



SYMBIOSIS CENTRE FOR
INFORMATION TECHNOLOGY



November'23
Edition 68



ATHARVA



scit_official



scit_webandmedia

TABLE OF CONTENTS



Editor's Note

01

Discover the world of ideas and inspiration in this edition's heartfelt message from our editor.

Industry Insights

02

Dive into 'Industry Insights'—where academia meets the real world, turning theory into practical wisdom.

Thoughtful Encounters

07

Delve into the insightful and captivating sessions conducted by our esteemed guest lecturers.

Archives from the Past

09

Relive the magic of yesteryears, as we rewind to the unforgettable happenings that shaped our college's legacy.

Star Alumnus

12

Celebrate the achievements and success stories of our outstanding alumni in their respective fields.

Editor's Note

Welcome, dear readers, to the heartbeat of our campus—a compilation of stories, insights, and the collective spirit that defines our college community. Dive into the pages, and let the journey begin.



Innovations Unveiled: Tech Trends and Discoveries

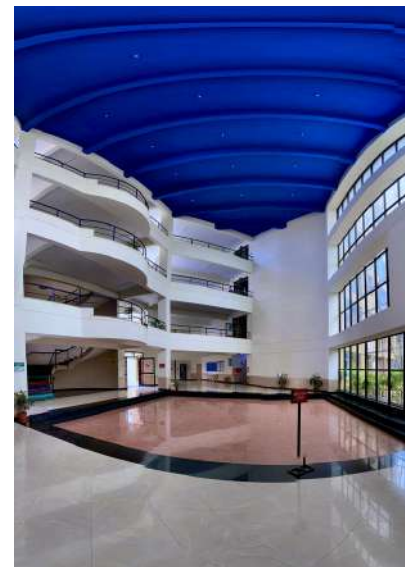
Welcome to this November 2023 edition of Atharva, where we bring you insightful articles on various topics of interest. The first article discusses the security challenges of the Internet of Things (IoT). IoT has transformed all our lives; we are breathing in a fully digital world, but it has certain risks and challenges. This article beautifully touched upon those points.

The second article discusses the significance of explainable artificial intelligence (XAI). It addresses this challenge by introducing transparency and interpretability into AI, especially in critical domains like healthcare, finance, and autonomous vehicles, where understanding AI decision-making is essential—a well-described article. Several other topics, like cloud-native application development and advanced database management systems, are discussed.

This edition's Guest Lecture revolves around Introduction to IT Service Management by Dr. Carsten Dorrhauer, Professor of Information Systems, University of Applied Sciences, Ludwigshafen, Germany. The session covered the scope and history of ITIL (Information Technology Infrastructure Library). Overall, it was an insightful and enriching session for the audience. Lastly, the star alum for this month is Sai Rohit Arra, an analyst of global cyber defense and intelligence (GCDI) at Goldman Sachs. The article describes Rohit's journey very beautifully.

We hope the articles in this month's issue of Atharva provide you with insightful information. Happy Reading!

