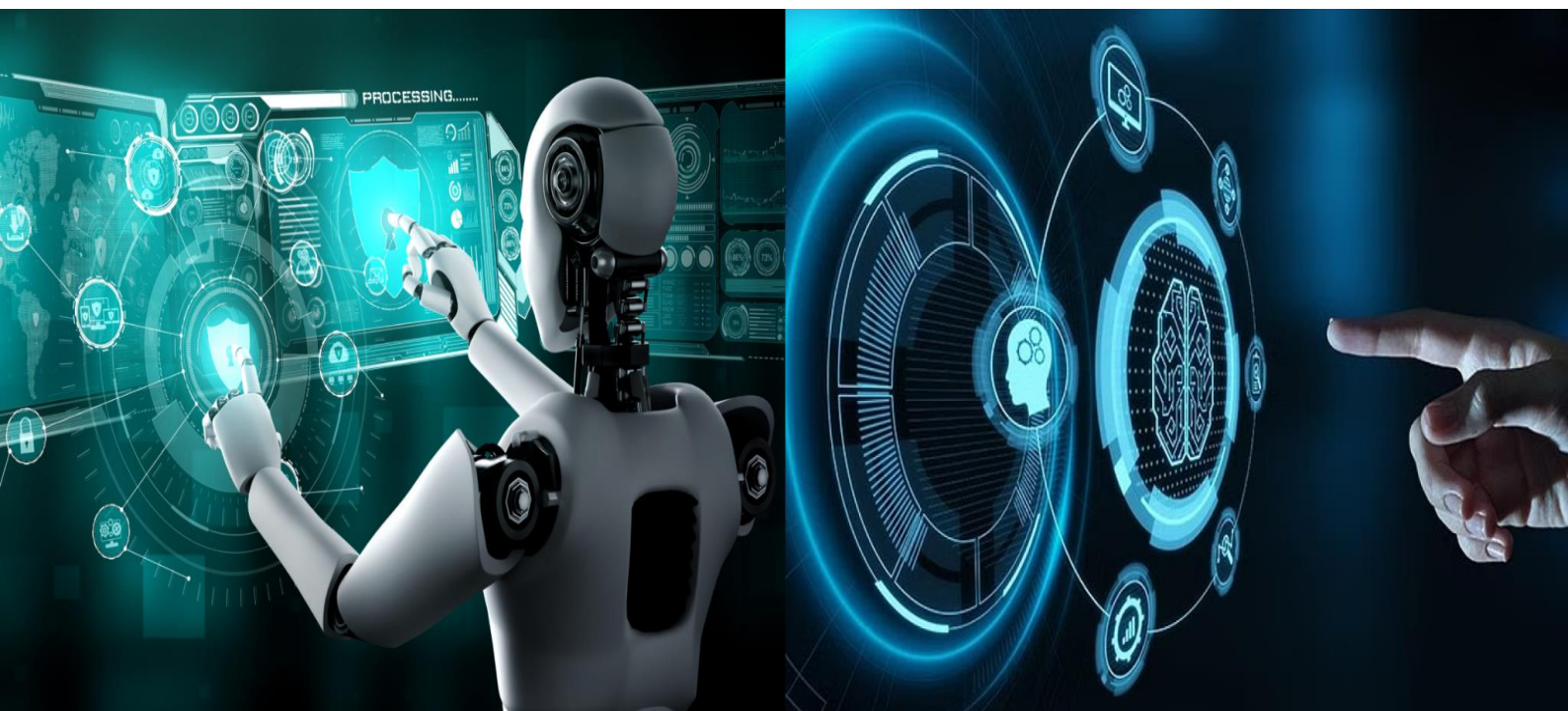# IJIRCCE

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A Blockchain-Enabled Secure Photo Sharing Framework across Multiple Social Networks

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ABSTRACT: The proliferation of online social networks has led to a significant increase in photo sharing, raising concerns about photo privacy as images are distributed across multiple platforms. Existing solutions often fail to balance efficient social network services with the protection of user privacy. This paper proposes an innovative framework designed to ensure secure and controlled photo sharing across social networks. Key features include dissemination control, face masking, photo integrity verification, access control, and dynamic privacy policy generation. A fully functional prototype has been developed and tested, demonstrating the framework's effectiveness in enhancing security and efficiency in photo sharing while preserving user privacy. Blockchain technology provides a decentralized and immutable ledger to store and share data, ensuring that all transactions related to photo sharing and access control are recorded securely and transparently.By leveraging blockchain, social media users can verify their identities securely without compromising their privacy. Secure Reporting Mechanisms: Blockchain can be utilized to create secure and anonymous reporting mechanisms for instances of child abuse harm on social media platforms.

