to-end AI pipeline for video dubbing and lip-synchronization, enabling automatic adaptation of spoken content to new languages with realistic mouth movements.

Technologies: RAG, multi-modal agents, text2sql, Routing, SO, CoT, prompt engineering, domain driven design, ElasticSearch, FAISS, FastAPI, asyncio, Websockets, REST, LangChain, Langfuse, LangSmith, RAGAS, Spicy, Huggingface.

AI/ML ENGINEER, DATA SCIENTIST — AUTODOC EU   Oct 2022 – Mar 2024

EU top **car-parts e-store** with €1.1B in sales and 5.2M products. Operating in 27 EU countries, 5000+ employees at 8 sites.

LLM Analytics Copilot (text-to-SQL & ad-hoc analytics)   **LLM Engineer / PM**

– Built LLM agents for database co-pilot and ad-hoc analytics using Azure OpenAI and LangChain.

Assortment Matching & Coverage Analytics   **ML Engineer / Data Scientist**

– Clustered car parts by technical fit and customer attributes; built an internal dashboard used by ops teams.
– Led data governance and coverage gap assessment; reduced product launch prep time from 2 weeks to 1 day and improved assortment gaps visibility (heatmap), boosting revenue by 8.7% yearly.

Technologies: Azure OpenAI API, LangChain, GloVe, DBSCAN, PCA/TSNE, HuggingFace, GCP, Airflow, SQL, Metabase.

AI/ML ENGINEER — WELLNITE   Dec 2021 – Oct 2022

Well-being **self-care** and **medtech** startup hit $17.6M revenue in 2023 with a 67 person team.

– Built RAG components: data preprocessing, prompt engineering, summarization, and model tuning.
– Led product delivery and deployed ML services to production on GCP in collaboration with engineering and support teams.

Technologies: Bitbucket, GCP, Flask, NLP, LLMs, GPT OpenAI API, NLTK, HuggingFace, BERT, Converse.

ML ENGINEER, DATA SCIENTIST — **COMMUDATA**   Feb 2021 - Oct 2021

NLP Startup (England, Portugal, Russia). The idea was - determine an author's psychological state from his texts.
– Developed text anomaly detection model and prototype of Log Anomaly Detection web-app.
– Improved the product library with new text-feature extraction, increasing ROC AUC by 7% .
Technologies: Streamlit, Linux, SQL, NLTK, Tensorflow, Gensim, Spacy, Autoencoders, LSTM, PCA/TSNE, TS.

LEAD CYBERSECURITY ENGINEER — PFR in the Komi Republic   Jun 2011 - Feb 2021
Regional dept. Pension Fund of Russia (160+ employees in regional HQ, 22 district branches)
– Mentoring, hiring, onboarding; IT/business stakeholders collaborating, supervised 22 district depts; Designed RBAC model ($10\times$ faster access provisioning) and scaled it across regional offices.
Technologies: MS SQL, Linux, VPN, Cryptography, bash.

PROJECTS

Enterprise RAG and Agent Challenge   **Participant**

• For ERC #2 designed and implemented RAG-based agent, for enterprise information retrieval tasks.
• For ERC #3 designed and implemented agents with different architectures ReAct, SGR, Router→Tools, Planner→Executor, Self-Reflection, Memory-augmentation.

DariaAI   **As Sr.ML engineer**

Navigation chatbot for one of the top exhibition spaces globally (30M+ yearly visitors) website and mobile app (200K+ users). Implemented entity extraction, optimized search engine, and developed search logging and data prep service (annotation, summarizing) using LLMs, enhancing chatbot performance and UX.

CreativeWorkshops – AI Research & Community Initiative   **Co-organizer**

• Active member of the local division of OpenDataScience ODS community and co-organizer of AI research community.
• Co-organized meetups and public talks on applied AI; created a platform for local experts across diverse fields to share knowledge. Maintainer of the community YouTube channel.

EDUCATION

Associate Professor (Adjunct) at Syktyvkar State University *remote*
Taught neural networks and applied AI for future cybersecurity specialists.

2011 - 2016	PhD (Modeling and Security) at **St. Petersburg Institute for Informatics and Automation Russian Academy of Sciences (SPIIRAS)**
2005 - 2010	Masters Degree (with Honors) at **Syktyvkar State University** ranked top1 in the Komi Republic, Information security specialist

PUBLICATIONS

Nosal, I.A. and Mironov V.V. (2011). "Modeling and Evaluation of Information Security System on the Example of Syktyvkar State University". In: *Information and Security* 14.2, pp. 209–216.

SKILLS

LLM and NLP	Transformers, prompt engineering, fine-tuning, CoT, ToT, SGR, SO, LangSmith, Langfuse, BM25, FAISS, Hugging Face, BERT, Spacy, Gensim, Glove, NLTK, AI-evaluation.
ML	DL, Tensorflow, PyTorch, Autoencoders, LSTM, PCA, TSNE, Matching, Clustering, Anomaly detection, Time Series forecasting.
Data	SQL (PostgreSQL, Clickhouse, MS SQL, MySQL), Metabase, BigQuery, Airflow.
Development	Python, asyncio, REST, Websockets, FastAPI, Docker, Linux, bash, Sentry, GCP, git, ci-cd.