

**DFFMD- A Deepfake Face Mask Dataset for Infectious Disease Era with
Deepfake Detection Algorithms**

A report submitted in partial fulfillment of the requirements for the award of a degree of

Bachelor of Technology
in
Computer Science and Engineering
by

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(2023-2024)

DECLARATION

I hereby declare that the report entitled **“DFFMD- A Deepfake Face Mask Dataset for Infectious Disease Era with Deepfake Detection Algorithms”** submitted for the award of the degree of **Bachelor of Technology (B. Tech)** in Computer Science and Engineering is a record of an original work done by me and the report has not formed the basis for the award of any degree, diploma, associateship or fellowship of similar other titles. It has not been submitted to any other University or Institution for the award of any degree or diploma.

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**CERTIFICATE**

This is to certify that the report entitled “**DFMD- A Deepfake Face Mask Dataset for Infectious Disease Era with Deepfake Detection Algorithms**” that is being submitted by **Mr. T.Meghanath** bearing the Hall Ticket number **21EG505865** in partial fulfillment for the award of the Bachelor of Technology in Computer Science and Engineering to the Anurag University is a record of bonafide work carried out by him under my guidance and supervision.

The results embodied in this report have not been submitted to any other University or Institute for the award of any other degree or diploma.

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ABSTRACT

The advent of deep-fake technology, allowing the creation of fabricated images and videos with convincingly replaced or synthesized faces, has raised significant societal concerns. This phenomenon poses risks, including the malicious generation of false political news, dissemination of misleading information, fabrication of electronic evidence, and perpetration of digital harassment and fraud. The utilization of face masks during the COVID-19 pandemic has exacerbated the challenge, making it easier to create deep-fake while simultaneously complicating their detection. To address this evolving threat, the proposed system uses a pioneering Deep-fake Face Mask Dataset (DFFMD) and different algorithms based on Inception-ResNet-v2, incorporating preprocessing stages, feature-based analysis, residual connections, and batch normalization. The system results, compared with state-of-the-art methods, demonstrate heightened accuracy in detecting face-mask-enhanced deep-fake videos, surpassing traditional methods like InceptionResNetV2 and VGG19. Furthermore, the main aim of the system which advocates for the integration of Convolutional Neural Networks (CNN) and an extension using Xception, underscoring their efficacy in enhancing deep-fake detection accuracy. Our proposed system future goal is to focus on evaluating the accuracy through subsequent experimental iterations, emphasizing the continued development of robust methods for increased detection of deep-fake with facemasks in the ever-evolving technological landscape.

Keywords: Deep-Fake, Convolution Neural Network, Deep-fake Face Mask Dataset(DFFMD), Inception-ResNet-v2, VGG19, Xception.

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