I. INTRODUCTION

With the huge popularity of sharing and the vast usage of social networking sites users unknowingly reveal certain kinds of personal information. Social- networking users may or may not have the idea of getting their personal information will be leaked or could pro the malicious attackers and may perpetrate significant privacy breaches. The rest decade of 21st century has seen the extreme popularization of Internet and the growth of web services which facilitate participatory information sharing and collaboration.

Social Networking Sites (SNSs) have become a boundless communication media to keep in touch beyond boundaries. SNSs are a part of human culture than just a web application. Use of SNSs has out spaced in almost every field as news agencies, big and small companies, governments, and famous personalities etc. to interact with each other. With the adoration of sharing, Facebook has stood out as the most renown SNSs in the world where people hangout for hours. With the extravagancy of technology and services sharing of news, photos, personal taste and information with friends and family has led to an ease.

But along with this user privacy should also be taken into consideration. An issue related to privacy with facebook users has been constantly appearing on international press either because of the companies privacy policy or because of users unaware-ness of content sharing consequences. As a research says the simple disclosure of date and place of birth of a pro le in Facebook can be used to predict the Social Security Number (SSN) of a citizen in the U.S. Many a times just by simply publishing their friends list, users might be revealing a large amount of information

For example, through the use of prediction algorithms it is possible to infer private information that was previously undisclosed. Sometimes sensitive information even comes embedded in the photo as metadata and may identify people on the photo by accompanying more information that could be exploited, like captions, comments and photo tags; marked regions. Even if the individuals in a photo are not explicitly identified by photo tags, the combination of publicly available information and face recognition software can be used to infer someone's identity

These kinds of problems are defined as collateral damage: users unintentionally put their own privacy or their friends privacy at risk when performing events on SNSs such as Facebook. The main focus is to let each user only deal with his/her private photo set as the local train data which can be used by the users to learn out the local training result. Once the local training results are achieved then it can be exchanged among various users to form a global knowledge

A social network based on photo-sharing is a platform where users can upload, share, and interact with images. At its core, this type of social network revolves around visual content, allowing users to express themselves, connect with others, and discover new perspectives through photos. Users have the ability to upload their own photos, browse and like images shared by others, and engage in conversations through comments and direct messages Users have the ability to upload their own photos, browse and like images shared by others, and engage in conversations through comments and direct messages. These platforms often feature various filters, editing tools, and effects to enhance the quality and creativity of photos. Additionally, photo-sharing social networks may incorporate features such as hashtags, geotagging, and user tagging to organize content and facilitate discovery. Overall, these platforms serve as a digital community where individuals can explore, inspire, and connect through the power of imagery.

A blockchain-based framework designed to facilitate secure photo sharing across social networks, incorporating features like dissemination control, face masking, photo integrity verification, access control, and dynamic privacy policy generation. A framework that leverages blockchain and public-key cryptography to achieve secure data sharing, retrieving, and accessing with fairness and without compromising user privacy. PhotoChain, a blockchain-based secure photo sharing framework that provides powerful dissemination control for cross-social network photo sharing, Combined with blockchain, Gaussian Blur for Face Masking, PreHash Algorithm for Photo integrity verification and Access Control, Mechanism can achieve secure data sharing, Blockchain assists in gaining control over the user's own content. A decentralized approach to blockchain technology in social networking ensures privacy and enables e- commerce, crowdfunding transactions as well as smart apps and contracts.Without blockchain, each organization has to keep a separate database. Because blockchain uses a distributed ledger, it records transactions and data identically in multiple locations. All network participants with permissioned access see the same information at the same time, providing full transparency.

