

KIRILL NEKLYUDOV (KYRYLO NEKLIUDOV)

ACADEMIC EXPERIENCE

Vector Institute for Artificial Intelligence

Postdoctoral Fellow, supervisor: Alireza Makhzani

- AI4Science, Generative Modeling, Optimal Transport.

Nov 2021 – Current

Toronto, Canada

University of Amsterdam

Postdoctoral Fellow, supervisor: Max Welling

- Markov Chain Monte Carlo, Generative Modeling.

Sep 2020 – Oct 2021

Amsterdam, the Netherlands

Higher School of Economics

Researcher, supervisor: Dmitry Vetrov

- Bayesian Inference, Markov Chain Monte Carlo, Generative Modeling.

Feb 2018 – Aug 2020

Moscow, Russia

EDUCATION

Moscow Institute of Physics and Technology

Bachelor degree with honours in Applied Physics and Mathematics

Sep 2010 – Jul 2014

Dolgoprudny, Russia

Moscow Institute of Physics and Technology

Master degree with honours in Applied Physics and Mathematics

Sep 2014 – Jul 2016

Dolgoprudny, Russia

Yandex School of Data Analysis

Master degree in Machine Learning

Sep 2014 – Jun 2016

Moscow, Russia

Higher School of Economics

Ph.D. in Computer Science, supervisor: Dmitry Vetrov

Sep 2016 – Nov 2020

Moscow, Russia

PUBLICATIONS AND PREPRINTS

Wasserstein Quantum Monte Carlo: A Novel Approach for Solving the Quantum Many-Body Schrödinger Equation

Kirill Neklyudov, Jannes Nys, Luca Thiede, Juan Carrasquilla, Qiang Liu, Max Welling, Alireza Makhzani

NeurIPS 2023 (spotlight)

Action Matching: Learning Stochastic Dynamics from Samples

Kirill Neklyudov, Rob Brekelmans, Daniel Severo, Alireza Makhzani

ICML 2023

Orbital MCMC

Kirill Neklyudov, Max Welling

AISTATS 2022 (oral)

Involutive MCMC: a Unifying Framework

Kirill Neklyudov, Max Welling, Evgenii Egorov, Dmitry Vetrov

ICML 2020

The Implicit Metropolis-Hastings Algorithm

Kirill Neklyudov, Evgenii Egorov, Dmitry Vetrov

NeurIPS 2019

Variance Networks: When Expectation Does Not Meet Your Expectations

Kirill Neklyudov, Dmitry Molchanov, Arsenii Ashukha, Dmitry Vetrov

ICLR 2019

Structured Bayesian Pruning via Log-Normal Multiplicative Noise

Kirill Neklyudov, Dmitry Molchanov, Arsenii Ashukha, Dmitry Vetrov

NeurIPS 2017

A Computational Framework for Solving Wasserstein Lagrangian Flows

Kirill Neklyudov, Rob Brekelmans, Alexander Tong, Lazar Atanackovic, Qiang Liu, Alireza Makhzani

2023

Quantum HyperNetworks: Training Binary Neural Networks in Quantum Superposition Juan Carrasquilla, Mohamed Hibat-Allah, Estelle Inack, Alireza Makhzani, Kirill Neklyudov , Graham W. Taylor, Giacomo Torlai	2023
Particle Dynamics for Learning EBM Kirill Neklyudov , Priyank Jaini, Max Welling	NeurIPS (Workshop) 2021
Deterministic Gibbs Sampling via Ordinary Differential Equations Kirill Neklyudov , Roberto Bondesan, Max Welling	2019
MaxEntropy Pursuit Variational Inference Evgenii Egorov, Kirill Neklyudov , Ruslan Kostoev, Evgeny Burnaev	ISNN 2019
Uncertainty Estimation via Stochastic Batch Normalization Andrei Atanov, Arsenii Ashukha, Dmitry Molchanov, Kirill Neklyudov , Dmitry Vetrov	ICLR (Workshop) 2018
Predicting Game Outcome from Drafts in Dota 2 Aleksandr Semenov, Peter Romov, Sergey Korolev, Daniil Yashkov, Kirill Neklyudov	ECML (Workshop) 2016

