Dina Bashkirova

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Research Interests

Machine Learning, Image Processing, Computer Vision, Computer-Aided Healthcare

Education

2018-now Graduate Student in Computer Science
Boston University
Research Adviser: Kate Saenko

2016-2018 Graduate Student in Computer Science
Kazan Federal University
Project #1: Automatic Blood Vessel Segmentation with Deep Learning
Project #2: Multidimensional Fast L^1 Gaussian Convolution Using Domain Splitting
Research Adviser: Roustam Latypov and Shin Yoshizawa

2014 - 2016 Master of Science in Computer Science
Kazan Federal University
Thesis: Passive Steganalysis of JPEG Images with Machine Learning
Research Adviser: Evgeny Razinkov
GPA: 4.9 / 5

2010 - 2014 Bachelor of Science in Computer Science with Honors
Kazan Federal University
Thesis: Analysis of Heuristics for Multi-Agent Assignment Problem
Research Adviser: Anastasia Andrianova
GPA: 4.98 / 5

Fellowships and Awards

2011-2014 BSc Scholarship for High Academic Results from State Department of Education
2014 Award for Outstanding Academic Achievement at KFU

Core Skills

Tools/Languages: C#, C++, Python, Keras, Tensorflow, LaTeX
Online Courses: Machine Learning *(Coursera, Andrew Ng)*,
CS231n: Convolutional Neural Networks for Visual Recognition *(Stanford)*,
Introduction to Probability *(edX)*.

Work Experience

2018-now Graduate Student at Boston University Image and Video Computing Group
2017-2018 Visiting Scholar at Boston University Image and Video Computing Group
2016-2017 Visiting Research Assistant at RIKEN Image Processing Research Team
2015-2016 Research Assistant and Developer at Eidos Group LLC, Kazan
2013-2014 C# Developer at Bars Group CJSC, Kazan

Publications

2018 **Unsupervised Video-to-Video Translation**, *(in review) ICLR'19*,
Dina Bashkirova, Ben Usman, Kate Saenko.
2017 **Fast L1 Gauss Transforms for Edge-Aware Image Filtering**, *Proceedings of ISP RAS*,
Dina Bashkirova, Shin Yoshizawa, Roustam Latypov, Hideo Yokota.
2016 **Convolutional Neural Networks for Image Steganalysis**, *BioNanoScience (Springer)*
Dina Bashkirova.

Posters and Presentations

2017 8th Biomedical Interface Workshop in Miyakojima, Japan – *poster*
2017 International Computer Vision Summer School in Sicily, Italy – *poster*
2017 Spring/Summer Young Researchers Colloquium on Software Engineering,
Innopolis, Russia – *oral presentation*

Research Experience

2017-2018 **Unsupervised Video-to-Video Translation using Cycle-Consistent Adversarial Networks**
(Boston University Computer Vision and Learning Group)
Proposed a new task of unsupervised video-to-video translation and compared a sequence-based solution with frame-based translation approaches.

2016-2017 **Fast L^1 Gauss Transforms**
(RIKEN Image Processing Research Team)
Proposed an efficient approximation for multidimensional Gauss transform using properties of L^1 distance and domain splitting.

2016 **Passive Steganalysis of JPEG Images using Machine Learning**
(MSc Thesis Project at Kazan Federal University)
Developed a system for detection of hidden embedded messages using various Machine Learning methods

2015-2016 **3D Reconstruction of Vessels from CT Images**
(Eidos Group)
Performed preliminary research on vascular system reconstruction from CTA images and worked on improving performance of 3D modeling system.

2015-2016 **Sequential Threshold Method for Machine Learning**
(Igor Konnov Group at Kazan Federal University)
Applied sequential splitting method for solving optimization problems that arise in Machine Learning.

2014 **Analysis of Heuristics for Multi-Agent Assignment Problem**
(BSc Thesis Project at Kazan Federal University)
Investigated efficiency of various heuristic algorithms for Multidimensional Knapsack Problem (Assignment Problem).

Professional Activities

2018 CVPR Workshop on Computer Vision for Microscopy Image Analysis, reviewer.
2017 International Computer Vision Summer School (ICVSS 2017), Sicily, Italy.
2015 Microsoft Research School on Machine Learning, Saint Petersburg, Russia