iJRASET
International Journal For Research in
Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 14 **Issue:** III **Month of publication:** March 2026

DOI: https://doi.org/10.22214/ijraset.2026.78849

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 14 Issue III Mar 2026- Available at www.ijraset.com

Generation of Fake Human Faces Using GAN'S

V. Priyadarsini[1], Joshna Priyadharshini D[2], Kaviya SriD[3]
B.Tech, M.Tech(Phd) Department of IT Panimalar Engineering College Chennai 600123

Abstract: The rapid advancement of Generative AdversarialNetworks (GANs) has enabled the creationof highly realistic synthetic human faces that are indistinguishable from real images. This paper presents a web-basedsystemforgeneratingnon-existinghumanfaces from a single reference image using a pretrained style- based generative model. The proposed system leverages NVIDIA StyleGAN2 for latent space inversion and controlled face synthesis, enabling the generation of multiple realistic face variations while preserving structural similarity to the input image. Furthermore, an Anime-style transformation module based on a pretrained AnimeGAN model is integrated to provide artistic stylization options. The system is implemented using Python, Flask, PyTorch, and React to ensure scalable backend processing and interactive user experience. The proposed framework eliminates the need for large-scale training by utilizing pretrained models, making it computationally efficient and practical for real-time applications. Experimental evaluation demonstrates that the system generates high-quality, identity-distinct synthetic faces while maintaining visual coherence. Quantitative and qualitative assessments indicate that latent space manipulation enables controlled diversity without compromising perceptual realism. Additionally, the integration of stylization techniques enhances creative flexibility while preserving core facial attributes. The solution has potential applications in digital media, entertainment, privacy-preserving data augmentation, and creative AI systems.
Keywords: Generative Adversarial Networks, StyleGAN2, Face Synthesis, Latent Space Inversion, Image-to-ImageTranslation, AnimeGAN,DeepLearning.

I. INTRODUCTION

The rapid evolution of deep learning techniques has significantly advanced the field of computer vision, particularly in image synthesis and generative modeling. Among various generative models, Generative Adversarial Networks (GANs) have emerged as one of the most powerful frameworks for producing realistic synthetic images. A GAN consists of two neural networks—ageneratorandadiscriminator—that are trained in an adversarial manner, where the generatorattemptstocreaterealisticimageswhile thediscriminatoraimstodistinguishbetweenreal and synthetic samples. This competitive training process enables the generator to progressively improve the quality of synthesized outputs.

In recent years, style-based generative architectures have demonstrated remarkable successinhigh-resolutionhumanfacegeneration. These models introduce improved control over facial attributes and structural consistency by mappinginput representationsintoadisentangledlatentspace.Asaresult,syntheticfacesgeneratedusingsuchmodelsexhibithighperceptualrealism anddiversity.Thisadvancement hasopenednew possibilities in digital media, gaming, virtual avatars, and data augmentation for machine learning systems.

Thegenerationofnon-existinghumanfacesplaysacritical role in privacy-preserving applications. Instead of using real human images, which may raise ethical and legal concerns, synthetic identities can be generatedthat donot correspond to any actual individual. However, most traditional GAN-based systems generate faces randomly from noise vectors, limiting user control over output characteristics. Generating multiple realistic variations from a single reference image remains a challenging research problem.

To address this limitation, latent space inversion techniques are employed to project a real image into the model'slatentrepresentationspace.Oncemappedintothis space, controlled perturbations can be introduced to generatemultiplenewfacesthatretainstructuralsimilarity while representing entirely different identities. This approach allows controlled diversity without compromising realism.

Beyond realistic synthesis, artistic image stylization has gained significant popularity. Image-to-image translation models enable the transformation of realistic photographs intostylizedrepresentations suchasanimeorcartoon-like images. Integrating stylization modules into a face generation pipeline enhances creative flexibility and expandspracticalapplicationsinentertainmentanddigital content creation. This paper proposes a web-based system for generating non-existing human faces from a single reference image using a pretrained style-based generative model. The system incorporates latent space inversion to enable controlled face variation generation and integrates an anime-style transformationmodule for artistic stylization. The framework is implemented using Python, Flask, PyTorch, and React to provide efficient backend processing and an interactive user interface.

II. EXISTING WORKS

Generative image synthesis has witnessed substantial progress with the introduction of Generative Adversarial Networks (GANs), which employ an adversarial training mechanism between a generator and a discriminator to producerealisticsyntheticoutputs.Earlyimplementations of GANs demonstrated the feasibility of generating synthetic images from random noise vectors; however, they suffered from instability and limited image quality. To improve stability and representation learning, Deep Convolutional GAN (DCGAN) introduced convolutional layers into both generator and discriminator networks, resultinginimprovedimagefidelityandstructuredfeature extraction.

