

Viacheslav Meshchaninov



PhD candidate in generative AI:
diffusion models for language & biological sequences

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Publications

13 peer-reviewed publications · 6 (co-) first authors · 2 project PI (*denotes shared first authorship or supervision)

Peer-Reviewed Publications

**NeurIPS
2026**

How to Train Your Latent Diffusion Language Model Jointly With the Latent Space [\[PDF\]](#)

Viacheslav Meshchaninov, Alexander Shabalin, Egor Chimbulatov, Nikita Gushchin, Ilya Koziev, Alexander Korotin, Dmitry Vetrov
LDLM jointly trains the encoder, diffusion model, and decoder with a simple four-part recipe, achieving stronger text generation at 2–13× faster sampling than prior diffusion LMs

**NeurIPS
2026,
Spotlight
GenBio
Workshop
ICML 2026**

Antibody Generation via Redistributed Latent Diffusion [\[PDF\]](#)

Andrey Shevtsov*, **Viacheslav Meshchaninov***, Pavel Strashnov*, Dmitry Vetrov
RLD adapts latent diffusion to antibody design by learning redistributed latent spaces, enabling high-quality conditional generation across organisms and chain types

COLM 2026

Why Gaussian Diffusion Models Fail on Discrete Data? [\[PDF\]](#)

Alexander Shabalin, Simon Elistratov, **Viacheslav Meshchaninov**, Ildus Sadrtidinov, Dmitry Vetrov
This work identifies a critical late-stage sampling failure in Gaussian diffusion on discrete data and shows that self-conditioning and q-sampling restore sample quality across text, code, and proteins

**BeNT
Workshop
NeurIPS
2026**

Representation-Space MMD for Few-step Continuous Diffusion Language Models [\[PDF\]](#)

Ilya Drobyshevskiy, Maksim Semenov, Ilya Sudakov, Nikita Gushchin, Nikita Balagansky, **Viacheslav Meshchaninov**, Dmitry Baranchuk
This work distills continuous diffusion language models into a one-step generator by minimizing MMD in the frozen teacher's representation space, outperforming prior few-step methods on OpenWebText and GSM8K

ICML 2026

One-step Optimal Transport via Regularized Distribution Matching Distillation [\[PDF\]](#)

Denis Rakitin, Ivan Shchekotov, **Viacheslav Meshchaninov**, Dmitry Vetrov
This work offers a highly efficient one-step generation process, significantly reducing the computational cost and time required for solving image to image translation problems

ICML 2026

Smoothie: Smoothing Diffusion on Token Embeddings for Text Generation [\[PDF\]](#)

Alexander Shabalin, **Viacheslav Meshchaninov**, Dmitry Vetrov
Introduced a novel diffusion process that progressively smooths token embeddings based on semantic similarity, combining the benefits of continuous and discrete diffusion

