

DFAD2023

WORKSHOP AND CHALLENGE ON DEEPPFAKE ANALYSIS AND DETECTION

WELCOME AND INTRODUCTION

ICCV23
PARIS

Welcome to the first Workshop and Challenge on DeepFake Analysis and Detection!

A workshop that focuses on the development of benchmarks and tools for Fake data Understanding and Detection, with the final goal of protecting from visual disinformation and misuse of generated images and text, and to monitor the progress of existing and proposed solutions for detection.



Lorenzo Baraldi (UNIMORE), Dmitry Kangin (Lancaster Univ.), Tamar Glaser (Meta AI), Alessandro Nicolosi (Leonardo SpA), Plamen Angelov (Lancaster Univ.), Rita Cucchiara (UNIMORE)

We received 21 submissions, 11 of which have been accepted:

- 5 papers selected for oral presentation
- 6 papers selected for poster presentation

In addition, we will host:

- Two presentations from the ELSA Challenge on DeepFake Detection
- ...and three invited talks!

Full program is available on-line:
<https://ailb-web.ing.unimore.it/dfad2023/>



Tal Hassner

Meta AI

An AI Whodunnit: Following Image Manipulation Clues to their Source, 11:10 AM



Mario Fritz

CISPA Helmholtz Center for Information Security

Sustainable DeepFake Detection, Watermarking, and Personalized Disinformation, 11:45 AM



Naomi Ken Korem

Lightricks

Between Illusion and Reality: Guiding AI to Generate IdentityPreserving Images, 12:20 AM

8:30 AM	Welcome and introduction Introduction to the Workshop DFAD Chairs: L. Baraldi, D. Kangin, T. Glaser, P. Angelov, R. Cucchiara Introduction to the ELSA DeepFake Detection Challenge Lorenzo Baraldi (University of Modena and Reggio Emilia)
8:35 AM	ELSA DeepFake Challenge presentations <i>Presentation of the top submissions to the EU ELSA DeepFake Dataset (developed by UNIMORE and Leonardo SpA)</i> First place: Boosting Deepfake Detection with Data Augmentation and DCT Davide Alessandro Coccomini (ISTI-CNR), Giuseppe Amato (ISTI-CNR), Fabrizio Falchi (ISTI-CNR), Claudio Gennaro (ISTI-CNR) Second place: MCA-Net: Multimodal Co-Attention Based Network for Detecting AI-Generated Images Jiache Zhang (Shanghai Jiao Tong University), Xiaohong Liu (Shanghai Jiao Tong University), Xiufeng Song (Shanghai Jiao Tong University), Qirui Li (Shanghai Jiao Tong University), Xiao Guo (Michigan State University), Yihan Wang (Shanghai Jiao Tong University), Zihan Zhang (Shanghai Jiao Tong University), Shilin Wang (Shanghai Jiao Tong University), Guangtao Zhai (Shanghai Jiao Tong University)
8:50 AM	Oral presentation: Online Detection of AI-Generated Images David C. Epstein (Adobe Inc.); Ishan Jain (Adobe Inc); Oliver Wang (Adobe Inc); Richard Zhang (Adobe Inc)
9:05 AM	Oral Presentation: TrainFors: A Large Benchmark Training Dataset for Image Manipulation Detection and Localization Soumyaroop Nandi (University of Southern California); Prem Natarajan (Amazon); Wael Abd-Almageed (University of Southern California)
9:20 AM	Oral presentation: Revisiting Generalizability in Deepfake Detection: Improving Metrics and Stabilizing Transfer Sarthak Kamat (UC Berkeley); Shruti Agarwal (UC Berkeley); Trevor Darrell (UC Berkeley); Anna Rohrbach (UC Berkeley)
9:35 AM	Oral presentation: Interpretable-through-prototypes deepfake detection for diffusion models Agil Aghasanli (Lancaster University); Dmitry Kangin (Lancaster University); Plamen Angelov (Lancaster University)
9:50 AM	Oral presentation: Attending Generalizability in Course of Deep Fake Detection by Exploring Multi-task Learning Pranav Balaji (BITS Pilani); Abhijit Das (BITS Pilani); Srijan Das (University of North Carolina Charlotte); Antitza Dantcheva (INRIA)