Subsequent advancements led to the development of style-based generative architectures such as StyleGAN and its improved variants, which introduced an intermediate latent space for better disentanglementandcontroloffacialattributes. These models significantly enhanced the resolution and perceptual realism of generated human faces, enabling manipulation of characteristics such as pose, expression, and lighting conditions. Additionally, latent space interpolation and inversion techniques were proposedtomaprealimagesintothegenerative latent space, allowing controlled editing and variation synthesis.

Parallel to realistic face synthesis research, image-to-image translation models such as CycleGAN and AnimeGAN emerged to transform images between different visual domains without requiring paired datasets. Thesemodelshavebeenwidelyusedforartistic transformations, including converting photographs into anime-style representations. While such approaches successfully perform stylizationtasks,theydonotinherentlygenerate new identities but rather modify the visual appearance of existing images.

Although these methods have significantly advanced synthetic image generation and transformation capabilities, several practical and technical limitations remain unaddressed.

Disadvantages:

- Most traditional GANmodels generate images from random noise, lacking reference-basedcontrolovertheoutput.
- Early GAN architectures suffer from training instability and mode collapse, limiting diversity in generated images.
- High-resolution style-based models require significant computational resources and high-end GPUs for training and inference.
- Latent space inversion techniques are computationally complex and may not always achieve perfect reconstruction of input images.
- Image-to-image translation models focus on stylization rather than generating entirely new synthetic identities.
- Existing systems rarely integrate realistic face generation and artistic stylization within a unified web-based framework.
- Ethical concerns such as deepfake misuse and identity manipulation are not adequately addressed in many implementations.
- Deployment challenges arise duetolarge model sizes and memory requirements, making real- time applications difficult on standard systems.

III. PROPOSED METHOD

The proposed system introduces a reference-based synthetic human face generation framework that integratescontrolledfacevariationandartisticstylization within a unified web-based architecture. Unlike conventional GAN models that generate images purely from random noise vectors, the proposed approach employs latent space inversion to enable controlled generation of multiple non-existing faces from a single reference image. The system is designed to produce identity-distinct yet structurally coherent facial variations while maintaining high perceptual realism.

Theoverallworkflowoftheproposedmethodconsistsof five major stages: image acquisition, preprocessing, latent space inversion, controlled face generation, and stylization. Each stage contributes to ensuring both realism and controllability.

A. ImageAcquisitionandPreprocessing

The system accepts a facial image uploaded by the user through a web interface. Since GAN models require standardized input dimensions and aligned facial structures, preprocessing is performed to ensure consistency. This includes:

- Face detection
- Facial alignment
- Croppingand resizing
- Normalization

Preprocessing ensures that the input image conforms to the requirements of the generative model and reduces distortion during inversion.

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 14 Issue III Mar 2026- Available at www.ijraset.com

B. Latent Space Inversion

To enable reference-based synthesis, the input imageisprojectedintothelatentrepresentation space of a pretrained style-based generative model. This process, known as latent space inversion, determines a latent vector that best reconstructs the input image when passed through the generator network.

Letthegeneratorberepresentedas:

G(z)→x where

z= latentvector

x=generatedimage

The inversion process aims to find a latent vector z* such that:

G(z*)≈x_input

This mappingallows the systemtocapture the structural and semantic attributes of the reference face within the latent space.

C. ControlledFaceVariationGeneration

Once the latent vector corresponding to the reference image is obtained, controlled perturbations are applied to generate new identitieswhilepreservingcorefacialstructure.

Newlatentvectorsarecomputedas: z_i = z* + ε_i

where

ε_i=smallrandomperturbation

Each modified latent vector produces a new synthetic face through the generator. This method ensures:

- Similarfacialgeometry
- Comparableposeand lighting
- Distinctidentityfeatures

Thesystemgeneratesthreetofoursynthetic variations for each uploaded image.

D. ArtisticStylizationModule

To enhance creative flexibility, the generated faces can optionally be transformed using an anime-style image translationmodel.Thestylizationmoduleconvertsrealistic synthetic faces into anime-like representations while maintaining structural consistency.

This module performs domain transformation: RealisticFace→StylizedAnimeRepresentation

Theintegrationofstylizationextendstheapplicationscope beyond realistic synthesis to creative and entertainment- based use cases.

