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The Communique

School of Computer Science & Engineering
&
School of Information Science

December 2024 Volume 1 | Issue 2

The Interdisciplinary Nexus: Blockchain & IoT Uniting Fields

The Communique

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The COMMUNIQUE

From the Helm

It is my pleasure to introduce this edition of The Communique, which will focus on the groundbreaking domains of IoT (Internet of Things) and Blockchain—two technologies that are redefining connectivity, security, and trust in the digital age.

The Internet of Things connects the globe in unprecedented ways, revolutionising industries with real-time data, automation, and increased efficiency. From healthcare to transportation, IoT-powered innovations are boosting decision-making and altering the possibilities of daily life. As this technology evolves, the challenge shifts from connecting devices to harnessing the massive amounts of data they generate for long-term and profound developments.

In contrast, blockchain promises secure, decentralised transactions and transparent systems. While blockchain is commonly linked with cryptocurrencies, its uses go well beyond banking. Its ability to protect digital identities, secure supply chains, and maintain data integrity has made it an effective instrument for generating trust across a wide range of businesses.

IoT and Blockchain have the ability to build durable and trustworthy ecosystems. Blockchain can encrypt and validate IoT-generated data in unprecedented ways, increasing the trustworthiness and transparency of digital interactions.

I invite you to approach the concepts in this issue with inquiry and vision. These technologies hold enormous promise, and by improving our understanding, we can position ourselves to use them responsibly and innovatively in the future.

Enjoy this informative edition.

Best Regards,
Prof. (Dr.) Md. Sameeruddin Khan
B.E.-CSE, M.Tech. - CSE, Ph.D. - CSE, (PDF, City, Univ. of London), SMIEEE, MACM, MIAENG
Pro Vice Chancellor - Engineering,
Dean - Presidency School of CSE & Presidency School of IS
Presidency University, Bengaluru

FROM INSIGHTS TO IMPACT—LEAD THE CHANGE

Behind the Scenes

In this edition of The Communique, we spotlight the transformative impact of IoT and Blockchain across diverse fields. These technologies are reshaping industries, enhancing connectivity, security, and innovation.

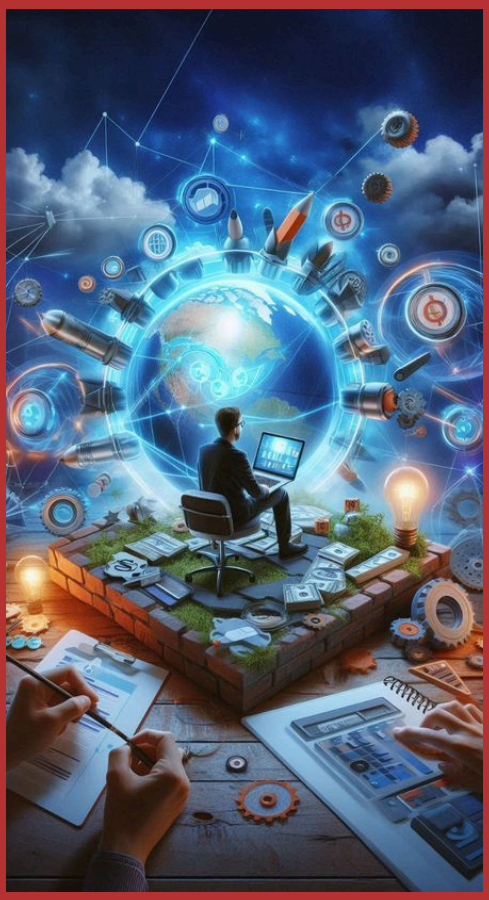
IoT integrates real-time data collection into healthcare, agriculture, and urban planning, driving efficiency and sustainability. For instance, IoT devices monitor patient health, optimize farming conditions, and improve resource management.
Blockchain, beyond cryptocurrency, ensures transparency and security in supply chains, education, and legal systems. It enables traceable processes, tamper-proof credentials, and reliable digital contracts, fostering trust and accountability.
Together, IoT and Blockchain form a powerful synergy. Blockchain secures IoT-generated data, enabling trusted systems with applications in finance, healthcare, and logistics.

As you explore this edition, consider how these technologies inspire interdisciplinary solutions for a connected and secure future.

Enjoy the read!

Warm Regards,
The Editorial Board
The Communique – December 2024

Learn from the Best



Dr. Shakkeera L
Professor & Associate Dean
Presidency School of Computer Science and Engineering (PSCS)
Presidency University

Vision 2026: The Synergy of Blockchain and IoT Driving Cross-Industry Innovation and Security

Dear Students and Faculty,

The integration of Blockchain and the Internet of Things (IoT) has transformed various sectors, including finance, healthcare, industrial, and organizational domains, enhancing security, integrity, confidentiality, and ensuring data availability exclusively for authorized users. Blockchain maintains a decentralized network that allows secure and transparent data management, while IoT enables real-time data transfer through hardware devices such as smartwatches and smart home systems. Recently, IoT has enabled device communication through hardware and embedded chips, generating vast amounts of data. Blockchain can serve as a secure repository for this data, safeguarding it and controlling access. This integration creates a significant transformation in society, promoting secure data management and allowing data exchange only through a trusted network.

Data Breach Trends: Heightened Risks in Critical Sectors

The data security incidents in 2024 include breaches at Cisco and Microsoft, where hackers accessed sensitive communications involving U.S. federal agencies. A major ransomware attack on Change Healthcare disrupted healthcare services in the U.S., exposing millions of patient records. These incidents underscore growing risks to critical infrastructure across sectors. Blockchain and IoT are transforming today's world by enabling secure, real-time data exchange across healthcare, finance, and smart cities. These technologies enhance efficiency, automate processes, and safeguard information, driving innovation and resilience in a digital-first era.

The Transformative Impact of Blockchain and IoT in Modern Industries

Blockchain and IoT are key technologies driving change across sectors by enabling secure, automated data sharing. This integration boosts efficiency, protects data, and enhances real-time responsiveness. From healthcare to finance and smart cities, they create resilient, innovative solutions.

Enhancing Healthcare with Real-Time Monitoring and Secure Data Management

IoT devices track patient health in real time, while blockchain secures Electronic Health Records (EHRs) against unauthorized access. This combination improves patient care and minimizes data breach risks, making healthcare both safer and more efficient.

Streamlining Finance Through Automation and Secure Transactions

In finance, blockchain and IoT automate secure, device-driven transactions with smart contracts, reducing fraud and transaction fees. This automated approach boosts efficiency and transparency, enabling seamless financial exchanges with minimal human intervention.

Building Resilient Smart Cities with Integrated Technology

Smart cities utilize IoT for traffic, energy, and public service monitoring, with blockchain ensuring secure, shared data management. This integration supports efficient city resource use, real-time planning, and robust protection against cyber threats.

A Future Powered by Blockchain and IoT

The convergence of blockchain and IoT empowers industries with smarter, more secure processes. These technologies streamline operations, enhance data security, and drive innovative, data-driven decision-making across sectors.

