Software Requirements Specifications

1. Introduction

1.1 Purpose

The purpose of this Software Requirement Specifications (SRS) documents is to describe the functional and non-functional requirements of **VeriFace**, an AI-based system designed to detect AI-generated or animated images uploaded on dating and matrimonial platforms. This document is intended for project guides, evaluators, and developers.

1.2 Scope

VeriFace is an image verification system that analyzes uploaded profile images to determine whether they are real or AI-generated. The system aims to prevent fake profiles, improve user trust, and enhance safety on online dating and matrimonial applications.

1.3 Definitions, Acronyms, Abbreviations

Terms	**Description**
AI	Artificial Intelligence
API	Application Programming Interface
ML	Machine Learning
CNN	Convolutional Neural Network
GAN	Generative Adversarial Network
GPU	Graphics Processing Unit
SRS	Software Requirement Specifications

1.4 References

- IEEE 830 SRS Standard
- Research papers on AI-generated image detection
- PyTorch documentation

2. Overall Description

2.1 Product Perspective

VeriFace operates as a standalone module or can be integrated into existing dating or

matrimonial platforms. It processes images uploaded by users and provides authenticity verification results.

2.2 Product Functions

High-level features (no technical detail yet).

- Upload image for verification
- Analyze image authenticity
- Classify image as *Real* or *AI-generated*
- Display confidence score
- Store verification result

2.3 User Classes and Characteristics

User	**Description**
End User	Uploads profile images
Admin	Monitors flagged images
System	Performs automated detection

2.4 Operating Environment

- Frontend: Next.js based web application
- Backend: FastAPI and TypeScript
- ML Framework: PyTorch
- OS: Windows / Linux / MacOS

2.5 Design and Implementation Constraints

- Availability of labeled datasets
- Accuracy depends on model training
- Limiting computational resources

2.6 Assumptions and Dependencies

- Users uploads clear images
- Internet connectivity required
- AI models trained on public datasets

3. System Features (Functional Requirements)

3.1 Image Upload Module

Allows users to upload profile images.

- FR1: System shall preprocess the upload image
- FR2: System shall limit file size to 5MB

3.2 AI Image Analysis Module

Detects whether the image is AI-generated.

- FR3: System shall preprocess the uploaded image
- FR4: System shall analyze the image using a trained ML model
- FR5: System shall classify image as *Real* or *Fake*

3.3 Result Display Module

Display authenticity result.

- FR6: System shall display detection result
- FR7: System shall display confidence score

3.4 Admin Monitoring Module

Functional requirements:

- FR8: Admin shall view flagged images
- FR9: Admin shall manage system logs

4. External Interface Requirements

4.1 User Interfaces

- Image upload form
- Result display dashboard

4.2 Hardware Interfaces

- Server with GPU (optional)

4.3 Software Interfaces

- ML model API
- Database (MySQL / MongoDB)

5. Non-Functional Requirements

5.1 Performance Requirements

- System shall process an image within 5 seconds
- Accuracy shall be ≥ 85% (for demo)

5.2 Security Requirements

- Uploaded images shall be securely stored
- Unauthorized access shall be restricted

5.3 Usability Requirements

- Interface shall be user-friendly
- Minimal steps for verification

5.4 Reliability Requirements

- System uptime ≥ 95%

6. Other Requirements

- Logging and reporting
- Dataset update capability