

ABOUT ME

I am a PhD Candidate at Boston University advised by Professor Kate Saenko. My primary interests include generative models, image translation and label-efficient learning. My goal is to make generative models more expressive and controllable for artists of various skill levels. To achieve this goal, I explore various ways to achieve fine-grained semantic control with label-efficient disentanglement and domain alignment. I am also deeply passionate about the applications of AI for the environment. I am currently leading a project on the automation of industrial waste sorting with the hope to significantly reduce environmental impact and improve efficiency in the waste management process.

EDUCATION

Ph.D. in Computer Science

Boston University

2018 - present

Advisor: Kate Saenko

M.Sc. in Computer Science

Kazan Federal University




2014 - 2016

B.Sc. in Computer Science

Kazan Federal University

2010 - 2014

LINKS

 [github](#)  [linkedin](#)  [website](#)

HONORS & AWARDS

2018 - Dean's Fellowship at Boston University

2014 - Award for Outstanding Academic Achievement at KFU

2011-2014 - B.Sc. Scholarship for High Academic Results from State Department of Education

SERVICE

ICCV, ECCV, CVPR, ICML, ICLR,

NeurIPS, WACV - reviewer (2018-2023)

Boston University - Social Chair for CS Graduate Students (2018-2021)

Boston University - Vision Transformers Reading Group Organizer (2022)

SELECTED PUBLICATIONS

[2023 CVPR (highlight)]: **MaskSketch: Unpaired Structure-guided Masked Image Generation**

Dina Bashkirova, Jose Lezama, Kihyuk Sohn, Kate Saenko, Irfan Essa

An image generation method that allows spatial conditioning of the generation result using a guiding sketch as an extra conditioning signal during sampling. Given an input sketch and its class label, MaskSketch samples realistic images that follow the given structure.

[NeurIPS'22]: **VisDA-2022 Competition: Sim2Real Domain Adaptation for Industrial Waste Sorting**

Dina Bashkirova, Piotr Teterwak, Donghyun Kim, Samarth Mishra, DIAL Lteif, Piotr Teterwak, Berk Calli, Sarah Adel Bargal, Vitaly Ablavsky, Kate Saenko

A visual domain adaptation challenge for industrial waste sorting. Large variability in visual appearance and composition of waste stream make generalization especially challenging for the automated waste sorting solutions. In this competition, we propose to improve generalization of the waste detection models using SynthWaste, novel synthetic dataset for waste sorting.

[CVPR'22]: **ZeroWaste Dataset: Towards Deformable Object Segmentation in Cluttered Scenes**

Dina Bashkirova, Mohamed Abdelfattah, Ziliang Zhu, James Akl, Fadi Alladkani Ping Hu, Vitaly Ablavsky, Berk Calli, Sarah Adel Bargal, Kate Saenko

The first in-the-wild object segmentation dataset for industrial waste sorting for fully-, semi- and weakly-supervised setups. Our ZeroWaste datasets presents a challenging computer vision task of semantic segmentation of extremely cluttered scenes with highly deformable and translucent objects.

[WACV'22]: **RIFT: Disentangled Unsupervised Image Translation via Restricted Information Flow**

Ben Usman, **Dina Bashkirova**, Kate Saenko

A new many-to-many image translation method that infers which attributes are domain-specific from data by constraining information flow through the network using translation honesty losses and a penalty on the capacity of the domain-specific embedding, and does not rely on hard-coded inductive architectural biases.

[WACV'21]: **Evaluation of Correctness in Unsupervised Many-to-Many Image Translation**

Dina Bashkirova, Ben Usman, Kate Saenko

An evaluation protocol for the disentanglement quality of unsupervised many-to-many image translation methods.

[NeurIPS'19]: **Adversarial Self-Defense for Cycle-Consistent GANs**

Dina Bashkirova, Ben Usman, Kate Saenko

We show that cycle-consistent models perform a self-adversarial attack by embedding low-amplitude structured noise into intermediate generated images to reconstruct input images perfectly. We propose two techniques that prevent this kind of "cheating" and show that defending against such self-adversarial attacks improves the translation quality.

INDUSTRY

Google Research - Intern

Summers 2020-2022

- (2022) Worked with the AI4Design Team on a sketch-to-photo translation method with generative vision transformers.
- (2021) Worked with Cerebra Team on the weakly-supervised object localization under domain shift.
- (2020) Worked with Cerebra Team on the unsupervised domain adaptation in compositional networks.

Eidos Group LLC - Research Assistant and Software Engineer

2014-2016

- Performed research on vascular system reconstruction from CTA images and worked on improving performance of 3D modeling system.

Bars Group CJSC - Software Engineer

2013-2013