Alisher Abdulkhaev

Curriculum Vitae

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Personal Data

Citizenship **Kyrgyzstan**.
Date of Birth **09.Feb.1992**.
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Education

2020– **Ph.D. Graduate School of System and Information Engineering**, *University of Tsukuba*, Japan.
Supervisor: Professor Kazuhiro Fukui

2012–2015 **M.S. Electrical & Electronics Engineering**, *Gaziantep University*, Gaziantep, TR, *GPA – 3.64/4.00*.
Supervisor: Associate Professor Sema Koç KAYHAN

| Detailed List of Courses

2008–2012 **B.S. Electrical & Electronics Engineering**, *Gaziantep University*, Gaziantep, TR, *GPA – 2.45/4.00*.

- Received Diploma Supplement
- Received high grades from the lectures related with Signal Processing, Computer Sciences and Probability Theory. | Detailed List of Courses

2003–2008 **International High School**, Osh, Kyrgyzstan,
GPA – 5.00/5.00.

- Graduated in the 1st place and awarded as the most successful student

Masters Thesis

Title *New approach for Video Watermarking*

Supervisor Associate Professor Sema Koç KAYHAN

Description In this thesis one of optimization methods, Genetic Algorithm, is used in video watermarking in order to choose the best subset of possible parameters set. Proposed study exploits LSB watermarking method and GA optimization method to select the optimum bit planes of video frames. Selection is provided by checking two quality metrics:

1. NCC value of original and extracted watermark.

2. PSNR value of watermarked video frames.

Experience

2020– **Social Value Decision Making Laboratory**, *RIKEN*, Tokyo.
Visiting Scholar

2020– **Machine Learning Tokyo**, Tokyo.
Board Director and Community Leader

2018–2020 **Machine Learning Tokyo**, Tokyo.
Core Team member

2018– **Browzzin**, Singapore.
Computer Vision Engineer

- Fashion Object Detection and Visual Similarity Search
- Re-ranking the Similarity Search results
- Fashion image attribute recognition: style, season, scene, etc.
- Fashion image generation and clothing swapping between models using Image Generation models (GAN, Non-adversarial Image Synthesis models)

2017–2018 **PKSHA Technology**, Tokyo, Japan.
Machine Learning Engineer

- Facial Recognition
- Person Re-identification

2016–2017 **RIT: Rakuten Institute of Technology (R&D)**, Tokyo, Japan.
Researcher in Computer Vision Department

- Large Scale Content Based Image Retrieval (CBIR).
  - Implemented CBIR in both matconvnet and pycaffe
  - Trained Deep CNN model and implemented custom Caffe layer; both forward and backward propagation.
  - Tested to extract features from higher conv layer by rotating the feature map rather than rotating the image itself to avoid redundant computation.
- Deep Fashion: matching the most similar fashion images.

Projects

2020 **PwA: Papers with Annotations**, Machine Learning Tokyo.

- This project compiles multiple (AI-related) papers with illustrations, annotations, and brief explanations for technical keywords, terms and previous studies which makes them easier to read and to get the main idea intuitively.

2015–2016 **Artificial Visual Cortex**, Ankara, Turkey.
TUBITAK (The Scientific and Technological Research Council of Turkey) Project

- Worked as a Project Assistant.
- The holistic vision system development that simultaneously perform multiple visual tasks such as target detection, scene recognition, segmentation, moving object detection, target tracking and optical flow.
- Worked on local feature descriptors. Proposed a new binary local feature descriptor that can additionally capture the color information.
- Supervised 4 bachelors' and 2 masters' students on various topics: Depth map estimation, optical flow, local feature detectors/descriptors, statistical analysis.
- Did comprehensive experiments on Deep CNN compression: quantization.
- Apllied model quantization on Network-In-Network Model and achieved promising results.

2011–2012 **Wireless pulse sensor**, Gaziantep, Turkey.
Graduation Project of B.Sc. Degree

- Received "AA" grade

2012 **"Tempo" Automation & Engineering**, Gaziantep, Turkey.
Summer Intern

- Received successful note (S)

2011 **Electrical and Electronics Engineering Company "Coşkun Mühendislik"**, Gaziantep, Turkey.
Summer Intern

- Received successful note (S)