-Manvi Khandelwal

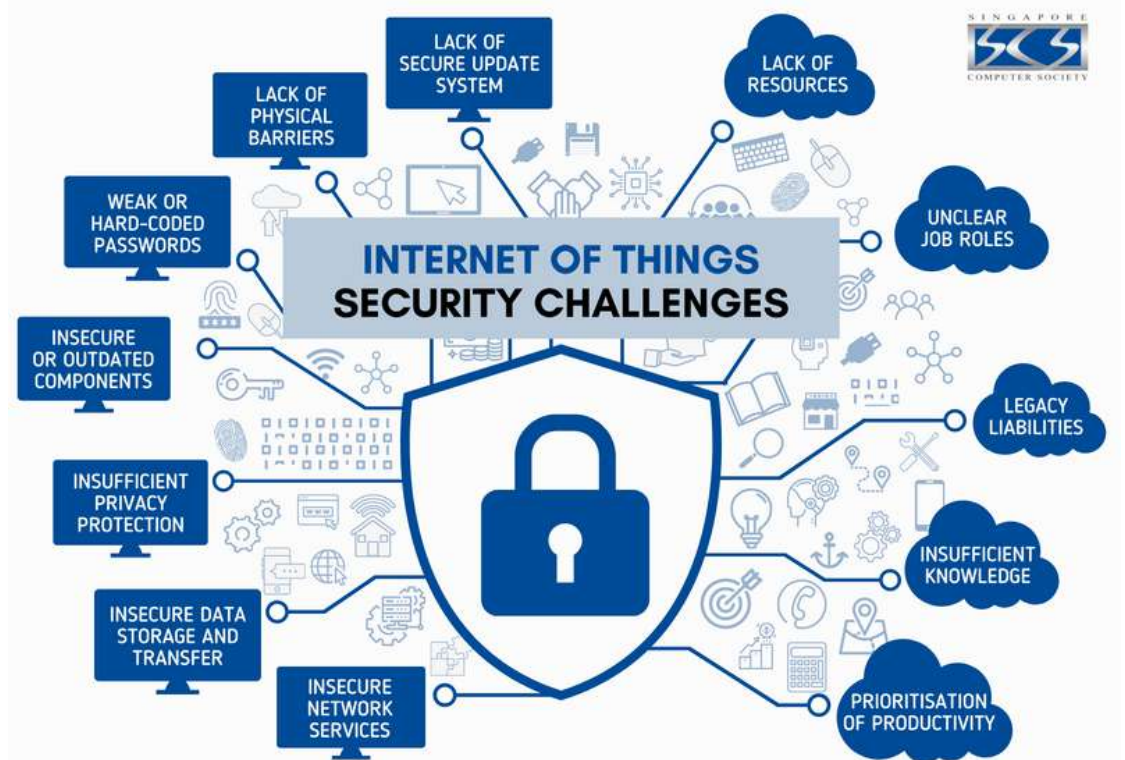




Industry Insights

Explore the intersection of academia and industry as our blogs delve into timely and relevant topics, offering insights that bridge theory with real-world application. Welcome to 'Industry Insights,' where knowledge meets the pulse of professional landscapes.

Internet of Things (IoT) Security Challenges.



The Internet of Things (IoT) has entirely transformed our lives, seamlessly connecting everyday objects to the digital world. Although this interconnection is incredibly efficient and convenient, it presents a challenging and dynamic cybersecurity environment. The proliferation of IoT devices is posing a growing threat to individuals and organizations regarding security.

Ensuring consistent protection across all devices and establishing standardized security protocols have become more challenging due to the multitude of manufacturers and operating systems. Attackers can often take advantage of these weaknesses due to this heterogeneity. It is crucial to comprehend and tackle these obstacles to secure confidential information, preserve vital infrastructure, and guarantee IoT technologies' continuous expansion and integration.



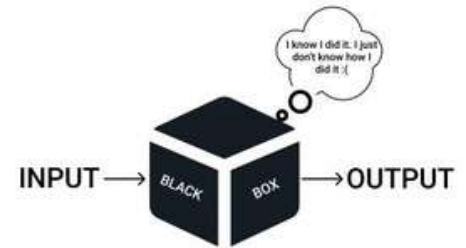
These issues take many forms, each with distinct hazards that call for preventative action to lessen them. Software and firmware vulnerabilities are stealthy threats that allow attackers to access systems without authorization, change data, or interfere with normal operations. Another risk is insecure communications, which are caused by inadequate authentication methods and insufficient encryption protocols.

An impending threat, malware, has attacked IoT devices with the intention of stealing data, interfering with operations, or launching more attacks. The private and sensitive data in IoT devices might lead to data leaks and a breach of trust. Targeted cyberattacks pose a risk to vital infrastructure and can have far-reaching effects by interfering with vital services and resulting in extensive harm.

Protecting these networked devices is critical as the IoT grows to infiltrate our lives. Essential tactics to strengthen IoT security include patching vulnerabilities in software and firmware regularly, protecting data with robust encryption protocols, enforcing strict access control mechanisms to prevent unauthorized access, teaching users about best practices for IoT security, keeping an eye out for suspicious activity on IoT devices and networks, and establishing clear data governance policies to guarantee responsible data collection, usage, and protection. Organizations and individuals may use the IoT while securing sensitive data and vital infrastructure by implementing these preventative steps.

-Pooja Mourya.

