A STUDY ON DEEP VISION-BASED FACE ANTI-SPOOFING METHODS

Le Hoang Thien

[1] University of Information Technology, Ho Chi Minh City, Vietnam
[2] Vietnam National University, Ho Chi Minh City, Vietnam

ABSTRACT

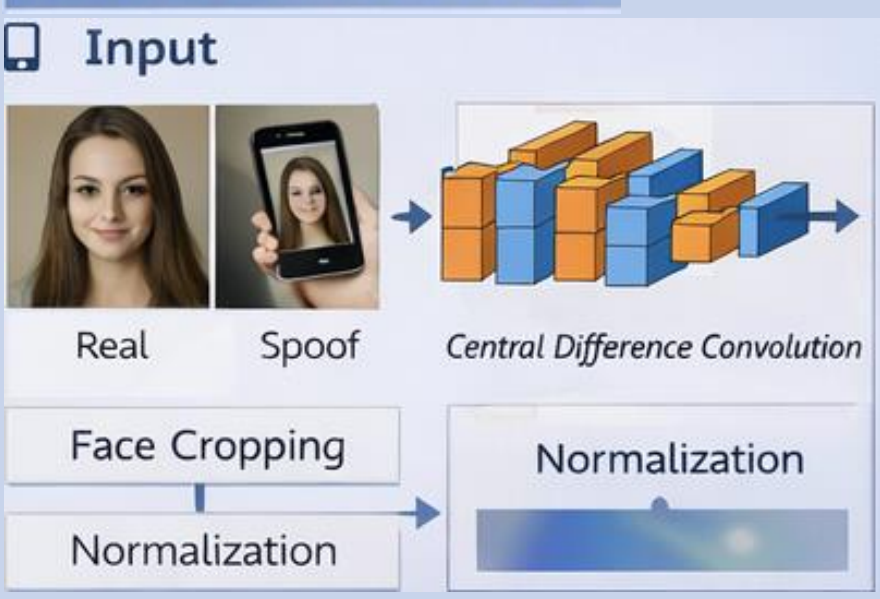
Face biometric systems are increasingly **vulnerable to attacks** using printed photos,replayed videos,or **3D masks** (Presentation Attacks - PAs). This research studies **Face Anti-Spoofing** (FAS) methods using deep vision **models to detect such threats**. Key components include fine-grained texture analysis and **depth map estimation** from single images. Experiments on OULU-NPU AND SiW datasets aim to enhance security for eKYC and access control systems.

INTRODUCTION

Face recognition is widely used in modern security systems. but is vulnerable to simple **presentation attacks**. Comprehensive studies [3] emphasize the tieed for an ad ditionallayer of liveness detection.

Recent CVPR trends include using deep learning to extract **fine-grained textures** and estimate depth maps from single RGB images [1, 2]. This study systematically explores state-of-the-art FAS techniques based on deep vision models.

PROBLEM DEFINITION



RESEARCH OBJECTIVES

1 **Input**
- Study deeplearning architectures specialized for FAS.

2 **Analyze** benchmark datasets like OULU NPU and SiW.

3 **Propose** a robust pipeline for effective face anti-spoofing.

RESEARCH CONTENT & METHODOLOGY

Datasets: OULU-NPU AND SIW

• Public benchmark datasets..No diverse attack scenarios.

Approach:Central Difference Convolution (CDC) focuses on intensity differences between

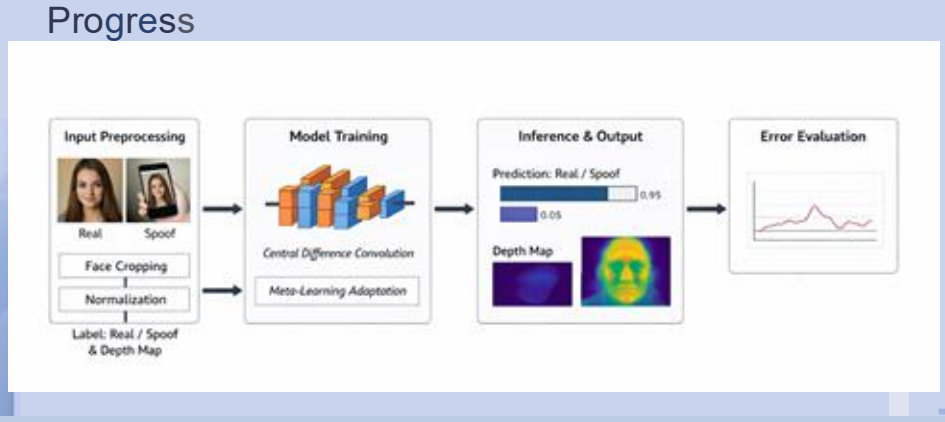
Neural Architecture Search (NAS) for automatic network optimization.

Depth-map-based analysis for 30 cues and feature: analka1s.

Average Classification Error Rate (ACER) key evaluation metric

PROPOSED SYSTEM PIPELINE

Progress



EXPECTED RESULTS

- Comprehensive understand g of FAS challenges and methods.
- Robust and adaptable FAS framework
- Foundation for future implementations.