Tatiana Gaintseva, *AI researcher*

London, United Kingdom

t.gaintseva@qmul.ac.uk

atmyre.github.io   *linkedin.com/in/tgaintseva*   *github.com/atmyre*

I am an AI researcher, currently doing a PhD on fundamental problems in neural networks and AI, such as knowledge extraction and explainability. Throughout my career, I also applied AI in medicine, face recognition, machine translation, high-energy physics and other tasks. I also have experience managing AI teams, designing and teaching courses on various AI-related topics. Additionally, I am a founding member of *Deep Learning School* — a non-profit educational organization with more than 4.000 learners every year.

Experience

2018 — now

Co-founder, methodologist and lecturer, *Deep Learning School*

DLSchool is a non-profit organization that provides free online courses on AI fundamentails. It has over 4.000 learners every year. It's alumnus work in major institutions and companies, such as Stanford University, Moscow Institute of Physics and Technology, etc.

I am one of the founding members of the school. Since the beginning, I lead a team that designes the methodology of the course and prepares lectures. I also give lectures on various AI topics, which have over 100.000 views in total.

2021 — 2022

Data&AI Scientist, *Philips Innovation Labs*

I worked on developing novel AI-based tecnhiques for the software of the medical equipment that Philips procuses.

I was also a founder and a manager of scientific reading club, where people gather weekly to discuss recent advances in the field of AI for medicine.

2020 — 2021

AI Researcher, *Huawei Rusian Research Institute*

I was leading a group that conducted research in the area of AI-based face recognition. We managed to raise performance of an AI pipeline by 2.5%.

I was also managing a Huawei-MIPT colaboration on the task of developing domain adaptation techniques for AI-based face recognition. I reviewed the work of MIPT group and managed communications.

2018 — 2021

AI Researcher, *GetRealPrice*

GetRealPrice is an ICT company that developes a B2B SaaS platform for monitoring e-commerce prices and performing product matching. The platform uses Big Data and AI algorithms to find similar products between different e-Commerce shops for further processing.

I was doing a research on AI techniques for the company business products. Models developed during this research resulted in substantial revenue for the company. I was also managing a group of researchers on one of the projects

2018 – 2020

AI Research Assistant , *LAMBDA lab*

I did research on applying generative models to high energy physics. Designed and implemented a novel pipeline for synthetic particle events generation. Had two scientific articles published, including one on ICRL workshop.

2017

AI Research Intern, *Yandex*

Applied Reinforcement Learning to different metrics to seq2seq vocalization task. Combined different seq2seq vocalization models unsing ideas from Actor-Mimic algorithm. Showed that RL could increase quality of seq2seq models. This work was a part of bachelor's diploma

Education

2022 — now	**Ph.D.**, Queen Mary University of London London, United Kingdom DeepMind studentship Supervised by Prof. *Greg Slabaugh* and Dr. *Martin Benning* Thesis title: *Semantic Control in Denoising Diffusion Probabilistic Models*
2017 — 2019	**M.Sc.**, Moscow Institute of Physics and Technology Moscow, Russian Federation Specialized in machine learning and data analysis. **GPA 7.1/10** Thesis title: *Use of Domain Adaptation to expand the scope of Generative Models*
2016 – 2018	**Master's level program**, Yandex School of Data Analysis Moscow, Russian Federation Took courses on machine learning, different aspects of deep learning, applied statistics and big data.
2013 – 2017	**B.Sc.**, Moscow Institute of Physics and Technology Moscow, Russian Federation Specialized in mathematics and machine learning **GPA 8.4/10, magna cum laude** Thesis title: *Multi-Objective Deep Reinforcement Learning in Seq2Seq Machine Translation*

Research Publications

- Maxim Borisyak, <u>Tatiana Gaintseva</u>, and Andrey Ustyuzhanin, **Adaptive divergence for rapid adversarial optimization**. PeerJ Computer Science, 6, e274. (2020)

  [*Paper on PeerJ*, *arxiv*]

- Constantin Weisser, Daniel Craik, <u>Tatiana Gaintseva</u>, Artem Ryzhikov, Andrey Ustyuzhanin, Mike Williams, **Autoencoders for Compression and Simulation in Particle Physics**. **ICLR** FSAI (2020)

  [*ICLR talk*, *pdf*]

Teaching

2022 — now	**Lecturer and methodologist**, *Deep Learning Course*, Moscow State University *Main methodologists and a lecturer*
2019 — now	**Teaching Assistant**, *Yandex School of Data Analysis* (YSDA) *Leading seminars, preparing and reviewing students' homeworks on deep learning class*
2022	**Lecturer and methodologist**, *Open Machine Learning Course* *This is an online free course on machine learning fundamentals. I was designing a methodology and preparing lectures for some topics.*
2020 — 2022	**Lecturer and methodologist**, *Mathshub* *I was a main methodologist and lecturer of computer vision fundamentals part of the course.*
	Lecturer and methodologist, *Practicing Futures* *During three years, I was designing multiple courses organized by Practicing Futures, and giving lectures on various deep learning topics*

Public talks and posts

2022   🔖 **Structural representation in neural networks**, *article on habr.com*
15k views
The article covers what structural representations is, why it is beneficial for neural networks and how to inject structural representations in them.

2021   🔖 **Inductive bias in neural networks**, *article on habr.com*
13k views
The article tells what inductive bias is, what types of inductive biases there are in machine learning algorithms and in neural networks

Mar 2021   🔖 **Face recognition: how it works**, *article on RBC Trends*
RBC is the large media in Russian language with 34 million monthly views
The article is about tech details of AI-based face recognition pipeline and how face recognition models are used in the world.

Jun 2019   🔖 **Machines Can See 2019**, conference talk
over 2k views in total (online and offline)
An oral talk about technical details of AI-based solution of MCS 2019 competition (3nd place). *Link to the competition*

Jul 2018   🔖 **Yandex ML Training**, public talk
1.4k views
A public talk about technical details of AI-based solution of MCS 2018 competition (2nd place). Link to the competition

Jun 2018   🔖 **Machines Can See 2018**, conference talk
over 2.5k views in total (online and offline)
An oral talk about technical details of AI-based solution of MCS 2018 competition (2nd place). *Link to the competition*

Competitions and Awards

2022   🔖 **DeepMind Studentship**, Ph.D., Queen Mary University of London

2019   🔖 *MCS 2019 competition, organized by visionlabs.ai*
3rd place
I was a part of a team that developed solution for competition on face recognition. *Link to the code on GitLab*

Jun 2018   🔖 *MCS 2018 competition, organized by visionlabs.ai*
2nd place
I was a part of a team that developed solution for competition on black-box adversarial attacks. *Link to the code on GitHub*

Nov 2017   🔖 **Mood Map project**, Local Hack Day by MLH, Moscow, Russia
winner
I was part of a team that developed a service that shows mood map of the city using Twitter and Yandex Maps APIs. *Link to the project on Devpost*

Apr 2017   🔖 **HashCode Finals**, Google Paris
19th place

Skills

Languages   🔖 fluent in English, Russian

Technologies   🔖 Proficient: Python, C++, Bash, PyTorch, Tensorflow, Docker, Git