Detecting Deepfake Audio
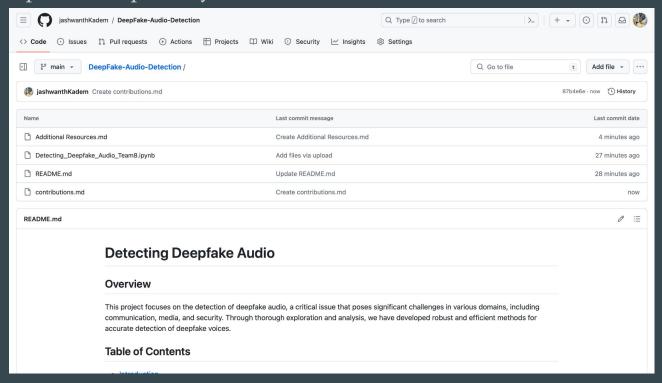
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Deployment | Week 13

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Github

This project is published publicly on Github : https://github.com/jashwanthKadem/DeepFake-Audio-Detection

Future Research Directions

1.

Enhancement of Model
Performance:

- **Fine-tuning Deep
  Learning Models:** Explore
  techniques to fine-tune
  the hyperparameters of
  deep learning models such
  as CNNs, GRUs, and
  LSTMs to further improve
  detection accuracy,

2.

Addressing Class Imbalance:

- **Data Augmentation:**
  Implement advanced data
  augmentation techniques to
  generate synthetic samples of
  deepfake voices, addressing the
  class imbalance issue.
- **Advanced Sampling
  Techniques:** Explore more
  sophisticated sampling
  methods tailored to the
  characteristics of the dataset to
  ensure balanced training.
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3.

Transfer Learning and
Generalization:

- **Transfer Learning:**
  Experiment with transfer
  learning techniques to
  leverage pre-trained
  models and adapt them to
  the task of deepfake audio
  detection, improving
  generalization to unseen
  data.

Future Research Directions

4.

- **Optimization for Real-time Processing:** Develop techniques to optimize the model for real-time detection of deepfake voices in streaming audio or video content.
- **Deployment Challenges:** Address practical challenges in deploying deepfake audio detection systems in real-world applications, including media authentication and fraud detection.

5..

Exploration of Novel Features and Methods:

- **Exploration of New Features:** Investigate the effectiveness of novel audio features beyond MFCCs for detecting deepfake voices, such as spectral contrast and temporal features.

6.

- **Advanced Signal Processing Techniques:** Explore advanced signal processing techniques, such as attention mechanisms and waveform modeling, to extract more discriminative features.

Thank You