THE FUTURE OF HEALTHCARE WITH BLOCKCHAIN TECHNOLOGY: A GLOBAL CHANGE

Prof. Dr. S. Pravinth Raja
BE, ME, Ph.D. , PDF UK
AssociateProfessor
Head B.Tech, CBC, CBD, CDV &
MTech AI and DS

Blockchain, initially known for cryptocurrencies like Bitcoin, is now revolutionizing healthcare by addressing challenges like data security, inefficiency, and fraud. Here's how countries are leveraging this technology to reshape their healthcare systems:

Enhanced Data Security and Privacy

Blockchain secures medical records in a decentralized system, ensuring only authorized access. Estonia has been a pioneer since 2012, allowing citizens to control and securely share their medical data. Similarly, Switzerland's Health Blockchain project empowers patients to manage their health information.

Improving Interoperability

Blockchain facilitates seamless sharing of patient data across healthcare systems. Dubai's Health Authority connects providers city-wide to enhance care quality. In India, the Blockchain Network aims to unify healthcare data for better accessibility and care continuity.

Smart Contracts for Efficiency

Smart contracts automate processes like insurance claims, reducing errors and delays. Singapore is testing blockchain for claims automation, while U.S.-based companies like Change Healthcare simplify insurance workflows with blockchain solutions.

Fighting Counterfeit Drugs

Blockchain ensures pharmaceutical supply chain integrity by tracking drugs from manufacturer to pharmacy. China employs this technology to combat counterfeit medicines, and the EU's Blockchain for European Medicines Verification ensures safe drug distribution.

Challenges and Opportunities

Adopting blockchain in healthcare is complex and costly, and systems must comply with privacy laws like HIPAA and GDPR. However, countries like Estonia, Dubai, and Singapore demonstrate its potential to transform healthcare through innovation.

Conclusion

Blockchain is driving secure, efficient, and transparent healthcare systems globally. With countries adopting and expanding its use, the future promises a more connected and patient-friendly healthcare ecosystem.

The Cloverleaf of IoT and Blockchain: A Technological Revolution

The rapid growth of the Internet of Things (IoT) and blockchain is transforming industries, driving greater security, efficiency, and transparency. When integrated, these technologies address key IoT challenges, making them crucial for innovation.

IoT Origins:

- 1982: The concept began at Carnegie Mellon University with an internet-connected Coke machine that reported inventory and temperature.
- 1990s: As the internet expanded, machine-to-machine communication laid the foundation for IoT.

Blockchain Origins:

- 1991: Stuart Haber and W. Scott Stornetta proposed secure timestamping for digital documents.
- 1998: The term “cryptocurrency” was coined with the introduction of "B-money" by Wei Dai.
- 2008: Bitcoin's whitepaper by Satoshi Nakamoto introduced the idea of a decentralized ledger.

Dr Kuppala Saritha
Associate Professor (SG)
PSIS , Presidency University
Bangalore

Early 2000s - 2010s: IoT and Blockchain Develop

- IoT grew with RFID and wireless sensors, bringing practical applications.
- Blockchain technology evolved with Bitcoin, offering a transparent, tamper-proof ledger.

IoT and Blockchain Convergence:

- 2016-2017: Blockchain's decentralized, immutable ledger attracted IoT networks, addressing security and data integrity.
- IBM and Maersk launched a blockchain-based logistics platform.
- IOTA developed a unique "Tangle" structure to support IoT devices.
- 2018: The EU explored the potential of IoT and blockchain for enhanced security and trust.
- 2019: VeChain integrated IoT and blockchain for real-time, tamper-proof supply chain tracking.

2020-2023: Real-World Adoption

- Smart Cities: IoT and blockchain work together to improve urban infrastructure and secure transactions.
- 2021: Smart contracts integrated with IoT for autonomous decision-making.
- 2021: IoT and blockchain began integrating with DeFi to enable innovative business models.

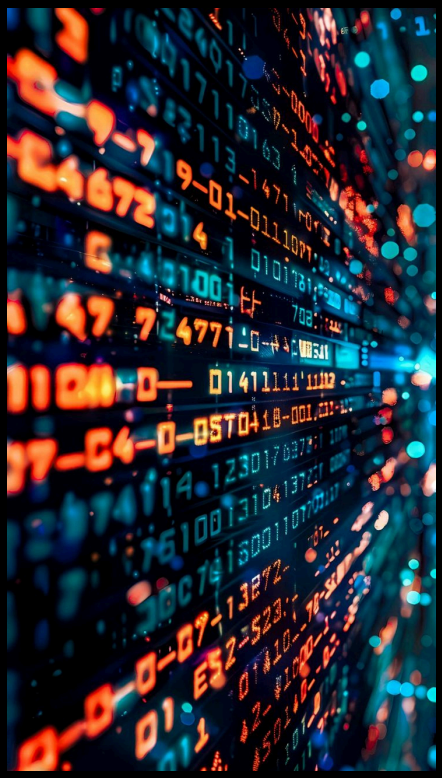
TRANSFORMING THE FUTURE: THE IMPACT OF BLOCKCHAIN ACROSS INDUSTRIES

Blockchain technology promises to revolutionize various sectors through enhanced efficiency, security, and transparency. Here's a brief technical overview of its potential impacts:

Ms. Nithya B. A
Asst Professor
PSIS, Presidency University
Bangalore

Impacts

- Finance & Banking: Enables faster, cost-effective, and secure transactions, supporting cross-border payments, smart contracts, and DeFi, while reducing intermediaries, fees, and enhancing financial inclusion.
- Supply Chain & Logistics: Enhances transparency with secure tracking, authenticity verification, and ethical sourcing through immutable records.
- Healthcare: Improves data security and interoperability, enabling secure, consent-based access to medical records for healthcare providers.
- Voting & Governance: Ensures secure, transparent, and tamper-proof voting, reducing fraud and supporting decentralized governance.
- Intellectual Property & Digital Rights: Protects and monetizes intellectual property via NFTs and smart contracts, enabling fair compensation and transparent usage rights.
- Real Estate: Streamlines transactions, secures property ownership records, and reduces fraud and intermediaries.
- Identity Management: Provides secure, user-controlled digital identities, reducing identity theft risks.



Challenges

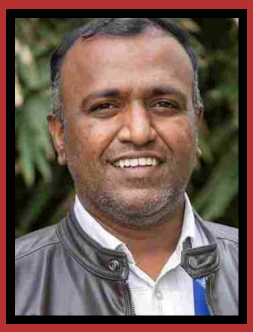
- Scalability: Current blockchain networks face issues in processing high transaction volumes efficiently.
- Regulation: The decentralized nature of blockchain presents regulatory challenges for consumer protection and illegal activities.
- Energy Consumption: Proof-of-work systems like Bitcoin are energy-intensive; alternatives like proof-of-stake offer more sustainable solutions.
- Interoperability: Blockchain networks need to interoperate to unlock broader applications, with emerging solutions aimed at enhancing cross-chain compatibility.

Conclusion: Blockchain technology is poised to reshape industries by enabling decentralized, transparent, and secure systems, driving efficiencies and fostering innovation across sectors. However, scalability, regulation, and energy consumption remain key areas for development.

