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Danial Samadi Vahdati

My Personal Website

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Employment

Research Assistant — **Drexel Multimedia and Information Security Lab** — **Jan 2021- Present**

- Increased the Accuracy of Camera Model Identification system with a CNN called MISLnet and Forensic Similarity Graphs by 6.3 percent.
- Created an extensive dataset of Deepfake videos created with DeepFacelabV2 consisting of 10,000 videos for Deepfake detection.
- Developed an algorithm for detecting GAN generated images using the semantic features of human face with an accuracy of 93 percent.
- Utilizing Reinforcement learning, fine-tuned the model previously used in the lab for synthesized images source attribution to increase the classification accuracy.

Languages and Technologies

- C++; C; Python ; Matlab; R;
- Tensorflow ; Pytorch ; Visual Studio ; DeepfaceLabV2; Xcode; Deep Learning; Machine Learning ; Reinforcement Learning; Natural Language Processing; Digital Image Processing; Forgery Detection; Deepfake Detection; GAN Detection; Image Synthesis

Education

Philadelphia, PA — **Drexel University** — **Winter 2021 – Present**

- Ph.D. in Electrical Engineering, . GPA: 3.53

Qazvin, Iran — **Imam Khomeini International University** — **Fall 2016 – Spring 2020**

- B.S. in Electrical Engineering, . GPA: 15.79/20 equivalent to 3.1 Graduated top 3 percent of my class.

Technical Experience

Projects

- **Synthesized Image detection** (2021). Detecting if an image is GAN-synthesized or not using the inconsistencies found in extracted Facial Features using Convolutional Neural Networks created with Tensorflow v2, Python, Pytorch, OpenCV and Google MediaPipe.
- **GAN source Attribution** (2022). Attributing the source of the synthesized image to the GAN used for creating it using Deep Learning through Tensorflow v2 and Python.
- **Deepfake Detection** (2022). Detecting if a particular video is created using Deepfaking methods such as Deepfacelabv2 or not using Deep learning and Reinforcement Learning with Tensorflow v2 and Python

Publication and Awards

- Danial Samadi Vahdati, Matthew C. Stamm, Detecting GAN-Generated Synthetic Images Using Semantic Inconsistencies, Electronic Imaging 2023,Media Watermarking, Security, and Forensics, Accepted

- **Student of the Year Award 2018** Awarded first prize for Student of the year due to prolific Activity in college of Engineering's research laboratories.