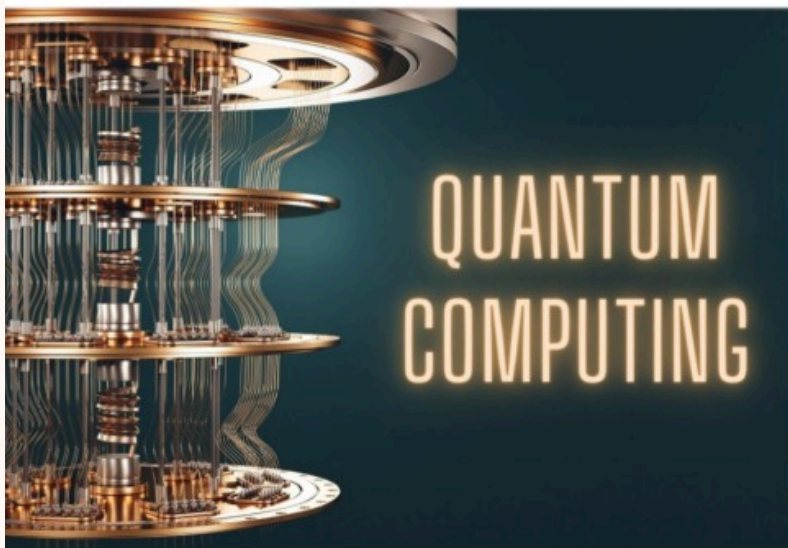


**DEPARTMENT OF COMPUTER SCIENCE AND
ENGINEERING**

DIGITIMES

A MAGAZINE





ABOUT DIGITIMES

DigiFlash is the student association of Computer Science and Engineering Department, MCET, Pollachi. The objective of our association is to innovate, create and sharpen the minds of the students to compete globally. It is a platform to improve the student's knowledge and also create opportunities to interact with leading industry persons. DigiFlash is organizing number of Co-Curricular activities including special lectures by Experts, Workshops, Technical Seminars, Coding Events, Paper & Poster Presentations and Webinars. Digitimes is a part of DigiFlash. A magazine that features the latest Technological advancements in the field of Computing.

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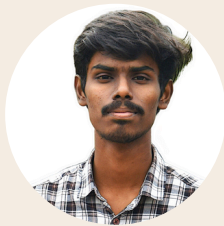


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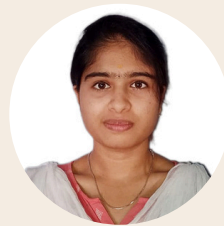


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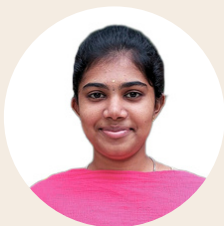
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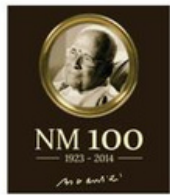
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COMPUTER SCIENCE AND ENGINEERING

VISION OF THE DEPARTMENT

To develop engineers with global employability, capability, research focus and social responsibility

MISSION OF THE DEPARTMENT

- To develop internationally competent engineers in dynamic IT field by providing state-of-art academic environment and industry driven curriculum.
- To motivate and guide students to take up higher studies and establish entrepreneurial ventures.
- To enrich the department through committed and technically sound faculty team with research focus in thrust areas.
- To undertake societal problems and provide solutions through technical innovations and projects in association with the industry, society and professional bodies.

Programme Educational Objectives (PEOs)

PEO 1: Domain Expertise - Possess expertise and emerge as key players in IT integrated domains.

PEO 2: Computing Skills and Ethics - Employ computing skills to solve societal and environmental issues in an ethical manner.

PEO 3: Lifelong Learning and Research - Involve in lifelong learning and research to meet the demands of global technology.

Programme Outcomes (POs)

PO1.Engineering Knowledge : Apply the knowledge of mathematics, science, engineering fundamentals and concepts of Computer Science to solve complex engineering problems.

PO2.Problem Analysis : Identify, review literature, formulate and analyse complex engineering problems using first principles of mathematics and engineering sciences.

PO3.Design and Development of Solutions : Design and develop computing solutions for complex engineering problems with societal and environmental awareness.

PO4.Complex problem Investigation : Investigate complex problems by employing research methods to arrive at valid conclusions.

PO5.Modern Tool Usage : Evaluate and use appropriate tools and techniques in engineering activities .

PO6.Societal contribution : Follow professional engineering practice by applying contextual knowledge to assess societal and legal issues.

PO7.Environment and Sustainability : Understand and provide professional engineering solutions taking into consideration environmental and economic sustainability.

PO8.Ethics : Follow ethical principles and norms in engineering practice.

PO9.Individual and Team work : Function effectively as an individual, team member or leader in diversified environments.

PO10.Communication : Communicate effectively through various modes for all engineering activities.

PO11.Project Management and Finance : Apply Engineering knowledge and management principles for effective project management in multi-disciplinary environments.

PO12.Life-long Learning : Engage in independent life-long learning and skill development for professional and social well being.

Programme Specific Outcomes (PSOs)

PSO1. Systems Engineering: Employ software engineering principles in the design and development of efficient systems.

PSO2. Knowledge Engineering: Apply data analytics techniques for solving real world problems.

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CLOUD COMPUTING

727623BCS011 Natchathra N
727623BCS044 Bhavadharani V Y



CAMERA-TO-CLOUD TECHNOLOGY

In an industry focused on innovation, the newest technology changing TV and film production is camera-to-cloud technology. This modern method is changing how films and TV shows are created, providing faster, more efficient, and better ways to work together. With content creation rapidly increasing and deadlines getting shorter, camera-to-cloud (C2C) technology is set to become the go-to standard for media production.

This article discusses the importance of camera-to-cloud (C2C) technology, explaining how it works and how it's transforming TV and film production. By allowing real-time access to footage and cutting down the need for physical media and transport costs, C2C is revolutionizing the entire production process, from filming to post-production.

How Camera-to-Cloud Technology Works

Camera-to-cloud technology lets footage be uploaded straight from the camera to cloud storage as soon as it's recorded. Normally, after filming, the footage would have to be transferred from storage devices (like SD cards or hard drives) to post-production teams using couriers or file transfer systems. This process takes time and involves several steps, which can increase the chance of losing or damaging the data.



Frame io: Says camera to cloud workflows break down barriers



Camera-to-cloud technology skips the old methods of transferring footage. With the right hardware and software footage can automatically be uploaded to cloud storage while or right after filming.

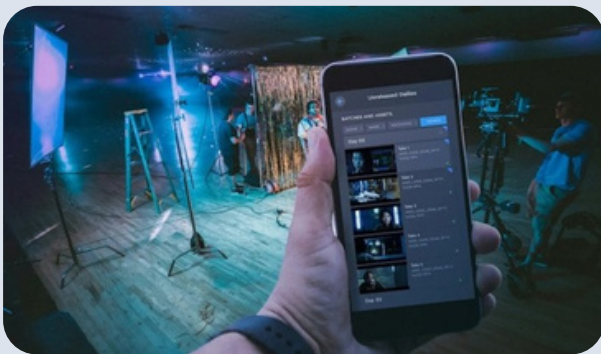
Cameras that work with this technology often have cloud-enabled recording devices, like Atomos Connect or Teradek Cube which connect to platforms like Frame.io or Amazon Web Services (AWS). Once the footage is in the cloud, anyone on the production team with the right access can view it, whether they are on set or working remotely from anywhere in the world. This greatly speeds up the production process, allowing footage to get to post-production teams just minutes after it's recorded. Editors can start cutting scenes, colorists can begin their work, and visual effects teams can get started almost immediately after the footage is uploaded to the cloud. This saves hours, or even days, of transfer time.

Impact on Collaboration and Remote Work

The most groundbreaking part of camera-to-cloud technology is how it improves collaboration. In the past, teams working on TV shows or films usually had to be on-site or wait for physical drives to be delivered before they could start their work. This traditional approach limited creative teams and required a lot of planning to make sure the data arrived safely and on time.

With camera-to-cloud technology, collaboration can happen in real time. This immediate access allows editors, directors, producers, and other team members to view footage just moments after it's recorded. This is especially important for large productions or international projects where different departments may be located across the globe. Teams can now provide feedback, make decisions about retakes, and suggest changes on set without needing to be there in person. As a result, remote work—which became very popular during the COVID-19 pandemic—becomes a practical, long-term option for many production teams.