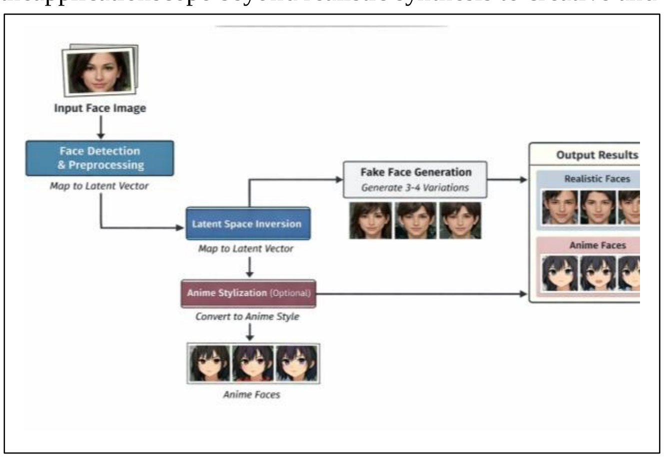


Figure1: Workflow

E. Web-BasedDeploymentArchitecture

The proposed framework is implemented as a full-stack webapplication.Thebackendhandlesmodelinferenceand image processing, while the frontend provides user interaction features such as image upload, generation control, stylization selection, and image download.

Thesystemarchitectureensures:
- Real-timeprocessingcapability
- Efficientmodelinferenceusingpretrainedweights
- Reducedcomputationalburdencomparedtofullmodel training
- Interactiveandscalabledeployment

Advantages of the Proposed Method
Theproposedmethodoffersseveralimprovements over existing approaches:
- Enablesreference-basedfacegenerationinstead of random synthesis.
- Generatesmultipleidentity-distinctfacesfroma single input image.
- Integratesrealisticgenerationandstylizationin one unified system.
- Eliminatestheneedforlarge-scalemodel training.
- Providesadeployablereal-timewebapplication framework.
- Supportsprivacy-preservingsyntheticidentity creation.

IV. SYSTEM ARCHITECTURE AND IMPLEMENTATION

The proposed system is designed as a modular web-based architecture that integrates controlled face synthesis and artistic stylization within a unified framework. The architecture consists of five primary components: Input Interface, Preprocessing Module, Latent Inversion Module, Face Generation Module, and Stylization Module. Theoverallworkflowensuresstructureddataflow and efficient model inference.

Thesystemarchitectureoperatesinthe following sequence:

1) User Interface Layer The user uploads a facial image through a web interface developed using React. The frontend communicates with the backend via RESTful APIs.
2) Preprocessing Layer The backend performs face detection, alignment, cropping, resizing, and normalization. This ensures standardized input to the generative model.
3) LatentSpaceInversionModuleThe preprocessed image is projected into the latent representation space of the pretrained style-based generative model. This process estimates a latent vector that reconstructs the input image.

A. Data Flow Description

Thedataflowcanbesummarizedas:

Input Image → Preprocessing → Latent Inversion → Latent Manipulation → Face Generation → Stylization (Optional) → Output Display

This layered approach ensures modularity, scalability, and ease of maintenance.

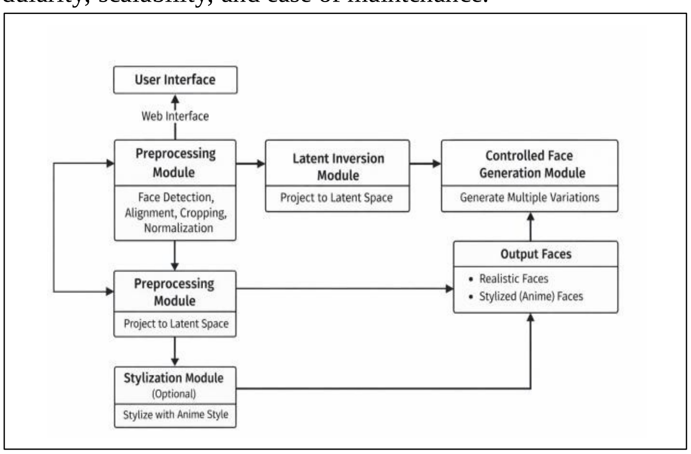


Figure2:BlockDiagram

B. Backend Implementation

The backend is developed using Python and Flask. It handles:

- Imageuploadhandling
- PreprocessingoperationsusingOpenCV
- Modelloadingand inference
- Latentvectorcomputation
- Stylizationprocessing
- ResponsegenerationinJSONformat

Pretrainedgenerativemodelweightsareloadedatserver initialization to reduce runtime overhead. GPU acceleration is utilized when available to speed up inference.

