

Nikita Kiselev

Moscow, Russia

✉ kiselev.ns@phystech.edu • 📄 Google Scholar
in kisnikser • 🌐 kisnikser • 📍 kisnikser
🌐 kisnikser.github.io



Check my Resume (one-page version)

Curriculum Vitæ

SUMMARY

Aspiring researcher (2+ years of research experience) in the field of machine learning and optimization. Focused on generative diffusion and multimodal models. Motivated for productive work and learning. Having a substantial theoretical foundation and mathematical background.

Professional Skills

- Generative AI:** diffusion models, text-to-video pretraining, image-to-video, text-to-image, image-to-image, controllable generation (ControlNet), adapters (IP-Adapter, Face-Adapter), style transfer, instruction-based image editing, image quality assessment.
- Computer Vision:** medical images reconstruction and forecasting (fMRI, EEG).
- Optimization:** sample size determination, loss landscape, decentralized optimization.

EDUCATION

Moscow Institute of Physics and Technology
MSc in Computer Science

Moscow, Russia
Sep 2024 – Present

Moscow Institute of Physics and Technology
BSc in Applied Mathematics and Physics

Moscow, Russia
Sep 2020 – Aug 2024

- Thesis: Bayesian Sample Size Estimation
- Advisor: Andrey Grabovoy, PhD
- GPA: 4.88/5 (with honours)

WORK EXPERIENCE

Sber AI
Middle Data Scientist

Moscow, Russia
Jan 2025 – Present

Kandinsky 4.1 (text-to-video, image-to-video):

- Text-to-video LoRA fine-tuning for Russian culture code. Trained 70+ LoRA adapters on different characters, distilled them into text-to-video generation of Kandinsky 4.1.
- Image-to-video generation of Kandinsky 4.1. Developed a new architecture and trained the model maintaining structural dynamics.

Research Intern

Jun 2024 – Dec 2024

Kandinsky Image Editing:

- Interior Design with Kandinsky 3 ControlNet for Domclick. Fine-tuned ControlNet on the interiors domain, implemented regional prompting for arbitrary segmentation masks and utilized ControlNet image2image editing.
- Kandinsky 3 ControlNet Style (DepthPro) that outperforms ControlNet Union SDXL by 100% on ImageReward. Trained ControlNet over 300k steps on the 3M dataset, used DepthPro condition for the best image preserving and style editing.

Research Center for Artificial Intelligence, Innopolis University
Mathematician-programmer

Innopolis, Russia
Sep 2024 – Present

- Research work in the field of optimization

- Research work in the field of optimization
- Decentralized optimization with coupled constraints
- Network design problem

PUBLICATIONS

Published Papers: 1 × Q1, 1 × Q3.....

1. D. Dorin, N. Kiselev, A. Grabovoy, V. Strijov
Forecasting fMRI Images From Video Sequences: Linear Model Analysis
Health Information Science and Systems, Q1
2. N. Kiselev, A. Grabovoy
Sample Size Determination: Posterior Distributions Proximity
Computational Management Science, Q3

Accepted Papers: 1 × A*, 2 × Q2, 1 other.....

1. D. Yarmoshik, A. Rogozin, N. Kiselev, D. Dorin, A. Gasnikov, D. Kovalev
Decentralized Optimization with Coupled Constraints
Accepted to the ICLR 2025 conference, A*
2. N. Kiselev, A. Grabovoy
Unraveling the Hessian: A Key to Smooth Convergence in Loss Function Landscapes
Accepted to the Doklady Mathematics journal, Q2
3. N. Kiselev, A. Grabovoy
Sample Size Determination: Likelihood Bootstrapping
Accepted to the Computational Mathematics and Mathematical Physics journal, Q2
4. V. Meshkov, N. Kiselev, A. Grabovoy
ConvNets Landscape Convergence: Hessian-Based Analysis of Matricized Networks
Accepted to the Ivannikov ISPRAS Open Conference

Conference Theses.....