For example, an editor in Los Angeles can start putting together scenes just minutes after footage is filmed in London, and a VFX artist in India can immediately begin adding effects. This drastically cuts down the time it takes to finish a project. The ability to collaborate without geographical limits is a game-changer in an industry where time is crucial.



Filmmakers have used Moxion's powerful, cloud-based platform for digital "immediates" on complex and challenging productions such as "The Matrix Resurrections" and "The Marvelous Mrs. Maisel."

Accelerated Production Schedules

Speed is crucial in modern media production. Whether it's for TV series with tight release schedules or blockbuster films needing to meet studio deadlines, being efficient with time leads to cost savings and a competitive edge. In traditional workflows, transferring technology footage, backing it up, and managing data manually often slowed things down. Camera-to-cloud by automating the transfer of footage as soon as it's recorded.

Daailies—the raw footage shot during production day—can now be available within minutes of filming a scene, compared to the next-day availability of traditional methods. This quick access allows stakeholders to make faster decisions about reshoots, adjustments to lighting, blocking, or even changes to the script. These real-time capabilities can save productions both time and money by tackling issues before they turn into bigger problems that require costly reshoots or delays.



Amazon Studios used camera-to-cloud technology to organize its epic production of "The Lord of the Rings: The Rings of Power." Image courtesy of Ben Rothstein/Prime Video, copyright: Amazon Studios.

Also, with automated backups and cloud storage redundancy, the risk of losing footage due to damaged or corrupted media is significantly lowered. Producers can feel more secure knowing that their work from the day is safely stored and accessible, no matter what happens to the physical storage devices on set.

Cost Efficiency and Scalability

Camera-to-cloud technology provides cost-saving benefits that extend beyond just saving time. One major advantage is the reduced need for physical storage media and the logistics involved in managing and transporting it. Large productions often require a lot of storage, which can get expensive as footage resolution increases (like 4K or 8K). By uploading directly to the cloud, productions can rely less on physical drives, couriers and storage facilities leading to significant savings.

The scalability of cloud storage allows productions to handle large amounts of high-resolution footage without the limitations of traditional storage devices. Cloud platforms provide flexible storage options, meaning productions only pay for the space they use. As storage needs increase, cloud services can easily expand to accommodate the additional data, unlike physical storage solutions that require extra investment in hardware.

Additionally, cloud platforms provide strong data protection, often including features like encryption, two-factor authentication, and automatic backups. These features offer reassurance, especially for high-budget productions where leaks or data loss can have serious consequences.

Challenges and Future Prospects

While camera-to-cloud technology has many advantages, there are still challenges to address. The biggest issue is the need for high-speed internet. Uploading large amounts of raw, high-resolution footage in real time requires a lot of bandwidth. Remote filming locations or studios with poor internet infrastructure may struggle to use this technology effectively. However, improvements in 5G and satellite internet solutions are slowly helping to reduce this problem.

Another challenge is the long-term cost of cloud storage. Although cloud platforms can be cheaper than physical storage in many situations, the ongoing expense of storing large amounts of data—especially for high-budget productions that last a long time—can still be a financial burden. However, the advantages of faster workflows and better collaboration usually make these costs worthwhile.



Frame.io has an all-you-can-use business model with cloud egress fees included.

Looking ahead, the future of camera-to-cloud technology looks promising. As internet infrastructure improves around the world and cloud services become more integrated with filmmaking tools, we can expect C2C technology to advance and become even more user-friendly. Future developments might include AI-driven workflows, where machine learning algorithms help organize footage, automate edits, or even create initial visual effects in real time, making the production process even more efficient.

Conclusion

Camera-to-cloud technology is transforming the TV and film industry in real time. It allows for instant access to footage, supports remote collaboration, speeds up production timelines, and provides scalable, secure storage, changing how content is created and delivered. While challenges like reliance on internet connectivity still exist, the advantages of this technology far exceed the downsides. As filmmakers keep pushing creative and innovative limits, camera-to-cloud technology will be a key part of the new era of fast, efficient, and global production workflows.



FAKE SOCIAL MEDIA ACCOUNT DETECTION

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727623BCS041 Lakshaya D



FAKE SOCIAL MEDIA ACCOUNT DETECTION USING MACHINE LEARNING

Introduction

Social media platforms like Facebook, Twitter, Instagram, and LinkedIn have a profound impact on our lives, but they also face the issue of fake profiles, often created by bots or individuals for spreading misinformation or engaging in illegal activities like phishing. This project introduces a machine learning-based detection model to differentiate between real and fake Twitter profiles using features such as follower count, friend count, and status updates. The dataset classifies real profiles into TFP and E13, and fake ones into INT, TWT, and FSF. Techniques like LSTM, XGBoost, Random Forest, and Neural Networks are explored, with key features selected to assess authenticity. After training the models and fine-tuning hyperparameters, the output labels genuine profiles as 0 and fake ones as 1, allowing for the removal of fraudulent accounts to enhance cybersecurity. Implemented in Python using libraries like Sklearn, NumPy, and Pandas, the study concludes that XGBoost is the most effective technique for detecting fake profiles.

Machine learning in Fake detection

Machine learning (ML) is a highly effective method for detecting fake social media accounts by analysing intricate patterns in user behaviour, content dynamics, and account metadata that might escape human scrutiny. These ML algorithms process extensive datasets, extracting features like posting cadence, network topology, follower-friend ratios, and engagement anomalies to flag abnormal behaviour. Utilizing techniques such as anomaly detection, supervised learning, and clustering, these models can identify deviations from authentic user profiles.

Over time, they self-optimize through continuous learning, adapting to new deceptive tactics. By automating large-scale detection, ML significantly enhances the accuracy, scalability, and efficiency of fake account identification, mitigating risks such as misinformation, phishing, and data privacy violations across social platforms.



Machine learning in Fake detection

Image Reversing

Image reversing is a key tool in detecting fake social media accounts, such as on Instagram, by analysing and verifying profile pictures. It works by uploading a suspicious profile image to a reverse image search engine like Google Reverse Image Search, which scans the web for identical or similar images. If the picture is found on multiple websites stock photo platforms

(e.g., Shutterstock), or in unrelated contexts, it may indicate that the account is fake. This technique is particularly effective in detecting reused stock photos, stolen images, or AI-generated pictures commonly used by fraudulent accounts. For example, if an Instagram account uses a professional-looking profile picture, a reverse image search may reveal that the picture was taken from a stock photo site or appears on multiple profiles, strongly suggesting that the account is not genuine. When combined with machine learning algorithms that analyse behavioural patterns, image reversing enhances accuracy in identifying fake accounts.

Random Forest

The Random Forest algorithm is a powerful ensemble learning method used to detect fake social media profiles by employing multiple decision trees for classification. Instead of depending on a single tree, it combines predictions from a diverse set of trees based on features such as profile images, usernames, follower counts, and posting frequencies. Each tree independently votes on whether a profile is authentic, with the final classification determined by the majority consensus. This ensemble approach



typically achieves accuracy rates exceeding 90%, making Random Forest a reliable technique for identifying fraudulent accounts, especially when trained on high-quality datasets. The mechanism involves constructing a collection of decision trees, each created

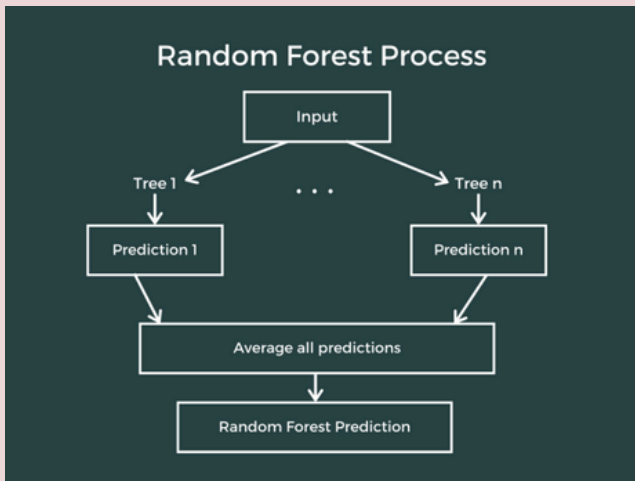
from random subsets of the training data and selecting various features like follower count and engagement metrics. When assessing a new profile, the trees cast votes on its authenticity, and the overall decision is reached through majority voting. This method enhances accuracy and reduces classification errors by leveraging the strengths of multiple trees, creating a robust framework for detecting fraudulent accounts.