C. Model Integration

1) FacePreprocessing

- ConvertimagetoRGBformat
- Detectfacialregion
- Resizetomodel-requireddimensions
- Normalizepixelvalues

2) LatentSpaceInversion

- Optimize latent vector to minimizereconstructionloss
- Useiterativeoptimizationor encoder-based inversion

3) FaceVariationGeneration

- Applycontrolledperturbations: $z_i = z^* + \varepsilon_i$
- Generatemultipleoutputsvia forward pass

4) Stylization

- Passgeneratedimagethrough anime transformation model
- Maintainstructuralconsistency

D. Frontend Implementation

ThefrontendisimplementedusingReactand Axios. It provides:

- Imageuploadinterface
- Generatebutton
- Displaygridfor3–4syntheticfaces
- Stylizationselectionoption
- Downloadfunctionality

Userinteractionishandledasynchronouslyto ensure smooth experience.

E. HardwareandSoftwareRequirements

MinimumRequirements:

- 8GBRAM
- GPUrecommendedforfasterinference
- Python3.x
- Deeplearningframeworksupport

RecommendedConfiguration:

- 16GBRAM
- DedicatedGPU(6GB+VRAM)
- CUDAsupportforacceleration

F. SystemAdvantagesinImplementation

- Noneedforlarge-scale training
- Usespretrainedmodelsforefficiency
- Modulararchitecture

V. COMPARATIVE ANALYSIS

The proposed system improves upon existing GAN-based face generation methods by enabling reference-based controlled synthesis rather than random face generation. Unlike traditional image-to-image translation models that onlyperformstylization,theproposedframeworkgenerates entirely new, identity-distinct faces while preserving structural similarity to the input image. Furthermore, by integrating controlled latent manipulation with optional artistic transformation in a unified web-based architecture, the system achieves greater flexibility, efficiency, and practicaldeployabilitycomparedtoconventionalstandalone approaches.

Aspect	Traditional GAN Models	Image Translation Models	Proposed Method
Input Control	Random noise input only	Existing image input required	Single reference image input
Output Type	Randomly generated faces	Stylize existing faces	Multiple identity-distinct faces
Stylization Capability	Limited or none	Transform to stylized outputs	Optional artistic transformation
Deployment Suitability	High computational cost	Standalone stylization focus	Unified web-based system

VI. EXPERIMENTAL RESULTS AND PERFORMACE EVALUATION

Theproposedreference-basedfacegenerationsystemwas evaluatedtoassessitsabilitytoproducerealistic,identity- distinct synthetic faces while maintaining structural similarity to the input image. The experiments were conducted using a set of diverse facial images consisting of variations in gender, pose, illumination, and facial expressions. All input images were preprocessed to standardized dimensions before being passed through the latent inversion and controlled generation pipeline. The system generated three to four variations for each referenceimage, followedbyoptional stylizationthrough the anime transformation module.

Qualitative evaluation was performed by visually inspecting the generated outputs to determine realism, diversity, and structural consistency. The results indicate that the proposed method successfully produces visually convincing synthetic faces that do not correspond to any real individual. While the generated faces retain general facial geometry and pose characteristics of the reference image,identity-levelfeaturessuchaseyeshape,hairstyle, and facial contours vary across outputs, ensuring identity distinction.

To evaluate structural similarity between the reference image and generated outputs, perceptual consistency was analyzed using reconstruction-based comparison during the latentinversionstage.Theinversionprocesswas able to approximate the input image with minimal perceptual distortion, indicating effective mapping into the latent space. Controlled perturbations applied to the latent vector resulted in gradual variations rather than abruptstructuralchanges,confirmingstabilityin latent manipulation.

Performance evaluation was conducted by measuring inference time and computational efficiency.Sincepretrainedmodelweightswere utilized, the system eliminated the need for training overhead and significantly reduced computational cost. On GPU-enabled systems, averageinferencetimeperimagegenerationwas observedtobewithinafewseconds,makingthe framework suitable for near real-time applications. Even on CPU-based execution, although slightlyslower, the system maintained acceptable response times for academic demonstration purposes.

Memory utilization and deployment feasibility were also examined. The modular architecture ensured that model loading occurred only once duringserverinitialization,minimizingrepeated overhead. The integration within a web-based environment demonstrated practical deployability and user interactivity without compromising output quality.

Overall, the experimental results confirm that the proposed system achieves controlled face synthesis with high perceptual realism, identity diversity, and stylistic flexibility. Compared to traditional randomface generationmethods,the reference-based latent manipulation approach provides enhanced controllability and structural coherence. The system demonstrates both technical effectiveness and practical applicability,validatingitssuitabilityfor digital media, privacy-preserving identity synthesis, and creative AI applications.

