

Deepfake Detection Using Deep Learning Methods:

A Systematic and Comprehensive Review

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- **Year:** 2023 (WIREs Data Mining and Knowledge Discovery)

Purpose:

Provide a systematic and comprehensive review of deepfake detection methods using deep learning.

Methods:

Systematic survey and categorization of studies by media type (video), model type (CNN), and benchmark datasets.

Results:

Deep learning, especially CNN-based models, outperforms traditional handcrafted approaches; most work focuses on video deepfakes.

Conclusions:

Key challenges remain generalization to unseen data, dataset bias, real-world robustness, and the need for multimodal and explainable detection systems

How is it important for my research

- The study shows that visual/video-based deepfake detection is currently the most advanced area in the field, which directly aligns with my OSRC project's focus on video-only analysis.
- It also supports the use of frame-based CNNs such as my ResNet-18 model with face cropping as an appropriate and validated baseline.
- Additionally, the study highlights challenges I also experience, including unstable face detection and weak cross-dataset generalization, which will guide improvements in my upcoming experiments.

APA Citation

Heidari, A., Jafari Navimipour, N., Dag, H., & Unal, M. (2023). Deepfake detection using Deep Learning Methods: A systematic and Comprehensive Review. *WIREs Data Mining and Knowledge Discovery*, 14(2). <https://doi.org/10.1002/widm.1520>