Decision Tree

Decision trees are widely used supervised learning tools that offer a tree-like structure where data points are classified based on sequential questions about their features. They are intuitive to interpret, as each split corresponds to a simple decision rule. This interpretability makes them valuable in understanding the decision-making process, making them suitable for our scam profile detection work. However, they can be susceptible to overfitting if not carefully pruned.

Support vector machine

Support Vector Machines (SVM) are a powerful tool for detecting fake social media accounts by classifying profiles based on key features. The SVM algorithm identifies the optimal hyperplane that separates genuine accounts from fraudulent ones through a systematic process. First, data is collected, including relevant features such as follower count, profile picture authenticity, posting frequency, and follower-following ratios. The dataset is then pre-processed to handle missing values, normalize features, encode categorical variables, and split into training and testing sets. Next, feature selection identifies the most relevant attributes that distinguish real from fake accounts. The SVM model is trained using an appropriate kernel function (linear or RBF), with hyperparameters optimized through grid search. After training, the model is evaluated on the test dataset to assess performance metrics like accuracy, precision, recall and F1



score, often achieving over 90% accuracy. Finally, the model is deployed in a real-time system to evaluate new profiles. Utilizing Python's Scikit-learn library, SVM effectively classifies accounts by leveraging user behaviour and network dynamics, making it a valuable tool in combating online fraud.

XGBoost, Gradient Boosting, and AdaBoost

These are all ensemble boosting techniques that sequentially build models, where each new model learns to improve upon the errors of the previous one. They are powerful and flexible, often achieving high accuracy. However, they can be computationally expensive, and interpreting their inner workings can be complex.

Solution

To enhance the accuracy of fake social media account detection, we can implement the XGBoost algorithm alongside other machine learning techniques. The proposed solution includes two main functionalities: an email notification system for fake account requests and a web interface for users to check the authenticity of social media profiles. Here's how we can structure the solution:

Fake Account Notification System

When a fake account requests to follow or connect with a user on platforms like Instagram, LinkedIn, or Twitter, the system will automatically send an email to the user indicating that the requesting account is suspected to be fake.

Implementation Steps

- Use an email service API (like SendGrid or SMTP) to automate email notifications.
- Implement a backend service that processes incoming requests, analyzes the account using the trained models (including XGBoost, Random Forest, and SVM), and triggers an email alert if the account is flagged as fake.
- Example of a notification message
- Subject: Alert: Suspicious Account Request
- Body: We detected that the account [username] is likely to be a fake profile. Please be cautious and verify before accepting the request

Web Interface for Profile Verification

Create a user-friendly webpage where individuals can select a social media platform (Instagram, Facebook, LinkedIn, Twitter), input the account ID, and receive feedback on whether the account is real or fake.

Implementation Steps

Develop a simple front-end interface using HTML, CSS, and JavaScript, allowing users to choose the platform and enter the account ID.

Set up a backend service that processes the input ID, applies the trained XGBoost and other models to predict the authenticity, and returns the result to the user.

Example UI flow

- User selects a platform from a dropdown menu.
- User enters the account ID in a text box.
- Upon submission, the system analyses the input using the combined results of all algorithms and displays whether the account is real or fake.

Conclusion

By integrating the XGBoost algorithm with a multi-algorithm ensemble approach, fake social media account detection can be significantly enhanced. The proposed automated email notification system and web interface for profile verification empower users with real-time tools to combat fraud. This collaborative strategy optimizes accuracy and ensures a safer social media experience, playing a vital role in minimizing risks and fostering a healthier digital environment.



BLOCKCHAIN IN CROP INSURANCE

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727623BCS164 Sowmiya M



BLOCKCHAIN IN CROP INSURANCE

Crop insurance is essential for mitigating risks faced by farmers, yet traditional systems often suffer from inefficiencies, fraud, and delayed claim processes. Integrating blockchain technology into crop insurance is ensuring accurate, secure, and easy identification of farmers, especially in regions with limited access to formal identification systems. Blockchain technology, renowned for its decentralized, transparent, and immutable nature, offers a promising solution to address the challenges faced by traditional crop insurance systems. Additionally, blockchain can facilitate the creation of peer-to-peer insurance markets, empowering farmers to pool risks and share premiums. The advanced application of blockchain technology in the crop insurance sector, exploring its potential to streamline processes and improve efficiency through smart contracts, decentralized data storage, and enhanced traceability. In our finding we suggest that the integration of Aadhaar, India's unique identification system, can further strengthen the process by providing a robust mechanism for customer verification. Aadhaar can be used to verify eligibility for government subsidies and other benefits, ensuring that farmers receive the full support they need. As well as we can also implement the biometric authentication, which will strengthen the process for user identification. Biometric authentication, such as fingerprint or facial recognition, can significantly reduce the risk of fraud and identity theft, ensuring that insurance benefits are only received by legitimate claimants. we present an innovative blockchain-based crop index insurance solution aimed at delivering multiple benefits.

INTRODUCTION

Agribusiness is one of the world's most important industries, contributing to a nation's health, nutrition, and economy, employing over 1.3 billion people and generating \$2.6 trillion in economic output annually. In this specific field, implementing blockchain in crop insurance can revolutionize the way insurance is managed and delivered. The unpredictable nature of agricultural production exposes farmers to numerous risks, including crop failures, natural disasters, pests,

and diseases. These risks can devastate farmers' incomes, threatening their livelihoods and the sustainability of agricultural production. In this paper, our primary objective is to propose and present a private blockchain based crop insurance solution designed to connect smallholder farmers, weather data providers, and insurers within a trusted and efficient ecosystem.

BLOCKCHAIN'S ROLE IN CROP INSURANCE

Crop insurance is a type of insurance that provides financial protection to farmers against losses caused by adverse weather conditions, natural disasters, or pests. It helps mitigate the financial risks associated with agricultural production, ensuring a more stable income for farmers. Crop insurance plays a crucial role in the agricultural sector by:

Providing financial stability

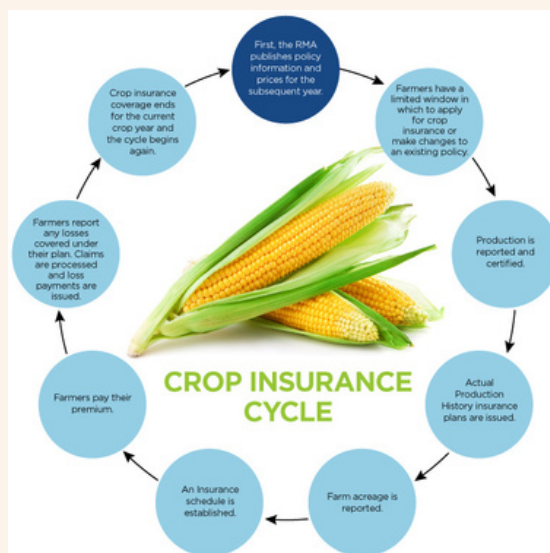
- It helps farmers recover from losses and continue their operations.

Encouraging risk-taking

- It enables farmers to experiment with new crops or farming practices without fear of financial ruin.

Ensuring food security

- By protecting farmers from crop failures, it helps maintain a stable food supply.



Limitations of Traditional Models

Traditional crop insurance models often face several limitations, including

Fraud and corruption

- Claims can be exaggerated or fabricated, leading to financial losses for insurance providers.

Lack of transparency

- The claims verification process can be time consuming and prone to errors.

Data privacy concerns

- Farmers may worry about the security and privacy of their personal and agricultural data.

Blockchain is a decentralized, distributed ledger technology that records transactions in a secure and transparent manner. It is best known for its use in cryptocurrencies like Bitcoin but has applications in various industries, including agriculture.

Crop Insurance Schemes used in Tamil Nadu are

- Pradhan Mantri Fasal Bima Yojana (PMFBY).
- National Crop Insurance Programme (NCIP).
- Weather-Based Crop Insurance Scheme (WBCIS).
- Tamil Nadu Crop Insurance Scheme (TNCIS).

Helpline

- IAIC: 1800 103 5141
- UIIC: 1800 425 2355
- NIC: 1800 345 0330
- TNAU: 044-2476 8000

Implementing Agencies

- Agriculture Insurance Company of India Limited (AIC).
- United India Insurance Company Limited (UIIC).
- National Insurance Company Limited (NIC).
- Tamil Nadu Agriculture University (TNAU).

