RAKHMATOV **SHOHRUH**

Team Leader | Senior AI Engineer

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6+ years of industrial and academic experience, mentored 15+ undergraduate students, actively engaged with the academic community, and 3+ Korean patents. As a highly motivated and experienced AI researcher with a focus on autonomous driving, and in-cabin monitoring systems. I am excited to apply for the AI researcher role at your company. I am confident that I have the skills and expertise to make valuable contributions to your team. More than 6 years of experience Researcher in Artificial Intelligence and Computer Vision. In my previous role as a senior AI researcher at DeltaX company, I had the opportunity to lead a team of engineers and researchers in the development of an autonomous driving system that incorporated state-of-the-art deep learning algorithms for perception, prediction, and decision-making. I am excited about the opportunity to bring my expertise and experience to your team and work on challenging problems. Thank you for considering my application. I look forward to the opportunity to discuss my qualifications in further detail.

Experience

April 2021 – Present — Team Leader|Senior AI Researcher at DELTAX CO.LTD, , South Korea

- [1]Development of perception prediction technology based on Surround multi cameras for Lv.4 Autonomous Driving Vehicles.
- [1]Development of merged perceptual SW and optimization of AI neural network with multi-sensor data for autonomous driving
- [1]Implemented lightweight segmentation model to detect lane (used EfficientNetv2 as a backbone).
- [1]Developed deep learning (instance segmentation) model to detect lanes, roads, or drivable areas.
- [1]Building model to detect objects, both with and without labels, utilizing only one monocular camera.
- [3] Implemented Detection of driver drowsiness and distraction.
- [2,3]Developed Head pose estimation using an IR camera
- [2]Implemented Recognition of the driver and passengers' actions, such as **distraction, gaze estimation, recognition of items on the left, seatbelt detection, and occupancy detection**, all using a single IR camera.
- [2,3]Analysis of facial attributes, such as **age, emotion, and gender**, using a single IR camera.
- [5]Implementation of a lightweight face detection and landmark extraction module based on deep learning, aimed at detecting Deep Fakes.
- [6]Research and Developed XVision technology using deep learning methods to analyze nudity content from feature-length videos
- [2]Design, investigate and implement an Occupation Monitoring System (OMS) solution for **Edison Motors'** self-driving vehicles
- [7] Instance Segmentation Challenge Winner of VIPriors Workshop at ICCV 2021.
- [7]Collaborated in Self-Driving Data Contest 2021 Grand Prize, Won Korea Transportation Safety Authority Chairman Award
- Welding defect detection
- Provide leadership to an international team including guiding daily/weekly tasks
- Collaboration with multiple teams throughout the project life cycle
- ARMY Project - detecting attack using Machine Learning algorithms

[1]X-pilot [2]ICMS [3]DMS [4]LG Display [5]Deep Fake [6]Nudity Detection [7]Awards

June 2022 – Present — Senior Researcher at Tashkent University of Information Technology, ,

- Multi-Camera based Surveillance system in CCTV environment (multi-camera multi-object detection, re-identification, tracking, and action recognition such as fighting, falling, calling, and smoking in a unified system)
- Implementing ultra-lightweight facial authentication system in payment systems using deep neural networks.
  - Ultra-lightweight Face Detection model.
  - Developing applicable accurate face recognition system.
  - Developing lightweight age and gender recognition system.
  - Implementing Deep Neural Network for facial attribute analyzing.

Facial Attribute Analysis | Tracking | Re-identification | Action recognition (fighting | falling | calling | smoking)

March 2021
November 2019

Research Engineer, HYUNDAI MIB INTERNATIONAL, South Korea

- Developed a lightweight model to detect counterfeits.
- Implemented a lightweight model to recognize and classify currencies
- Developed a Real-time Age-Gender-Race Detection Model based on Detection|Recognition|Embedding "the smart mirror project"
- Automatic Number Plate Detection model using YOLOv8
- Automatic Number Plate Recognition model using PaddleOCR
- Implemented Segmentation model for vehicle inspection system to detect damaged parts such as door or bumper.
- Developed Steel Surface Defect Detection Model.
- Comparison of Spatial and Frequency images in character recognition (using LogPolar Transformation)
- To remove fog, haze, and noise from images to increase image quality.

Currency Recognition | Smart-mirror | NP Detection|Recognition | Vehicle Inspection System | Defect Detection

September 2017
August 2019

Researcher,, CVPR LAB, The University's Research Lab

- Implemented Vision Inspection System for Error Detection in Car Painting System.
- Developed Fabric Defect Type Detection by automatically Focusing on Abnormal pixels.
- Implemented Brand Logo Detection | Sponsorship Monitoring in Soccer Video. Prepare the procurement form and documentation.
- Developed Facial Wrinkle Detection Model using a semantic segmentation method (IGCV3 + Deeplab v3+)
- Implemented the Defect Detection model using Capsule Networks.
- Conducted research on multiple academic/company projects

Fabric Defect Detection | Brand Logo Detection | Image Processing | Facial Wrinkle Detection

PATENTS

2022 SYSTEM FOR MONITORING PASSENGERS WITHIN CABIN OF PASSENGER TRANSPORT VEHICLE.
2021 METHOD OF SELF-DRIVING GOLF CART AND SELF-DRIVING GOLF CART.
2021 PERCEPTION METHOD FOR LOW SPEED VEHICLE.

ACHIEVEMENTS

2021 **1st Place 2021 ICCV** Instance Segmentation Challenge. *Visual Inductive Priors for Data-Efficient Computer Vision 2021 Instance Segmentation Challenge*

2021 Collaborated in Self-Driving Data Contest 2021 Grand Prize, Won Korea Transportation Safety Authority Chairman Award.

2021 Task-Specific Copy-Paste Data Augmentation Method, for Instance, Segmentation, Visual Inductive Data-Efficient Deep Learning Workshop at ICCV 2021.

COMPETENCES

Areas of Expertise Deep Learning, Computer Vision, Motion Analysis and Tracking, Image Processing and Analysis, Object Detection and Recognition, Semantic/Instance/Panoptic Segmentation, Image Synthesis, Image Classification, Medical/Fabric Image Processing, Transformation, Edge Detection Algorithms

Programmation **Python** [OpenCV, Numpy, Scikit-learn, Pandas, PIL]

Frameworks **PyTorch**, TensorFlow, Keras, and PaddlePaddle.

- Strong experience in coding review and debugging skills (6+ experience).
- Ability to write highly performant code, code optimization, acceleration skills.
- Team coding (GitLab, GitHub, etc).
- Hands-on experience in Medical Imaging, Medical Image processing (Histology, MRI, X-rays images)
- Hands-on experiments in current state-of-the-art Deep learning Network (Efficientv2, Swin Vision Transformer, MaxViT multi-axis vision Transformer)
- Skilled in Image Synthesis, Image-to-image, Image super resolution, etc using GANS.
- Skilled in Big data processing, Data statistics, visualization, etc.
- A big Fan of CVPR, ICCV, ECCV, ICML, etc.

Academic Background

2017∼2019 **Master of Computer Engineering (Spec - Computer Vision and Pattern Recognition Lab)** Kumoh National Institute of Technology. 94/100

2011∼2015 **Bachelor of Audio and Video Technologies.** Tashkent University of Information Technology. 87.5/100

Languages

English ●●●●●
Uzbek ●●●●●
Russian ●●●○○

Strength

- Innovative, Critical observation
- Patience, Smart work
- Quick learner, Motivator
- Helping, Friendly

Interest

Relaxation : Sleep, movie, social media, photography
Sport : soccer, running, cycling, traveling

Reference

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