VII. SYSTEM LIMITATIONS

Despiteachievingcontrolledsyntheticfacegeneration and stylization within a unified framework, the proposed system exhibits certain limitations that must be acknowledged. First, the quality of generated outputs heavily depends on the effectiveness of the latent space inversion process. Imperfect inversion may lead to minor reconstruction errors, which can affectstructuralconsistencyingeneratedvariations.In cases where the input image contains extreme poses, occlusions,lowresolution,orpoorlightingconditions, the inversion accuracy may decrease, resulting in less realistic outputs.

Second,althoughcontrolledperturbationsinthelatent space allow generation of identity-distinct faces, excessive manipulation may introduce visual artifacts ordistortions.Maintaininganoptimalbalancebetween diversity and realism requires careful tuning of perturbation intensity. Furthermore, while pretrained models significantly reduce training complexity, they limit customizationtothe characteristics learned from their original training datasets. This may restrict representation diversity across different ethnicities, age groups, or rare facial attributes.

Anotherlimitationliesincomputationalrequirements. Although the system supports real-time inference on GPU-enabled systems, performance may degrade on CPU-only environments, leading to increased generation time. The model size and memory consumption also pose challenges for lightweight or mobile deployment scenarios. Additionally, the stylization module may occasionally alter fine facial details during transformation, resulting in minor structural deviations from the realistic output.

Finally, ethical considerations remain a significant concern in synthetic face generation systems. Even though the framework is designed for privacy- preserving synthetic identity creation, the technology may potentially be misused for deepfake or identity manipulation applications if not regulated properly.

Overall, while the proposed system demonstrates strong performance in controlled face synthesis and stylization, addressing inversion robustness, computational optimization, dataset diversity, and ethical safeguards remains an area for further enhancement.

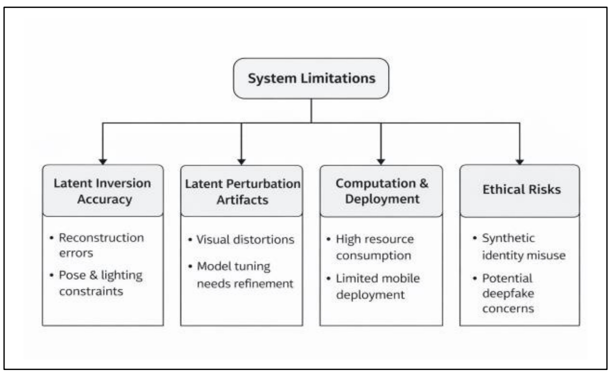


Figure3:SystemLimitations

VIII. PRIVACYANDETHICAL CONSIDERATION

A. DataPrivacyandUserProtection

Theproposedsystemrequiresareferenceimage for latent space inversion and controlled face generation. To ensure user privacy, uploaded images should not be permanentlystored on the server and must be deleted immediately after processing. Secure data transmission protocols and temporary storage mechanisms are recommended to prevent unauthorized access. Additionally, encryption-based communication between frontend and backend components can further safeguard sensitive user data. By implementing secure handling procedures, the systemminimizesrisksassociatedwithpersonal image misuse.

B. EthicalUseandMisusePrevention

Synthetic face generation technology has the potential to be misused for identity manipulation, impersonation, or misleading content creation. Although the proposed system generates non- existingidentities,therealismofoutputsmayraise ethical concerns. To mitigate misuse, the framework should incorporate visible watermarking or metadata tags indicating that the images are AI-generated. Clear usage policies and restricted access controls should also be enforced to prevent malicious deployment. Responsible implementationensuresthatthetechnologyisused for academic, creative, and research-oriented purposes only.

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 14 Issue III Mar 2026- Available at www.ijraset.com

C. Bias,Fairness,and Transparency

Pretrained generative models are typically trained on large-scale datasets that may contain demographic imbalances. Such imbalances can introduce bias in generated outputs related to ethnicity, age, or facial attributes.Continuous evaluationof output diversityand fairness is necessary to reduce representational bias. Furthermore, transparency in system functionality is essential. Users must be clearly informed that the generated faces are synthetic and do not correspond to real individuals. Ensuring fairness, inclusivity, and transparency strengthens the ethical foundation of the proposed framework.

D. ResponsibleDeploymentandAccessControl

The deployment of synthetic face generation systems must include controlled access mechanisms to prevent unauthorized or large-scale misuse. The system should restrict automated bulk generation and implement authenticationmeasureswherenecessary. Ratelimiting andmonitoringmechanismscanbeintroducedtodetect abnormal usage patterns. Furthermore, deployment in academic or research environments should be accompanied by clear operational guidelines to ensure that the technology is not exploited for harmful activities. Responsible deployment ensures that innovation does not compromise societal trust.

