Radmir Sultamuratov

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Machine Learning Engineer

Extensive academic knowledge and 3+ years of practical experience in computational mathematics, machine learning, and programming. Specialized in computer vision and quantitative analysis. Actively looking for a summer internship and other opportunities in ML and Data Science.

Work Experience

Aikynetix LLC — Houston, TX

Machine Learning Engineer — May 2022 – present

- Tested and integrated pose and object detection models such as hrnet, resnet, yolov, tcformer into application
- Built and trained a custom pose classification NN model with 98% hold-out accuracy using PyTorch
- Wrangled, structured, and maintained 100GB+ various type data on GCP/VertexAI cloud machine

Numerical Developer — Oct 2021 – May 2022

- Developed algorithms for estimation of human physical parameters from video streams using OpenMM, OpenCV
- Built a phase detection algorithm of a human motion based on SSIM using Cucim, Cupy
- Adapted a human biomechanical model from Simulink to Python and CoreML implementing TorchScript

University of Houston — Houston, TX

Research Assistant — Sep 2021 – present

- Built a disease classification model with 97.5% prediction accuracy with Random Forest algorithm using sklearn
- Derived permutation-based feature importance based on OOB score using rfpimp
- Fine-tuned parameters of ADMM algorithm application for diffeomorphic matching of non-rigid surfaces
- Developed a resolution downsizing algorithm of 3D images based on metrics-induced graph connectivity using Matlab

Education

University of Houston — Houston, TX
Ph.D. in Applied Mathematics — 2020 – 2024 (expected)

Wayne State University — Detroit, MI
M.S. in Mathematics — 2018 – 2020

Kazakh National University — Almaty, Kazakhstan
B.S. in Mathematics — 2005 – 2009

Skills & Knowledge

Programming: Python, Matlab, C++, R, SQL

Relevant coursework: Optimization, Probability & Statistics, Numerical Methods, Deep Learning, Data-Driven Algorithms, Statistical Data Analysis, High-Performance Computing, Linux/Cluster Computing

Frameworks: pytorch, tensorflow/keras, mmlab, opencv, numpy, pandas, plt, sklearn, scipy, git, slurm, bash/zsh, googlecloud, colab, docker, papi/tau, omp

Machine Learning Projects

Age Recognition | Data-Driven Algorithms, University of Houston | *GitHub*

- Transformed $30k+$ of RGB face images from Kaggle into 128 measurements using OpenFace
- Implemented the PCA analysis and ML algorithms such as SVM and Random Forest to solve age recognition problem

Financial Hedging | Math-to-Industry Boot Camp, Securian Financial | *GitHub*

- Worked in a team researching solutions for reducing the computational cost of the estimation of the Greek variables on the options market
- Tested performance of quadratic interpolation as a proxy model for the Black-Scholes model for Delta and Rho variables producing $3-5\%$ relative error of approximation

Match Prediction | Statistical Data Analysis, Wayne State University | *GitHub*

- Collected $5k+$ tennis match data from internet websites using parsing package bs4
- Implemented ML algorithms such as KNN, QDA, LDA, Ridge&Lasso methods producing 89% prediction with KNN

Publications

1. H. Dabirian, R. Sultamuratov, J. Herring, C. El-Tallawi, W. Zoghbi, A. Mang, R. Azencott, *Automatic classification of deformable shapes.* arXiv:2211.02530 , doi:10.48550/arXiv.2211.02530