Crop Insurance Benefits



Predicting Crop Problem Using Blockchain and Biometric Data

Real-time Monitoring

By integrating IoT devices with the blockchain platform, farmers can monitor crop health, weather conditions, and soil moisture in real-time. This data can be combined with biometric information to assess the impact of external factors on crop yields.

Early Warning Systems

Based on predictive analytics, the platform can send early warnings to farmers about potential risks, allowing them to take preventive measures and reduce losses.

Predictive Analytics

Machine learning algorithms can analyze historical data, including crop yields, weather patterns, and biometric information, to predict potential crop problems. This information can be used to adjust insurance premiums or provide targeted risk management advice.

Predicting Crop Problems Using Blockchain and Biometric Data

Real-time Monitoring

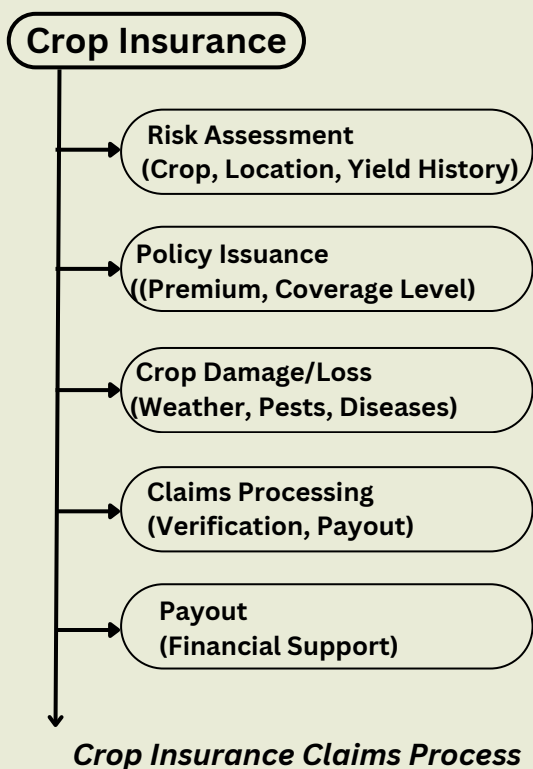
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Predictive Analytics

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Technical Components

- **Blockchain Platform** (e.g., Ethereum, Hyperledger Fabric)
- **Smart Contract Language** (e.g., Solidity)
- **IoT Sensors** (weather, soil, crop monitoring)
- **Decentralized Data Storage** (e.g., IPFS)
- **Biometric Authentication** (e.g., fingerprint, facial recognition)
- **Digital Payment Methods** (e.g., cryptocurrency, mobile wallets)

System Architecture

- **Frontend** Farmer-facing interface (mobile app, web portal)
- **Backend** Blockchain platform, smart contracts, IoT sensor integration
- **Database** Decentralized storage solutions (e.g., IPFS)
- **Network** Blockchain network (e.g., Ethereum, Hyperledger Fabric)

How this System works?

- Farmer interacts with frontend.
- Frontend sends requests to backend.
- Backend executes smart contracts.
- Smart contracts interact with IoT sensors.
- IoT sensors transmit data to backend.
- Backend updates blockchain records.



INTEGRATING TECHNOLOGIES

Biometric Authentication

- **Biometric type** Fingerprint, facial recognition, iris scanning
- **Authentication protocol** Biometric Authentication Protocol (BAP)
- **False acceptance rate** 0.01%
- **False rejection rate** 0.01%
- **Authentication time** 1-5 seconds

Algorithms used,

- Fingerprint recognition algorithms (e.g., minutiae-based)
- Facial recognition algorithms (e.g., convolutional neural networks)
- Iris scanning algorithms (e.g., wavelet-based)
- Voice recognition algorithms (e.g., hidden Markov models)

Algorithms Included

1. **Cryptographic algorithms** (e.g., AES, RSA, ECDSA) for secure data transmission and storage.
2. **Hash functions** (e.g., SHA-256, Keccak-256) for data integrity and authenticity.
3. **Digital signature algorithms** (e.g., ECDSA, RSA) for authentication.
4. **Consensus algorithms** (e.g., Proof of Authority, Proof of Stake) for blockchain network consensus.
5. **Machine learning algorithms** (e.g., regression, decision trees) for predicting crop yields and assessing damage.

Blockchain Protocols

- **Ethereum** Smart contract platform for decentralized applications.
- **Hyperledger Fabric** Blockchain platform for enterprise applications.
- **IPFS** Decentralized storage solution for data.
- **Corda** (e.g., state machines, flows)

Aadhaar Integration

- Unique digital identity for farmers
- Eliminates fake or duplicate identities
- Streamlines farmer verification
- Enhances security and transparency

Smart Contract Algorithms

- Consensus algorithms (e.g., Proof of Authority, Proof of Stake)
- Cryptographic algorithms (e.g., AES, RSA, ECDSA)
- Hash functions (e.g., SHA-256, Keccak-256)
- Digital signature algorithms (e.g., ECDSA, RSA)

IoT Sensor Integration

- Sensor calibration algorithms
- Data filtering algorithms (e.g., Kalman filter)
- Data aggregation algorithms (e.g., average, sum)
- Sensor data encryption algorithms

Decentralized Data Storage

- Storage solution IPFS, Swarm, or BigchainDB
- Data encryption AES, RSA, or elliptic curve cryptography
- Data compression ZIP, GZIP, or LZ4
- Data redundancy 2-5 copies
- Data retrieval time: 1-10 seconds

The integration of blockchain technology in crop insurance presents a transformative opportunity to enhance transparency, efficiency, and trust within the agricultural insurance sector. By leveraging the decentralized and immutable nature of blockchain, stakeholders can streamline the claims process, reduce fraud, and ensure timely payouts for farmers. Smart contracts facilitate automatic execution of claims based on predefined conditions, minimizing delays and administrative burdens.

MANAGEMENT INFORMATION SYSTEM

A management information system (MIS) is a system that uses people, documents, and technology to help businesses solve problems and make strategic decisions. MIS professionals use technology to bridge the gap between business and technical teams.

In today's fast-paced business environment, organizations rely heavily on information systems to make informed decisions, improve operations, and drive growth. A Management Information System (MIS) is a computer-based system that provides managers with timely and relevant information to support decision-making, problem-solving, and strategic planning.

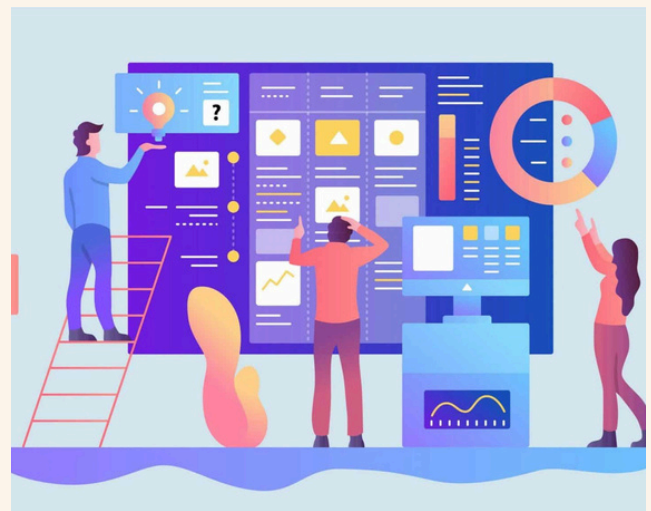
Key Components of Management Information System (MIS) in Software Field

A Management Information System (MIS) is a critical component of modern organizations, providing timely and relevant information to support decision-making, operations, and strategy. In the software field, an MIS comprises several key components that work together to deliver a comprehensive system.

Front-end:

user interface (UI) and user experience (UX) components, built using programming languages like HTML, CSS, and JavaScript.

What is a management information system (MIS)?



Back-end

Server-side logic, database integration, and API connectivity, built using languages like Java, Python, and Ruby. Middleware integrates disparate systems and enables communication between front-end and back-end components

Functions of Management Information System (MIS)

A Management Information System (MIS) plays a vital role in supporting organizational decision-making, operations, and strategy. The primary function of an MIS is to provide timely and relevant information to managers and decision-makers, enabling them to make informed decisions. The key functions of an MIS can be categorized into several areas.

Data Collection and Processing

An MIS collects and processes data from various sources, including transactions, customer interactions, and market trends. This data is then stored in a database, where it can be analyzed and retrieved as needed.