The Significance of Explainable Artificial Intelligence (XAI) in Critical Applications



Explainable Artificial Intelligence (XAI) is a crucial element in artificial intelligence, ensuring transparency and interpretability in machine learning systems. As AI becomes increasingly integrated into our daily lives, the need to comprehend and trust the decisions made by these systems becomes paramount.

XAI addresses this challenge by introducing transparency and interpretability into AI, especially in critical domains like healthcare, finance, and autonomous vehicles, where understanding AI decision-making is essential. Techniques involve using simpler models, analyzing the importance of different features, and generating explanations for predictions. The goal is to bridge the gap between complex AI algorithms and human trust and understanding.

Imagine your computer making brilliant decisions, aiding doctors in diagnoses, or assisting banks in loan decisions. However, these decisions are often like secret codes, where XAI acts like a light in the dark computer room, revealing what is happening.

In hospitals, XAI helps doctors understand why computers suggest specific treatments, fostering collaboration between man and machine. In finance, it ensures that decisions about loans or detecting fraud are understandable and trustworthy. XAI becomes a superhero sidekick, ensuring computers are not mysterious but explain their actions.

To make these intelligent computers more understandable, scientists use tricks, like simpler models and analyzing decision factors. XAI is like conversing with a smart robot buddy, explaining why it makes confident choices, much like discussing your favorite ice cream flavor with a friend. In simplifying the complexity of AI, XAI fosters trust and comprehension in the decisions made by these intelligent systems.

-Siddhartha Chattaraj.

Unveiling Cloud-Native Application Development: Innovations, Benefits, and Hurdles



Software development and deployment are revolutionized by cloud-native application development, which is powered by microservices, orchestration, and containerization. Containerization, driven by technologies such as Docker, encapsulates dependencies and applications into lightweight, portable containers. This fundamental idea guarantees uniformity in a variety of settings.

Microservices architecture further improves this strategy, dividing large, monolithic applications into minor, independent services. Because each service runs independently, fault tolerance, scalability, and flexibility are encouraged. Large-scale deployment and management can be automated with tools like Kubernetes, which are also helpful for efficiently orchestrating these services.

Cloud-native development has numerous benefits. Because microservices and containerization are modular, scalability becomes smooth, and applications can easily adjust to changing workloads. Teams working independently on services accelerate time-to-market and foster rapid innovation without upsetting the entire system. Because of the fault isolation and resource optimization these architectures provide, resilience and cost-effectiveness are built in.

But there are difficulties. Complex architectures require knowledge to orchestrate and manage, especially with tools like Kubernetes, which can have a learning curve. Security is still crucial, and robust security measures must protect containers and distributed services. Accepting this paradigm change also calls for an organizational culture change for new procedures and skill sets.

To sum up, developing cloud-native applications transforms how software is deployed, providing unmatched efficiency, speed, and scalability benefits. However, it necessitates proactively dealing with organizational changes, security issues, and complex orchestration. Adopting these principles enables companies to prosper in the ever-changing world of cloud-based solutions, promoting innovation and long-term expansion.

-Arya Tripathi.

Navigating the Future: Advanced Database Management Systems in the Era of Big Data Analytics



In this rapidly evolving landscape of database management systems, three key trends reshape how we handle and process data graphs, time series, and NewSQL.

Graph databases excel in managing complex relationships between data points, making them ideal for applications like social networks, fraud detection, and recommendation engines. A compelling use case is a social media platform leveraging a graph database to analyze user connections and deliver personalized content, enhancing user engagement and satisfaction. Time-series databases, tailored for handling data points with temporal relevance, are gaining prominence in applications like IoT, financial trading, and sensor data analysis. Imagine a smart city utilizing a time-series database to monitor and optimize energy consumption, enabling efficient resource utilization and sustainability. NewSQL databases offer a middle ground between traditional relational and NoSQL databases, providing scalability without sacrificing ACID compliance. An e-commerce giant could leverage NewSQL to handle a surge in transactional data during peak shopping seasons, ensuring seamless user experiences without compromising data integrity.

