Irina Proskurina

Senior NLP Research Scientist | Efficient LLMs, Small Language Models & Reliability

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GitHub | Hugging Face | LinkedIn | Telegram | Moscow, Russia

Profile

Senior NLP Research Scientist with 5+ years of NLP research experience and a PhD in Computer Science (University of Lyon). Specializing in **efficient language models, small language models, model compression, synthetic data, and uncertainty estimation**. Developed **Fair-GPTQ** (TACL 2026) and **Debias-SparseGPT** (EMNLP 2026); author of **10+ peer-reviewed publications**. My current research interests include efficient language models, model compression, small language models, and model reliability.

Technical Skills

Python, PyTorch, Hugging Face Transformers, Accelerate, vLLM, NumPy, pandas, SciPy, scikit-learn, TensorFlow, Git, Docker, multi-GPU computing, HPC.

Research Expertise: Efficient LLMs, small-scale LMs, model compression (quantization, pruning), synthetic data, instruction tuning, uncertainty estimation, confidence calibration, model collapse, LLM evaluation, statistical analysis.

Professional Experience

Hubert Curien Laboratory, Jean Monnet University Oct 2025 – Present
Senior Research Engineer *Saint-Étienne, France*
- Led research on recursive training of language models using synthetic data, investigating **model collapse**, capability degradation and performance preservation across training generations.
- Developed **Debias-SparseGPT**, an LLM pruning method studying efficiency, predictive performance and fairness trade-offs (*EMNLP 2026*).

ERIC Laboratory, University of Lyon Oct 2022 – Oct 2025
Doctoral Researcher / NLP Research Scientist *Lyon, France*
- Investigated how quantization affects LLM **confidence, calibration and predictive performance** (*NAACL 2024*).
- Developed **Fair-GPTQ**, a bias-aware post-training quantization method to preserve model quality and mitigate compression-induced biases (*TACL 2026*).
- Conducted large-scale comparative evaluation of LLaMA, Mistral, Qwen and OPT models on HPC infrastructure (the Jean Zay supercomputer).
- Researcher in the French ANR **Diké** project on LLM safety; collaborated with NAVER LABS Europe and Télécom Paris.

ERIC Laboratory, University of Lyon Apr 2022 – Sep 2022
Research Fellow *Lyon, France*
- Conducted research on structured pruning of Transformer models by removing entire layers to reduce model size and computational cost.

HSE University, Computational Pragmatics Laboratory Aug 2021 – Mar 2022
Junior Research Fellow *Moscow, Russia*
- Studied Transformer attention maps using topological data analysis and persistent homology (*EMNLP 2022*); collaborated with Huawei Noah's Ark Lab, Skoltech, AIRI and SberDevices.

HSE University, Learner Corpora Laboratory Feb 2021 – Dec 2021
Research Intern / Project Lead *Moscow, Russia*
- Led development of **ADWISER**, a grammatical-error detection system; collaborated with **JetBrains** on rule-based grammatical error detection for the Grazie tool.

Selected Research Projects & Open Source

BabyLM Challenge - Small Language Models | CoNLL 2023 2023
- Developed and evaluated 2 compact language models, **Bebeshka and Zlata**, under constrained training-data budgets in the BabyLM Challenge; compared data-efficient model training approaches.

Cohere Labs - Instruction Tuning & Reliability | Paper 2026
- Led collaborative research on the impact of instruction tuning on **model confidence, likelihood-based calibration and lexical diversity** (*UncertaiNLP @ EMNLP 2026*).

Learning from Synthetic Data - Model Collapse 2025–2026
- Investigated recursive training on model-generated synthetic data, studying capability degradation and model performance across successive generations.

Open Diké Leaderboard - LLM Benchmarking | GitHub 2026
- Developed an open benchmark leaderboard for comparative **safety and reliability evaluation** of compressed LLMs within the ANR Diké project.

Fair-GPTQ | Website | TACL 2026 2026
– Developed a new quantization method; improving performance of quantized models on safety benchmarks, compared to GPTQ.

Debias-SparseGPT | Website | EMNLP 2026 2026
– Developed a new second-order pruning (sparsification) method, improving performance of compressed models (nine model families tested) on safety benchmarks, compared to SparseGPT.

Selected Publications 10+ peer-reviewed publications; full list on Google Scholar

- **Debias-SparseGPT: Bias-Aware Pruning for Large Language Models.**
  Irina Proskurina, Guillaume Metzler, Antoine Gourru, Julien Velcin. *EMNLP 2026.* [paper]
- **Fair-GPTQ: Bias-Aware Quantization for Large Language Models.**
  Irina Proskurina, Guillaume Metzler, Julien Velcin. *TACL 2026.* [paper]
- **When Quantization Affects Confidence of Large Language Models?**
  Irina Proskurina, Luc Brun, Guillaume Metzler, Julien Velcin. *NAACL 2024.* [paper]
- **Acceptability Judgements via Examining the Topology of Attention Maps.**
  Daniil Cherniavskii*, Eduard Tulchinskii*, Vladislav Mikhailov*, **Irina Proskurina***, et al. *EMNLP 2022* (*equal contribution). [paper]

Research Leadership & Mentoring

- **Teaching:** Graduate-level courses in Applied Deep Learning and NLP (M1/M2) at the University of Lyon (2023–2025); supervised master's research projects and student research internships at HSE.
- **Research Community:** Founded and organized **Lyon NLP Connect**, a community bringing together NLP researchers from different institutions and research groups based in Lyon.
- **Service:** ACL Rolling Reviewer since 2023; co-organized EALM @ CORIA-TALN 2025.

Education

University of Lyon 2022 – 2026
PhD in Computer Science (defended 5 March 2026) *Lyon, France*
– Thesis: *Towards an Unbiased Compression of Large Language Models*. Supervisors: Julien Velcin (École Centrale de Lyon) and Guillaume Metzler (University of Lyon II).

HSE University / University of Clermont Auvergne 2020 – 2022
Double-degree MSc: Data Science (HSE) / Computer Science (UCA) *Russia / France*
– Ranked among the top three students in the HSE Data Science master's cohort.
– HSE master's thesis: *Topological Data Analysis in Grammatical Error Correction*; advisor: Ekaterina Artemova.
– UCA master's thesis: *Predicting the Impact of Intervention Strategies on COVID-19 Trajectory*, involving statistical modeling; advisor: Hamed Rahimian (Clemson University, USA).

Languages: Russian (native) | English (C2, IELTS Feb 2023) | French (B2)