Information Generation and Dissemination

The MIS generates reports, dashboards, and other visualizations to present complex data in a meaningful way. This enables managers to quickly understand key performance indicators (KPIs), identify trends, and detect anomalies.

Decision Support

An MIS provides decision-makers with analytical tools and models to evaluate alternatives, predict outcomes, and optimize decisions. This includes data mining, predictive analytics, and simulation modelling.



Management Information Systems (MIS) come in various types, each serving specific business needs,

Transaction Processing Systems (TPS)

Automate routine transactions like billing, payroll and inventory management.

Management Reporting Systems (MRS)

Provide regular reports based on routine operations to aid decision-making.

Decision Support Systems (DSS)

Analyze data to help managers make strategic decisions through simulations and models.

Executive Information Systems (EIS)

Offer top-level management easy access to key metrics for strategic planning.

Customer Relationship Management Systems (CRM)

Focus on managing customer interactions and improving customer satisfaction.

Enterprise Resource Planning (ERP)

Integrate all departments into a unified system to optimize resources and processes.

Benefits of management information system

A Management Information System (MIS) enhances decision-making by providing accurate and timely data, improving efficiency and productivity. It streamlines business processes, reducing operational costs and redundancies. By offering insights through data analysis, MIS helps organizations set strategic goals, optimize resource allocation, and enhance customer service. It also improves communication across departments, leading to better collaboration. Additionally, it supports real-time monitoring, enabling swift responses to market changes. MIS enhances data security and integrity, ensuring that sensitive information is protected. Overall, it aids in achieving competitive advantages, supporting growth, and adapting to evolving business environments effectively.

A real-time example of a Management Information System (MIS) is Amazon's order management system.

When a customer places an order on Amazon, the MIS tracks the entire process, from order confirmation, payment processing, inventory check, packaging, shipping, to delivery. The system monitors stock levels, notifies warehouses of product availability and manages the logistics for efficient delivery. It also provides management with reports on sales trends, inventory status, and customer satisfaction.

This real-time data allows Amazon to optimize its supply chain, reduce costs, and enhance the customer experience by ensuring fast, accurate deliveries.



Challenges in Management Information System (MIS)

Implementing and maintaining an effective Management Information System (MIS) poses several challenges:

Technical Challenges

- Data integration and compatibility issues
- System scalability and flexibility limitations
- Cybersecurity threats and data breaches
- Hardware and software obsolescence
- Network connectivity and reliability

Data-Related Challenges

- Data quality and accuracy concerns
- Data redundancy and duplication
- Data privacy and compliance issues
- Data analytics and interpretation complexities

In conclusion a well-designed Management Information System (MIS) is a vital tool for organizational success, enabling informed decision-making, operational efficiency, and strategic growth. Effective implementation and maintenance of MIS can drive business excellence, competitiveness, and sustainability in today's fast-paced digital landscape.



VIRTUAL REALITY IN MENTAL HEALTHCARE

727623BCS098 Mohamed Tawfeeq A



VIRTUAL REALITY IN MENTAL HEALTHCARE

Virtual Reality (VR) therapy has gained significant traction as an innovative tool in the mental health domain, providing immersive and interactive experiences that enhance conventional therapeutic techniques. This paper investigates the application of VR technology in addressing mental health disorders such as anxiety, depression, post-traumatic stress disorder (PTSD), and specific phobias. By enabling patients to confront their fears and anxieties in a controlled, simulated environment, VR therapy offers a novel approach to exposure therapy, emotional regulation, and behavioral interventions.

The study synthesizes recent research, showcasing the efficacy of VR therapy in improving patient outcomes and engagement compared to traditional therapeutic methods. Key aspects explored include the therapeutic potential of immersive environments, patient accessibility, and also personalization of treatment.



Additionally, the paper highlights technological, ethical, and logistical challenges in integrating VR therapy into clinical settings, including cost, therapist training, and the management of side effects such as cybersickness.



The presentation will outline the current state of VR therapy, its clinical applications, and future advancements, particularly in conjunction with artificial intelligence and machine learning technologies. This paper aims to provide a comprehensive overview of VR therapy as a transformative tool in mental health treatment, emphasizing its potential to enhance therapeutic effectiveness, accessibility, and personalization in modern clinical practice.



TECHNICAL SEO

727622BCS052 Srinithi M
727622BCS066 Gokila mani S



TECHNICAL SEO

Introduction

An essential component of search engine optimization is technical SEO. It focuses on a website's backend. This makes it easier for search engines to index and crawl the website. Technical SEO is more than simply content and keywords. It covers aspects like mobile optimization, security, and website performance. We shall examine the significance of technical SEO in this article. We'll examine its essential components and how your website might profit from them.

What is Technical SEO?

The process of improving a website's infrastructure is known as technical SEO. It guarantees that a website satisfies search engine technological standards. This may entail boosting site security, increasing mobile usability, and optimizing website performance. Technical SEO addresses how search engines interpret the website, as opposed to content SEO, which concentrates on the quality of the material. It raises a website's ranking on search engine result pages (SERPs) when done correctly.

The Key Components of Technical SEO

Site Speed

One of the most crucial elements of technical SEO is site speed. A website that loads quickly provides a better user experience. If a website takes too long to load, users are likely to abandon it. When ranking websites, search engines also take site speed into account.

Site performance may be examined and enhanced with the use of tools such as Google Page Speed Insights.

Mobile-Friendliness

In technical SEO, one of the most crucial elements is site speed. An improved user experience is provided by a site that loads quickly. If a website takes too long to load, users will probably leave. Search engines rank websites based on their speed as well. Site speed analysis and improvement can be aided by tools such as Google Page Speed Insights.

XML Sitemaps

Search engines can better comprehend your site's structure with the use of XML sitemaps. They offer a road map of the pages on your website. Search engines will find it simpler to crawl and index your material as a result. XML sitemaps may be made with a variety of tools. As you add new pages, make sure your sitemap is updated on a regular basis.

Robots.txt

The robots.txt file tells search engines which pages to crawl and which to ignore. It helps manage crawler behavior. If you have pages that you do not want indexed, use this file wisely. A well-configured robots.txt can improve your site's SEO.

Secure Sockets Layer (SSL)

Your website is secure if it has SSL. The information sent back and forth between the browser and the server is encrypted. SSL improves a website's position in search results. Secure websites make users feel safer, which can increase conversions and confidence.

Benefits of Technical SEO

Improved User Experience

Users will have a better experience on a site that is quick, safe, and simple to use. Higher engagement and decreased bounce rates are the results of a positive user experience. Additionally, this can increase sales and conversions.

Better Crawlability

Technical SEO makes ensuring your site is easy for search engines to crawl and index. Your pages cannot be ranked by a search engine if it cannot access them. Search bots are encouraged to crawl every part of a well-optimized page.

Higher Rankings

Technically sound websites are more likely to rank higher in search engine results pages. Users searching for pertinent information can access your website when search engines are able to crawl and comprehend it.

Increased Traffic

Increased traffic is a direct outcome of higher search engine rankings. You have the opportunity to turn more visitors into paying clients if they are able to find your website. Your website might receive the recognition it merits with the help of technical SEO.



How to Improve Technical SEO

Conducting a Technical SEO Audit

To improve your technical SEO, you must first perform an audit. This will assist in locating problems on your website. You can examine the technical elements of your website with the aid of tools like as Screaming Frog and SEMrush.

Fixing Errors

Address any problems you find following an audit. This could include issues with mobile usability, sluggish page loads, or broken links. To keep your website functioning properly, regular maintenance is necessary.

Regular Updates

For optimal results, keep your website updated. Make sure all of your pages are responsive, update your content, and look for broken links. Search engines are alerted to your site's activity by frequent updates.

Conclusion

To sum up, technical SEO is essential to any website's success. It improves the functionality of your website and facilitates search engines' comprehension of your information. You may increase traffic, rankings, and user experience by concentrating on technical SEO. Keep your site optimized and give technical SEO top priority. This will enable you to efficiently reach your audience and open up new chances in the digital realm. Get started now and see how your website grows! You can make sure that your website stands out in a crowded online market by focusing on the technical aspects of SEO.



THE IMPACT OF GENERATIVE AI ON BUSINESS PROCESSES

727622BCS051 Aadith G

727622BCS055 Hariharan M



GENERATIVE AI ON BUSINESS PROCESSES

Introduction

Through the transformation of human-machine interactions, generative artificial intelligence (AI) is altering the nature of employment and the role of technology in business. Business operations are greatly impacted by this new productivity paradigm, which forces managers to reconsider organizational designs and the skill sets required to stay competitive. The effects of generative AI on business processes, the idea of multi-agent systems and agent autonomy, as well as the moral dilemmas and necessary competencies to handle this shift, will all be covered in this essay. I've also added more pieces. I've written in the past for additional reading.