RESEARCH FRONTIERS

CONGRATULATIONS TEAM FOR PUBLISHING PATENT ON "ADAPTIVE PRIVACY PRESERVING FRAMEWORK FOR SECURE DATA COLLABORATION"
DR. SHAKKEERA L, DR. BLESSED PRINCE P, DR. SHARMASTH VALI. Y, MR. SAKTHTIVEL E, MS. ROHINI A.

Dr. Shakkeera L
Professor & Associate Dean



Dr. Sharmasth Vali. Y
Associate Professor

Dr. Blessed Prince P
Professor & HOD

PATENTS

Mr. Sakthtivel E
Assistant Professor

Ms. Rohini A
Assistant Professor

Mr. Bharath C
Research Scholar

CONGRATULATIONS TEAM FOR PUBLISHING PATENT ON "PRIVACY PRESERVING DATA PROCESSING FRAMEWORK USING DISTRIBUTED COMPUTING IN VEHICLE-TO- EVERYTHING(V2X) SYSTEMS"
DR. SHAKKEERA L, , DR. SHARMASTH VALI. Y, MR. BHARATH C

GOVERNMENT FUNDED SUCCESS

Congratulations to Dr. Vennira Selvi G for securing a Rs. 3 lakh ICSSR grant to organize a National Seminar on 'Sustainable Innovative Farming with IoT and Edge AI'—a proud moment for our University!

Congratulations to Dr. Akshatha Y for receiving an AICTE ATAL-FDP grant of 1 Lakh for 'Mastering Data Visualization: A Hands-on Approach with Power BI'!

Congratulations to Mr. Rajan Thangamani T for receiving an AICTE ATAL-FDP grant of 1 Lakh for 'Mastering Data Visualization: A Hands-on Approach with Power BI'!

Glossary :
A
- AIoT (Artificial Intelligence of Things): The convergence of artificial intelligence (AI) and IoT, where AI enhances IoT devices by enabling them to analyze and act on data autonomously.
- API (Application Programming Interface): A set of rules and protocols for building and interacting with software applications, crucial for IoT devices to communicate.

RESEARCH FRONTIERS

Ms. Hansika Sumeer
Student

Mr. Pakruddin B
Assistant Professor

Ms. Lavanya
Student

CONGRATULATIONS TEAM FOR PUBLISHING PATENT ON "WHEELCHAIR WITH ATTACHMENT OF B-TYPE OXYGEN CYLINDER FOR COPD PATIENTS"

Ms. Bhargavi K.
Student

Ms. Aishwarya
Prabhu P
Student

Ms. J Sriya
Student

Ms. Bhargavi N.
Student

PATHWAY TO SUCCESS

Congratulations to Mr. Pakruddin B. on the publication of his research papers titled **"Development of a Pomegranate Fruit Disease Detection and Classification Model using Deep Learning"** and **"Performance Analysis of Various Deep Transfer Learning Models for Bacterial Blight Disease Detection and Classification in Pomegranate Fruits."**

Congratulations to Ms. Neha Arora on the publication of the research paper titled **"Smart Grids based on Quantum Computing in the present-day Energy Systems for Fault Diagnosis"**
.

Congratulations to Mr. S.K. Jamil Ahmad for his impactful contributions as a resource person in the **"Pre-Requisite for GEN AI"** workshop and for enhancing his expertise through advanced certifications in machine learning and deep learning!

Glossary :
B
Blockchain: A decentralized and distributed ledger technology that records transactions across multiple computers in a secure, immutable way.
BLE (Bluetooth Low Energy): A wireless communication technology used in IoT devices for short-range, energy-efficient data transfer.

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W O ■ / ■ R D FINISH!	START AGAIN	VOREGNAENRC	SMTARCONTCAS	TNRASPERCANY

Get Your Brain Buzzing!

THINK YOU KNOW YOUR IOT AND BLOCKCHAIN BUZZWORDS? PUT YOUR SKILLS TO THE TEST WITH THIS FUNKY UNSCRAMBLE CHALLENGE:

BRING THE HEAT! CHALLENGE YOUR FRIENDS TO SEE WHO UNSCRAMBLES THEM THE FASTEST!

Glossary :

C

- Consensus Mechanism: A method used in blockchain networks to validate transactions and achieve agreement among nodes, such as Proof of Work (PoW) or Proof of Stake (PoS).
- Cryptography: Techniques used to secure data and communications, forming the backbone of blockchain technology.

.

This is your Word Search!

Find the word in the puzzle.
Words can go in any direction.
Words can share letters as they cross over each other.

The words are :

Blockchain, Ledger, Node, Device, SmartHome, Consensus, Token, Mining, Encryption, Sensor, PublicKey, Immutable, IoTDevice, SmartContract, Network, Fogging, Tangle, DataSharing, SupplyChain, Decentralized

