Dina BASHKIROVA

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RESEARCH INTERESTS

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

EDUCATION

2018-present	**PhD Student** in COMPUTER SCIENCE **Boston University** Research Adviser: KATE SAENKO
2016-2018	Research Assistant **Kazan Federal University** Project #1: Automatic Blood Vessel Segmentation with Deep Learning Project #2: Multidimensional Fast L^1 Gaussian Convolution Using Domain Splitting Research Advisor: ROUSTAM LATYPOV AND SHIN YOSHIZAWA
2014 - 2016	**M.Sc.** in COMPUTER SCIENCE **Kazan Federal University** Thesis: Passive Steganalysis of JPEG Images with Machine Learning Research Advisor: EVGENY RAZINKOV GPA: 4.9 / 5
2010 - 2014	**B.Sc.** in COMPUTER SCIENCE with Honors **Kazan Federal University** Thesis: Analysis of Heuristics for Multi-Agent Assignment Problem Research Advisor: 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

PUBLICATIONS

2019	**Adversarial Self-Defense for Cycle-Consistent GANs**, *NeurIPS'19 (to appear)*, Dina Bashkirova, Ben Usman, Kate Saenko.
2018	**Unsupervised Video-to-Video Translation**, *(on arXiv)*, 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 Projects

2018-2019   **Adversarial Self-Defense for Cycle-Consistent GANs**
(Boston University Computer Vision and Learning Group)
Analyzed of the problem of self-adversarial information hiding of Cycle-Consistent GANs and developed two defense techniques that prevent information hiding and thus increases the translation reliability.

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).

Work Experience

Fall 2018   Grader for CS 480/680 (Introduction to Computer Graphics) at Boston University
2018-present   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

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

Core Skills

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

Selected Coursework

2018   CS 542 Machine Learning, Boston University.
2018   CS 585 Image and Video Computing, Boston University.