Impact of Generative AI on Business Processes

Generative AI is profoundly altering how businesses organize their activities and optimize productivity. By automating specific tasks, it enables employees to focus on higher-value activities.

For example:

- **Automating Decision-Making,** Generative AI may assist teams in strategic decision-making by utilizing predictive models to analyze intricate datasets and offer suggestions based on patterns and predictive analysis.
- **Product innovation, virtual aid, and creative assistance,** Some businesses already utilize generative AI to create models and prototypes for new goods and services. AI could be used as a virtual assistant by a communications corporation, for example, to save time and money during the design process.

These transformations necessitate a reorganization of business processes and demand new skills to effectively collaborate with generative AI tools.



Impacts of AI on Automation and Productivity Gains

Investigating the ideas of multi-agent AI systems and agency is crucial to comprehending how generative AI could aid in strategic decision-making. Given that multi-agent AI is anticipated to become widely used by 2025, this section is especially pertinent. The field of generative AI is always changing, with new ideas and methods emerging at a breakneck speed.

- **Multi-Agent AI in Strategic Decision-Making**
- **Agency and Autonomy of Generative AI**

Therefore, generative AI transforms from an analytical tool into a "smart advisor" that may provide comprehensive and proactive insights for strategic decision-making by combining multi-agent and agency ideas

Redefining Skills and the Human Role

Working with generative AI also rethinks the knowledge that businesses need. AI enhances and augments human analytical and creative skills rather than taking the place of human knowledge. But this synergy necessitates fresh knowledge:

- **Critical Thinking and Analytical Skills**
To prevent mistakes and prejudices, employees using AI support must learn to evaluate and question AI-generated recommendations. Strong data analysis abilities and the capacity to function in challenging, unclear situations are needed.
- **Continuous Learning**
Due to AI's quick development, learning new tools and methods requires constant practice. Employers should fund training and change management initiatives to assist staff in becoming proficient in human-machine interaction and adjusting to the requirements of generative AI.

Ethical and Practical Challenges of Generative AI

Important practical and ethical issues are brought up by the use of generative AI into commercial operations. Businesses should concentrate on the following areas to guarantee responsible adoption, often known as responsible AI:

- **Transparency:** In order for AI-generated decisions to be comprehended, validated, and modified as necessary, it is imperative that generative AI processes be transparent.
- **Bias Mitigation**
Generative AI has the potential to replicate and magnify biases if it is founded on biased data.

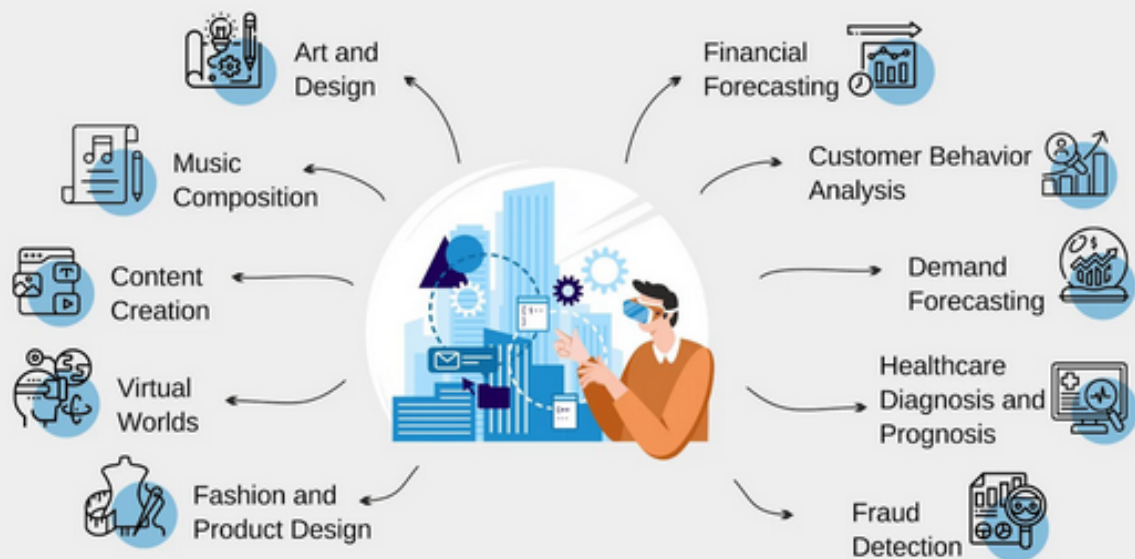
To reduce this risk, businesses must make a commitment to routinely assessing their algorithms. The ethical analysis of the data and models utilized can be ensured with the assistance of an internal AI oversight committee.

- **Data Protection and Privacy**
Using AI entails gathering and handling private information. To avoid data breaches, organizations should enforce stringent privacy policies and make sure that existing laws are followed.
- **Accountability**
To prevent shifting accountability to machines, a human should be in charge of every AI decision. Accountability guarantees that the cause of the problem, be it the AI or the group that implemented it, can be found in the event of a poor choice.

By combining a gradual approach, active support, and continuous training, a transition policy and appropriate governance for generative AI can create an environment where employees are both better prepared and more motivated to adopt generative AI tools.



Generative AI Applications



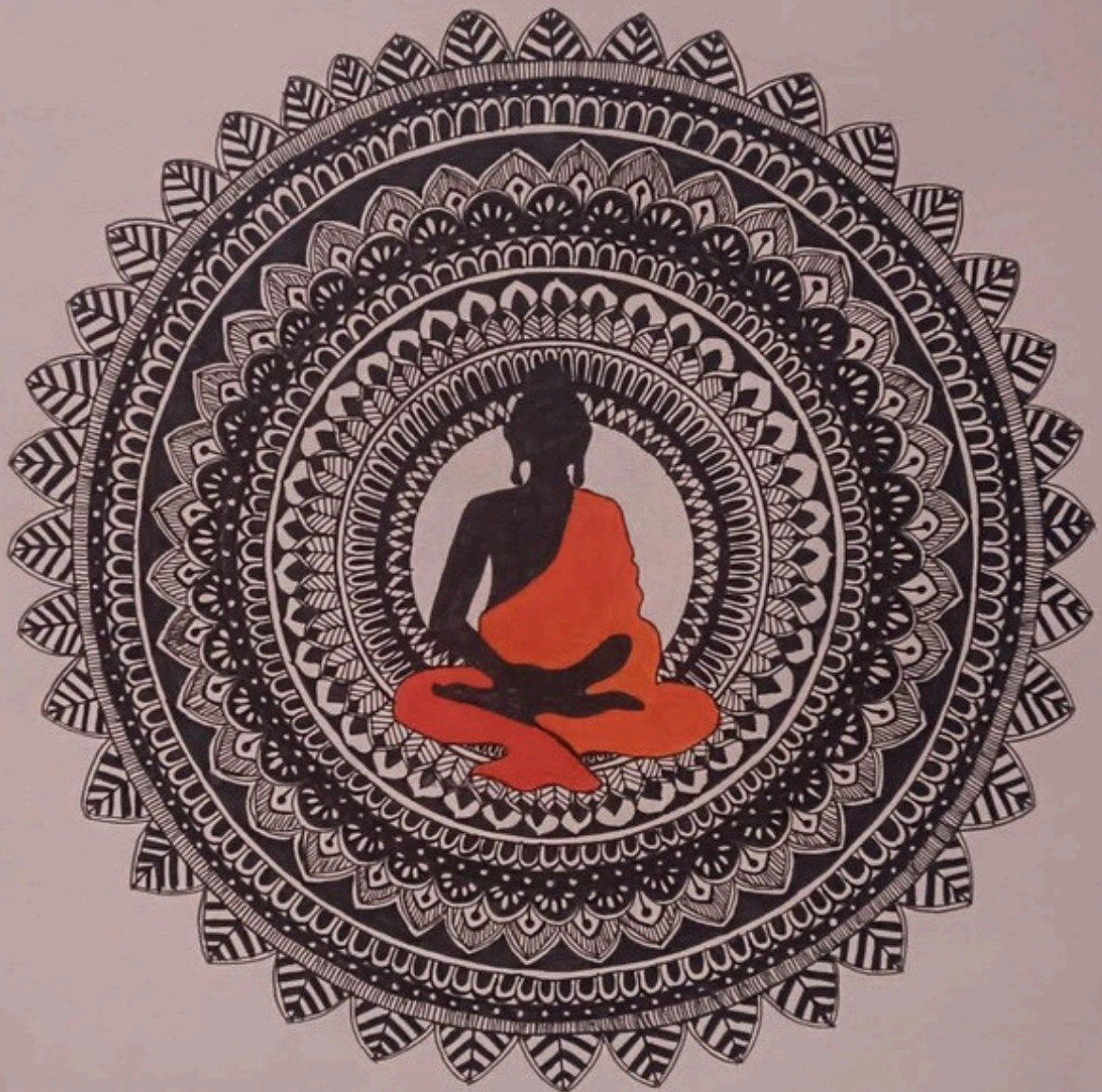
Building a Culture of Adaptability and Innovation

The ability of the company to foster a culture of flexibility and ongoing innovation is crucial to the adoption of generative AI. Leaders should create a culture that values experimentation, skill improvement, and rapid technological change adaptability. Teams are guaranteed by this culture to fully utilize new technology in addition to embracing them.



