ALEKSANDR ISAKOV

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OBJECTIVE

I am a fresh graduate from the Skoltech. Through my studies, I have gained a wide knowledge from applied thermodynamics to startup foundations and data science, among many other components of research activity. Responsible implementer and positive communicator. Eager to put my knowledge to practical, applied use.

EDUCATION

Master of Sciences in Energy Systems 2018 - 2020
Skolkovo Institute of Science and Technology, Moscow. GPA : 4.75/5
Courses: Introduction to DS, Machine Learning, Optimization Methods, Leadership for innovators

Specialist in cryogenic systems 2012 - 2018
Bauman Moscow State University, Moscow. GPA : 4.6/5
Courses: Probability theory, Linear Algebra, Calculus, Differential equations, Applied physics

INDUSTRY EXPERIENCE

TION Smart Microclimate June - August, 2019
Research intern, R&D *Moscow, Russia*
· A broad literature review of technological and management methods used in Demand Response.
· Comparison of ways to control the microclimate system was made. Increase of artificial intelligence-based control (regression, deep learning, reinforcement learning) was noted.
· The work is published as a report and provided to the company

Cryogenic Technics Laboratory January - June, 2017
Research engineer, R&D *Moscow, Russia*
· Creation of a methodology for air-drying installation testing.
· Conduction of different experiments and analysis of the results obtained.
· Based on the experiments, the most suitable method of grinding adsorbents and the percentage of adhesive in the solution were identified.

TECHNOLOGIES AND LANGUAGES

Development	Python, Julia, Git, Docker, LaTeX, SQL
ML&DL	Numpy, Pandas, sklearn, TensorFlow, Keras
Languages	Russian (native), English (fluent), French (basic)

PROJECTS

Deep Convolutional Generative Network September 2020

· Created Generative Adversarial Network, which was trained at the MNIST-Fashion dataset. Generative NN training is shown in the GIF-file with outputs after each epoch.

Neural Style Transfer using OpenCV September 2020

· Attempt to implement the artistic style of a painting on a video using the OpenCV library. Also applied a style transfer to streaming video from the camera.

Web-page with printed Neural Network layers outputs September 2020

· Created flask server, where at each request, a random instance is selected from the MNIST dataset and passed through the neural network. Returns the output values of each layer. Web-interface to visualise layers outputs was created using streamlit package.

Building of Docker container for flask app August 2020

· Created flask server with image, where plotted regression in temperature data. Application was builded to container using Dockerfile.

Outlier detection in financial data August 2020

· Using of visualisation and clusterisation methods to find anomalies in unlabeled data. Tried Dash visualisation for .csv data-file. Packed in Docker.

McKinsey ProHack competition July 2020

· Prediction of the development index of "galaxies" using regression, solving the problem of optimal resource allocation between them. Initial data distribution is asymptotic, also it has NaNs. I wrote the pipeline myself. Top-40% solution. Used one-hot encoding, tried classical regression in combination with one-layer NN (pytorch). Optimization problem solved by own algorithm, checked using CVXPY

Mathematical modeling of a thermodynamic processes inside the room June 2019 - June 2020
Master's Thesis

· The mean absolute error of the model from the experimental data is not more than 5%. The mathematical HVAC model is modified by adding a thermal energy storage to it. The MINLP optimization problem is simplified to the MILP problem with less than 0.1% accuracy loss. Created a custom algorithm for finding the optimal mode of operation of the air conditioner. The hypothesis about the possibility of charging a heat storage device at night from cold air is proved

EXTRA-CIRRUCULAR ACTIVITIES

Chemistry olympiad winner in team of BMSTU	April 2013
McKinsey sympathy award at European BEST Engineering Competition	November 2016
Military department of BMSTU	2015 - 2017
McKinsey ProHack hackathon	July 2020

COURSES AND CERTIFICATES

Introduction to Machine Learning	HSE/YandexDataAnalysisSchool
Deep Learning Specialisation	deeplearning.ai
SQL for Data Science	University of California, Davis
Version Control with Git	Atlassian