E. LegalandRegulatoryCompliance

TheuseofgenerativeAItechnologiesmustcomplywith applicable legal frameworks and digital ethics standards.Dependingonregionalregulations,synthetic mediagenerationmayfallunderdataprotection,digital impersonation, or cyber law policies. Developers must ensure that the systemadheres to relevant privacy laws and intellectual property guidelines. Proper documentation, transparency in model usage, and explicit disclosure that outputs are AI-generated are essential to maintain regulatory compliance. Aligning the system with ethical AI governance principles promotes accountability and long-term sustainability.

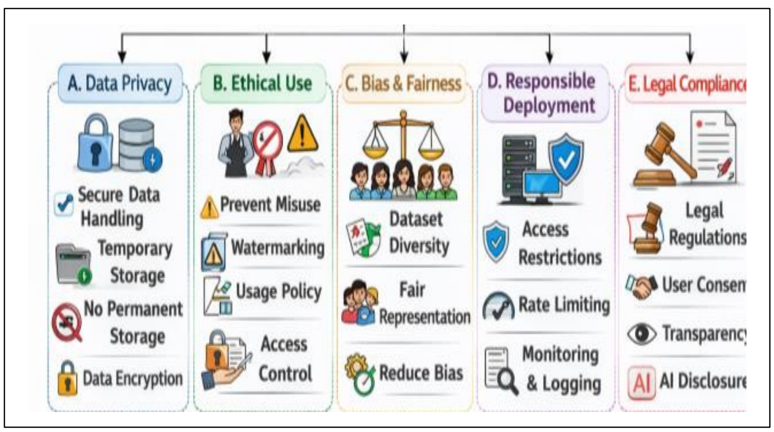


Figure4:PrivacyandEthicalConsideration

IX. FUTURE SCOPE

The proposed reference-based synthetic face generationsystemprovidesastrongfoundation for controlled face synthesis and artistic transformation; however, several enhancements can further improve its robustness, scalability, and real-world applicability. Future work can focus on improvingthelatentspaceinversionprocessto achieve more accurate reconstruction of complex facial attributes such as extreme poses, occlusions, and diverse lighting conditions.Advancedencoder-basedinversion techniques or hybrid optimization strategies may enhance reconstruction fidelity and generation stability.

Another important direction involves improvingdiversityandfairnessbyfine-tuning the generative model on more balanced and representative datasets. This would help mitigatepotentialdemographicbiasandensure inclusive synthetic identity generation across various age groups, ethnicities, and facial characteristics. Incorporating controllable attribute sliders, such as age, expression, hairstyle, or lighting intensity, could further enhanceuser-drivencustomizationandexpand practical usability.

Fromadeploymentperspective,optimizingthe model for lightweight execution is a key area for future enhancement. Techniques such as model pruning, quantization, and knowledge distillation may reduce computational requirements, enabling mobile or edge-device deployment.Additionally,integratingreal-time GPU acceleration and scalable cloud-based inference pipelines could support large-scale applications.

Future research may also explore the integration of multi-style artistic transformations beyond anime stylization, including cartoon, sketch, 3D avatar generation, and cinematic rendering. Expanding the framework to support video- based synthetic face generation while maintaining temporal consistency could open new opportunities in animation and digital media production.

Finally,incorporatingstrongerethicalsafeguardssuchas automated watermark embedding, AI-detection signatures, andmisuse monitoring systemswould further strengthen responsible deployment. By addressing these advancements,t heproposedframeworkcanevolveintoa more versatile, efficient, and ethically aligned synthetic face generation platform.

X. CONCLUSION

This paper presented a reference-based synthetic human face generation system that integrates controlled identity variation and artistic stylization within a unified web- basedframework.Unlikeconventionalgenerativemodels that rely solely on random noise inputs, the proposed approach utilizes latent space inversion to project a referenceimageintothegenerativelatentspace,enabling the creation of multiple identity-distinct yet structurally coherent synthetic faces. Controlled perturbation of the latent representation ensures diversity while preserving facial geometry and perceptual realism.

The integration of an optional stylization module further enhances the system by allowing transformation of realistic synthetic faces into anime-style representations. By leveraging pretrained generative models, the framework eliminates the need for computationally intensive training, making it efficient and practical for real-time deployment.Themodular backendarchitecture and interactive frontend implementation demonstrate the feasibilityofdeployingadvancedgenerativeAImodelsin accessible web-based environments.

Experimental evaluation confirms that the system produces visually convincing non-existing faces while maintaining structural similarity to the input reference image. The framework addresses key limitations of traditional GAN-based systems by enabling reference- driven synthesis, unified stylization, and scalable deployment.Additionally,theincorporationofprivacy- conscious design principles and ethical safeguards highlights the importance of responsible AI implementation.