Conclusion

Businesses have a rare chance to redefine themselves through the incorporation of generative AI. Organizations can adapt to the demands of a world that is changing technologically by rethinking business processes and investing in the development of suitable talents. This shift is not without difficulties, though, as careful planning and robust governance are needed to manage bias, openness, and data confidentiality. It is crucial to cultivate an adaptable culture.



“We are what we think. All that we are arises with our thoughts. With our thoughts we make the world”

727623BCS044 - V Y Bhavadharini

SHADES OF SKETCH

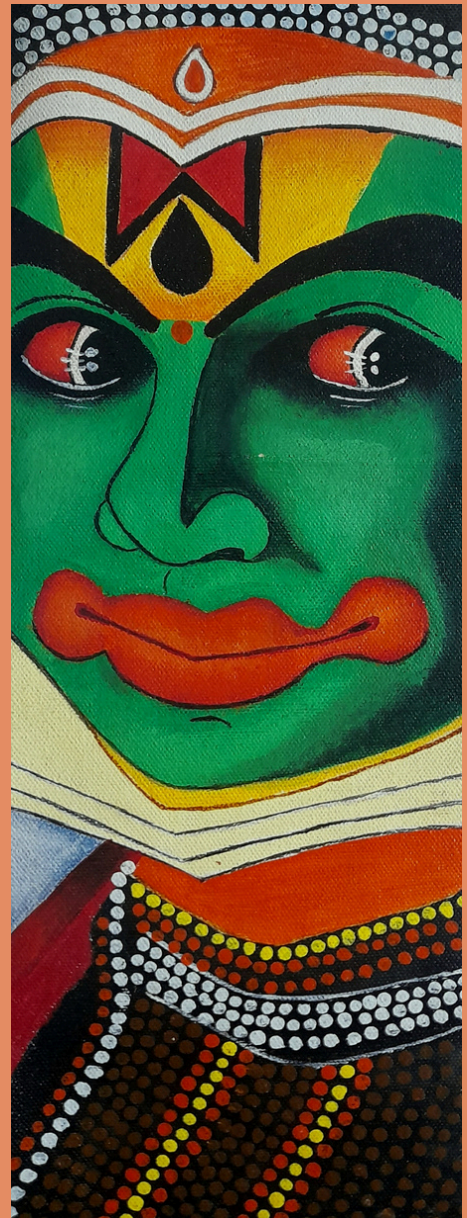


“Little strokes of happiness”



“A father is neither an anchor to hold us back nor a sail to take us there, but a guiding light whose love shows us the way”

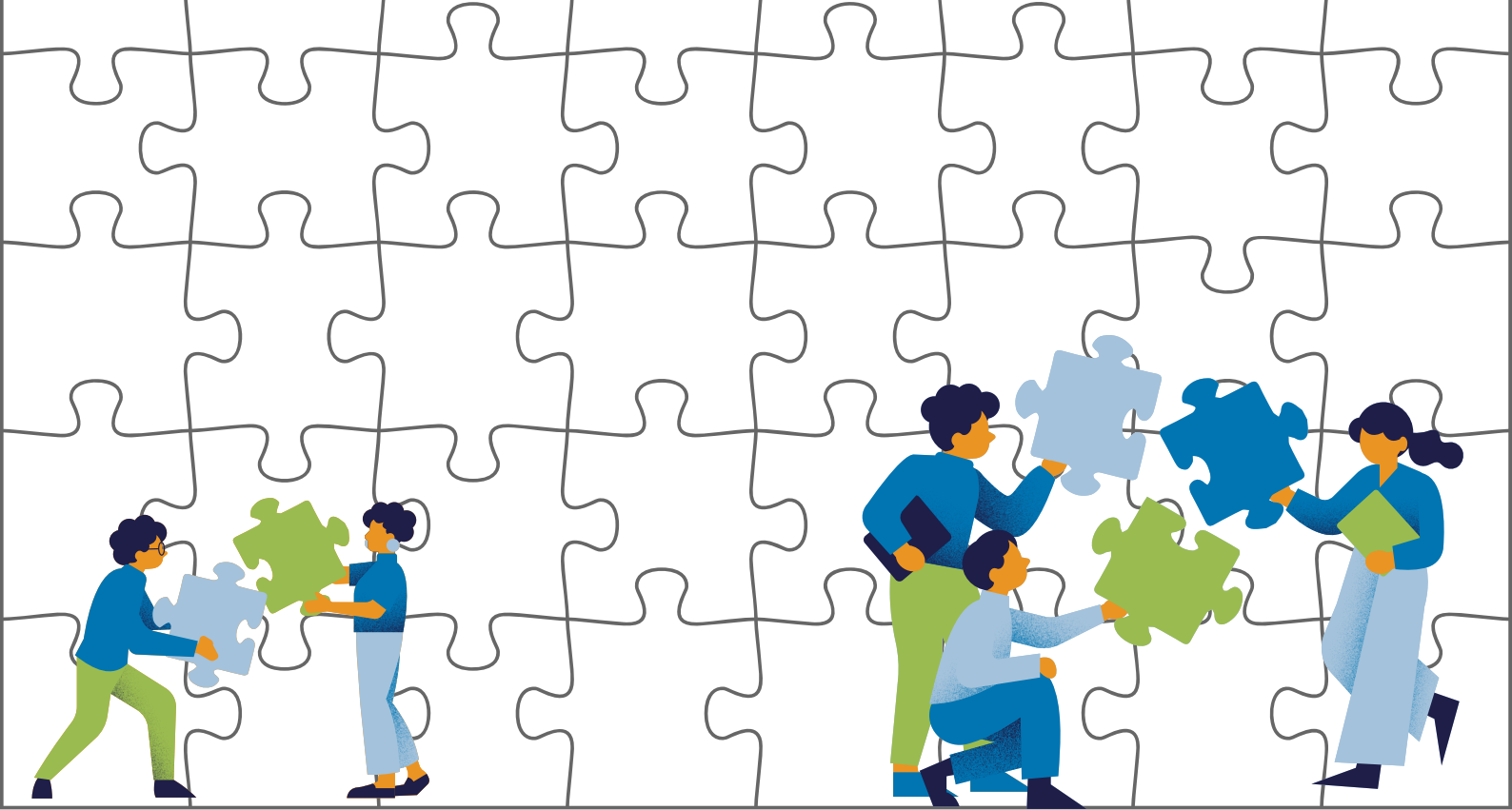
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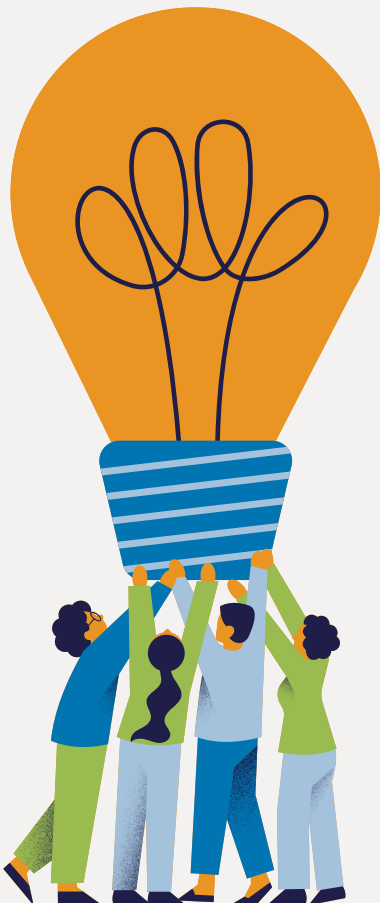
“Play symbolizing the eternal fight between good and evil ”