This capability provides extensive social benefits. For instance, blockchain can make it possible to establish identities for the more than one billion people who have no identification papers. While they go unserved today, blockchain-based applications can improve their ability to access finance and banking services.

When children share, they learn empathy, cooperation, and problem-solving. It teaches them to take turns, negotiate and play fair – an important part of building healthy relationships. In addition, sharing promotes generosity and kindness and encourages children to think about the needs and feelings of other .social Share refers to the action of distributing, posting, or reposting content to one's own social media platform or other digital channels. The content can be in various forms, including text, images, videos, and links.

Image sharing, or photo sharing, is the publishing or transfer of digital photos online. Image sharing websites offer services such as uploading, hosting, managing and sharing of photos (publicly or privately).Social sharing images may display on social networks (like Facebook) or in text messaging applications when you share a URL from your site. While it's optional, adding social sharing images is a good way to influence how social posts linking to your site look, even if the page you're sharing doesn't include images.

II. SYSTEM ANALYSIS

Existing System:
With the surge in photo sharing on online social networks, concerns regarding the vulnerability of photo privacy have become apparent. Current platforms lack robust mechanisms to ensure the secure dissemination of photos across multiple networks. To address these challenges, PhotoChain proposes a revolutionary blockchain-based framework designed to facilitate secure photo sharing while preserving user privacy. This framework incorporates advanced features such as dissemination control, face masking, photo integrity verification, access control, and dynamic privacy policy generation.

Limitations:
Blockchain technology offers a potential solution for secure and controlled photo sharing across social networks, addressing limitations of current systems by enabling features like dissemination control, access control, and dynamic privacy policy generation, all while leveraging the decentralized and immutable nature of blockchain.

Proposed System:

In the proposed project, **secure photo sharing** on social media is achieved through a unique approach that allows photo owners to have complete control over the dissemination of their images. The core concept revolves around giving users the ability to **accept** or **reject** sharing requests based on specific privacy preferences. One of the key features of this approach is the **blurred sharing** mechanism. This ensures that before any photo is shared, it can be automatically blurred, obscuring sensitive content such as faces, locations, or other personal information

Expected Merits:

The project for secure photo sharing on social media lie in its ability to provide photo owners with complete control over their content. By incorporating features like blurred sharing, where images are initially blurred until the owner accepts or rejects the sharing request, the project enhances privacy and security. This approach allows users to prevent unauthorized or unwanted exposure of their photos, while still enabling them to selectively share with trusted parties

III. SYSTEM REQUIREMENTS

Hardware Requirements:

- Processors: Intel® Core™ i5 processor 4300M at 2.60 GHz or 2.59 GHz (1 socket, 2 cores, 2 threadsper core), 8 GB of DRAM
- Disk space: 320 GB
- Operating systems: Windows® 10, macOS*, and Linux*

Software Requirements:

- Server Side   : Python 3.7.4(64-bit) or (32-bit)
- Client Side   : HTML, CSS, Bootstrap
- IDE : Flask 1.1.1
- Back end   : MySQL 5.
- Server   : WampServer 2i
- OS : Windows 10 64 –bit or Ubuntu 18.04 LTS "Bionic Beaver"

Software Description:

Python:

Python is a high-level, interpreted, interactive and object-oriented scripting language. Python is designed to be highly readable. It uses English keywords frequently where as other languages use punctuation, and it has fewer syntactical constructions than other languages.

Tensor Flow:

Tensor Flow is an end-to-end open-source platform for machine learning. It has comprehensive,flexible ecosystem of tools, libraries, and community resourcesthat lets researchers push the state-of-the-art in ML, and gives developers the ability to easily build and deploy ML-poweredapplications.