Graph databases weave intricate webs, connecting friends and tailoring personalized content for delightful online experiences. Time-series databases march through time, orchestrating events to optimize efficiency in smart cities and promote sustainable resource use. NewSQL databases perform a delicate balancing act, effortlessly handling surges in data during peak periods, ensuring smooth and reliable online interactions. These databases empower our digital world with diverse capabilities, making complex tasks seem like child's play.

The role of databases in big data analytics and real-time processing must be balanced. Whether uncovering insights from massive datasets or enabling instant decision-making, databases are the backbone of these operations. A healthcare organization, for example, could harness the power of real-time analytics to monitor patient vitals continuously, allowing for early intervention and improved patient outcomes. As we navigate the data-driven future, these advanced database management systems are pivotal in unlocking the full potential of big data analytics and real-time processing, ushering in a new era of efficiency, innovation, and transformative possibilities.

-Siddhartha Chattara

Thoughtful Encounters

Words have the power to ignite minds, spark creativity, and unite communities. Welcome to the world of ideas, where we share stories that matter.

Guest Lecture on Introduction to IT Service Management

The Guest Lecture Committee of Symbiosis Centre for Information Technology organized a guest lecture on the "Introduction to IT Service Management" on November 20, 2023. The guest lecturer invited for the session was Dr. Carsten Dorrhauer, Professor of Information Systems, University of Applied Sciences, Ludwigshafen, Germany.

The lecture host, Yash Bhuse, introduced the guest, followed by a few words from the facilitator, Dr. SKV Bharti. Dr. Carsten Dorrhauer started the lecture by briefly explaining his work in the Service Management and Consulting department. He explained that the session would progress by telling the students about the agendas and learning objectives.

The screenshot displays a Zoom meeting interface. At the top, a green status bar indicates "You are viewing Carsten Dorrhauer's screen" and a "View Options" dropdown. Below this, a presentation slide titled "Folie 1" is shown. The slide content includes a table of contents on the left and a transcript of a discussion on the right. The table of contents lists: 1. Ludwigshafen University, 2. Prerequisites and Learning Objectives, 3. Literature, 4. IM and ITSM, and 5. Basics of ITSM. The transcript shows a dialogue between a CEO and a Head of IT regarding budget cuts and service interruptions. On the right side of the interface, a vertical list of participants is visible, including Meenaz Khan, Carsten Dorrhauer, Dr. Vijayakumar Bharathi S, and Sudhanshu Sara... A notification bubble at the bottom left states "Carsten Dorrhauer shared a file in the meeting." The page number "20" is visible in the bottom right corner of the slide area.

Exercise: Name the most important problems of this IT organization

1. Ludwigshafen University	CEO: All areas need to contribute to savings. IT will not be an exempt from this. You will have to cut your budget by 10%.
2. Prerequisites and Learning Objectives	Head of IT: In this case we will have to accept quality losses or functional incisions.
3. Literature	CEO: You might for example want to finally turn off your old mainframe computers. What do you actually need these for any more?
4. IM and ITSM	Head of IT : Uh, I think our procurement department is still using it somehow.
5. Basics of ITSM	CEO: But don't come up with the idea of saving on SAP system operation. Anyway, there are these frequent interruptions of service each for a few hours because of some update that your team needs to deploy. And also don't save on resources at the end user support. Last weekend I had to call your assistant at home because my printer did not work.
	Head of IT : Was there any provision for support at the weekend? I think we are actually providing good support for end users.
	CEO: What would I even know? Anyway, he was lucky to help me. He knew that at Dell we had commissioned platinum support for my printer and under which number I could call.
	Head of IT: I was actually going to bring this up: I really need money for a new mail server.
	CEO: Well, the other departments won't benefit from this. They will be able to send and

Following the agendas and learning objectives, he explained the scope and history of ITIL (Information Technology Infrastructure Library) and how it serves as a basic framework for IT services. He also suggested specific pieces of literature for students like Axelos (Hrsg.): ITIL Foundation, ITIL 4 Edition, Norwich: The Stationery Office, 2019, etc.

The lecture was taken forward by defining information management, explaining that no unique definition exists. It is about "managing information and technology used." He cited an example of "Composing a Contractual Proposal in a sales department at a Contract Manufacturer Company according to detailed customer specification needs information" for the students so that they can understand the concept better. Then he described IT Governance, where he cited the meaning given by Peter Weill and Jeanne Ross, "Specifying the decision rights and accountability framework to encourage desirable behavior in the use of IT."

