Vitali Petsiuk, Ph.D.   Boston, MA

CONTACT   vpetsiuk@gmail.com   webpage   linkedin   google scholar

INTERESTS   Generative AI, Multimodal Learning, Diffusion Models, LLM, Interpretable ML.

EDUCATION   **Boston University**, Ph.D., Computer Science.   2017 – 2024
- Concept manipulation in Text-to-Image Diffusion Models.
- Feauture importance attribution and evaluation for Computer Vision models.
- Interpretability in multimodal models for document understanding.

Belarusian State University, M.S./B.S., *with distinction*.   2012 – 2017
Computer Science and Applied Math. Research in Semantic Segmentation.

Yandex School of Data Analysis, MPS, Computer Science.   2014 – 2016
Graduate program in Machine Learning and Theoretical Computer Science.

WORK   **Adobe Research**. ML Research Intern.   College Park, MD.   Jun 2020 – Aug 2020
EXPERIENCE   Incorporated multiple interpretability methods for Multimodal (Vision-Language) Transformers
for Document Understanding. Research in positional embeddings for spatial layout modeling.

Adobe Research. ML Research Intern.   College Park, MD.   Jun 2019 – Nov 2019
Developed a novel interpretability method (saliency attribution) for Object Detectors for natural images and documents. Integrated into the Document Understanding pipeline in production. *CVPR publication (oral); U.S. Patent Grant.*

Eminent Systems, Software Engineer, C++.   Minsk, Belarus.   2015 – 2017
Lead the implementation of a library of GPU parallel algorithms for Image Processing in OpenCL.

SELECTED   **Petsiuk**, Saenko. Concept Arithmetics for Circumventing Concept Inhibition in Diffusion Models. ECCV 2024, **oral**, best paper honorable mention.
PUBLICATIONS
⌖ SEE ALL   **Petsiuk** et al. Human Evaluation of Text-to-Image Models on a Multi-Task Benchmark. NeurIPS HEGM Workshop 2022. **oral**.

Petsiuk, Jain, Manjunatha, Morariu, Mehra, Ordonez, Saenko. Black-box Explanation of Object Detectors via Saliency Maps. CVPR 2021, **oral.**

Bargal, Zunino, **Petsiuk**, Zhang, Saenko, Murino, Sclaroff. Guided Zoom: Questioning Network Evidence for Fine-grained Classification. BMVC 2019, **oral**.

Petsiuk, Das, Saenko. RISE: Randomized Input Sampling for Explanation of black-box models. BMVC 2018, **oral**.

PATENTS   R. B. Jain, V. I. Morariu, V. Petsiuk, V. Manjunatha, A. Mehra, V. I. O. Roman. "Explanatory visualizations for object detection". U.S. Patent Grant 11227159.

PROFESSIONAL   Reviewer: CVPR, NeurIPS, AAAI, WACV, ACCV; IJCV. Outstanding reviewer (CVPR 2021).
ACTIVITIES   Teaching Fellow for CS440 Intro to AI (2023 S,F; 2024 S), CS523 Deep Learning (2022 F).
Guest Lecture on Interpretable ML for CS585 Computer Vision (2022).
Co-organizer, Interpretable ML Practicum Class, MIT (2020).
Student host, AI Seminars at BU (2021-2022).
Adobe Research Fellowship (2020). Dean's Fellowship at Boston University (2017).
Technical advisor, AI4ALL (2019). Demo at ECCV (2018).
Best student research award, BSU (2017). Bronze, Belarus Math Olympiad (2011, 2012).

FRAMEWORKS   Python, PyTorch, NumPy, HuggingFace suite, OpenCV, TensorFlow, Git, UNIX, bash.