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A	O	A	A	G	Q	O	Y	P	U	X	N	W	R	U	B	S	Q	Y	Y
G	Z	I	H	R	N	S	H	S	W	R	S	A	P	K	R	E	E	B	S
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T	J	J	A	P	K	H	T	J	M	G	N	J	G	R	C	M	Z	R	A
Y	P	G	A	B	Y	C	O	U	Q	D	S	G	N	I	N	I	M	O	R
V	H	U	U	T	K	R	O	M	I	E	U	V	L	I	G	H	S	S	T
M	B	A	O	Y	F	B	C	L	E	L	S	B	A	Z	N	I	P	N	C
B	P	K	I	F	J	D	A	N	B	R	U	H	L	X	I	P	W	E	O
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T	P	W	C	D	S	A	E	D	R	C	K	B	G	O	A	K	E	R	T
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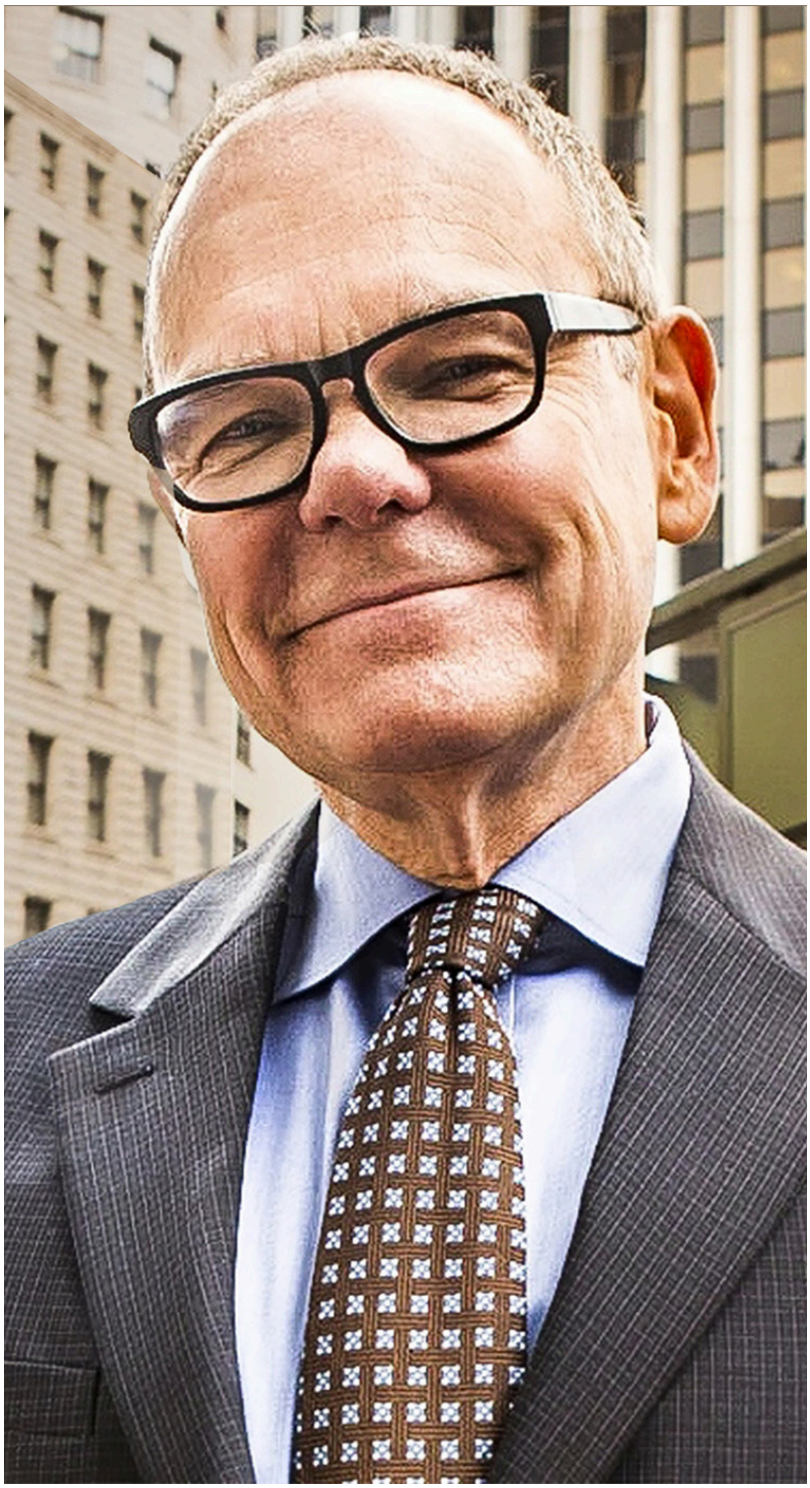
I	M	M	U	T	A	B	L	E	Y	J	X	F	J	E	A	W	W	R	O

Glossary :
D

- Decentralized Applications (DApps): Applications built on a blockchain, operating without a central authority.
- Digital Twin: A virtual model of a physical object or system, often used in IoT for monitoring and analysis

DON TAPSCOTT: A VISIONARY LEADER IN BLOCKCHAIN INNOVATION



WHERE IT ALL STARTED

Don Tapscott, Executive Chairman of the Blockchain Research Institute (BRI), is a globally recognized authority on the transformative impact of technology on business and society.
According to Tapscott, "The technology likely to have the greatest impact on the next few decades has arrived. And it's not social media. It's not big data. It's not robotics. It's not even AI. You'll be surprised to learn that it's the underlying technology of digital currencies like Bitcoin. It's called the blockchain." He describes blockchain as the next generation of the internet, with the potential to revolutionise businesses, societies, and individual lives on a global scale.

Key Milestones

- **2017**: Launch of the Blockchain Research Institute (BRI) In 2017, Tapscott co-founded the Blockchain Research Institute to explore blockchain's potential and drive innovation. The BRI serves as a global hub for research and strategy development related to blockchain technology, aiming to provide key insights for businesses, governments, and academic institutions.

- **2023**: BRI's Expanding Influence By 2023, the Blockchain Research Institute had expanded its scope, becoming actively engaged in over 80 projects. These projects address critical areas such as blockchain use cases, implementation strategies, challenges, and the broader impact of the technology on global industries. The institute's research has become a vital resource for stakeholders looking to adopt and leverage blockchain for transformation.

Ms. Kalpana K
Asst. Professor
PSCS, Presidency University
Bangalore

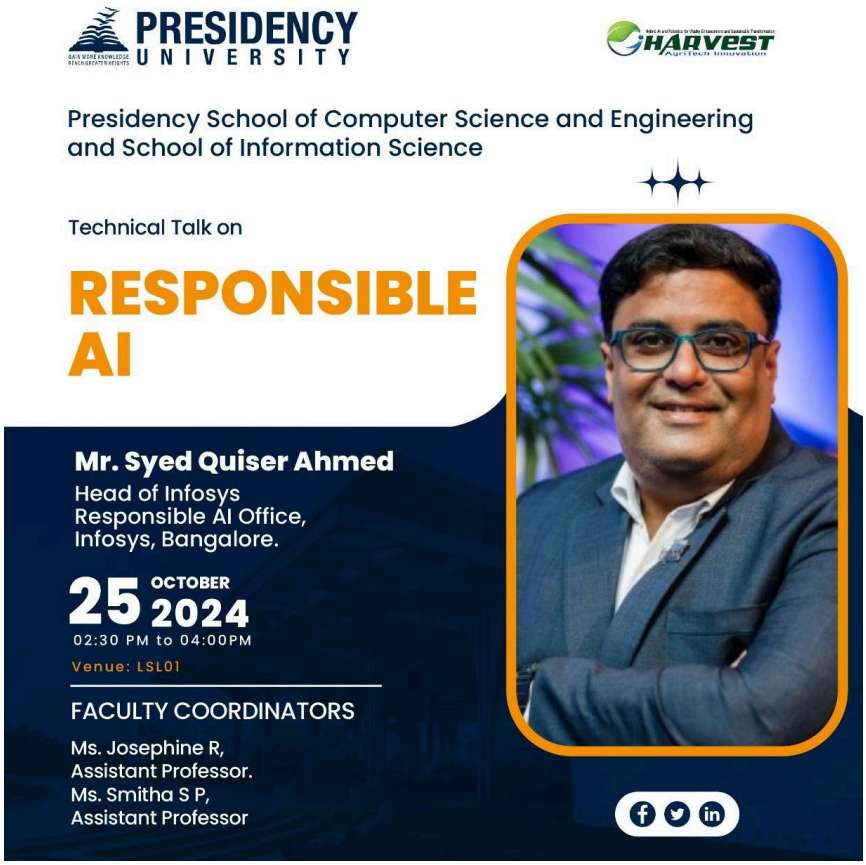
Glossary :
E
- Edge Computing: A computing paradigm that processes data near the source (edge) rather than sending it to a central server, enhancing IoT performance.
- Ethereum: A popular blockchain platform enabling smart contracts and DApps.

