



ZHAMILYA SAPAROVA

✉ zhamilya.saparova@gmail.com ◇  [zhamilya-saparova](https://www.linkedin.com/in/zhamilya-saparova) ◇ [@zhamilyaa](https://twitter.com/zhamilyaa) ◇  [zhamilyaa.github.io](https://github.com/zhamilyaa)

EDUCATION

Nazarbayev University

Master of Science in Data Science

Bachelor of Science in Robotics and Mechatronics

Astana, Kazakhstan

Aug 2022 - Jun 2024 (Expected)

Aug 2018 - Jun 2022

EXPERIENCE

Research Assistant

Dec 2022 - Present

Nazarbayev University, [The New Paradigm Computing Laboratory](#)

Astana, Kazakhstan

Biomedical Image Classification using Meta-Learning under [Prof.Martin Lukac](#)

- Developed machine learning algorithms on diverse biomedical image datasets, mitigating the challenges posed by dataset scarcity and reaching **accuracy 99.5%** in brain tumor classification using **algorithm selection**.
- Performed feature extraction of biomedical images with pre-trained VGG-16, VGG-19, ResNet50.

Tech stack: Python, Scikit-learn, Tensorflow, Keras, Pytorch, Matplotlib, Numpy

Research Assistant

May 2023 - Aug 2023

Aalto University, [Aalto Astroinformatics Group](#)

Espoo, Finland

Pattern Recognition from Large-Scale Data from Multi-Physics Simulations under [Prof.Maarit Korpi-Lagg](#)

- Augmented 3D data cubes from simulation to amplify training set for vortex recognition and detection.
- Built a specialized 3D Convolutional Neural Network (CNN) model on Keras and Pytorch for vortex detection.
- Expanded neural network capacity by adding new layers and achieved an impressive **R2 score of above 0.95** and a low **Mean Absolute Percentage Error (MAPE) value of 0.002**.

Tech stack: Python, C, Pencil Code, Pytorch, Keras, Scipy, Numpy, Scikit-Learn, Matplotlib

Research Assistant

Jan 2022 - Dec 2022

Nazarbayev University, [Astana Laboratory for Robotic and Intelligent Systems \(ALARIS\)](#)

Astana, Kazakhstan

Robotized Object Recognition and Pick-and-Place Operations under [Prof.Almas Shintemirov](#)

- Employed YOLOv5 and ConvNet using to detect object location in occluded region and grasp object enabling robotic manipulation and achieved **grasp confidence 92%**.
- Integrated the system with Robot Operating System (ROS) using Gazebo simulation.

Tech stack: Python, C++, MATLAB, ROS, Yolo, Matplotlib, Pillow, OpenCV, Rospy, Gazebo, MoveIt

Data Scientist

May 2021 - Jan 2022

[EGISTIC](#), *Farm Management System*



Astana, Kazakhstan

Super-Resolution based on Generative Adversarial Network (GAN)

- Pre-processed radar and multi-spectral satellite images using Sentinel Application Platform (SNAP).
- Achieved a **four-fold increase in pixels per inch** on Super Resolution Generative Adversarial Network (SRGAN) using transfer learning.
- Developed a pipeline for the project, utilizing Docker container and deploying it to production. Created **high resolution map for Kazakhstan and Ukraine regions** in system.

Tech stack: Python, Docker, Celery, Tensorflow, Rasterio, Shapely, Geopandas, SNAP

ACHIEVEMENTS

- "Algorithm Selection with Priority Order for Instances" accepted at NeurIPS Workshop on Attributing Model Behavior at Scale 2023, New Orleans, USA 
- "Pattern Recognition from Large-Scale Data from Multi-Physics Simulations" accepted at Machine Learning Summer School 2024 in Okinawa, Japan 

PROJECTS

Video-based Face Recognition

Spring, 2023

- Developed a system for automatic face recognition in video streams using state-of-the-art Multi-Task Cascaded Convolutional Neural Networks (MTCNN).
- Optimized two popular face recognition algorithms, VGGFace and FaceNet, using hyperparameter tuning to enhance their performance within the system.

Enhancing and Colorizing Infrared Images in Low Light Conditions

Spring, 2021

- Applied Dehazing algorithm and Brightness Preserving Dynamic Histogram Equalization (BDPHE) methods to enhance RGB images.
- Outperformed above-mentioned algorithms by colorizing near-infrared (NIR) images using MATLAB.