Alisher Abdulkhaev

Curriculum Vitae

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Personal Data

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

Machine learning engineer with 6+ years of professional experience. Passionate about making machine learning accessible to everyone and developing simpler models to solve real-world problems. Strong skills include critical thinking, teamwork, and problem-solving.

Skills

Soft skills Teamwork, leadership, mentoring, creative problem-solving, attention to detail.
Software Python, Docker, Linux (CLI), MongoDB, RESTful API, MATLAB, C++, LaTeX.
ML/DL Object detection, metric learning, facial recognition, NN quantization, content based image retrieval, self-supervised learning, local feature descriptors, generative modeling.
Frameworks PyTorch, TensorFlow/Keras, OpenCV, scikit-learn, Caffe.
Languages English: advanced, Japanese: beginner, Uzbek: native speaker, Turkish: native speaker, Kyrgyz: native speaker.

Education

2020– **Doctor of Philosophy (Ph.D.)** .

- **Graduate School of System and Information Eng.**, *The University of Tsukuba, Japan*
- **Supervisor:** Prof. Kazuhiro Fukui
- **GPA:** 4.00/4.00
- **Research topic:** Developing robust and efficient video action recognition models.

2012–2015 **Master of Science**.

- **Electrical & Electronics Engineering**, *Gaziantep University, Turkey*
- **Supervisor:** Assoc. Prof. Sema Koç Kayhan
- **GPA:** 3.64/4.00
- **Thesis**: *A new approach for video watermarking*
- **Thesis abstract**: 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.

2008–2012 **Bachelor of Science**.

- **Electrical & Electronics Engineering**, *Gaziantep University, Turkey*
- **GPA:** 2.45/4.00
- Received Diploma Supplement that follows the model developed by the European Commission, Council of Europe and UNESCO/CEPES.

Experience

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

- Initiate and lead machine learning projects.
- Evaluate and improve the developed machine learning models to match the business requirements.
- Develop a predictive analytics of foot traffic in retail.
- Trained and deployed object detection and visual similarity search models for fashion images.
- Because of huge catalog the visual search results need to be re-ranked. Developed a subspace based method to re-rank the the similarity search results.
- Train a model to detect 571 different fashion image attributes such as colour, pattern, material, style, etc.
- Fashion image generation and cloth swapping between models using image generation models (GAN and non-adversarial image synthesis models).

2021 **Analog Tech**, Tokyo.
AI consultant (part-time)

- Convert AI models and run demos on Hailo and Jetson Nano edge devices.

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

- Read the recently published papers and present in a team.
- Develop lightweight models for facial recognition.
- Deployed face detection model is successfully deployed in production.
- Research and develop person tracking algorithms supported with person re-identification.

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

- 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 convolutional layer by rotating the feature map rather than rotating the image itself to avoid redundant computation.
- Deep Fashion: matching the most similar fashion images.

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
- Conducted research on deep CNN compression.
- Applied model quantization on Network-In-Network Model and achieved promising results.

Awards and Certifications

2021 **Certificate**: NLP with Classification and Vector Spaces on Coursera (Grade: 98%)

2020 Received a gold medal (3rd place) in EdgeAI competition organized by The Japanese Ministry of Economy, Trade and Industry (METI) and NEDO | Tokyo. Japan

2018 **Certificate**: Machine Learning by Stanford University on Coursera (Grade: 93.0%).

2015 TUBITAK Scholarship | Ankara, Turkey

2008 The Most Successful Student in the High School | Osh, 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

Volunteer experience

- **Machine Learning Tokyo**: is a community and an award-winning nonprofit organization dedicated to democratizing Machine Learning
  - Board director: strategic planning.
  - Community leader: manage and support community efforts and organize community hangouts.

- Talks and presentations:
  - "Squeeze-and-excitation Networks" @ MLT paper reading session.
  - "Convolutional Operations Workshop" @ Rakuten.
  - "Object Detection Workshop" @ Progate.
  - "Data visualization" @ ELSI, Tokyo Institute of Technology.
  - "Convolutional Operations" Workshop @ Deepcon.
- **Open Data Science Conference (ODSC):** Tutorial session on "Rethinking Object Detection".
- **Global AI Hub:** "Determination of Evaluation Metrics for Object Detection".
- **Connectome AI:** One-shot learning: metric learning with siamese networks.
- **Student support:** Organizing events and managing a team which is dedicated to help high-school students with education and gaining new skills.

Personal projects

2020 **PwA: Papers with Annotations**, Machine Learning Tokyo.
- This project is aiming to enhance published AI papers with illustrations, annotations, brief explanations of technical keywords, terms and previous studies which makes them easier to read and to get the main idea intuitively.

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

Publications and Reports

- A New Approach For Video Watermarking Using Genetic Algorithm, EEMKON2015, A.Abdulkhaev, S.K.Kayhan (October, 2015) **Presented**
- Abdulkhaev A., Yilmaz, O. (2016). U-CATCH: Using Color ATtribute of image patCHes in binary descriptors. **Arxiv.**
- Yilmaz, O., Abdulkhaev A. (2016). Combining image and video cues for specular object detection, **Technical Report**

Interests

- Reading
- Child development
- Football
- Chess
- Neuroscience
- Emotional intelligence
- Basketball
- Ping Pong