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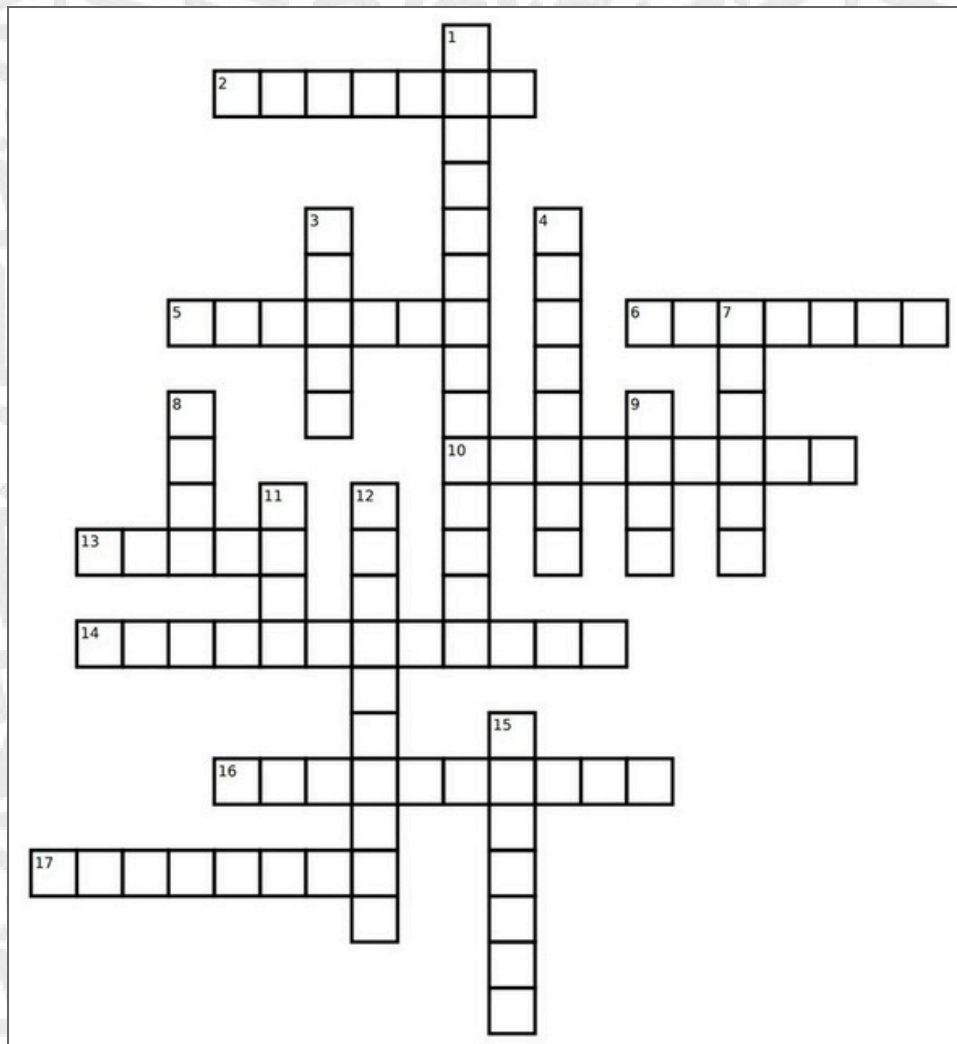
Samyuktha S



VERBAL MAZES



PUZZLE PORTAL



DOWN

1. Process of verifying the identity of users
3. The original name of Twitter was-----
4. Protective software against unauthorized access
7. Framework for building enterprise applications was named after the Greek.
8. Goddess of victory.
9. The primary unit of data in computing.
11. The company, "Ingvar Kamprad Elmtaryd Agunnaryd" is better known as?
12. Process of converting plaintext into ciphertext
15. The refers to parts of a computer application or a program's code that allow it to operate and that cannot be accessed by a user.

ACROSS

2. Google was originally called
5. Automated system for customer service inquiries
6. Cryptographic algorithm used for data integrity
10. Discipline focused on extracting insights from data
13. is a condition that occurs when a player's king is under threat of capture on the opponent's next turn.
14. Field of engineering focused on robot design
16. Type of algorithm that simulates random sampling
17. A brand that was infamously nicknamed 'Cowboy killer,' after the actors who appeared in its advertisements died of lung cancer.

WORD HUNT



Database

Hashing

Https

Recursion

Inheritance

Encapsulation

Abstraction

Normalization

Synchronization

Encryption

Robotics

Neuralnetwork

Cryptography

Kernel

Cache

Threads

Instruction

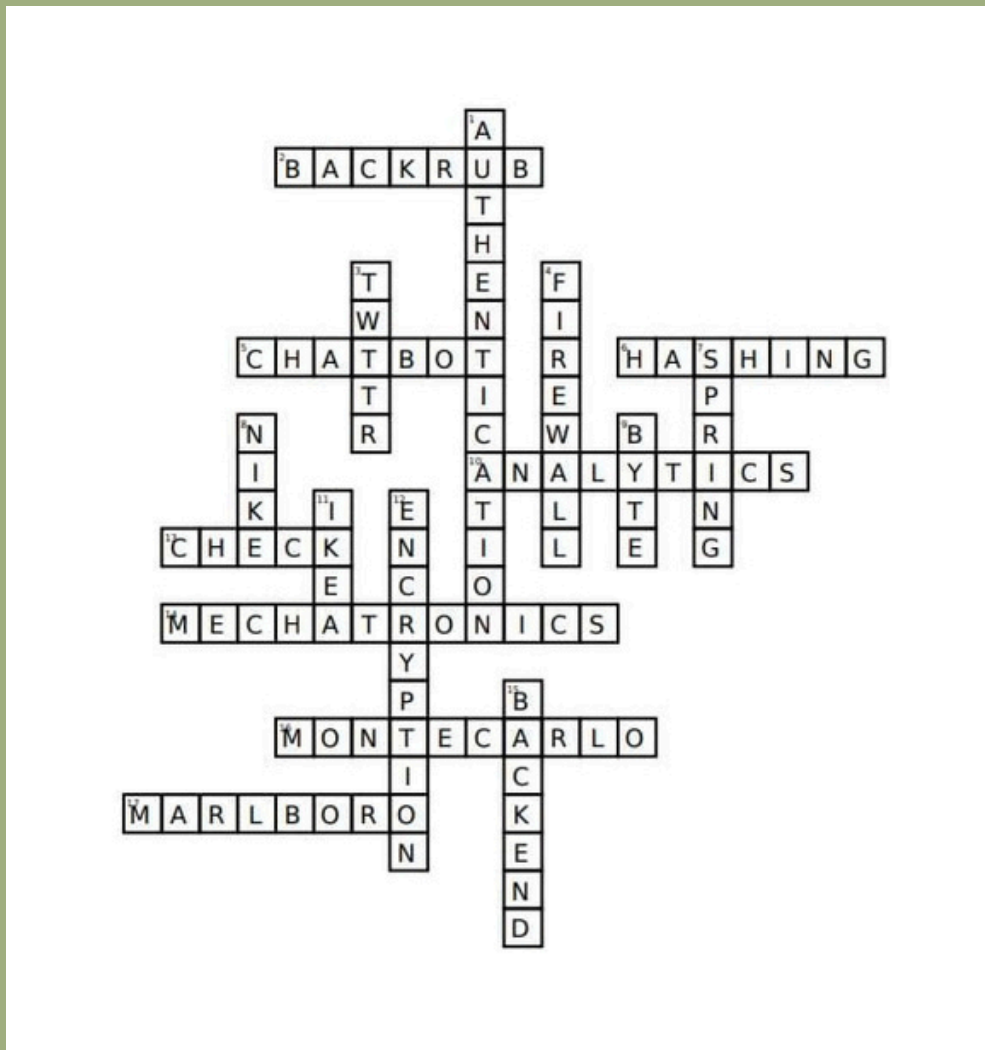
Visualization

Cloud

Analytics

PUZZLE PORTAL

Answer Key!!



DOWN

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