

Yurii Zakharian

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🎓 Yurii Zakharian

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Machine Learning Engineer / Applied ML Scientist with a PhD in Mathematics, 4 years in ML research/applied ML and 5 years software engineering, shipping LLM/RAG evaluation workflows (filed patent) and GNN recommendation systems (500K users) on AWS platforms.

Skills

- **GenAI / LLM Apps:** RAG, LangChain, OpenAI API (incl. embeddings), Azure OpenAI, multimodal evaluation
- **Ranking / Recommenders:** learning-to-rank, recommendation systems, retrieval and re-ranking
- **ML / Data:** PyTorch, PyTorch Geometric, Scikit-learn, XGBoost, PySpark
- **Platforms / MLOps:** AWS (S3, SageMaker, EMR), CI/CD, Snowflake, Airflow, Hive, MongoDB
- **Languages:** Python, C/C++, SQL, C#
- **Tools:** Git, Docker

Experience

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|---|-------------------|
| Machine Learning Engineer , <i>Workday</i> , Toronto, Canada | 2026/06 – present |
| ▪ Joined the Information Retrieval team, focusing on information retrieval for AI-powered systems. | |
| Senior Applied ML Scientist , <i>Autodesk</i> , Toronto, Canada | 2024/09 – 2026/01 |
| ▪ Built a 0→1 recommendation system by designing a deployable GNN-based ranking pipeline for in-product insights (~500K users), scoring ~1,000 suggestions per user and boosting ranking relevance by 1.5x vs. the baseline. | |
| ▪ Piloted a user-facing insights system with LLM-generated suggestions , context-aware filtering, and personalized prioritization , lifting top insight relevance by 2x. | |
| ▪ Designed and shipped an LLM/RAG evaluation workflow to speed up review cycles for context alignment and answer attribution in an internal AI assistant; rolled out to the User Research team and resulted in a filed patent for a GenAI evaluation framework. | |
| Senior Research Scientist , <i>Huawei</i> , Moscow, Russia | 2021/11 – 2024/08 |
| ▪ Delivered a graph optimization prototype for LLM training – cutting training compute by 40%; led a tech transfer to HQ engineering for integration into the production toolchain and contributed to a patent. | |
| ▪ Unblocked a cross-team polyhedral compiler project by shipping a technical roadmap that cleared a theoretical bottleneck and saved weeks of research. | |
| ▪ Set reliability acceptance criteria for an internal fiber-optics physics AI solver by diagnosing a low-loss/high-error failure mode and shipping a reusable loss-to-error estimation framework generalizable beyond fiber optics; published a preprint. | |
| Software Developer , <i>1C-Rarus</i> , Moscow, Russia | 2017/07 – 2021/10 |
| ▪ Extended an existing CRM with a custom customs clearance workflow for FedEx's local branch, improving operational efficiency by 20% and cutting processing time by 15%. | |
| ▪ Provided ongoing production support and enhancements for the customs clearance workflow over 4 years, turning evolving business requirements into reliable updates for daily clearance operations. | |
| Software Developer Intern , <i>Macroeconomic Research Center</i> , Moscow, Russia | 2016/11 – 2017/03 |
| ▪ Developed features for expired tokens removal, media player buffer reading, and diagram making without self-intersections on a sociological surveys project. | |

Education

PhD, Mathematics , <i>Lomonosov Moscow State University</i> , Moscow, Russia	2022
MSc, Applied Mathematics and Computer Science , <i>Lomonosov Moscow State University</i> , Moscow, Russia	2018
BSc, System Analysis , <i>Kyiv Polytechnic Institute</i> , Kyiv, Ukraine	2016

Selected publications

Yurii Zakharian et al. Math-grounded end-to-end evaluation framework for generative AI systems, <i>Filed May 2025; publication pending</i>	2025
Nikolai Kovshov, Jiexing Gao, Arseniy Galstyan, Yuriy Zakharyan Method, Device, Apparatus and Program Product for Compiling Optimization, WO2024172680A1	2024
Jiexing Gao, Yurii Zakharian PINNs error estimates for nonlinear equations in R-smooth Banach spaces, arxiv:2305.11915	2023
Yuriy Zakharyan Search for vector-function zeros in gauge spaces, <i>J. Nonlinear Convex Anal.</i> 23:3, 465-484, URL	2022
Yuriy Zakharyan , Tatiana Fomenko Coincidence Preservation for a One-Parameter Family of Pairs of Zamfirescu-Type Multi-Valued Mappings, <i>Mosc. Univ. Math. Bull.</i> 76, 29–34, DOI:10.3103/S0027132221010095	2021
Yuriy Zakharyan, Tatiana Fomenko Preservation of the Existence of Zeros in a Family of Set-Valued Functionals and Some Consequences, <i>Math. Notes</i> 108, 802–813, DOI:10.1134/S0001434620110231	2020