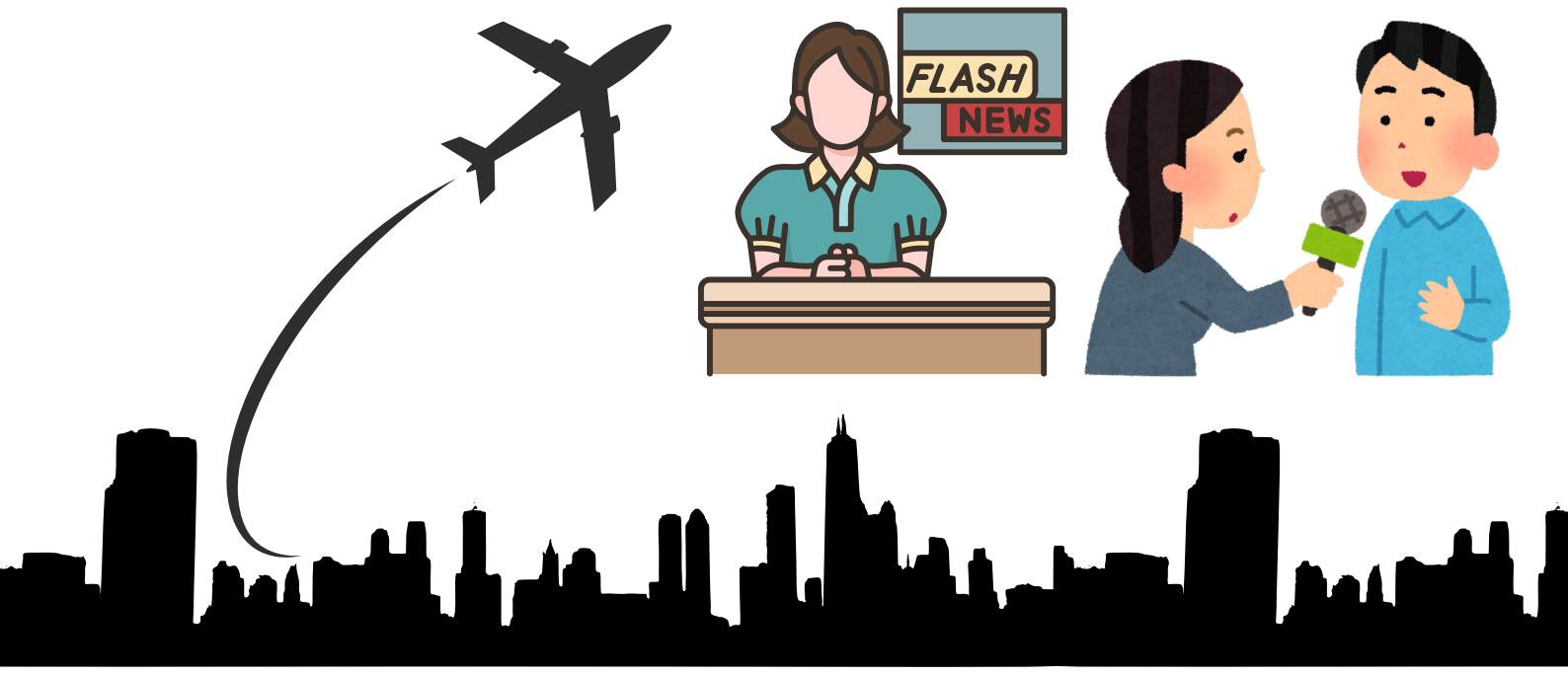
Department News and Updates

Technical talk On Responsible AI

The Department hosted a webinar titled "Low-Code No-Code Aware," highlighting the transformative potential of LCNC platforms in modern application development. Participants, including faculty and students, explored both theoretical insights and hands-on experience with tools like Pega, gaining practical skills to drive digital transformation in their future careers.

The session emphasized the growing relevance of LCNC platforms and the need to integrate them into academic curricula, preparing students to excel in an ever-evolving tech landscape. LCNC is not just a trend but a vital component of innovation for aspiring technologists and business professionals.





Glossary :
F
- Fog Computing: An extension of cloud computing that processes data closer to IoT devices to reduce latency.
- Fork: A change or split in a blockchain network, creating two versions.

Department News and Updates

Skill Development Program on Modern NLP Applications

The School of Computer Science and Engineering (SoCSE) & School of Information Science (SOIS) has organized a Skill Development Program (SDP) titled "Deep Learning Meets Language: Modern NLP Applications" for B.Tech students. The session was facilitated by Ms. Devi S., Assistant Professor, Presidency University, who served as the resource person.

The program offered students an in-depth introduction to the fundamentals of deep learning techniques in Natural Language Processing (NLP).Ms. Devi covered essential theoretical concepts, including word embeddings, transformers, and advanced models like BERT and GPT. She demonstrated their applications in various NLP tasks.

The session emphasized the theoretical underpinnings of these cutting-edge models and their transformative impact on language processing technologies. Students actively participated in an engaging Q&A session, gaining valuable insights into the rapidly evolving field of NLP.

Unlocking the Cloud:A Comprehensive introduction to AWS services with handson

The School of Computer Science and Engineering (SoCSE) & School of Information Science (SOIS) organized a webinar titled "Unlocking the Cloud: A Comprehensive Introduction to AWS Services with Hands-on." Participants were introduced to key AWS services like EC2, S3, Lambda, and RDS, with practical exercises to manage AWS resources.

The session concluded with a Q&A and resource sharing, inspiring attendees to further explore and build their cloud computing skills.

BREAKING NEWS

Glossary :

G

- Gas: A fee required to execute transactions and smart contracts on blockchain networks like Ethereum.
- Gateway: A device or software that connects IoT devices to the internet and facilitates communication.

Department News and Updates

Technical Treasure Hunt

The School of Computer Science & School of Information Science (SOIS) Technical Treasure Hunt was held on October 25, 2024, engaging 27 enthusiastic teams in a thrilling four-stage competition.

The event began with an elimination quiz, narrowing the field to five top teams. These teams then tackled the Navigate and Unlock challenge, solving code snippets to uncover clues around the campus.

The excitement continued with a Riddle stage, leading participants to the final Coding round, where teams raced to solve programming problems. The fastest team emerged as the winner, showcasing exceptional skills and teamwork.

The event was a resounding success, blending technical acumen with fun and creativity.

Security in Computing: ZIP File Password Cracking using FCRACKZIP

A workshop on "Security in Computing: ZIP File Password Cracking using FCRACKZIP" was conducted by Dr. Sampath A.K., focusing on techniques for recovering password-protected ZIP files.

Participants were introduced to FCRACKZIP, a fast and efficient tool for brute force and dictionary-based password cracking.

The session concluded with an interactive Q&A, where attendees discussed their experiences and challenges in password recovery. Dr. Sampath emphasized the importance of robust security practices to prevent unauthorized access and highlighted the role of ethical hacking tools in understanding and enhancing cybersecurity.

NEWS ALERT

Glossary :

H

- Hash Function: A cryptographic function that converts input data into a fixed-length string, used for securing blockchain transactions.
- Hyperledger: An open-source blockchain framework for building enterprise-grade solutions.