While talking about the basics of ITSM (Information Technology Service Management), he explained how IT supports all business processes and how information systems define the quality of business processes. He also talked in detail about the economic and technological challenges faced by ITSM. He elaborated in detail how Clients' expectations from business processes are growing and how IT has become a critical success factor. He also emphasized the importance of a flexible IT organization.

The lecture ended with a vote of thanks by the host, who thanked Dr. Carsten Dorrhauer and the audience for gracing the event. Dr. SKV Bharti also extended his regards to Dr. Carsten Dorrhauer with talks of future collaboration.

-Arya Tripathi.

Archives from the Past

Female Cricket League – First EDI



SCIT students as are known for their risk taking behaviour, yet again jumped into something new to ears and vision! As we have been living in an era of equality, students came up with an idea of Female Cricket League, with ultimate feel of premier league right at the campus.

The blend of premier league feel and women already attracted a lot of audience in the campus. It started with the auctioning, where students who showed their interests were called up. Official team owners were declared according their interests, and bidding took place in no lesser enthusiasm and energy than the official ones.

There were four teams in FCL, Mumbai Indians, Delhi Daredevils, Kolkata Knight Riders, and Chennai Super Kings with Manvi Verma, Geetika Pant, Ranjita Chakraborty, and Prathibha Kilari as their respective captains. The owners of the team had Jigar Patel and Nitin Gambhir for Mumbai Indians, Aditya Sinha and Rishika Taneja for Delhi Daredevils, Abhishek Bele for Kolkata Knight Riders and Raj Gaurav and Pritish Patil for Chennai Super Kings.

With virtual money worth 1,00,00,000 for prize, and bidding for team and players, the FCL was all set to create a whole new league aura in the campus. Girls team, along with their coaches and owners could be seen practicing hard every day.

It started on 9th December, 2016 with 3 matches and on 13th December, 2016 came the finals. Mumbai Indians secured their position in finals long before any other team and utilized their time with practice. Semi-finals included team CSK v/s KKR, where in after a tough fight, CSK positioned themselves against Mumbai Indians in finals.

The match got more aggressive as team owners had Seniors v/s Juniors again, just the way Independence Cup was played. We could see it in Sports Arena with seniors on the right, cheering up their team, Mumbai Indians out loud, whereas Juniors gathered on the left doing the same.

Players of the respective team got motivated with their batch mates and the match took new heights of curiosity. Although, after a hotsy-totsy fight, Mumbai Indians were declared as the winners of the FCL first edition.

Superhumans: a.k.a. Information Security Professionals

Once upon a time there were computers – monstrous, mystical machines which whirred, purred and had tape spools which rotated randomly at high speeds! These hot machines were housed comfortably in air conditioned dust-free environments with geeky and nerdy whizkid operators, sorry, engineers.

As the geeks grew older the computer became a small PC – eventually becoming part of human life. From a functional ‘supporting’ role the computer department now fits into the smart phone that fits into one’s pocket and does more data handling than before.

The whizkids also evolved into domain specialists. Earlier there were hardware or EDP specialists and now there were specialists in databases, software, hardware or what-have-you. In fact there are infinite specializations in each OSI layer so this is mind boggling. With maturity in technology, there evolved well defined roles, responsibilities, education, certification, hiring and assignments; all based on the specialization demanded. In time, came the demand for system security at a time when the only threat was a virus infection or rogue users.

At the beginning of the century technology innovation exploded! In it’s wake more malicious havoc has been unleashed on mankind in a decade than has seen since inception! The exponential growth of threats, attacks and disasters there was the skyrocketing requirement for IT Security skills!

IT Security morphed into Information or Cyber Security to keep pace with Internet growth, technology innovation, computer penetration, mobile devices.

Information Security demands have created super-humans – those front-line professionals (the CISOs, IS Managers, Consultants) are super know-it-alls, by virtue of their job profiles. They live on the cutting edge of technology, analyzing risk, enforcing controls and carrying out measurements and audits.

The super-humans are specialists in everything and their word is ‘gospel’ – if not accepted they unleash the FUD weapon “if this is not done... hell may break loose”. The InfoSec superhuman has super communication skills and can make a Chihuahua look like a dangerous rabid wild dog.

