

Dina BASHKIROVA

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RESEARCH INTERESTS

Machine Learning, Computer Vision, Domain Adaptation

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 Adviser: 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 Adviser: 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 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

PUBLICATIONS

- 2019 **Adversarial Self-Defense for Cycle-Consistent GANs**, *NeurIPS'19*,
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.

RESEARCH PROJECTS

- 2019-PRESENT **Content-consistent Image-to-Image Translation**
(Boston University Computer Vision and Learning Group)
Developing the computer vision module for weakly supervised semantic segmentation and tracking of recyclable objects on the conveyor belt.
- 2019-PRESENT **Automated Robotic Recycling Project**
(Boston University Computer Vision and Learning Group)
Developing the computer vision module for weakly supervised semantic segmentation and tracking of recyclable objects on the conveyor belt.
- 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 increase 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).

POSTERS AND PRESENTATIONS

- 2019 Thirty-third Conference on Neural Information Processing Systems, – *poster*
- 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*

WORK EXPERIENCE

- 2018-present Graduate Student at BOSTON UNIVERSITY IMAGE AND VIDEO COMPUTING GROUP
- Fall 2018 Grader for CS 480/680 (Introduction to Computer Graphics) at BOSTON UNIVERSITY
- 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

- 2020 Conference on Computer Vision and Pattern Recognition (CVPR'20), reviewer.
- 2019 Winter Conference on Applications of Computer Vision (WACV '20), reviewer.
- 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.