Talks and Presentations

- **Open Data Science Conference (ODSC)**
  - **2020.12.09:** Tutorial session on "Rethinking Object Detection"
- **Global AI Hub**
  - **2020.06.28:** "Determination of Evaluation Metrics for Object Detection"
- **Machine Learning Tokyo** We - MLT team leads - organizing various Machine Learning events, study sessions, talks and discussions
  - **2018.06.30:** GAN Workshop @ Progate
  - **2019.08.04:** Object Detection Workshop @ Progate
  - **2019.11.25:** "Convolutional Operations" Workshop @ Rakuten
  - **2019.02.10:** "Learning in Deep Networks" Workshop @ Cookpad
  - **2019.06.08:** "Convolutional Operations" Workshop @ Deepcon
  - **2019.06.18:** "Data visualization" hands-on presentation @ ELSI, Tokyo Institute of Technology
  - **2020.10.02:** Machine Learning Community Hangout # 2
- **Connectome AI**
  - Presentation @ Couger about one-shot learning (metric learning with siamese networks)

Awards

2020 Received a gold medal (3rd place) in EdgeAI competition organized by The Japanese Ministry of Economy, Trade and Industry (METI) and New Energy and Industrial Technology Development Organization (NEDO)

Tokyo, Japan

2015 TUBITAK Scholarship.

Ankara, Turkey

2008 The Most Successful Student in the High School.

Bishkek, Kyrgyzstan

2008 Received the 4th Place in Kyrgyzstan Computer Programming Olimpiads and qualified for World Computer Olimpiads.

Bishkek, Kyrgyzstan

2006 Received the 4th Place in Kyrgyzstan Computer Programming Olimpiads.

Bishkek, Kyrgyzstan

2005 Received the 1st Place in Provincial Computer Programming Olimpiads.

Osh, Kyrgyzstan

2003–2008 Full Tuition Scholarship, International High School. Olimpiads.

Osh, Kyrgyzstan

2002 Received the 1st Place in Provincial Chess Competition.

Osh, Kyrgyzstan

Certificate(s)

- Machine Learning by Stanford University on Coursera (Grade Achieved: 93.0%).

Languages

- Uzbek: Native speaker
- Turkish: Native speaker
- Russian: Intermediate
- Kyrgyz: Native speaker
- English: Advanced
- Japanese: Beginner

Skills

Software

- API
- Docker
- C++
- LaTeX
- Linux, CLI
- Database (mongodb)
- Python
- MATLAB
- Mathematica
- Cloud Management

Machine Learning, Computer Vision

- Deep CNNs
- OpenCV
- Keras
- PyTorch
- NN Quantization
- Local Feature Descriptors
- Self-supervised learning
- Generative Models: VAE, GANs, World Models
- Object Detection
- Facial Recognition
- Caffe
- scikit-learn
- Image Retrieval
- Metric Learning
- Semi-supervised learning
- Meta Learning

Publications and Reports

National Conference

- A New Approach For Video Watermarking Using Genetic Algorithm, EEMKON2015, A.Abdulkhaev, S.K.Kayhan (October, 2015) **Presented**

Miscellaneous

- Abdulkhaev A., Yilmaz, O. (2016). U-CATCH: Using Color ATtribute of image patCHes in binary descriptors. **Arxiv.**
- Abdulkhaev A., Yilmaz, O. (2016). Accelerating Forward Propagation in Convolutional Neural Networks. **Technical Report**
- Yilmaz, O., Abdulkhaev A. (2016). Combining image and video cues for specular object detection, **Technical Report**

Interests

- Football
- Chess
- Ping Pong
- Basketball
- Swimming

M.Sc. in Electrical & Electronics Engineering

Grades

Courses	Grade	
Advanced Mathematics for Engineering I	AA	4.00
Advanced Mathematics for Engineering II	AA	4.00
Linear System Theory I	AA	4.00
Adaptive Filters	AA	4.00
Digital Speech Processing	BA	3.50
Digital Image Processing	BB	3.00
Linear System Theory II	BB	3.00
		3.64/4.00

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Bachelor of Science in Electrical & Electronics Engineering

Grades

Courses	Grade	
Courses related with Computer Science, Signal Processing and Probability Theory:		
Programming in C	AA	4.00
Probability and Random Variables	AA	4.00
Introduction to Computer Vision	AA	4.00
Introduction to Microprocessors	AA	4.00
Graduation Project	AA	4.00
Analog Filter Design	BA	3.50
Digital Design II	BA	3.50
Digital Design I	BB	3.00
Digital Filters	BB	3.00
Digital Systems and Signal Processing	BB	3.00
		3.60/4.00

Overall list of courses taken in B.Sc.Degree is shown in B.Sc.Transcript.

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Diploma Supplement

Diploma Supplement follows the model developed by the European Commission, Council of Europe and UNESCO/CEPES. The purpose of the supplement is to provide sufficient independent transparency and fair academic and professional recognition of qualifications.

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