Using a plethora of tools for both process and technology control our superhuman digs into every department to carry out a “gap” and “risk” analysis that can scare any Board. Their VAPT and Threat report can send a CxO into ICU and the Incident Analysis and Forensics reports are the stuff that make heads roll.

If that is not super power, then wait... there is more. The superguys are skilled in everything under the sun: you name it and they know about it in-depth and can give you a nice FUD laden presentation bound to make you lose sleep.



Mind you the Security superhuman never works against the interests of the organization and is usually the most loyal person. And yes, this quality comes with ethics and honesty.

The Information Security professional knows almost everything – audit, networking, system internals, application development, network/security architecture, law, process design, standards, databases, OS's, Applications, Forensics, Law, HR, DLP, SIEM, IDS/IPS, UTM a list that goes on and on. Surely this is someone with superhuman intelligence and (oh yes!) stamina – because the IS guy is on call 24×7 and can be with you in a jiffy.

There is no choice but to evolve into a superhuman being since the organization has come to expect an off-the-cuff solution for every issue they face. InfoSecMan/Girl can troubleshoot any incident, configure/harden any device, close vulnerabilities anywhere, handle people, legal issues etc etc. Routine stuff for our Information Security Superhuman. Another example – ask for consulting advice and he/she can fill you in from DOS to SCADA with ease, or fly from SAP-land to SalesForce-country from EC2 to hybrid cloud. InfoSecMan/Girl wears a tattoo on the forehead saying Virtualization and his/her second name can be Audit or Risk.

Living up to such expectations is tough and is taking a toll on the IS professionals and shows up in weak audits, data breaches... but there is still hope and it lies in maturity. Like wine, as the profession matures specialization will happen and the jack-of-all will have to step back and into a management or pre-sales/sales role. Maturity is not yet close at hand in view of the slow acceptance of security and the continued practice of small budgetary allocations.

For now, anyone entering the InfoSec domain must be mentally prepared to become a superhuman being. Also, must sleep lightly, be available, continuously upskill, and lastly – Perpetually welcome adversity or success with a warm smile.

Star Alumni

We are pleased to announce that the star alum of this edition is Mr. Sai Rohith Arra, an analyst at Global Cyber Defense and Intelligence (GCDI) at Goldman Sachs. He started his career at Infosys as an internship trainee. Rohit graduated from Jawaharlal Nehru Technological University, Kakinada, and then pursued an MBA in ITBM from SCIT. He bagged an internship as a Summer Analyst at Goldman Sachs. Since graduation, he has a keen interest and passion for technology, loves to stay ahead of the curve, and always looks for new technologies that can help improve the company's performance. Amidst this, he is an avid follower of the latest trends in the industry and likes to keep up with the latest advancements.

He has acquired different licenses and certifications in GDPR Data Protection Officer Skills, Practical Malware Analysis and Triage, and many more. He is skilled in security operations, Security Information and Event Management (SIEM), Incident Response, Security Incident, and Event Management and earned a skill badge in cybersecurity. He is a true example and source of inspiration to all the students here at SCIT.

With this, Rohit's perseverance and dedication to his work, technical expertise, and commitment to excellence have helped him become the success he is today.



Mr. Sai Rohith Arra

Batch 2019-2021

Name: Mr. Sai Rohith Arra.

Summer Internship: Summer Analyst at Goldman Sachs.

He has acquired different licenses and certifications in GDPR Data Protection Officer Skills, Practical Malware Analysis and Triage, and many more.



Coming Up Next

OUR COMMITTEE

Mentor



**Prof. Vidyavati
Ramteke**

Graphic Designing



Senior



Junior

Blogging



Senior



Junior

Photography



Senior



Junior

Video Editing

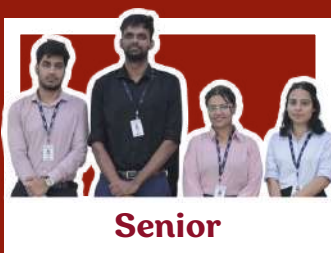


Senior



Junior

Social Media



Senior



Junior

Web Development



Senior



Junior