Upcoming EVENTS

DEC
27
WORKSHOP
Building Decentralized Applications (dApps): A Student Workshop

JAN
17
WEBINAR
Future Trends in Blockchain Technology:

JAN
20
FDP
Infrastructure as Code: Hands-on with Terraform and Ansible

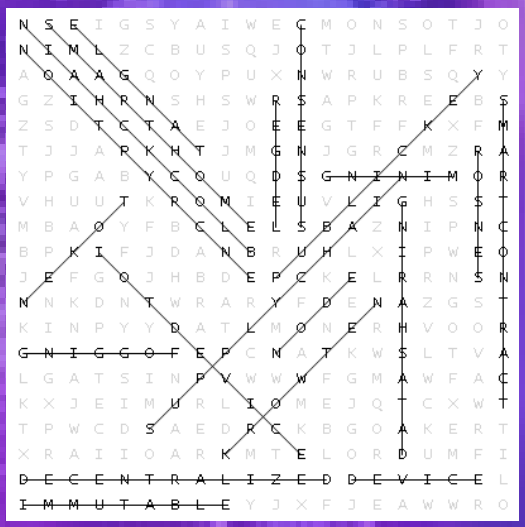
JAN
24
FDP
Building Competence in Big Data: Trends, Tools, and Techniques

FEB
07
SEMINAR
Metaverse in Healthcare

FEB
12
WORKSHOP
Future geneartion Networking

Quiz answers

- RENSOSS Answer: Sensors
- UTCTAOARS Answer: Actuators
- DGEECOMPUITNG Answer: Edge Computing
- LUDONETVTYCODCNCIIT Answer: Cloud Connectivity
- NOCESNUS Answer: Consensus
- YCRPURRENDEC Answer: Cryptocurrency
- MTORONAAZIDEK Answer: Tokenization
- RGTNOICTAI Answer: Integration
- KBOLCANHCIO Answer: Blockchain
- SNCERPTEMAY Answer: Encryption
- AUTOTMAIN Answer: Automation
- DECNZAILTIREOAN Answer: Decentralization
- TNRASPERCANY Answer: Transparency
- SMTARCONTCAS Answer: Smart Contracts
- VOREGNAENRC Answer: Governance
- CLIDOUONENCTTVIYT Answer: Cloud Connectivity



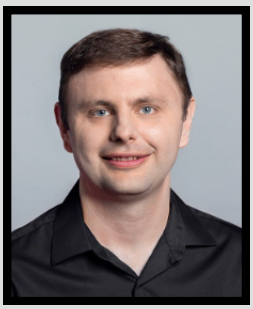
Quiz Quest: IoT, Blockchain & Crypto Legends!

I'm the pseudonymous creator of Bitcoin, but to this day, my true identity remains a mystery. Who am I?

I co-founded Ethereum at just 19 years old and envisioned it as "Bitcoin but with a built-in programming language." Who am I?

I helped build the foundations of the modern IoT landscape. My company is a giant in networking technology. If you've ever heard of smart cities, you've seen my influence. Who am I?

I'm a cryptographer who pioneered the concept of "smart contracts" in 1994, long before blockchain made it possible. Who am I?



Known as the "Blockchain Jesus" for promoting blockchain, I founded EOS.IO, a blockchain platform that supports decentralized applications. Who am I?

I founded Nest Labs, bringing the "smart thermostat" to homes everywhere, and later sold my company to Google. Who am I?

SECURING THE FUTURE: HOW BLOCKCHAIN PROTECTS IOT NETWORKS?

Picture this: a world where your fridge orders milk before you run out, a car that could negotiate with traffic lights to ensure you never stop unnecessarily and factories monitor themselves to prevent breakdowns. That's the Internet of Things (IoT) in action. But here's the catch—more connections mean more opportunities for hackers. Enter blockchain, the knight in shining armour. Let's dive into how this technology is rewriting the rules for IoT security. IoT is like a bustling city; millions of devices communicate to each other non-stop. So, what is the problem? Most of these conversations are managed by a central authority— one server, one system. It's like putting all your apples into one bag: convenient one might say, but if someone steals it, everything's gone. And let's be honest, some IoT devices are not exactly Troy. They're small, cheap, and not built for high-level security. This makes them easy targets for hackers to attack. Now imagine every device has its own little journal—a blockchain ledger one might say. It records every action and interaction, and once written, the entries are set in stone. No erasing, no messing with the numbers.

• Decentralized Magic: No more single point of failure. Even if one device is compromised, the rest stay secure.

• Truth You Can Trust: The ledger keeps everyone honest, so devices can share data without needing a middleman.

• Smart Contracts - Smarter IoT: Want your thermostat to turn off if no one's home? Smart contracts handle it automatically and securely.

So where does IoT and blockchain really comes to play? Let's see:

• Supply Chains: Blockchain tracks every step, from factory to front door.

Smart Cities: Imagine traffic lights and public transport syncing seamlessly, with blockchain keeping everything transparent.

Healthcare: Wearable devices collecting your health data? Blockchain makes sure only you and your doctor can see it.

Blockchain and IoT together are like naan and butter chicken —a perfect match. They solve each other's weaknesses and open doors to a world that's not just connected but also secure.

The next time your smartwatch talks to your smart fridge, remember: blockchain might just be keeping that chat safe.