1. N. Kiselev, A. Grabovoy
Determining a sufficient sample size based on the a posteriori distribution of model parameters
Proceedings of the 66th MIPT All-Russian Scientific Conference
2. D. Dorin, N. Kiselev, A. Grabovoy
Spatial and temporal methods of time series analysis
Proceedings of the 66th MIPT All-Russian Scientific Conference

POSTER SESSIONS

- October 21, 2024
Spatio-Temporal fMRI Analysis in Visual Stimuli Decoding: Linear Model Forecasting & Voxel Weighing
Neuroinformatics 2024

TALKS

- April 6, 2024
Determining a sufficient sample size based on the a posteriori distribution of model parameters
66th MIPT All-Russian Scientific Conference

TEACHING

Diffusion Models

Lecturer

Standard Data × Sber University

Nov 2024 – Present

- Implementation details. DDIM, noise schedulers, guidance overexposure, noise offset, multiple text encoders, transformer-based diffusion models, MM-DiT.
- Video diffusion models. DeForum, AnimateDiff, CogVideoX.

Deep Learning

Moscow Institute of Physics and Technology

Lecturer

Sep 2024 – Present

- Neural network optimization, regularization: lecture, seminar
- Weights initialization, normalization, CNN: lecture, seminar

PROJECTS

- **Just Relax It — Discrete Variables Relaxation**
A cutting-edge Python library designed to streamline the optimization of discrete probability distributions in neural networks, offering a suite of advanced relaxation techniques compatible with PyTorch.
- **Models of epidemic spread, in particular COVID-19 as a model of stochastic chemical kinetics**
Various approaches to modeling the spread of epidemics, differential equations and Markov processes
- **Optimization methods for quadratic problems with large dimensionality**
Comparison of different methods of solving high-dimensional linear regression problems
- **Intelligent Presentation Generator**
Application for generating presentations based on text files using topic modeling

ACHIEVEMENTS

- **Spring 2024-2025:**
 - K.V. Rudakov scientific academic scholarship for research activities in the field of applied mathematics
 - Personal scholarship for contributions to the development of numerical optimization methods
- **Fall 2024-2025:**
 - K.V. Rudakov scientific academic scholarship for research activities in the field of applied mathematics
 - Personal scholarship for contributions to the development of numerical optimization methods
 - Increased State Academic Scholarship for 4 year bachelor and master students at MIPT
- **Spring 2023-2024:**
 - Personal scholarship for contributions to the development of numerical optimization methods
- **Fall 2023-2024:**
 - K.V. Rudakov scientific academic scholarship for research activities in the field of applied mathematics
 - Personal scholarship for contributions to the development of numerical optimization methods
- **2020-2023:**
 - Abramov scholarship for 1-3 year bachelor students with the best grades at MIPT

CERTIFICATIONS

- **Statistics for data analysis**
Coursera, Issued Jan 2022, Credential ID KAQRGNCQJ8AH
- **Unsupervised learning**
Coursera, Issued Jan 2022, Credential ID 3CTYTEFT48FM
- **Supervised learning**
Coursera, Issued Jan 2022, Credential ID 2ZBSN8L7EAVV
- **Mathematics and Python**
Coursera, Issued Oct 2021, Credential ID CSTTGDM8RF2V

SKILLS

- **DL:** PyTorch, Huggingface, Accelerate, Multi-GPU training: DDP/FSDP/SP/TP, W&B, TensorBoard
- **ML:** NumPy, SciPy, Pandas, NetworkX, Scikit-learn, LightGBM, CatBoost
- **OS:** macOS, Linux, Windows
- **Misc.:** Git, Bash, L^AT_EX
- **Soft Skills:** responsible, organized, critical thinker, flexible, communicative, team player, patient

LANGUAGES

- Russian (Native)
- English (Advanced)

INTERESTS

- Gym
- Guitar