

Hossein Souri

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EDUCATION

Johns Hopkins University
PhD in Computer Science

Baltimore, MD
Expected Graduation: July 2024

Johns Hopkins University
MS in Computer Science

Baltimore, MD
Aug 2020 - Aug 2022

University of Maryland, College Park
MS in Electrical and Computer Engineering

College Park, MD
Aug 2018 - Aug 2020

RESEARCH INTERESTS

Adversarial Robustness, Generative Models, Multimodal Machine Learning, Transfer Learning

PUBLICATIONS

15. *Generating Potent Poisons and Backdoors from Scratch with Guided Diffusion*
Hossein Souri, Arpit Bansal, Hamid Kazemi, Liam Fowl, Aniruddha Saha, Jonas Geiping, Andrew Gordon Wilson, Rama Chellappa, Tom Goldstein, Micah Goldblum
Under Review 2024 [[Paper](#)][[Code](#)]
14. *Identifying Attack-Specific Signatures in Adversarial Examples*
Hossein Souri, Pirazh Khorramshahi, Chun Pong Lau, Micah Goldblum, and Rama Chellappa
IEEE ICASSP 2024 [[Paper](#)][[Code](#)]
13. *Battle of the Backbones: A Large-Scale Comparison of Pretrained Models across Computer Vision Tasks*
Micah Goldblum*, **Hossein Souri***, Renkun Ni, Manli Shu, Viraj Prabhu, Gowthami Somepalli, Prithvijit Chattopadhyay, Mark Ibrahim, Adrien Bardes, Judy Hoffman, Rama Chellappa, Andrew Gordon Wilson, Tom Goldstein
NeurIPS 2023 [[Paper](#)][[Code](#)]
12. *A Deep Dive into Dataset Imbalance and Bias in Face Identification*
Valeriia Cherepanova, Steven Reich, Samuel Dooley, **Hossein Souri**, Micah Goldblum, Tom Goldstein
AAAI/ACM Conference on AI, Ethics, and Society (AIES) 2023 [[Paper](#)]
11. *Interpolated Joint Space Adversarial Training for Robust and Generalizable Defenses*
Chun Pong Lau, Jiang Liu, **Hossein Souri**, Wei-An Lin, Soheil Feizi, Rama Chellappa

TPAMI 2023 [[Paper](#)]

10. *Sleeper Agent: Scalable Hidden Trigger Backdoors for Neural Networks Trained from Scratch*
Hossein Souri, Liam Fowl, Rama Chellappa, Micah Goldblum, and Tom Goldstein
NeurIPS 2022 [[Paper](#)][[Code](#)]
9. *Pre-Train Your Loss: Easy Bayesian Transfer Learning with Informative Priors*
Ravid Shwartz-Ziv, Micah Goldblum, **Hossein Souri**, Sanyam Kapoor, Chen Zhu, Yann LeCun, Andrew Gordon Wilson
NeurIPS 2022 [[Paper](#)][[Code](#)]
8. *Thinking Two Moves Ahead: Anticipating Other Users Improves Backdoor Attacks in Federated Learning*
Yuxin Wen, Jonas Geiping, Liam Fowl, **Hossein Souri**, Rama Chellappa, Micah Goldblum, Tom Goldstein
ICML AdvML Frontiers workshop 2022 [[Paper](#)][[Code](#)]
7. *Mutual Adversarial Training: Learning Together is Better Than Going Alone*
Jiang Liu, Chun Pong Lau, **Hossein Souri**, Soheil Feizi, Rama Chellappa
IEEE Transactions on Information Forensics and Security (TIFS) 2022 [[Paper](#)]
6. *The Close Relationship Between Contrastive Learning and Meta-Learning*
Renkun Ni, Manli Shu, **Hossein Souri**, Micah Goldblum, Tom Goldstein
ICLR 2021 [[Paper](#)][[Code](#)]
5. *ATFaceGAN: Single Face Image Restoration and Recognition from Atmospheric Turbulence*
Chun Pong Lau, **Hossein Souri**, Rama Chellappa
IEEE International Conference on Automatic Face and Gesture Recognition (FG) 2020
[Best paper \(honorable mention\) award](#). [Oral presentation](#) [[Paper](#)]

Book Chapters.....

4. *Adversarial Attacks and Robust Defenses in Deep Learning*
Chun Pong Lau, Jiang Liu, Wei-An Lin, **Hossein Souri**, Pirazh Khorramshahi, Rama Chellappa
Elsevier 2023 [[Paper](#)]

Preprints.....

3. *GANs with Variational Entropy Regularizers: Applications in Mitigating the Mode-Collapse Issue*
Pirazh Khorramshahi*, **Hossein Souri***, Rama Chellappa, Soheil Feizi. [[Paper](#)]
2. *Towards Gender-Neutral Face Descriptors for Mitigating Bias in Face Recognition*
Prithviraj Dhar, Joshua Gleason, **Hossein Souri**, Carlos D. Castillo, Rama Chellappa. [[Paper](#)]
1. *An Adversarial Learning Algorithm for Mitigating Gender Bias in Face Recognition*
Prithviraj Dhar, Joshua Gleason, **Hossein Souri**, Carlos D. Castillo, Rama Chellappa. [[Paper](#)]

EMPLOYMENT

Ping An Technology, Silicon Valley Research Lab

Palo Alto, CA

ML/CV Research Intern

May 2023 - Nov 2023

- Throughout my internship, I actively contributed to a prominent virtual being project. Specifically, I focused on the Talking Head Generation task, where I successfully designed and implemented a range of vision-language-speech generative models. By utilizing state-of-the-art diffusion models, I integrated videos, speech, and text resulting in highly realistic talking head animations.

Artificial Intelligence for Engineering and Medicine Lab (AIEM)

Baltimore, MD

ML/CV Research Assistant

Aug 2020 - Present

- My primary research is applied machine learning and computer vision, focusing on improving the robustness, transferability, and performance of image/face/video classifiers, object detection/segmentation, and generative models. Those include adversarial robustness, transfer learning, self-supervised learning, generative models, as well as, data poisoning and backdoor attacks.

University of Maryland Institute for Advanced Computer Studies

College Park, MD

ML/CV Research Assistant

Aug 2018 - Aug 2020

- Fairness in face recognition systems, image restoration, and GANs.

TEACHING EXPERIENCE

- Teaching Assistant, Machine Intelligence, Spring 2022
- Teaching Assistant, Machine Perception, Fall 2021
- Teaching Assistant, Deep Learning, Spring 2021
- Teaching Assistant, Machine Learning, Spring 2020

Community Involvement

- Conference Reviewer
 - CVPR 2022,2023,2024
 - NeurIPS 2022,2023
 - ICLR 2023,2024
 - ICML 2023,2024
 - ECCV 2022,2024
 - WACV 2022,2023
- Journal Reviewer
 - Pattern Recognition 2022