

# Dina BASHKIROVA

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## RESEARCH INTERESTS

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

## EDUCATION

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- 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

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

## PUBLICATIONS

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- 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  $L^1$  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

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- 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

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- 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

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- 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

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- 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

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

## SELECTED COURSEWORK

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