# Abduragim Shtanchaev

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## Education

**Mohamed bin Zayed University of Artificial Intelligence** — **Abu-Dhabi**, UAE
***Ph.D.*** *Probabilistic ML* `Prof. Martin Takáč` & `Prof. Eric Moulines` — *Aug. 2023 - Jun. 2027*

**Skoltech** — **Moscow**, RU
***M.Sc.*** *in Information Systems and Technology, GPA: 3.95/4.00* — *Sept. 2018 - Jul. 2020*

**University of Turkish Aeronautical Association** — **Ankara**, TR
***B.Sc.*** *in Mechatronics Engineering, GPA: 3.35/4.00* — *Sept. 2013 - Jul. 2018*

## Work Experience

**OpenCV.org - Computer Vision Engineer** — **Remote**
***Stack:*** *C/C++, Python, Pytorch, CUDA/cuDNN, OpenCL, CMake, ONNX* — *Mar. 2022 - Mar. 2025*

- `OpenCV Library Development and Maintenance` : Enhanced **OpenCV DNN module** by implementing **unsupported graph engine functionality** and **layers** in `C++`. Contributed to supporting dynamism in the graph engine, enabling support for **LLMs** and networks with **dynamic inputs**. **Maintained** and **optimized** the library for **robust performance and reliability**.
- **Efficient Object Detection Model Porting**: Developed and deployed a **high-performance object detection model** ($>30$ **fps**) optimized for **object tracking**. Designed **parallelized NN layers** and a **full detection pipeline** in `C`, utilizing **quantization** to deploy the model on a resource-constrained chip with only **1.5MB RAM**.
- **Memory-Efficient Raw Bayer Image Representation**: Converted **sRGB image datasets** to **synthetic raw Bayer representations** to enhance **memory efficiency**. Trained and validated detection models on **raw Bayer images**, achieving a **2x memory efficiency boost** on **low-power chips** by **eliminating traditional ISP preprocessing**.

**O.Vision - Applied Computer Vision Researcher** — **Saint Petersburg**, RU
***Stack:*** *C++, Python, Pytorch, TensorRT, CUDA* — *Jan. 2021 - Mar. 2022*

- **Image Quality Assessment (IQA) for Face Recognition**: Designed an **image quality assessment model** tailored for **face recognition**, achieving up to a **2% improvement in Acc@ZeroFP** at a 20% rejection rate. Enabled **reliable device usage** in **challenging environments** for face recognition.
- **Face Recognition Validation Protocols**: Developed **validation protocols** for **face recognition** systems, incorporating **IQA model rejections**. Ensured **comprehensive evaluation of IQA** and **RUE model performance**.
- **Noise-Robust Face Detection**: Built **fast, noise-robust, multi-domain face detection models**. Optimized **deployment on edge devices** through `int8` **quantization** and integrated the model into **production systems** using `TensorRT` and `C++`.
- **Model Deployment and Maintenance**: Converted all developed models to `TensorRT` to accelerate inference on NVIDIA Jetson Nano. Created libraries using TensorRT and `Pytorch` frameworks for streamlined deployment via `pip`, simplifying workflows for production engineers.

**NeurodataLab LLC - Research Data Scientist** — **Moscow**, RU
***Stack:*** *Python, Pytorch, Sklearn, TVM* — *Apr. 2020 - Sept. 2020*

- **Ad Recall Prediction Models**: Developed models to predict ad recall using facial emotion analysis, ad media coverage, and ad metadata. Designed and implemented a data preprocessing pipeline for ad recall prediction from scratch. Co-authored a research paper on ad recall prediction.

## Publications & Articles

2026 CVPR **Guess and Guide Zero-Shot Diffusion Guidance** *und. review*
**Abduragim Shtanchaev**, Albina Ilina, Yazid Janati, Badr Maufad, Martin Takáč, Eric Moulines

2026 ICLR **Y-shaped Generative Flows** *und. review*
Arip Asadulaev, Semyon Semenov*, **Abduragim Shtanchaev***, Eric Moulines, Fakhri Karray, Martin Takac

2026 ICLR **Curriculum-Augmented GFlowNets For mRNA Sequence Generation** *und. review*
Aya Laajil, **Abduragim Shtanchaev**, Sajan Muhammad, Eric Moulines, Salem Lahlou

2025 CVPR **All Languages Matter: Evaluating LMMs on Culturally Diverse 100 Languages**
Ashmal Vayani, Dinura Dissanayake, ..., **Abduragim Shtanchaev**, ...

2024 BMVC **Extract More from Less**
Dmitry Demidov, **Abduragim Shtanchaev**, Mihail Mihaylov, Mohammad Almansoori

2023 **Getting the Hang of OpenCV's Inner Workings with ChatGPT**
**Abduragim Shtanchaev**

2021 **A Recipe to Train Object Detection Models**
**Abduragim Shtanchaev**

2020 **Multimodal Ad Recall Prediction Based on Viewer's and Ad Features**
Mariya Malygina, **Abduragim Shtanchaev**, Marina Churikova, Olga Perepelkina

2020 IAC **Automated Remote Sensing Forest Inventory Using Satellite Imagery**
**Abduragim Shtanchaev**, Artur Bille, Olga Sutyrina, Sara Elelimy

2019 **Camera Trajectory Estimation**
**Abduragim Shtanchaev**

## Teaching Experience

2025 Fall **Probabilistic Graphical Models** - with *Prof. Le Song*

## Achievements

2025 **MenaML winter school by DeepMind** - selected 1% applicants
2023 **Full Ph.D. Scholarship Ph.D. at MBZUAI** - Ranked **10'th** globally in AI
2020 **Competed SMILES**, selected 10% applicants. Certificate
**Graduated with High Honors** from Skoltech
2018 **Prestigious Full M.Sc. Scholarship** at Skoltech, selected from 3k+ (<1 %)
**Graduated with Honors** from UTAA
2013 **Full Scholarship** for B.Sc. at UTAA

## Tools

**Strong** Python ∘ Pytorch ∘ C/C++ ∘ OpenCV ∘ Vim ♥
**Moderate** CUDA/cuDNN ∘ SQL ∘ Docker ∘ TensorRT ∘ CMake ∘ ONNX
**Familiar** TensorFlow ∘ Keras ∘ mxnet ∘ HTML ∘ Jekyll ∘ Flask ∘ TVM ∘ JAVA ∘ OpenCL

## Skills & Interest

**Strong** **Bayesian Inference ∘ Gen Modeling ∘ Math & Statistics ∘ Computer Vision**
**Moderate** NLP ∘ RL ∘ Optimal Transport