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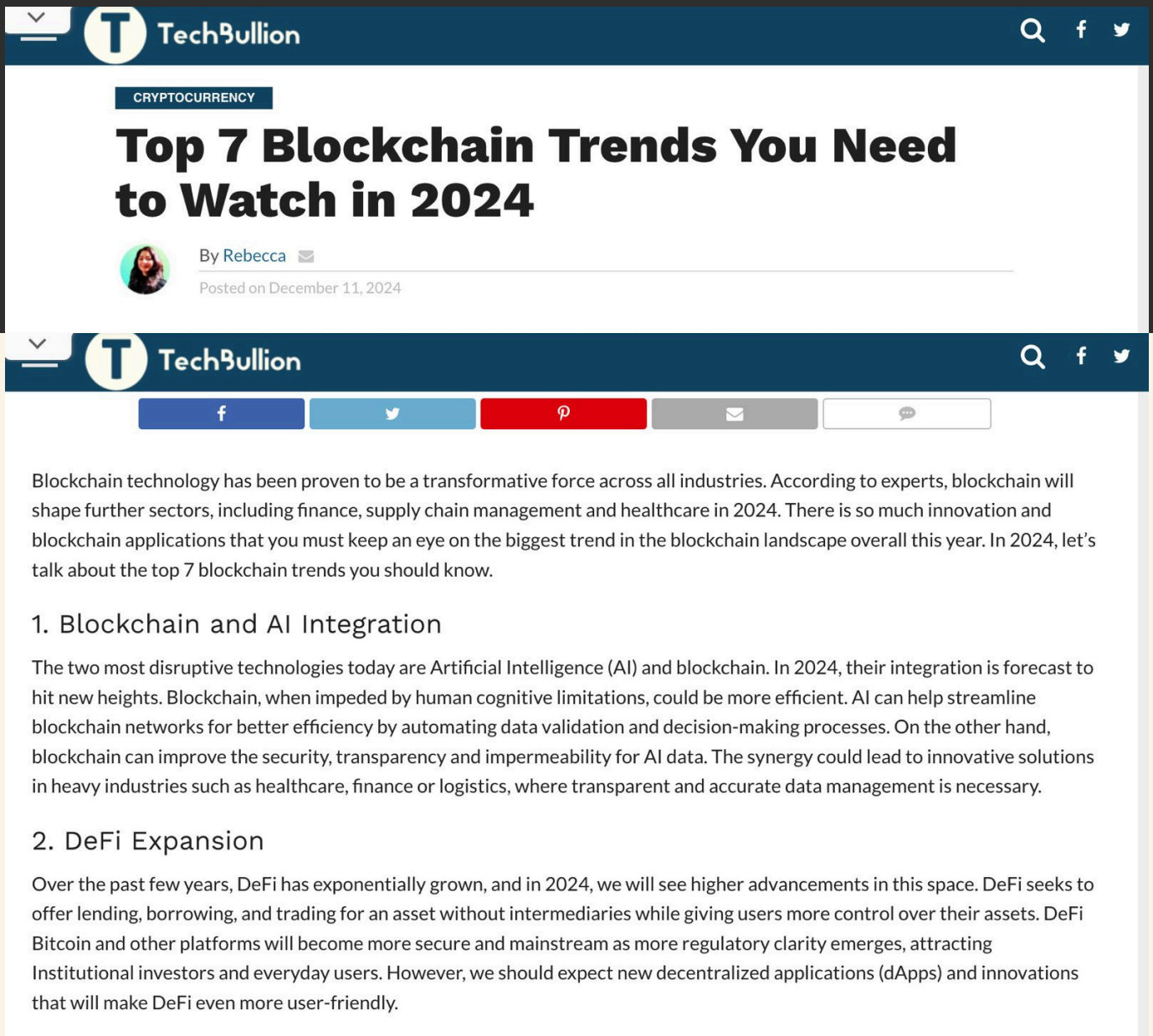
COMMUNITY CONVERSATIONS: INSIGHTS FROM THE FIELD



TechBullion

CRYPTOCURRENCY

Top 7 Blockchain Trends You Need to Watch in 2024

By Rebecca

Posted on December 11, 2024

TechBullion

Blockchain technology has been proven to be a transformative force across all industries. According to experts, blockchain will shape further sectors, including finance, supply chain management and healthcare in 2024. There is so much innovation and blockchain applications that you must keep an eye on the biggest trend in the blockchain landscape overall this year. In 2024, let's talk about the top 7 blockchain trends you should know.

1. Blockchain and AI Integration

The two most disruptive technologies today are Artificial Intelligence (AI) and blockchain. In 2024, their integration is forecast to hit new heights. Blockchain, when impeded by human cognitive limitations, could be more efficient. AI can help streamline blockchain networks for better efficiency by automating data validation and decision-making processes. On the other hand, blockchain can improve the security, transparency and impermeability for AI data. The synergy could lead to innovative solutions in heavy industries such as healthcare, finance or logistics, where transparent and accurate data management is necessary.

2. DeFi Expansion

Over the past few years, DeFi has exponentially grown, and in 2024, we will see higher advancements in this space. DeFi seeks to offer lending, borrowing, and trading for an asset without intermediaries while giving users more control over their assets. DeFi Bitcoin and other platforms will become more secure and mainstream as more regulatory clarity emerges, attracting Institutional investors and everyday users. However, we should expect new decentralized applications (dApps) and innovations that will make DeFi even more user-friendly.

An excerpt from a Tech Bullion , to read the full article , follow the link : https://techbullion.com/top-7-blockchain-trends-you-need-to-watch-in-2024/

GUESS THE PERSONALITY :

I'M KNOWN AS THE "FATHER OF THE INTERNET OF THINGS" AND HELPED POPULARIZE THE CONCEPT BACK IN THE 1990S. I COINED THE TERM WHILE WORKING ON RFID TECHNOLOGY. WHO AM I?

·HINT: MY LAST NAME SOUNDS LIKE A TREE THAT SHEDS LEAVES EACH AUTUMN.

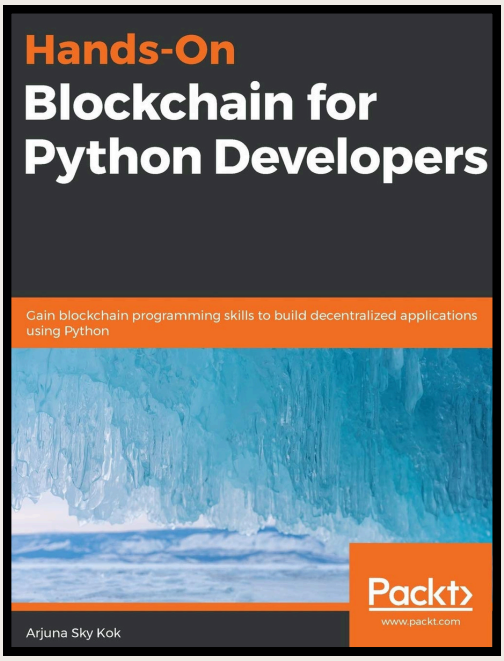
Glossary :

I

- IoT (Internet of Things): A network of interconnected devices that collect and exchange data.
- Immutable Ledger: A core feature of blockchain where data once recorded cannot be altered.

BOOK REVIEW

Ratings ★★★★



HANDS-ON BLOCKCHAIN FOR PYTHON DEVELOPERS

Strengths

- **Hands-On Learning:** Practical guidance to build smart contracts, dApps, wallets, and NFTs.
- **Python-Centric:** Focus on Python tools like Web3, Vyper, and Ape Framework.
- **Comprehensive:** Covers blockchain basics, cryptography, smart contracts, Web3, IPFS, Layer 2, and tokens.
- **Advanced Projects:** Includes DEX and token-gated app development.
- **User-Friendly:** Clear setup, sample code, and troubleshooting support.

Limitations

- **Ethereum-Centric:** Limited exposure to non-Ethereum blockchains.
- **Limited Windows Support:** Prioritizes Linux/macOS with minimal Windows guidance.
- **Outdated Tools:** Relies on older tool versions that may need updates.

Who Should Read It?

