Murat Raimbekov

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Education

American University of Central Asia **Bishkek, Kyrgyzstan**
Bachelor's degree in Applied Mathematics and Informatics *Sep 2022 – May 2026*

- Relevant Coursework: Neural Networks and Deep Learning (CV), Data Science and Machine Learning, OOP, Data Structures & Algorithms, The Theory of Probabilities and Statistics, Mathematical Analysis I & II
- GPA: **3.3/4**

Technical Skills

Languages: Python, C++, SQL (PostgreSQL)
Computer Vision: PyTorch, TorchVision, OpenCV, Albumentations, scikit-image, Object Detection (YOLO), Image Segmentation (U-Net, SegNet)
Machine Learning & Data: scikit-learn, XGBoost, LightGBM, pandas, NumPy, Matplotlib, Seaborn
Developer Tools: Git, GitHub, GitLab, Jupyter Notebook

Experience

Data Science Intern **Jul 2025 – Present**
Baker Tilly *Bishkek, Kyrgyzstan*

- Contributed to the development of **Atlas**, a digital startup platform for automated assessment of real estate and movable assets in Kyrgyzstan, helping scale automated asset valuation for **500+ properties**
- Performed data collection, cleaning, and feature engineering on **10,000+ property records**, reducing data errors by **7%**
- Fine-tuned **Gradient Boosting Decision Trees (XGBoost, LightGBM)** achieving high valuation accuracy
- Collaborated with 3 cross-functional teams (legal, finance, operations) to align ML models with business requirements

Projects

Computer Vision Road Defects Detection | *Yandex Hackathon* | GitHub **Dec 2025**

- Developed an automated road defect detection system using **YOLOv8** for real-time object detection on highway images
- Implemented data augmentation pipeline with **Albumentations** to improve model robustness on diverse road conditions
- Achieved **85%+ mAP** on test set by fine-tuning pre-trained models and applying transfer learning techniques
- Utilized **OpenCV** for image preprocessing and post-processing to enhance detection accuracy
- Deployed model inference pipeline with **PyTorch** for batch processing of highway surveillance footage

Medical Image Segmentation | *PyTorch, U-Net, SegNet* | GitHub **Sep 2025**

- Implemented semantic segmentation models (**U-Net, SegNet, Residual U-Net**) for skin lesion detection on PH2 dataset
- Achieved **0.654 IoU** with SegNet architecture, optimizing BCE, Dice, and Focal loss functions
- Conducted comprehensive ablation studies comparing architectures and loss functions with visualization analysis
- Applied data augmentation techniques using **scikit-image** and custom preprocessing pipelines

Grain Classification | *PyTorch, EfficientNet, ConvNeXt* | GitHub **Oct 2025**

- Built multi-class image classifier using **timm** library with EfficientNetV2 and ConvNeXt architectures
- Implemented 5-fold cross-validation and ensemble methods with Test-Time Augmentation (TTA) for robust predictions
- Optimized training pipeline with mixed precision (**torch.cuda.amp**) and learning rate scheduling
- Processed and augmented 1000+ images using custom **PyTorch Dataset** and **DataLoader** implementations

Insulator Segmentation | *PyTorch, U-Net, ResNet34* | GitHub **Nov 2025**

- Developed semantic segmentation model for power line insulator detection achieving **0.9895 Dice coefficient**
- Leveraged transfer learning with **ResNet34 encoder** and implemented U-Net decoder architecture
- Applied data augmentation strategies and Test-Time Augmentation using **Albumentations** library