TEACHING EXPERIENCE

Higher School of Economics (CS department) <i>Assistant Lecturer (practical courses lecturer)</i> <ul style="list-style-type: none"> Bayesian methods in Machine Learning Bayesian methods in Deep Learning 	Sep 2017 – Apr 2020 Moscow, Russia
Yandex School of Data Analysis <i>Assistant Lecturer (practical courses lecturer)</i> <ul style="list-style-type: none"> Bayesian methods in Deep Learning 	Sep 2017 – Apr 2020 Moscow, Russia
Higher School of Economics (CS department) <i>Assistant Lecturer (practical courses lecturer)</i> <ul style="list-style-type: none"> Machine Learning 	Sep 2016 – Dec 2018 Moscow, Russia
Tutor <i>Mathematics and physics tutor for high school students and undergraduate students</i>	Feb 2011 – Dec 2018 Moscow, Russia

INVITED TALKS

Action Matching (link to recording) <i>Learning on Graphs & Geometry reading group, organizer: Hannes Stärk</i>	Oct 2023 Valence Labs
Action Matching <i>BEEHIVE group, PI: Barbara E Engelhardt</i>	Aug 2023 Stanford University
Wasserstein Quantum Monte Carlo (link to recording) <i>Quantum-ML workshop, organizer: Alán Aspuru-Guzik</i>	Jun 2023 Vector Institute
Introduction to Diffusion Generative Models <i>PIQuIL Group, PI: Roger Melko</i>	Mar 2023 Perimeter Institute
Action Matching (link to recording) <i>Shannon's Bandwagon Seminar, organizer: Alex Alemi</i>	Feb 2023 Google AI
Fokker-Planck Equation <i>Guest Lecture, organizer: Greg van Steeg</i>	Feb 2022 University of Southern California
Langevin Dynamics for Sampling and Global Optimization (link to recording) <i>Deep Bayes Summer School, organizer: Dmitry Vetrov</i>	Aug 2019 Higher School of Economics
Bayesian Sparsification of Deep Neural Networks (link to recording) <i>Deep Bayes Summer School, organizer: Dmitry Vetrov</i>	Aug 2018 Higher School of Economics

PROFESSIONAL SERVICE

NeurIPS Reviewer: 2020, 2021 (outstanding reviewer award), 2022 (top reviewer), 2023

ICLR Reviewer: 2021, 2022 (highlighted reviewer)

AISTATS Reviewer: 2021, 2022

TMLR Reviewer: 2022, 2023

JMLR Reviewer: 2022

OPEN SOURCE CONTRIBUTIONS

Contribution of Wasserstein Quantum Monte Carlo to DeepMind Ferminet repository **Aug 2023**

<https://github.com/google-deepmind/ferminet/pull/64>

JAX implementation of Wasserstein Quantum Monte Carlo **May 2023**

<https://github.com/necludov/wqmc>

JAX implementation of Action Matching **Feb 2023**

<https://github.com/necludov/jam>

TensorFlow implementation of Structured Bayesian Pruning **Dec 2017**

<https://github.com/necludov/group-sparsity-sbp>

INDUSTRY EXPERIENCE

Samsung AI Center **Apr 2018 – Aug 2020**

Researcher

Moscow, Russia

- Bayesian Inference, Markov Chain Monte Carlo, Generative Modeling.

Yandex Research **Apr 2017 – Jan 2018**

Researcher

Moscow, Russia

- Bayesian Inference, sparsification and acceleration of Deep Neural Networks.

Yandex **Nov 2013 – Mar 2017**

Data Scientist

Moscow, Russia

- Rock Samples Image Segmentation with Deep Learning Methods (I was reproducing U-net when it just appeared).
- Anomaly detection with classic Machine Learning methods.