Pandas:

Pandas is a fast, powerful, flexible and easy to use open source data analysis and manipulation tool, built on top of the Python programming language. pandas is a Python package that providesfast, flexible, and expressive data structures designed to make working with "relational" or "labeled" data both easy and intuitive

IV. LITRETURE SURVEY

- **Title**   : Facial Detection and Anonymization for Privacy Protection from
- Social Networking Sites(SNS)
- **Author**   : Srungaram Sai Charan; K. Kishore Kumar
- **Concept** : A social networking site (SNS) is an incredible information exchange platform that helps advance and share a lot of useful information regarding items, news, training, travel, medical care,
- **Limitation:** While social networking sites (SNS) serve as valuable platforms for information exchange, they pose significant risks to personal safety and security, particularly in protecting photo privacy

- **References:** S.S Charan and K . K. Kumar, "Facial Detection and Anonymization for privacy Protection from Social Networking site(SNS)," *2023 14th International Conference and Networking Technologies (ICCCNT),Delhi, India*
- **Title**   : Hidden Privacy Risks in Sharing Pictures on Social Media
- **Author**   : Kambiz Ghazinour*, John Ponchak.
- **Concept**   : Each piece of media shared has hidden privacy violations stored in their metadata. Over the past two decades, social media sites, and shared media on them, have grown exponentially.
- **Limitation :** One limitations of a GUI-based metadata reader and editor is that it may not fully address all the privacy concerns associated with shared media.
- **References :** Ghazinour, Kambiz, and John Ponchak."Hidden privacy risks in sharing pictures on social media." *Procedia computer science 113 (2017): 267-272*

- **Title**   : Privacy-Protected Photo Sharing in Social Media Platform
- **Author**   : R. Regin, B. Sneha
- **Concept**   : This paper is help to the problem of Sharing sensitive information such as images and videos may help connect with others. On the other side, those data may be misused and threaten the lives of others
- **Limitation :** A limitation of this privacy-protected photo sharing mechanism is that while it successfully blurs faces to protect individuals identity.
- **References :** Regin, R., et al. "Privacy-Protected Photo Sharing in social Media Platforms" (2022)

- **Title**   : No Filters: A Deep Dive into Photo Sharing Apps on Android and iOS
- **Author**   : Mohammad Meraj Mirza.
- **Concept**   : Photo and video-sharing applications have gained popularity among all age groups. These applications allow users to create, share, and interact with multimedia content.
- **Limitation :** Despite the growing popularity of photo and video-sharing**,** Blockchain is important because it offers enhanced security, transparency, and efficiency through its decentralized and immutable nature, enabling secure transactions and reducing the need for intermediaries, ultimately fostering trust and streamlining various processes across industries.
- **References:** Mirza, Mohammad Meraj, et al. "No Filters: A deep Dive into Photo Sharing Apps an Andriod and iOS." *2023 International Symposium on Networks.IEEE,2023*

V. CONCLUSION

In conclusion, the Photo chain framework provides a secure and efficient way to share photos across multiple social media platforms, using the power of blockchain technology, pre-hashing algorithm, and Gaussian blur technique provides an innovative and secure solution to the challenges of sharing personal photos across By leveraging blockchain, social media users can verify their identities securely without compromising their privacy. Secure Reporting Mechanisms: Blockchain can be utilized to create secure and anonymous reporting mechanisms for instances of child abuse and harm on social media platforms. Without blockchain, each organization has to keep a separate database. Because blockchain uses a distributed ledger, it records transactions and data identically in multiple locations. All network participants with permissioned access see the same information at the same time, providing full transparency**.**

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1. Srungaram Sai Charan; K. Kishore Kumar " Facial Detection and Anonymization for Privacy Protection from Social Networking Sites(SNS) " IEEE Access 8 (2020): 100308-100322, *2023 14th International Conference and Networking Technologies (ICCCNT),Delhi , India*
2. Kambiz Ghazinour*, John Ponchak. ."Hidden privacy risks in sharing pictures on social media.""Hidden Privacy Risks in Sharing Pictures on Social Media " , *Procedia computer science 113 (2017): 267-272*
3. R. Regin, B. Sneha. " Privacy-Protected Photo Sharing in Social Media Platform " IEEE Access 9 (2021): 36282-36293. Regin, R., et al. "Privacy-Protected Photo Sharing in social Media Platforms" (2022)
4. Mohammad Meraj Mirza." No Filters: A Deep Dive into Photo Sharing Apps on Android and iOS." *2023 International Symposium on Networks.IEEE,2023*

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