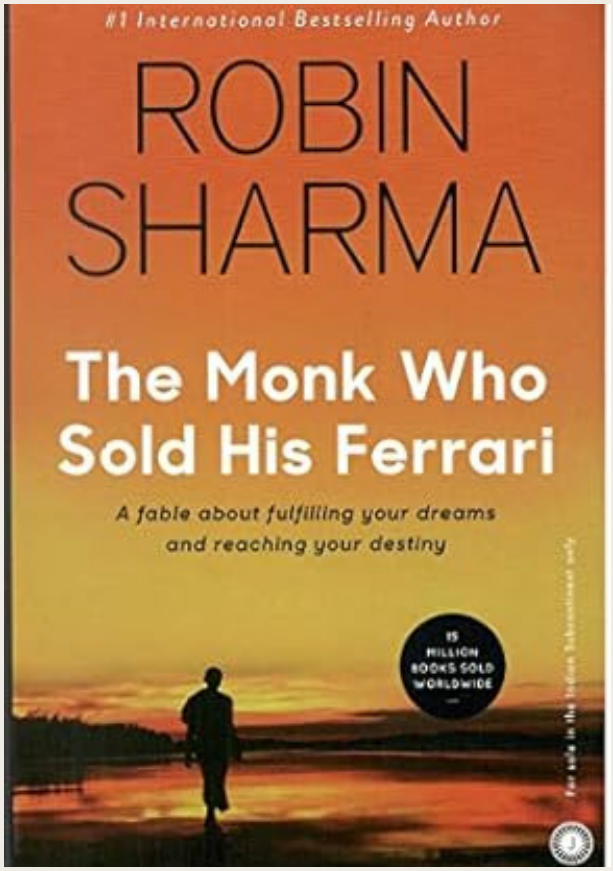
- Python developers moving to blockchain.
- Smart contract engineers on Ethereum.
- Blockchain enthusiasts exploring dApps.

Verdict

An essential guide for Python developers entering blockchain development, balancing foundational knowledge with hands-on projects for beginners and mid-level developers.

Dr. Galiveeti Poornima
Associate Professor
PSCS, Presidency University
Bangalore

THE MONK WHO SOLD HIS FERRARI

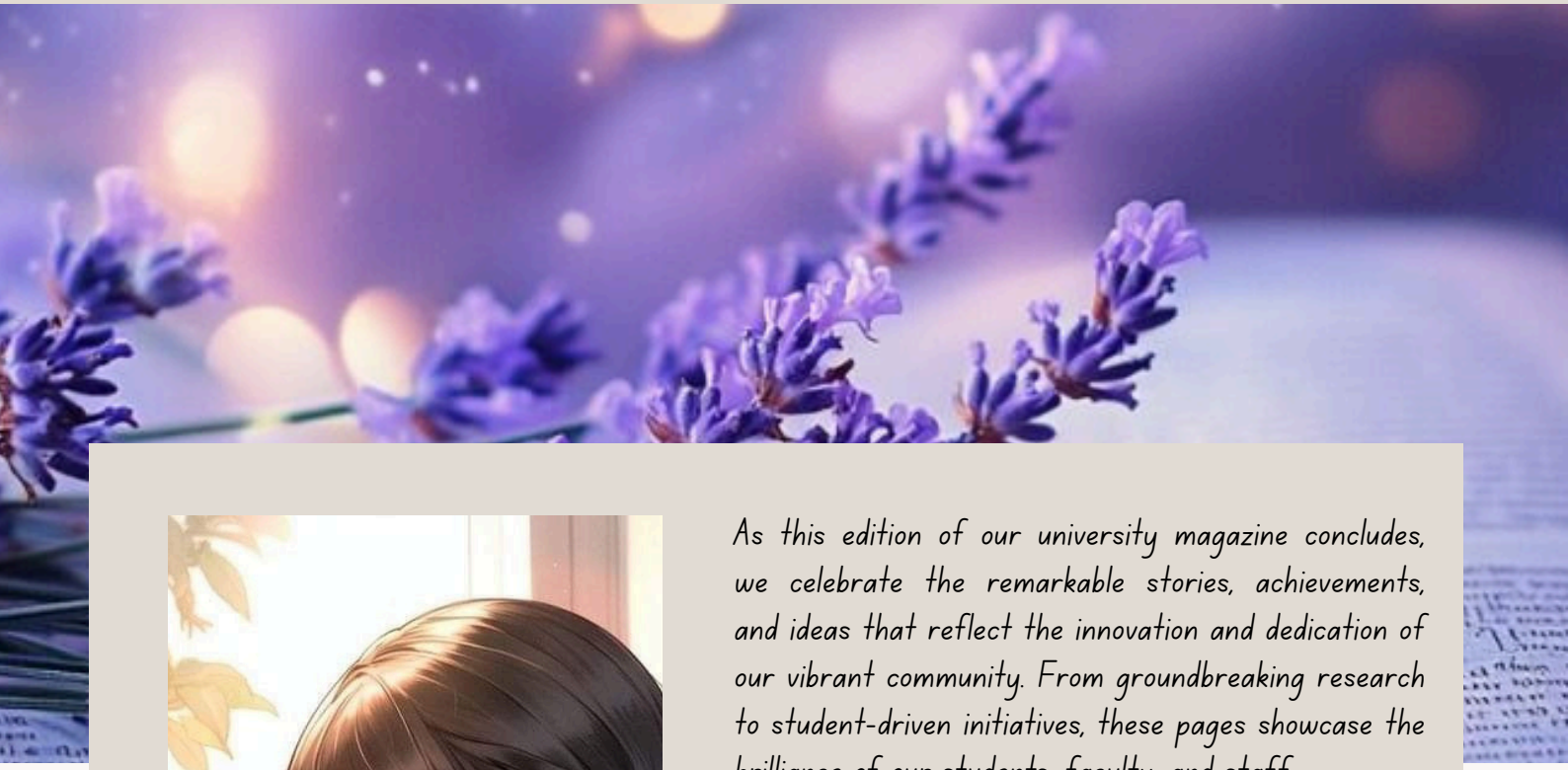


Robin Sharma's The Monk Who Sold His Ferrari is an inspiring and transformative fable about finding purpose, inner peace, and balance in life. The story follows Julian Mantle, a high-powered lawyer who suffers a life-changing heart attack, prompting him to sell his luxurious possessions, including his prized Ferrari, and embark on a spiritual journey to the Himalayas.

Through his quest, Julian learns timeless lessons from the monks of Sivana, which he shares with his friend John. Sharma introduces practical principles, like mastering the mind, embracing discipline, and living with gratitude, all woven into an engaging narrative. The book serves as a guide for readers seeking to achieve a fulfilling, purposeful life amidst the chaos of modern living.

With its simple yet profound wisdom, The Monk Who Sold His Ferrari is perfect for anyone striving for personal growth and happiness. It's more than a book—it's a roadmap to a better, more meaningful life. A must-read for those ready to transform their mindset and embrace lasting change.

THE WRAP UP



As this edition of our university magazine concludes, we celebrate the remarkable stories, achievements, and ideas that reflect the innovation and dedication of our vibrant community. From groundbreaking research to student-driven initiatives, these pages showcase the brilliance of our students, faculty, and staff.
We hope this issue inspires pride in our shared accomplishments and motivates us to continue pursuing excellence.

With endless opportunities ahead, our commitment to learning and collaboration will drive our success.

A heartfelt thank you to all contributors—authors, designers, and the editorial team—for making this edition possible. Let's persist in exchanging narratives and expanding the frontiers of knowledge and creativity, transforming our university into a centre of innovation and change.

This edition focuses on blockchain and IoT, technologies shaping a smarter and more secure future. Until next time!

December 2024
Volume 1 | Issue 2

The COMMUNIQUE