ICML 2026	Guided Star-Shaped Masked Diffusion [PDF] Viacheslav Meshchaninov* , Egor Shibaev*, Artem Makoian, Ivan Klimov, Nikita Balagansky, Daniil Gavrilov, Aibek Alanov, Dmitry Vetrov The method provides guided and efficient remasking for masked language models that drastically enhances quality and speed of text and code generation
ICLR 2026	GeomMotif: A Benchmark for Arbitrary Geometric Preservation in Protein Generation [PDF] Pavel Strashnov*, Andrey Shevtsov*, Viacheslav Meshchaninov , Olga Kardymon, Dmitry Vetrov Introduced GeomMotif, a benchmark of 57 protein motif scaffolding tasks, revealing how structural and physicochemical properties affect the performance of protein generative models
NeurIPS 2025	Compressed and Smooth Latent Space for Text Diffusion Modeling [PDF] Viacheslav Meshchaninov , Egor Chibulatov, Alexander Shabalin, Aleksandr Abramov, Dmitry Vetrov Proposed Cosmos, a text diffusion model operating in a compressed and smooth latent space, enabling up to 8× sequence compression and over 2× faster generation while maintaining competitive text quality
ICML 2025	Diffusion on Language Model Encodings for Protein Sequence Generation [PDF] Viacheslav Meshchaninov* , Pavel Strashnov*, Andrey Shevtsov*, Fedor Nikolaev, Nikita Ivanisenko, Olga Kardymon, Dmitry Vetrov Developed DiMA, a continuous diffusion framework for protein generation that generalizes across diverse protein language models and supports versatile conditional design tasks, achieving strong generation quality and diversity
oral AAAI 2025	TEncDM: Understanding the Properties of the Diffusion Model in the Space of Language Model Encodings [PDF] Alexander Shabalin*, Viacheslav Meshchaninov* , Egor Chibulatov, Vladislav Lapikov, Roman Kim, Grigory Bartosh, Dmitry Molchanov, Sergey Markov, Dmitry Vetrov Introduced TEncDM, a text diffusion framework operating on contextual language model representations, achieving superior generation quality over existing non-autoregressive diffusion models across multiple text generation tasks
	Research Supervision
BeNTo Workshop NeurIPS 2026	Latent Space Co-training for Few-Step Text Generation [PDF] Maksim Semenov, Nikita Balagansky, Ilya Drobyshevskiy, Dmitry Baranchuk, Nikita Gushchin, Daniil Gavrilov, Aibek Alanov, Viacheslav Meshchaninov CoFlow enables few-step text generation by distilling a flow map inside the latent space of a latent diffusion model while the encoder keeps adapting, outperforming prior flow-map language models on OpenWebText and GSM8K at small step budgets
GenBio Workshop ICML 2026	AIR: Inference-Time Refinement for Discrete-Diffusion Antibody Humanization [PDF] Anna Karpova, Andrey Shevtsov, Viacheslav Meshchaninov* , Pavel Strashnov* AIR refines discrete-diffusion antibody humanization at inference time, steering sequences toward higher humanness while preserving binding-relevant properties without retraining

Education

- 2025–2027
(expected) **PhD, Computer Science**
Advised by Professor Dmitry Vetrov.
Constructor University Bremen, Germany
- 2022–2024 **Master's in Computer Science, GPA: 5.0/5.0**
Moscow State University
- 2020–2022 **Foundational courses for master's degree in Computer Science**
Yandex School of Data Analysis, Moscow
- 2018–2022 **Bachelor's in Computational Mathematics, GPA: 5.0/5.0**
Moscow State University

Experience

- 2022–2024 **Research Scientist, Generative AI**
Centre of Deep Learning and Bayesian Methods
Investigated diffusion probabilistic models for text generation in natural-language and de-novo protein design. Trained diffusion language models (up to 7B parameters) using configurations up to 32 GPUs. Results published in four accepted A*-ranked conference papers
- 2021–2022 **Research Engineer, Image & Video Super-Resolution**
Graphics and Media Lab
Created a self-supervised detector that flags AI-upscaled videos via contrastive learning
- 2021 **Machine Learning Intern, Voice-Assistant Quality Analytics**
Yandex Alice
Built an internal diagnostic tool that scans Alice voice-assistant logs to surface conversational ambiguities and other dialog-routing errors, giving engineers a fast, searchable queue of issues to fix
- 2020 **Software Engineering Intern, Image & Video Super-Resolution**
Intel
Developed a benchmarking toolkit that analyzes and compares full-reference, neural-network video-quality metrics

Fellowships & Awards

- 2022 Awarded the UMNİK Research Grant for innovative scientific development

Academic Achievements & Recognitions

- 2023 Winner of the Young Teachers Competition, The Faculty of Computer Science, Higher School of Economics
- 2022 Winner of the "Lomonosov" Student Olympiad in Mathematics and Cybernetics

Teaching

Lecturing

- 2023 Bayesian Methods in Machine Learning at the faculty of Computer Science HSE University.

Natural Language Processing at the faculty of Computer Science HSE University

Teaching assistance

- 2023 Neural Bayesian Methods at Yandex School of Data Analysis
Neural Bayesian Methods at Moscow State University
Bayesian Methods in Machine Learning at the faculty of Computer Science HSE University
- 2022 Bayesian Methods in Machine Learning at Yandex School of Data Analysis
Bayesian Methods in Machine Learning at Moscow State University

Technical Skills

Programming Languages: Python, C++, C

ML Frameworks: PyTorch, Tensorflow, JAX

Libraries: Hugging Face, Pandas, NumPy, Scikit-learn

Tools: Git, Docker, Slurm

Cloud Platforms: AWS

Concepts: Large Language Models (LLM), Transformers (BERT, GPT), Distributed Training, Natural Language Processing, Diffusion Model, Protein Design