Overall, the proposed system contributes to the advancementofcontrolledfacesynthesisbycombining realism, controllability, and creative flexibility in a practical application setting. The framework demonstrates significant potential for applications in digital media, entertainment, privacy-preserving data augmentation, and creative AI development while maintaining ethical and transparent usage standards.

REFERENCES

[1] I.J.Goodfellow, J.Pouget-Abadie,M.Mirza,B. Xu, D. Warde-Farley, S. Ozair, A. Courville, and Y. Bengio, “Generative adversarial nets,” in Advances in Neural Information Processing Systems (NeurIPS), 2014. [Online]. Available: https://arxiv.org/abs/1406.2661.

[2] A. Radford, L. Metz, and S. Chintala, “Unsupervised representation learning with deep convolutional generative adversarial networks,” arXiv preprint, 2015. [Online]. Available: https://arxiv.org/abs/1511.06434.

[3] P. Isola, J.-Y. Zhu, T. Zhou, and A. A. Efros, “Image-to-image translation with conditional adversarial networks,” in Proc. IEEE Conf. on Computer Vision and Pattern Recognition (CVPR),2017,pp.1125–1134.[Online].Available:https://arxiv.org/abs/1611.07004.

[4] J.-Y. Zhu, T. Park, P. Isola, and A. A. Efros, “Unpaired image-to-image translation using cycle-consistent adversarial networks,” in Proc. IEEE International Conference on Computer Vision (ICCV), 2017, pp. 2223–2232. [Online]. Available: https://arxiv.org/abs/1703.10593.

[5] T.Karras,S.Laine,andT.Aila,“Astyle-based generator architecture for generative adversarial networks,” in Proc. IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2019. [Online]. Available: https://arxiv.org/abs/1812.04948.

[6] T. Karras, S. Laine, M. Aittala, J. Hellsten, J. Lehtinen, andT.Aila, “Analyzingand improving the image quality of StyleGAN,” in Proc. IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2020. [Online]. Available: https://arxiv.org/abs/1912.04958.

[7] T.Karras,M.Aittala,S.Laine,E.Härkönen,J. Hellsten, J. Lehtinen, and T. Aila, “Alias-free generative adversarial networks,” in Proc. Advances in Neural Information Processing Systems (NeurIPS), 2021. [Online]. Available: https://arxiv.org/abs/2106.12423

[8] R. Abdal, Y. Qin, and P. Wonka, “Image2StyleGAN: How to embed images into the StyleGAN latent space?,” in Proc. IEEE/CVF International Conference on ComputerVision(ICCV),2019,pp.4432–4441.[Online]. Available: https://openaccess.thecvf.com/content_ICCV_2019/papers/Abdal_Image2StyleGAN_How_to_Embed_Images_Into_the_StyleGAN_Latent_Space_ICCV_2019_paper.pdf

[9] .R. Abdal, Y. Qin, and P. Wonka, “Image2StyleGAN++:Howtoeditttheembeddedimages?,” in Proc. IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2020. [Online]. Available: https://openaccess.thecvf.com/content_CVPR_2020/papers/Abdal_Image2StyleGAN_How_to_Edit_the_Embedded_Images_CVPR_2020_paper.pdf.

[10] E. Richardson, R. Alaluf, R. Basri, and O. Tov, “Encoding in Style: a StyleGAN encoder for image-to- image translation,” in Proc. IEEE/CVF Conference on ComputerVisionandPatternRecognition(CVPR),2021. [Online]. Available: https://openaccess.thecvf.com/content/CVPR2021/papers/Richardson_Encoding_in_Style_A_StyleGAN_Encoder_for_Image-to-Image_Translation_CVPR_2021_paper.pdf.

