**Machine Learning Classification and Feature Selection for Efficient Fake Face**

**Synthesised Video Identification**

A project report submitted to

Indian Institute of Engineering, Science and Technology in partial fulfilment for the award of the degree of Bachelor of Technology

in Information Technology

**by**

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**Indian Institute of Engineering, Science and Technology, Shibpur**

**December, 2022**

**DEPARTMENT OF INFORMATION TECHNOLOGY**

**INDIAN INSTITUTE OF ENGINEERING, SCIENCE AND TECHNOLOGY SHIBPUR, HOWRAH - 711103, INDIA**

**CERTIFICATE**

This is to certify that the project report entitled “Machine Learning Classification and Feature Selection for Efficient Fake Face Synthesised Video Identification” submitted by Arijit Dalui (Enrolment Number- 510819100), Ritaban Bhattacharya(Enrolment Number- 510819101), Soumik Mukherjee(Enrolment Number- 510819102) to Indian Institute of Engineering, Science and Technology towards partial fulfilment of requirements for the award of degree of Bachelor of Technology in Information Technology is a record of Bonafede work carried out by them under my supervision. This dissertation, in my opinion, is worthy of consideration for the purpose for which it is submitted and it fulfils the requirements of the regulations of this Institute. The results incorporated in this dissertation are original and have not been submitted to any University or Institute for the award of any Degree or Diploma.

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***CERTIFICATE***

This is to certify that the project report entitled “**Application of double auction game for analysing denial of service attack in 5G wireless communication network**” submitted by **<NAME>** (Roll No. 320819016) **(all the group members, separated with comma)** to Indian Institute of Engineering, Science and Technology towards partial fulfilment of requirements for the award of degree of Bachelor of Technology in Information Technology is a record of bonafide work carried out by him under my supervision. This dissertation, in my opinion, is worthy of consideration for the purpose for which it is submitted and it fulfils the requirements of the regulations of this Institute. The results incorporated in this dissertation are original and have not been submitted to any University or Institute for the award of any Degree or Diploma.

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Introduction

 Deep learning is an advanced Artificial Intelligence (AI) method which uses multiple layers of machine learning algorithms to extract progressively higher-level features from raw input. It's capable of learning from unstructured data - such as the human face. For instance, an AI can gather data on your physical movements. That data can then be processed in order to create a Deepfake video through a GAN (Generative Adversarial Network). This is another kind of specialized machine learning system. Two neural networks are used to compete with each other in learning the characteristics of a training set (for instance, photographs of faces) and then generating new data with the same characteristics (new 'photographs'). Because such a network keeps testing the images it creates against the training set, the fake images become increasingly convincing. This makes Deepfake an ever more potent threat. Plus, GANs can fake other data besides photos and video. In fact, the same Deepfake machine learning and synthesizing techniques can be used to fake voices.

Therefore efficient detection of face synthesized videos and their classification is a necessary task which needs to be performed in order to differentiate between real and fake videos.

**Fake face synthesized Videos**