10:05 AM	Poster Session <p>FIVA: Facial Video and Image Anonymization and Anonymization Defense Felix Rosberg (Berge Consulting); Eren Erdal Aksoy (Halmstad University); Cristofer Englund (Halmstad University); Fernando Alonso-Fernandez (Halmstad University)</p> <p>A Comprehensive Framework for Evaluating Deepfake Generators: Dataset, Metrics Performance, and Comparative Analysis Sahar Hussein (Eurecom); Jean-Luc Dugelay (France)</p> <p>WaterLo: Protect Images from Deepfakes Using Localized Semi-Fragile Watermark Nicolas BEUVE (INSA Rennes); Wassim Hamidouche (INSA Rennes); Olivier Deforges (IETR, Rennes)</p> <p>Undercover Deepfakes: Detecting Fake Segments in Videos Sanjay Saha (National University of Singapore); Rashindrie D Perera (University of Melbourne); Sachith H Seneviratne (University of Melbourne); Tamasha Malepathirana (University of Melbourne); Sanka Rasnayaka (National University of Singapore); Deshani Geethika (University of Melbourne); Terence Sim (NUS); Saman Halgamuge (University of Melbourne)</p> <p>Learning Interpretable Forensic Representations via Local Window Modulation Sowmen Das (University of Cambridge); Mohammad Ruhul Amin (Fordham University)</p> <p>Deepfakes signatures Detection in the Handcrafted Features Space Hamadene Assia (Morsli Abdallah University); abdeldjalil Ouahabi (Tours France); Abdenour Hadid (Sorbonne University Abu Dhabi)</p>
10:35 AM	Coffee Break
11:10 AM	Invited Talk: An AI Whodunnit: Following Image Manipulation Clues to their Source Tal Hassner (Meta)
11:45 AM	Invited Talk: Sustainable DeepFake Detection, Watermarking, and Personalized Disinformation Mario Fritz (CISPA)
12:20 PM	Invited Talk: Between Illusion and Reality: Guiding AI to Generate IdentityPreserving Images Naomi Ken Korem (Lightricks)
12:55 PM	Closing remarks

DFAD2023

WORKSHOP AND CHALLENGE ON DEEPPFAKE ANALYSIS AND DETECTION

ELSA DEEPPFAKE CHALLENGE PRESENTATIONS

PRESENTATION OF THE TOP SUBMISSIONS TO THE EU ELSA DEEPPFAKE DATASET

ICCV23
PARIS

A benchmark for training and evaluating deep fake models. The benchmark will be composed of three tracks:

Track 1 - Classification of totally generated images

1. The task involves the recognition of deepfakes in which the entire image is generated at once.
2. The binary classification task involves distinguishing between fake images and real images using machine learning and deep learning-based approaches.

Track 2 - XAI evaluation of deepfake detectors (starting soon)

1. The task will involve the evaluation of deepfake detector saliency maps.
2. Evaluation will be conducted through both human supervision and automatic metrics like ADCC[1].

Track 3 - Classification of partially altered or generated images (starting soon)

1. The task involves the recognition of deepfakes in which both real images and generated images are partially edited.
2. The binary classification task involves distinguishing between edited images and real images using machine learning and deep learning-based approaches.

The datasets were generated using the Leonardo HPC infrastructure davinci-1

Dataset hosted on HuggingFace that provide unlimited storage and API to easily download the data also in streaming mode.

As of yesterday, the leaderboard looked like this:

Ranking Table 					Download CSV
Description	Paper	Source Code	Metrics		
Date	User	E-mail	Method	f1_score	
2023-09-04	Davide Alessandro Coccomini	davidealessandro.coccomini@isti.cnr.it	Swin Transformer DCT	0.97725668575014	
2023-08-31	Davide Alessandro Coccomini	davidealessandro.coccomini@isti.cnr.it	Swin Transformer + Swin Transformer DCT	0.97365746892832	
2023-08-24	Davide Alessandro Coccomini	davidealessandro.coccomini@isti.cnr.it	Swin Transformer	0.97105355677956	
2023-08-24	Davide Alessandro Coccomini	davidealessandro.coccomini@isti.cnr.it	Swin Transformer + Resnet50 DCT	0.95234775873754	
2023-08-22	Davide Alessandro Coccomini	davidealessandro.coccomini@isti.cnr.it	Resnet50 + Swin Transformer	0.94966915523661	
2023-09-28	Zhang Jiache	zjc_he@sjtu.edu.cn	CNN detection with Multi-modal	0.88971233544612	
2023-09-08	Luce	l.w37@yahoo.com	Basic	0.80222598068634	
2023-09-08	Luce	l.w37@yahoo.com	MiniVGG	0.8006292644557	
2023-09-02	Luce	l.w37@yahoo.com	Baseline	0.77303002356799	
2023-08-26	Zhang Jiache	zjc_he@sjtu.edu.cn	swin baseline	0.20702247191011	
2023-09-25	Seonghun Park	seonghun120614@gmail.com	grag 2epoch	0.13617305480316	
2023-09-25	Seonghun Park	seonghun120614@gmail.com	grag 3epoch	0.063666215955186	
2023-09-25	Seonghun Park	seonghun120614@gmail.com	grag 5epoch	0.059210526315789	
2023-09-25	Seonghun Park	seonghun120614@gmail.com	grag 4epoch	0.035153797865662	