Aref Azizpour

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Education

Ph.D. in Computer Science | Drexel University — Sep. 2022 – Aug. 2027 (Expected)
Master of Science in Computer Science | University of Tehran — Nov. 2020 – Jul. 2022
Bachelor of Science in Computer Engineering | K. N. Toosi University of Technology — Sep. 2014 – Sep. 2019

Publications

Autonomous and Self-Adaptive Learning of AI-Generated Images — ***IEEE WACV*** *2027*
Zero-Shot Detection of AI-Generated Videos using Temporal Signals *(Oral Presentation)* — ***NeurIPS*** *2026*
Seeing the Unseen: Enhancing Synthetic Video Detector Transferability — ***ACM IH&MMSec*** *2026*
Zero-Shot Detection of AI-Generated Images — ***IEEE CVPR*** *2025*
Continual Learning of AI-Generated Images Using Limited Data — ***IEEE CVPR Workshops*** *2024*
Beyond Deepfake Images: Detecting AI-Generated Videos — ***IEEE CVPR Workshops*** *2024*

Experience

Ph.D. Researcher at Drexel University — Sep. 2022 – Present
- Research AI-Generated image/video detection and open-world synthetic media forensics.
- Co-authored 5 published/accepted papers at NeurIPS (*Oral*), CVPR, and ACM IH&MMSec; 1 additional paper under review.

Graduate Researcher at University of Tehran — Jun. 2021 – Jul. 2022
- Developed a Spiking CNN (SCNN) using bio-inspired reinforcement learning rules to study the impact of contextual information on object recognition

Machine Learning Engineer at Sensifai | *Video AI Startup* — Sep. 2020 – Jun. 2021
- Optimized edge face recognition on Nvidia Jetson, achieving +30 FPS real-time throughput and occlusion robustness (e.g., masked faces).

Machine Learning Engineer at Rahbin Sanat Nasir | *Automotive AI Startup* — Sep. 2019 – Sep. 2020
- Engineered a failure-analysis pipeline for ADAS collision alerts, reducing low-light false alarm rate to <1%.

Selected Projects

Zero-Shot Detection of AI-Generated Videos | *Anomaly Detection, Spatio-Temporal Modeling, Autoregressive Models*
- Proposed Video Forensic Self-Descriptions (VFSD), extracting temporal microstructures from visual and motion evolution residuals via 3D spatio-temporal autoregressive modeling.
- Achieved 0.97 detection AUC across 35 generators using only real training data, 95.9% source attribution accuracy, and robustness under H.264 compression (>0.96 AUC).

Self-Adaptive Detection of Synthetic Media | *Self-Adaptive Learning, Open-World Machine Learning*
- Formulated an unsupervised discovery framework to identify, isolate, and label emerging generative artifacts across novel autoregressive and diffusion architectures without ground-truth supervision.
- Designed a self-validating update pipeline for open-world detection and source attribution, maintaining 94% accuracy under severe generator distribution drift where non-adaptive baselines collapsed to 60%.

Continual Learning of AI-Generated Media | *Few-Shot Adaptation, Transformers, Data Efficient Learning*
- Developed a transformer-based continual learning framework (E3) to update synthetic media detectors under distribution drift without catastrophic forgetting.
- Enabled few-shot model adaptation using as few as 50 images from a target generator, reducing detection error by 57% (0.93 → 0.97 AUC) compared to competitive baselines.

Technical Skills

Areas of Expertise: Computer Vision, Natural Language Processing, AI Safety, Anomaly Detection, Self-Supervised Learning
Frameworks & Libraries: PyTorch, Hugging Face, OpenCV, FFmpeg, scikit-learn, pandas, Weights & Biases, Docker, Git
Programming Languages: Python, C++, Java, SQL