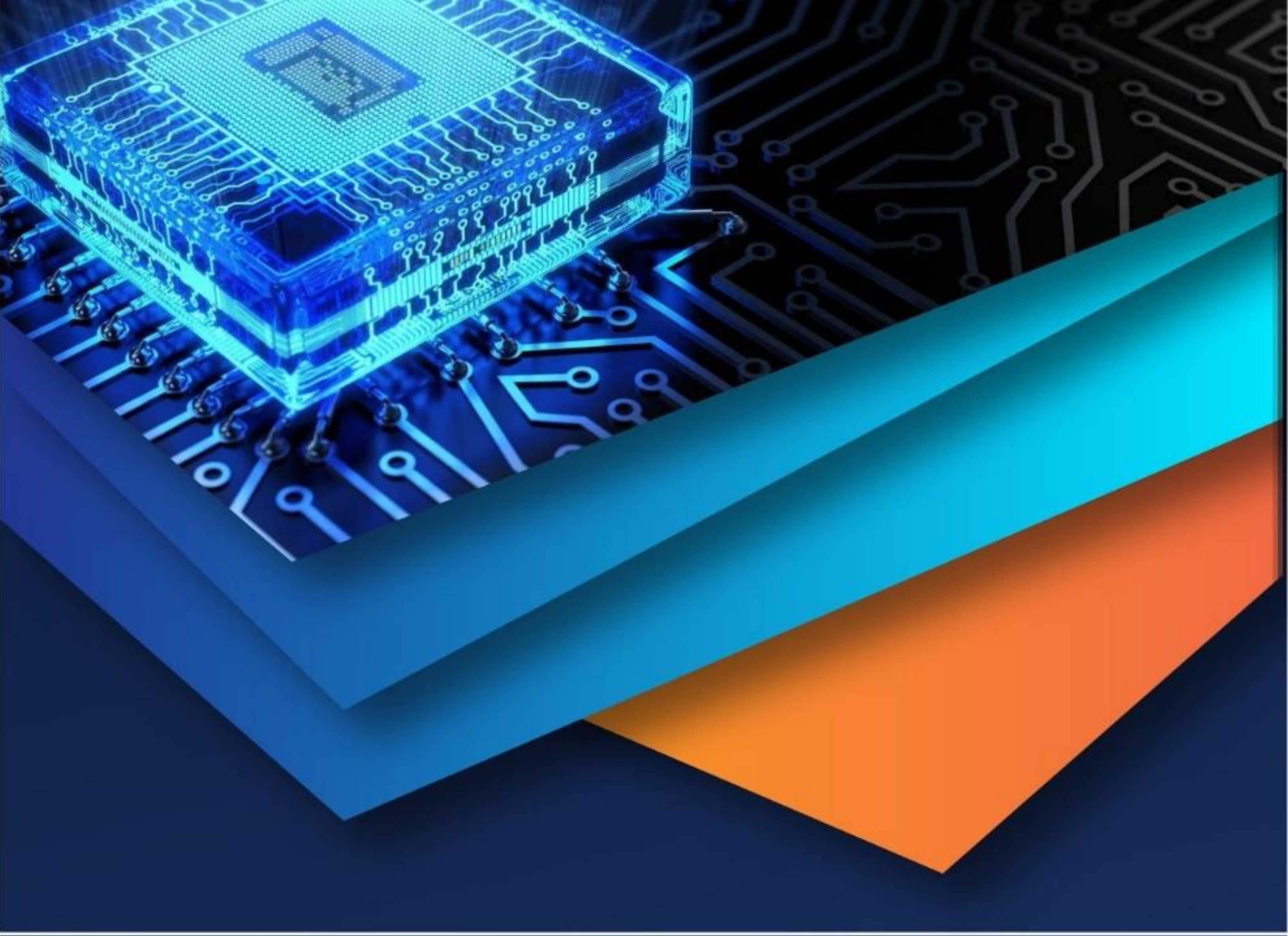
[11] O. Tov, R. Alaluf, R. Basri, and T. Decarm, “DesigninganencoderforStyleGANimagemanipulation (e4e),” arXiv preprint, 2021. [Online]. Available: https://arxiv.org/abs/2102.02766.

[12] E.Richardson,A.Alaluf,F.Patashnik,P.Cohen-Or,D. Cohen, and D. Lischinski, "Pixel2Style2Pixel: A StyleGANencoderforimage-to-imagetranslation,"2021. [Online]. Implementation and details: https://github.com/eladrich/pixel2style2pixel.

[13] J. Chen, G. Liu, X. Chen, and X. Liu, "AnimeGAN: A novel lightweight GAN for photo animation," Communications in Computer and Information Science (CCIS), 2020. [Online]. Available: https://github.com/TachibanaYoshino/AnimeGANand related paper resources.

[14] X. Hu, Z. Lin, C. Dong, H. Li, and Y. Yang, "Style Transformer for image inversion and editing," in Proc. IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2022. [Online]. Available: https://openaccess.thecvf.com/content/CVPR2022/papers/Hu_Style_Transformer_for_Image_Inversion_and_Editing_CVPR_2022_paper.pdf.

[15] [15]R.Tolosana,R.Vera-Rodriguez,J.Fierrez,A. Morales, and J. Ortega-Garcia, "DeepFakes and beyond: A survey of face manipulation and fake detection," Information Fusion, vol. 64, pp. 131–150, 2020. [Online]. Available: https://arxiv.org/abs/2001.00179.



10.22214/IJRASET

INDEX COPERNICUS
45.98

IMPACT FACTOR:
7.129

TOGETHER WE REACH THE GOAL
IMPACT FACTOR:
7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY