



जैवप्रौद्योगिकी विभाग
DEPARTMENT OF
BIOTECHNOLOGY

VOLUME 7, ISSUE 2
MARCH 2025

DBT STAR COLLEGE
(Under Strengthening Components)

Mail to: csc@sfc.ac.in

SFC-BYTES
VOLUME 7, ISSUE 2

NEWS LETTER



DEPARTMENT OF COMPUTER SCIENCE
ST. FRANCIS COLLEGE FOR WOMEN, HYD-16

PRINCIPAL- DR. UMA JOSEPH

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Dr. Uma Joseph

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Ms. Leena



Welcome to St. Francis College for Women
...here dreams are moulded into reality

PRINCIPAL'S ADDRESS

It's such a joy to learn that the department of Computer Science is bringing out another edition of **SfcBytes**. *Congratulations to the team working behind the scene to bring it to fruition.*

All of us know that in the computer language, a byte is a fundamental unit of data storage that typically consists of 8 bits. Our mind too is a data storage unit capable of retaining vast amounts of information, experiences, and emotions. We can choose to let our minds harbor positive or negative thoughts, memories, and beliefs. This choice we make greatly influences our mental health, behavior, and overall quality of life.

Just as a computer encodes data, our brains encode experiences and information. We hold certain memories like RAM temporarily and some like hard disk for a very long period which could even be a lifetime. Like the computer our brains can retrieve the memories we have stored.

Let us make a conscious effort to store memories of Joy, affirmations and pleasant experiences and delete negative beliefs and destructive experiences.

May all of us make a conscious effort to choose to focus on positive experiences and beliefs and create a happy and healthy atmosphere. The choice is ours!

Dr. Uma Joseph



Artificial Intelligence (AI) for Quantum Science and Technology

Since quantum research has advanced to the point where its promise is beginning to move beyond the experimental stage and into the realm of real-world applications, the UN has declared 2025 to be the International Year of Quantum research and Technology. The use of artificial intelligence (AI) in our daily lives has grown in importance. The rapidly developing fields of artificial intelligence (AI) and quantum science and technology are increasingly overlapping. AI and quantum technologies together have great potential for a number of uses, from quantum computing and cryptography to quantum sensing and materials research. The following are some important areas where AI can improve quantum science and technology:

Quantum Computing

AI can help in developing and optimizing quantum algorithms, searching for more efficient solutions to complex computational problems.

Quantum Materials

AI can accelerate the discovery of new quantum materials such as topological insulators or superconductors by analyzing properties and predicting behavior based on large datasets.

Quantum Communication

AI can optimize quantum communication networks, improving routing and network management.

Data Analysis

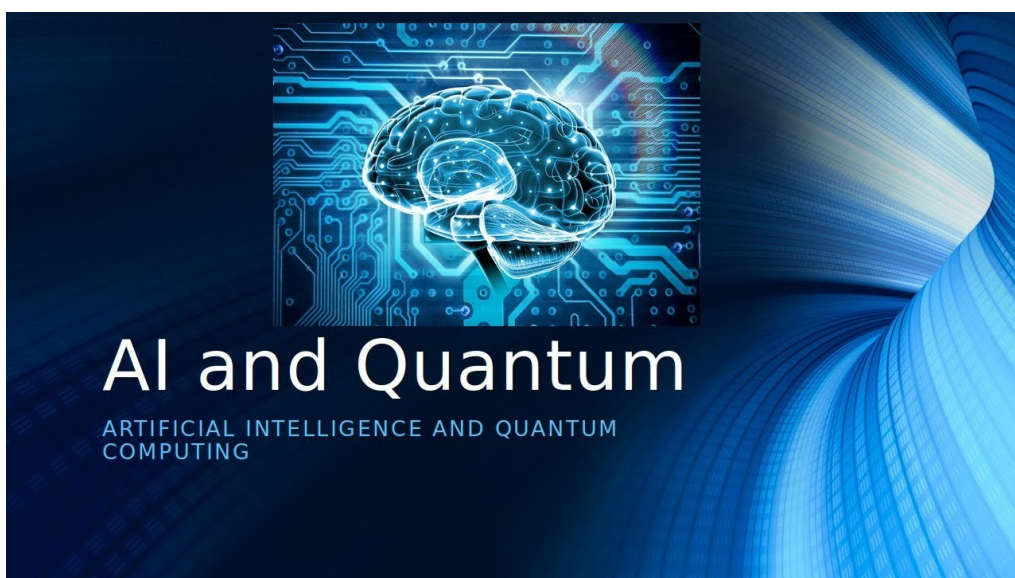
The vast volumes of data produced by quantum sensors can be processed and analyzed using machine learning, improving our understanding of quantum phenomena.

Simulation and Modeling

AI can help with simulating quantum systems. Software for quantum simulation is revolutionizing industries like semiconductors, photonics, and pharmaceuticals. We can make remarkably accurate predictions about atomic-level phenomena by employing quantum systems. Over the next few years, new developments in computing, communication, and sensing technologies could result from the combination of artificial intelligence (AI) and quantum science and technology.



Dr.Sr.Sherly ED



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EVENTS HELD



EVENTS HELD



Educational Tour

The Department of Computer Science organized a 7-day educational tour to Delhi-Kullu Manali on 06th Nov 2024 to 13th Nov 2024. The tour was planned by Orange tours, Mr. Yashwanth reddy. Approximately 97 students from the 2nd and final years of the undergraduate program, as well as final-year postgraduate students, attended the tour. The students were accompanied by 6 faculty members of the department. This session was truly inspiring and emphasized the importance of IoT Platforms. Participants gained hands-on experience in building and managing IoT Devices, which will be beneficial for future projects and endeavors in the IoT domain. Thanks to the resource person, computer science faculty and lab assistants without whom none of this would have been possible. In conclusion, the trip to Manali was an unforgettable experience that offered a perfect blend of adventure, relaxation, and personal growth. It provided an opportunity for students to explore a beautiful new destination, engage in thrilling activities, and bond with peers in a fun and relaxed environment. Overall, the trip was a great success, and it has left us with cherished memories that will be talked about for years to come.



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Department of Computer Science
in collaboration with
REACHA for IBM Skillsbuild certification
organizes
ONE DAY WORKSHOP
C@nnect 7.8
**Fundamentals in
Artificial Intelligence**

Resource Person
Mr. Raghu Raj Singh
Vice President training

NOVEMBER 20 | 9:00 AM ONWARDS

📍 COMPUTER LAB, PG BLOCK



MSc CSc II | MSc DS II | BSc SE, H III



Workshop on the "Fundamentals of Artificial Intelligence"

The Department of Computer Science organized **C@nnect 7.8**, a workshop on the "Fundamentals of Artificial Intelligence". for B.Sc S.E and M.Sc. Final year Computer Science and Data Science students in lab 1 and lab 7 on 20th November 2024. The resource person was Raghuraj Singh. Around 50 students participated in this workshop. Mr. Raghuraj Singh provided an overview of AI principles, including machine learning, deep learning, and natural language processing (NLP). Participants were trained in using IBM's AI tools, such as Watson Studio and Watson Assistant, for building and deploying AI models. The workshop was a valuable experience, combining theoretical learning with practical training. Participants left with a deeper understanding of AI's potential and how to apply these technologies effectively in their own fields. Real-world applications of AI in industries such as healthcare, finance, and retail were explored. The workshop also addressed the ethical implications of AI development, including fairness, bias, and data privacy.

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KNOWVATION
IGNITE. INNOVATE. IMPLEMENT.

Microsoft
CERTIFIED TRAINER
MCT

2-DAY WORKSHOP ON DATA MASTERY FOR FACULTY

**16th October 2024 &
18th October 2024**

10:30 am to 3:00 pm

In Campus

Vishwanadhula Sudhansh Bhaskar
World's Youngest Microsoft Certified Trainer

DATA MASTERY SERIES

DATA MASTERY SERIES

2 Day Data Mastery Workshop

A Faculty Development Program titled “2 Day workshop on Data Mastery” was organized by the Department of Computer Science facilitated by the resource person Mr. Vishwanadhula Sudhansh Bhaskar, World’s youngest Microsoft Certified trainer on 21st Nov 2024 for all faculty of the department of Computer Science in Lab 7. Around 20 faculty from the department took part in the workshop.

In the second session, we were introduced to a range of powerful Power BI tools. We learned how to extract data from images, perform 3D data consolidation, and create macros to automate tasks. The session also covered the fundamentals of prompt engineering, enabling us to generate code for building visually appealing dashboards with charts and slicers. After designing the dashboards, we learned how to publish them effectively. The session was highly interactive and practical, providing valuable skills that will be essential for creating student reports, making it particularly useful for faculty.



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GOALS**
SFC supports SDG

SPECTRUM PRESENTS

SCI - TRAIL

AN OPEN DAY

Explore diverse science and technology programs at the college exposition ; discover unique aspects to make informed career decisions and embark on a transformative journey.

26th NOVEMBER, 2024

**VENUE : ST. FRANCIS COLLEGE FOR WOMEN,
BEGUMPET, HYDERABAD.**

Follow to stay updated !!
 @spectrum_sfc

For Queries,
CONTACT :
8333015032
Vania Karan
President



SCI-TRAIL - An Open Day

SCI Trail, An Open Day was held on 26th November 2024, where students from cluster colleges had come to explore diverse science and technology programs at the college. The Department of Computer Science has led the students through all the UG and PG courses offered for the Physical Science Students. Around 25 teams participated to exhibit their live and model projects.


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**INSIGHTBLEND ANALYTICS LLP &
 KNOWVATION LEARNINGS PVT. LTD.**

DEPARTMENT OF COMPUTER SCIENCE

Organises
C@NNECT 7.10
Resource Person

Mr. V. Sudhansh Bhaskar

 Founder of InsightBlend Analytics
 LLP

December 04, 2024

12:00 –1:10pm

Auditorium
Resource Person

Ms. Swathi Rusheetha

 Founder and CEO of Knowvation
 Learnings

INSIGHTS ON POWER BI

**All Final Years B.Sc.(H, MPCS, MSCS, MECS), M.Sc. Computer Science, M.Sc. Data Science,
 BMS, B.Com Computer Applications**



Orientation on “Insights on Power Bi”

The department of Computer Science has organized an orientation titled “Insights on Power Bi” for final year B.Sc (H,MPCS,MSCS,MECS), M.Sc (CS,DS), BMS, BCOM CAP students on 4th December 2024 in the Auditorium. The resource persons for the same are Mr. Sudhansh Bhaskar founder of Insight BI and Analytics, Ms. Swathi Rusheetha founder and CEO of Knowvation Learnings PVT. LTD. The students learnt about the new courses on Power Bi, the scope of the courses and available offers in Course. Around 80 students participated in the orientation.



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DEPARTMENT OF COMPUTER SCIENCE

presents

C@NNECT 7.6

NATIONAL FEST-2K24

<<SYNTAX TO SUCCESS/>>

EXCITING PRIZES AND CASH REWARDS!!!



STARTS AT
9AM



**22 & 23
AUGUST**



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[connect_sfc](https://connect.sfc)

“C@nnect 7.6 National Fest 2k24”

The Department of Computer Science organized a two-day event Connect 7.6 National Fest 2k24 on August 22 nd and 23 rd 2024, which brought together participants and collaborators from various institutions and fields. The fest aimed to foster a spirit of camaraderie and healthy competition among computer science enthusiasts.

The commencement of the fest began by the formal banner reveal on 20 th August 2024 by the cultural committee of the connect club. The event began with the formal inaugural ceremony in the Auditorium graced by the presence of the college management, Principal Dr. Uma Joseph, vice Principal Dr.Sr. Sherly, Correspondant Sr. Carmely Thainiath, Dean of Sciences Dr. Usha Praveena, Heads of various departments,faculty and students along with the Chief Guests, Mrs. P. V. Sudha, Professor and Head of Department of Computer Science and Engineering, Osmania University and Guest of Honour Dr. Sr. Christine Fernandez, Former Principal St. Francis College for Women. The Investiture Ceremony was held and newly elected office-bearers of the connect club 2024- 2025 were given their badges and the oath was administered by the principal Dr. Uma Joseph The event was declared open by our principal Dr. Uma Joseph.

The fest featured the array of engaging competitions, catering to a diverse range of interests within the realm of computer science. The highlight of the event was the intense two day “Hackathon” where in-house and guest participants put their coding powers to the test by developing web application within a limited time frame. Another intellectually stimulating competition was the “Impacto Code”, which challenged participants’ knowledge of various aspects of computer science. These events provided participants with a platform to collaborate, interact anf learn from fellow participants. It was a refreshing break from the rigorous competition and showcased the well-

rounded nature of the event. The event saw participation of a whopping 308 in-house participants and 77 guest participants from colleges like Kristu Jayanti College Bangalore, Vardhaman College, Anurag University, HBS, MGIT, CMR, Mahindra University, ST Pious Degree & PG Colege for women, Osmania Medical College, Little Flower Degree College, Sangamitra Degree College, Avinash College, Bhavan’s Vivekananda Degree College, Loyal University and ZPHS Shamshiguda.

The event summary report highlighted the key achievements of the fest, including the successful execution of various competitions that engaged participants across diverse fields. This was followed by the exciting prize distribution, where we celebrated the outstanding performances of our participants. We then expressed our gratitude with a vote of thanks, acknowledging the blessings of God, the support of the management, faculty, sponsors, non-teaching staff, and the enthusiastic participation of the students. The event concluded on a patriotic note with the National Anthem.

The fest provided a unique opportunity for students to interact with the like- minded individuals in the field of computer science. Attendees could engage in meaningful discussions, exchange ideas, and broaden their horizons through these interactions. The Connect 7.6 National fest organized by the Department of Computer Science was a resounding success.

FACULTY ACHIEVEMENTS



FACULTY ACHIEVEMENTS

Ms. Padmasree

Asst. Professor,

Dept. of Computer Science



FACULTY ACHIEVEMENTS

Ms. B.Jyothi & Shobana S

Asst. Professor,

Dept. of Computer Science

Ms. B.Jyothi & Shobana S attended the “32 HYSEA NATIONAL SUMMIT & AWARDS 2025, AI & Beyond: Redefining the Future” on 11 FEB 2025 from 07:30AM - 8:30PM at HICC – Hyderabad.



FACULTY ACHIEVEMENTS

Dr. Sr. Sujatha Yeruva and Ms. B. Jyothi
Dept. of Computer Science

They were the resource persons of the National Workshop on Navigating Science Tools:

A Hands on Approach in association with DST WISE KIRAN CURIE and Faculty Research Cell

St. Francis
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**DEPARTMENT OF
SCIENCE & TECHNOLOGY**

**National Workshop
on**

**Navigating Science Tools :
A Hands-on Approach
in association with
DST WISE KIRAN CURIE
and Faculty Research Cell**

**Date
February 21 , 2025**

Scientific instruments shown include a digital scale, a digital multimeter, a microscope, a centrifuge, and a spectrophotometer.



Ms. B. Jyothi

Asst. Professor,

Dept. of Computer Science

Participated in the conference on “Artificial Intelligence in Healthcare 2.0” hosted by AIG Hospitals, Hyderabad on Tuesday, 7th March 2025.



Jenifer Johnson
Asst. Professor,
Dept. of Computer Science



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CERTIFICATE OF APPRECIATION

This is to certify that

Ms. Johnson Jennifer

from **St. Francis College for Women** has presented a research paper titled

Impact of AI in the Emergence of Gig Work

under "Track I: Socio-Cultural Changes and their Impact on Business" presented in the National Conference on 'The Future of Business in an Uncertain World: An Interdisciplinary Approach' organized by the Department of BMS, St. Francis College for Women, Hyderabad on November 26th & 27th, 2024.

Dr. Uma Joseph
Principal
St. Francis College for Women

Dr. Mahnoor Sahrash
HoD, BMS, Conference Convenor
St. Francis College for Women

FACULTY ACHIEVEMENTS

Ms. Ummya Mohammedi

Asst. Professor,

Dept. of Computer Science



मध्य भारती
मानविकी एवं समाज विज्ञान की द्विभाषी शोध-पत्रिका



MADHYA BHARTI
(UGC CARE Group-I, Multi disciplinary)

CERTIFICATE OF PUBLICATION

This is to certify that the article entitled

GEMINI AND CHATGPT: PERFORMANCE ASSESSMENT, PROSPECTIVE DEVELOPMENTS, AND ETHICAL DIMENSIONS

Author By

Ms.Ummya Mohammedi

Assistant Professor, St. Francis College for Women, Hyderabad

University Grants Commission

Published in

Madhya Bharti -Humanities and Social Sciences

(मध्य भारती) मानविकी एवं समाज विज्ञान की द्विभाषी शोध-पत्रिका

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UGC Care Approved, Group I, Peer Reviewed, Bilingual, Biannual,
Multi-disciplinary Referred Journal



Chief Editor
प्रो. अश्विक्कांत शर्मा

मध्य भारती
मानविकी एवं समाज विज्ञान की द्विभाषी शोध-पत्रिका



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CERTIFICATE OF PUBLICATION

This is to certify that the article entitled

AI AND IOT ENABLED HEALTHCARE: A STUDY ON EMERGING TRENDS AND FUTURE PRODUCTS

Author By

Ms.Ummya Mohammed

Assistant Professor, St. Francis College for Women, Hyderabad.

University Grants Commission

Published in

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Asst. Professor

Dept. of Computer Science



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(Autonomous & Affiliated to Osmania University)

CERTIFICATE OF APPRECIATION

This is to certify that

Ms. Ummya Mohammedi

from **St. Francis College for Women** has presented a research paper titled

AI for Small Business: A Catalyst for Growth and National Development

under "Track II: Economic Conditions, Regulatory and Governmental Policies and their Implications on Businesses" presented in the National Conference on 'The Future of Business in an Uncertain World: An Interdisciplinary Approach' organized by the Department of BMS, St. Francis College for Women, Hyderabad on November 26th & 27th, 2024.

Dr. Uma Joseph
Principal
St. Francis College for Women

Dr. Mahnoor Sahrash
HoD, BMS, Conference Convenor
St. Francis College for Women

Ms. Divya Rachala

Asst. Professor

Dept. of Computer Science



मध्य भारती



MADHYA BHARTI

(UGC CARE Group-I, Multi disciplinary)

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Authored By

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Assistant Professor, St. Francis College for Women, Hyderabad

University Grants Commission

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Chief Editor
प्रो. अश्वि कुमार शर्मा

Ms. Ummya Mohammedi

Asst. Professor

Dept. of Computer Science

Special recognition awarded at Nat CON 2024 by Department of BMS,
St Francis College for Women on November 27th, 2024



Ms.Divya Rachala

Asst. Professor

Dept. of Computer Science



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CERTIFICATE

OF APPRECIATION

This is to certify that

Ms. Divya Rachale

from St. Francis College for Women has presented a research paper titled

Sustainable Supply Chain Management: Spotlight on IoT and Blockchain Technologies

under "Track IV: Climate Change and Sustainability" presented in the National Conference on 'The Future of Business in an Uncertain World: An Interdisciplinary Approach' organized by the Department of BMS, St. Francis College for Women, Hyderabad on November 26th & 27th, 2024.

Dr. Uma Joseph

Principal

St. Francis College for Women

Dr. Mahnoor Sahrash

HoD, BMS, Conference Convenor

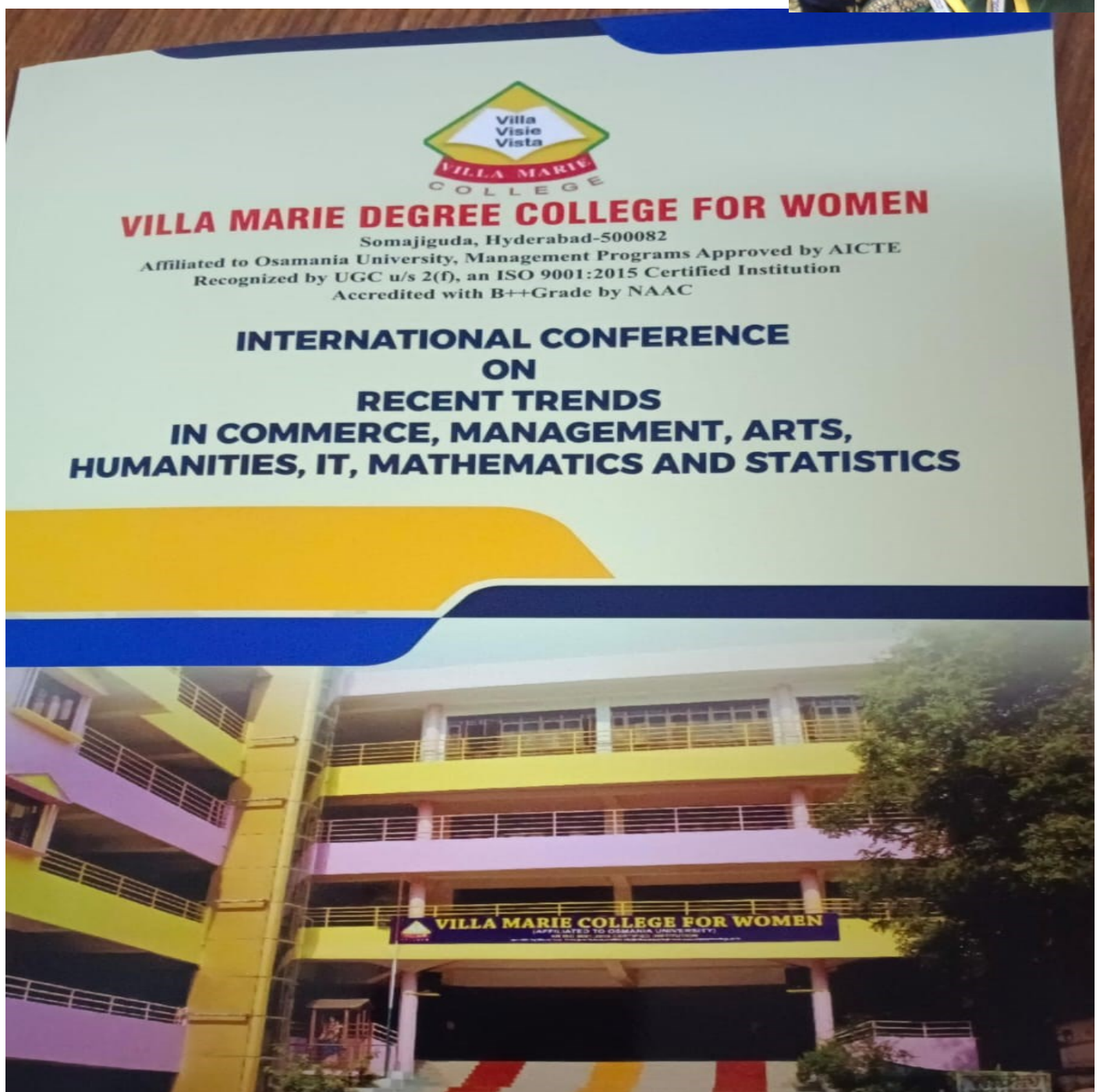
St. Francis College for Women

Ms. Ummya Mohammedi

Asst. Professor,

Dept. of Computer Science

Presented and published a paper titled "Generative AI in E-learning"
at an International Conference held by IQAC,



FACULTY CONTRIBUTION



FACULTY CONTRIBUTION



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DEPARTMENT OF COMPUTER SCIENCE
organizes

@nnect 7.12

GUEST LECTURE

on

Simulated Networking Essentials



Ms Kavitha
Cisco Coordinator



Ms Afeefa Noorain
Cisco Instructor

DATE : 28 JAN, 2025

8:30 AM - 10:30 AM

VENUE : LAB 1,7

For BSc Final Year Physical Science students



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DEPARTMENT OF COMPUTER SCIENCE
organizes

@nnect 7.11

GUEST LECTURE

on

Simulated Networking Essentials



Ms Kavitha
Cisco Coordinator

**DATE : 16-17 JAN,
2025**

9:30 AM - 11:20 AM

VENUE : LAB 8

For MSc I AI&ML, MSc I DS students



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Faculty Induction Program 2024-25

Session - IV

Resource Person



Ms. Afeefa Noorain

Assistant Professor,
Department of Computer Science

OBE / IT @ SFC

Resource Person



Dr. Mahnoor Sahrash

Head, Department of BMS



September 27, 2024



2:00pm onwards



Gerosa Hall

STUDENT ACHIEVEMENTS



STUDENT ACHIEVEMENTS

Noor Banu

121323052030

Bsc Honours 2H

Participated in "Code feast hackathon 2024"

At St Ann's college for women's



St. Ann's College for Women



CODEfest HACKATHON 2024

9TH-11TH DECEMBER, 2024

Certificate of Participation

NOVA SAPIENS

Noor Banu

CONGRATULATIONS AND THANK YOU FOR PARTICIPATING IN CODEFEST 2024 HACKATHON

ILYAS SHAH KHAN
INCUBATION MANAGER,
EDVENTURE PARK

DR. P. NAGA KAVITHA,
HEAD DEPT. OF COMP. SCI.

DR. SR. A. VIJAYA RANI
PRINCIPAL

Shaista Kausar

Bsc honours 2H

Participated in "Code feast hackathon
2024"

At St Ann's college for women's



B. Veda Varshita

Bsc honours 2H

Participated in "Code feast hackathon 2024"

At St Ann's college for women's



PG INTERNSHIP 2024-2025

Five students from M.Sc Computer Science were placed in PS Collaborations.

1. Najal Sawzan
2. Mary Stefany
3. T. Varsha Reddy
4. Preethi Sri
5. Sai Navya

The role we were offered was Cyber Security Intern and the stipend was 10k. The internship is for a duration of 6 months starting from December 2024 and ending in May 2025.

Seven students from M.Sc Computer Science were placed in IT Solutions.

1. T.Swathi
2. Greeshma
3. Sriya
4. Amrutha
5. Janavi
6. Shirly
7. Sony

A project was offered was e-commerce Website on Lawyers. The internship is for a duration of 5 months starting from January 2025 and ending in May 2025.



FACULTY ARTICLES



EDGE AI

Edge AI involves deploying artificial intelligence (AI) models directly on local devices (e.g., smartphones, sensors, IoT devices) instead of relying on centralized cloud servers. By processing data where it's generated, Edge AI enables real-time decision-making, reduces latency, and minimizes bandwidth usage. This approach is critical for applications requiring instant responses, such as autonomous vehicles, industrial automation, and healthcare monitoring.

Key benefits include enhanced privacy (data stays on-device), reliability in low-connectivity environments, and cost efficiency by reducing cloud dependency. For example, smart cameras analyze footage locally to detect security threats, while wearables monitor health metrics without transmitting sensitive data.

Challenges involve hardware limitations (limited processing power on edge devices), the need for optimized AI models (via techniques like pruning and quantization), and security risks from potential device tampering. Technologies like TinyML (machine learning for microcontrollers) and specialized chips (NPUs, TPUs) address these hurdles by enabling efficient AI processing on low-power devices.

Applications span industries:

Healthcare: Wearables detect anomalies in real-time.

Autonomous Systems: Self-driving cars process sensor data instantly.

Smart Cities: Traffic systems optimize flow using edge-processed data.

Retail: Cashier-less stores track inventory via smart shelves.

Future trends include federated learning (collaborative model training without sharing raw data) and integration with 6G networks for faster edge-cloud synergy. As hardware advances and AI models grow more efficient, Edge AI will expand into smaller devices, enabling smarter, decentralized systems while addressing ethical and regulatory concerns around data use.



Dr. Sr. Sujatha Yeruva
M.Sc., Ph.D.
Head, Dept of Computer
Science
St. Francis College for
Women



*"The computer
was born to solve
problems that did
not exist before."*

— Bill Gates

ABCS OF QUANTUM COMPUTING

Quantum Computing is an interdisciplinary technology integrating the knowledge and methods of Quantum Physics, Mathematics with computer Science.

Quantum Computers are similar to classical computers except for the fact that they can solve complex problems much faster and more efficiently, which classical computers or supercomputers can't solve or can't solve quickly enough.

Classical computers process data in terms of bits whereas quantum computers process data in terms of qubits.

Key concepts of quantum computing:

1. **Superposition** Quantum bits(qbits) use the quantum mechanics phenomena of superposition where each qbit can be in the state of 0 or 1 or both (superposition of all possible states). This allows quantum computers to process many possibilities at once, enhancing the potential of solving problems much faster than classical computers.
2. **Entanglement**: Qubits can become entangled, which means the state of one qubit can depend on the state of another, even if they are far apart. This property allows for highly efficient information transfer and processing.
3. **Quantum Interference**: Quantum computers use interference to amplify the probability of correct answers and cancel out incorrect ones. By careful manipulation of the states of qubits, quantum algorithms can enhance the likelihood of finding a solution.
4. **Quantum Gates**: Quantum computers perform calculations using quantum gates, which manipulate the states of qubits in a way that is analogous to logical gates in classical computing, but with the added complexity of quantum phenomena.

Applications of quantum computing are still being explored, but potential areas of impact include:

- **Cryptography**: Quantum computers could potentially break existing encryption methods, but they also hold the potential to create new, unbreakable encryption techniques.
- **Optimization**: Quantum computing could revolutionize areas like logistics, supply chain management, and drug discovery by solving complex optimization problems more efficiently than classical computers.
- **Artificial Intelligence and Machine Learning**: Quantum computing might accelerate certain AI algorithms, helping them process vast amounts of data more effectively.

However, quantum computing is still in its early stages. Quantum computers are currently highly sensitive to environmental interference (called *decoherence*), and building large-scale, stable quantum computers is a major challenge.



Ms. Divya Rachala
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*Before software
should be reusable,
it should be usable."*

— Ralph Johnson

LARGE LANGUAGE MODELS

Education is evolving rapidly, with artificial intelligence (AI) driving significant changes in how students learn and how educators tailor their teaching methods.

The rapid adoption of artificial intelligence (AI) in education has revolutionized how students learn and teachers teach, offering personalized, efficient, and engaging learning experiences. At the same time, horoscopes, rooted in astrological principles, provide reflective insights into personality traits, learning styles, and emotional tendencies. Combining these two seemingly different approaches could create a more holistic and innovative educational model.

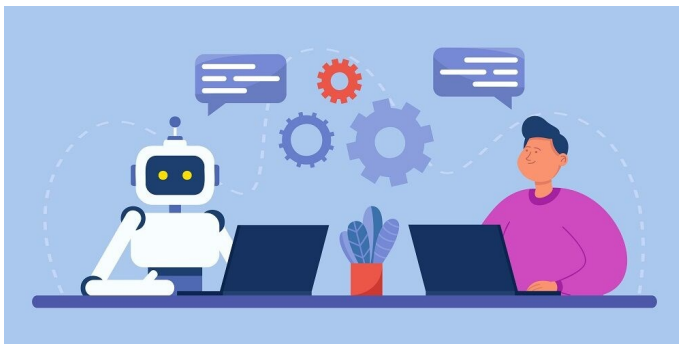
AI's ability to analyse learning behaviour and adapt to individual needs is unmatched. It personalizes content, automates feedback, and enhances engagement with interactive tools. Meanwhile, horoscopes can offer motivational insights, helping students better understand their strengths, preferences, and challenges. Together, they could create hyper-personalized learning pathways, with AI using horoscope-driven traits to suggest study methods, career paths, or emotional support strategies.

However, this integration comes with challenges. Astrology lacks scientific validation, and relying too heavily on it risks undermining evidence-based learning. Ethical considerations around data privacy and stereotyping must also be addressed.

When implemented responsibly, the blend of AI's analytical precision with horoscopes' introspective lens can inspire learners to reach their full potential. This fusion offers a promising new frontier, uniting technology and intuition to enhance education globally.



Preethi Geetla
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“Simplicity, carried to the extreme, becomes elegance.”— Jon Franklin

QUANTUM COMPUTING: THE NEXT FRONTIER IN

Quantum computing is revolutionizing the world of computing by offering a new way to solve problems that classical computers cannot. Unlike traditional computers, which use binary bits, quantum computers leverage quantum mechanics to process information in unprecedented ways. This emerging technology has the potential to tackle complex challenges in fields like cryptography, medicine, artificial intelligence, and simulations.

Quantum Computing: At its core, quantum computing exploits the principles of quantum mechanics, the branch of physics that deals with the behavior of particles at the atomic and subatomic level. The two key concepts that give quantum computers their potential are **superposition** and **entanglement**. These principles give quantum computers the ability to solve problems in a fraction of the time it would take classical computers, particularly when it comes to tasks involving vast amounts of data or complex calculations.

Quantum Computing a Game Changer: Quantum computing holds the promise of solving problems that are too complex for today's classical computers. Let's explore how quantum computing could revolutionize several fields:

Cryptography and Cybersecurity

Quantum computing has the potential to break current cryptographic methods by factoring large numbers much faster than classical computers, making existing encryption vulnerable. However, this challenge is driving the development of quantum-resistant encryption techniques to safeguard sensitive data in the quantum era.

Drug Discovery and Personalized Medicine

Quantum computing could speed up drug discovery by simulating molecular interactions in ways that classical computers can't, potentially reducing development time and cost. In personalized medicine, quantum computing could analyze genetic data to provide individualized treatment plans based on unique genetic profiles.

Optimization Problems

Quantum computing can solve complex optimization problems across various industries like logistics, finance, and energy by finding the best solutions more efficiently. This technology could improve processes like delivery routes, production schedules, and financial modeling, revolutionizing decision-making in multiple sectors.

Artificial Intelligence and Machine Learning

As data sets grow, quantum computing could enhance AI and machine learning by processing information faster and solving complex mathematical problems. Quantum algorithms have the potential to improve model training speed, accuracy, and enable more sophisticated, real-time predictions.

Climate Modeling and Environmental Science

Quantum computing could improve climate models by simulating environmental systems with unprecedented precision, providing more accurate predictions. This advancement could lead to better understanding and solutions for sustainability, such as optimizing energy use and developing efficient materials for energy storage.



Ms. Jyothi Reddy B
Asst. Professor,
PG Coordinator.
Department of Computer
Science.



'Computers are good at following instructions, but not at reading your mind.'

—Donald Knuth



Challenges in Quantum Computing

Despite its vast potential, quantum computing faces several challenges that must be addressed before it can fully deliver on its promises:

1. **Error Rates and Stability:** Quantum systems are extremely sensitive to environmental factors like temperature and electromagnetic radiation, which can lead to errors in calculations. Researchers are working on improving the stability and error-correction capabilities of quantum computers.
2. **Scalability:** Building a quantum computer with a large number of qubits is a complex task. As the number of qubits increases, so does the difficulty of maintaining coherence and minimizing error rates. Creating scalable quantum systems remains a significant hurdle.
3. **Cost and Accessibility:** Quantum computers are still expensive to build and operate. While some companies and research institutions are making significant strides, the technology is not yet commercially viable for widespread use.

The Road Ahead & Conclusion: Quantum computing is advancing rapidly, with major companies and researchers making significant strides toward developing hybrid systems that combine quantum and classical computing. Despite challenges, these advancements are bringing quantum technology closer to solving real-world problems and have the potential to revolutionize industries like cryptography, medicine, AI, and climate science, ushering in a new era of innovation.



"Coding is today's language of creativity. All our children deserve a chance to become creators instead of consumers of computer science."

- Maria Klawe's

THE ROLE OF AI IN IMAGE AND VIDEO OPTIMIZATION

As digital engagement becomes ever more significant, high-resolution images and videos play an important role in engrossing audiences across websites, social media platforms, and digital marketing campaigns. However, big media files can cut off website buffer times and take up lot of storage and bandwidth. AI-powered image and video optimization provides a resolution by optimizing media standards while reducing file sizes. This article explores the significance, perks, and applications of AI in optimizing visual content. Efficient media optimization is a key variable for user experience, search engine optimization (SEO), and comprehensive digital efficiency. Some vital reasons include: Improved Website Loading Speeds, Refined Mobile interface, Reduced Storage and Bandwidth Costs, Elevated Search Results. The reason for the need of AI in Image and Video optimization is because the conventional strategies of compression often compromise quality. AI-powered techniques help in smarter optimization by examining and adapting media content wisely. AI tools can maintain or even elevate visual integrity while achieving significant file size reductions. Some of the AI techniques for image and video optimization are:

- **Context-Sensitive Compression:** AI-driven algorithms analyze images or videos components and compress less important sections maintaining quality retention in the focal points.
- **Smart Image Cropping and Framing:** Using machine learning we can smartly crop the images and videos to prioritize significant elements, tailoring content to fit diverse screens and platforms.
- **Dynamic Encoding:** AI can dynamically modify video encoding settings to match current network conditions without interrupting the streaming

Applications of AI in Image/Video Optimization:

- **E-commerce:** Enhancing the image quality of the product to provide better user experience by reducing the size of the image files.
- **Social Media:** Faster uploads and enhanced playback quality is ensured using the AI-powered video compression.
- **Digital Marketing:** Enhanced media drives improved load efficiency and elevates audience engagement for marketing.

With the continuous evolution of AI, we can expect much sophisticated media optimization techniques like dynamic image/video compression, customized experience according to the user's choice and building significant neural network models. AI-powered optimization of images and videos is shaping the future of businesses and the way visual content is handled by the developers. By enhancing advanced AI-based methods, organizations can provide high-quality media with quicker load times and tailored user experiences, leading to an elevated digital presence and a competitive market position.



Jenifer Johnson
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Computer science empowers students to create the world of tomorrow."

- Satya Nadella,

AUTHENTICATION SERVICES FOR SMART CARD IN THE NETWORK

Network Security issues are now becoming important as society is moving to digital information age. Data security is the utmost critical component in ensuring safe transmission of information through the internet. It comprises authorization of access to information in a network, controlled by the network administrator. The task of Network security not only requires ensuring the security of end systems but of the entire network. Authentication is one of the primary and most commonly ways of ascertaining and ensuring security in the network.

AUTHENTICATION TECHNIQUES

Following are the primary authentication techniques used in the public network.

PASSWORD AND PIN BASED:

In this authentication technique, privacy and confidentiality can be maintained up to some extent. Users memorize their passwords and hence we can term these as Knowledge-based techniques. Virtual Private Networks such as Point-to-Point Tunneling Protocol (PPTP) make use of both clear-text protocols such as Password Authentication Protocol (PAP) and MD5-based protocols like Challenge Handshake Protocol (CHAP).

ONE TIME SECURITY TOKENS:

Ron Rivest, Adi Shamir and Leonard Adleman (RSA) algorithm uses one time security token, that is, secureID which reduces the risk as compared to a simple password as we may change our passwords according to our mood in every 60 to 90 days or may be longer. But secureID works differently as it changes every 60 seconds, which is generated by some mathematical algorithms and only known to security server

BIOMETRIC BASED:

Biometric authentication is the process of verifying if a user is whom he is claiming to be, using digitized biological signatures of the user. Biometric authentication can be classified into two groups: physiological and behavioural.

MULTI FACTOR AUTHENTICATION

To make network more secure, a combination of above techniques need to be used as shown in Table 4. This is referred to as multi-factor authentication.



Rajeshwari
Asst. Professor
Department of Computer
Science

*"The next world war
is not gonna be a
cold war, it's gonna
be a code war."
— Abhijit Naskar*

CYBERSECURITY

Cybersecurity is a critical field of technology and practice dedicated to protecting systems, networks, devices, and data from malicious attacks, unauthorized access, and damage. As digital transformation accelerates globally, the reliance on interconnected systems, cloud environments, and digital data has created an increasing need for robust cybersecurity measures. Cyber threats, ranging from hacking and malware to ransomware, phishing, and data breaches, pose significant risks to individuals, organizations, and governments.

The scope of cybersecurity encompasses various domains, including network security, information security, application security, endpoint security, identity management, and cloud security. Effective cybersecurity strategies require a combination of preventive measures (e.g., firewalls, encryption, secure coding practices), detection mechanisms (e.g., intrusion detection systems, security monitoring), and responsive actions (e.g., incident response plans, recovery strategies).

With cyberattacks becoming more sophisticated and frequent, organizations must implement a proactive security posture that involves not only technical defenses but also security awareness programs and user training. The integration of emerging technologies, such as artificial intelligence (AI), machine learning (ML), and blockchain, is also reshaping the cybersecurity landscape, offering both new opportunities for defense and new avenues for exploitation by cybercriminals.

As the global cybersecurity landscape continues to evolve, businesses and individuals must remain vigilant, adopt best practices, and continuously adapt to the changing threat environment to ensure the confidentiality, integrity, and availability of digital assets.



R. Srivalli Sumalatha
Assistant Professor
Department of Computer
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"The great thing is to make a machine that can do something in such a way that you will never have to do it again."

—Charles Babbage

RFID- ENABLING IDENTIFICATION AND

RFID (Radio Frequency Identification) is a generic term for technologies that automatically use radio waves to identify people, animals, or objects. It is often considered as a prerequisite for IoT or the Internet of Things. Equipping daily life objects with radio tags will enable computers to identify and build an inventory of them. RFID finds applications in various areas such as asset tracking, access control, logistics, product management, electronic toll collection, animal tracking, vehicle security, etc. This is made possible by RFID's ability to identify distant objects that are not in the line of sight and its effectiveness in reading a high number of tags.

An RFID system constitutes a tag, reader and middleware. Tag is connected to the object we want to track and the Reader continuously sends radio waves. When the tag comes in the range of the reader, it receives the signal. The reader reads the code from this signal and the database can be updated based on this. While there are several classifications of RFID Tags, one of the most common ways it is categorized is whether the tag is passive, active or semi active. Passive tags have no battery and collect energy from nearby RFID readers by interrogating radio waves, whereas active tags have a battery onboard. We have LF (low frequency-125-134 KHz), HF (high frequency-13.56 MHz), UHF (Ultra High Frequency-433 MHz 865-956 MHz) & Microwave (2.45 GHz, 5.8 GHz 24.125GHz) RFID Tag antennas based on frequency. Compared to barcodes, RFID can read multiple tags simultaneously, even without direct line-of-sight.

While RFID offers advantages like simultaneous reading of multiple tags and no need for direct line-of-sight, the issues of interference and privacy concerns remain. As RFID continues to evolve, its integration with IoT and AI will help drive applications that are smarter and more efficient, helping us put another step towards a fully interconnected world.



VANILAKSHMI
Assistant Professor
Department of ELEC-
TRONICS



"The great thing is to make a machine that can do something in such a way that you will never have to do it again."

—Charles Babbage



STUDENT ARTICLES



VIRTUAL REALITY(VR):-

Virtual Reality: The computer-generated simulation of a three-dimensional image or environment that can be interacted with in a seemingly real or physical way by a person using special electronic equipment, such as a helmet with a screen inside or gloves fitted with sensors.

VR can simulate real workspaces for workplace occupational safety and health purposes, educational purposes, and training purposes. It can be used to provide learners with a virtual environment where they can develop their skills without the real-world consequences of failing.

VR technology has emerged as a significant tool in medical training and education. Specifically, there has been a major leap in innovation in surgical simulation and surgical real-time enhancement.

VR is a computer-generated environment with scenes and objects that appear to be real, making the user feel they are immersed in their surroundings.

Plus they change as the person moves around their environment which corresponds with the change in their field of vision.

VR systems can vary in how immersive they are, from fully immersive experiences to more basic ones that you can use with just a computer and monitor. The main components of VR systems include input devices, output devices and software that brings everything together.

In conclusion, VR is an incredible technology that creates a simulated, interactive 3D world. By using a special headset and sometimes other equipment, VR tricks your brain into feeling like you are in a different place. This technology has come a long way and can be used for various purposes, from entertainment and education to training and therapy.



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"Software is a great combination between artistry and engineering."

—Bill Gates

EDUCATIONAL ROBOTICS

Robotics is the plot of building, designing and programming robots – machines that can perform tasks independently or with guidance of human. Educational robotics is a vital area that integrates the principles of robotics with educational practices.

Educational robotics is a designed to introduce students to Robotics and Programming interactively from a very early age. By integrating robotics into the classroom, educators aim to enhance student engagement, foster problem-solving skills, and prepare students for the technological demands of the future. We will learn how and explore the various aspects of educational robotics, and its impact on modern education.

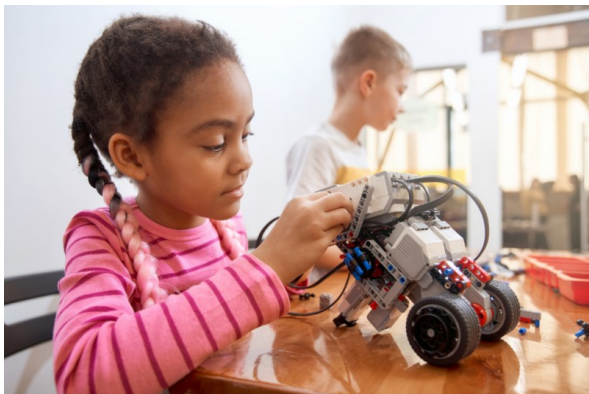
Educational robotics involves the use of programmable robots to facilitate learning across various subjects, including science, technology, engineering, and mathematics (STEM). These robots range from simple programmable toys for young children to complex systems used in higher education and research.

There are various types of Educational Robotics which include Programmable Toys, Modular Robotics Kits, Humanoid Robots. Robotics grabs student's interest through interactive and hands-on learning, making abstract concepts more tangible. As automation and AI has become integral to many industries, robotics education provides essential skills for future job markets. Robotics permits students to see the connections between different areas of study and develops their skills such as Collaboration, Failure management, Self-awareness, Adaptability, Self-Assessment.

Educational robotics uses a programming technique called "Block coding." Robots like Sphero and Ozobot are used in coding classes to teach students various programming languages and concepts through practical applications. EGO Mindstorms and VEX Robotics kits are integrated into science and technology classes to teach engineering principles, programming, and problem-solving skills .



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"Your most unhappy customers are your greatest source of learning."

—Bill Gates

SUSTAINABLE BYTES

All the technical developments have made society positive but have a decided downside-global warming. Energy-intensive operations such as data centres, device production factories, and e-waste add to the ever-widening carbon footprint of the information technology industry. Several companies are, therefore, adopting green computing that lays stress on sustainability and environmental responsibility to solve those concerns.

Use of renewable energies is serious commitment. Apple and Google have had carbon neutrality since 2007 and will be completely operational on carbon-free energy by 2030. Energy reductions are very substantial due to AI optimization and innovative cooling solutions, such as Microsoft's undersea Project Natick. Rethinking product design is one more thing many IT companies are doing these days. Most of the major brands like Apple, Dell, and HP have recycled material for their devices to use and boost energy efficiency. Enlightenment, cloud computing and virtualization have been great revolutions, joining workloads and loss in physical servers, which all can increase energy efficiency. Green computing is not a fad, but it is a requisite with ever-increasing environmental issues. Established tech firms are setting standards for enterprises across the globe through sustainable design, renewable energy, and innovative solutions. These initiatives-even though the journey along the road is still in progress-will be shaping an environment that is greener and more responsible in the future.



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"If you are born poor it's not your mistake, but if you die poor it's your mistake."

—Bill Gates

BLOCK CHAIN

The basic idea of blockchain is it is mainly used as a mode of transaction to various users. It is a kind of technology that works as transfer network from single entity to various entities.

The inventor of Bitcoin, Satoshi Nakamoto is the one who developed Blockchain in the year 2009. After Bitcoin was developed in 2008, Blockchain was introduced as a primary technology that kept the records of Bitcoin.

The Blockchain consists of a set of blocks each storing transactions. Every block is said to be connected with the preceding block that forms a chain. The first block is treated special because the blockchain starts with it and doesn't depend on any other block. The first block of the blockchain was established on January 3rd 2009. It is the origin for the Bitcoin blockchain. Hence it is named as "Genesis block", which stores in it a note, taken from a British Newspaper known as The Times, which says "The Times 03/Jan/2009 Chancellor on brink of second bailout for banks".

As it is believed that blockchain is highly secured there are a lot of applications that depend on working of Blockchain.

- Cryptocurrency being one of the main applications.
- Real estate transactions
- Transfer of Medical records of patients
- Introducing games based on blockchain to help players earn through cryptocurrency
- Helping artists with compensation through music platforms,

Hence, Blockchain has the capability to resolve the problems of the present and seems to transform the economy in the coming years.



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"Premature optimization is the root of all evil."

—Donald Knuth

AR IN HEALTHCARE: A GAME CHANGER IN PATIENT CARE

You must be wondering what AR stands for. AR stands for Augmented Reality which is an interactive experience that provides information from the real world in digital content. It combines the real world along with computer-generated models in 3D. Now, how does this help in the healthcare industry? With the help of AR, a surgeon can review patient vitals during a procedure without checking multiple displays and devices with a simple headset.

There are multiple applications in the healthcare industry such as using it during medical training, preplanning a complicated, high-risk surgery, or even aiding in patient diagnosis. The use of AR in medical training allows the students to have immersive and interactive learning sessions to learn concepts such as human anatomy in depth. In the case of high-risk surgery, using AR technology to recreate the surgery environment, the surgeon can practice and find ways to perform the surgery in a way that has lower post-op complications. When we talk about using AR in patient diagnosis and treatment, we talk about using it for making more informed decisions using projections of the problem region to allow a smoother, more accurate diagnosis from the doctors.

As with everything else, the use of AR has benefits and challenges. The multiple advantages are an increase in the accuracy level of not only diagnostics but also surgeries along with better patient engagement, i.e. allowing the patients to understand their illnesses better using 3D models. The many challenges are the high cost and the chance of violating patient-doctor confidentiality due to cloud-based processing used in AR technology. The scope of AR in healthcare is vast and needs to be studied thoroughly along with its proper implementation.



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*"Let's not forget
that the most im-
portant thing is not
the machines, but
the ideas."*

—Donald Knuth

TALKING TO MACHINES: HOW NLP GIVES TECHNOLOGY A HUMAN TOUCH

Imagine teaching a machine to understand your jokes, decipher your rants, or even write you a love letter. Sounds crazy, right? Welcome to the magical world of Natural Language Processing (NLP), where technology learns to speak human.

From decoding emojis to predicting what you'll text next (yes, your phone knows you too well), NLP isn't just about making machines smarter—it's about making them more relatable. Ever wondered how Siri gets your sarcasm or how Google translates languages with such flair? That's NLP flexing its

muscles.

This article is your backstage pass to the wizardry behind NLP. We'll dive into how computers are learning our language, why it's more complicated than teaching toddlers, and how it's changing everything—from how we search to how we communicate. Ready to uncover the secrets of talking machines? Let's decode it all!

So, what's the scoop on NLP? It's all about teaching computers to understand, interpret, and even generate human language! Imagine chatting with a virtual assistant like Siri or Alexa—they're using NLP to make sense of your commands and respond accordingly. Businesses are also jumping on the NLP bandwagon for sentiment analysis, where they sift through social media chatter to gauge how people feel about their products. Ever used Google Translate? Yup, that's NLP working its magic to

help us speak across languages! Plus, NLP can summarize lengthy articles in a snap and refine search engine results based on what you really want to find.

NLP operates through a combination of linguistics, computer science, and machine learning. Here's a fun breakdown of how it works: NLP starts with breaking down the text into smaller chunks, like sentences and words. This process, called tokenization, helps machines understand the structure of the language. Next, machines analyze the meaning of words using techniques like stemming (reducing words to their root form) and lemmatization (considering the context). This step is crucial for understanding the essence of what we're saying.

NLP models use context to comprehend how words work together. They analyze sentiments to determine whether a comment is positive, negative, or neutral. This is where businesses gain insights into customer opinions! At the heart of NLP is machine learning, where algorithms learn from vast amounts of text data. They identify patterns and improve their understanding over time, getting better at tasks like translation or summarization. Finally, NLP can generate human-like text, allowing machines to respond in a conversational manner or create content. This ability is what makes chatbots

and virtual assistants feel more engaging.

Why is everyone so jazzed about NLP? Well, it enhances user experiences by making machines more intuitive. It automates tedious tasks, freeing up our time for the fun stuff. Companies can dig deep into text data, uncovering insights that drive smart decisions. Who wouldn't want that?

If you're itching to dive into NLP, the resources are bountiful! Online courses on platforms like Coursera and edX offer expert-led lessons tailored to beginners. Books like *"Speech and Language Processing"* by Daniel Jurafsky and James H. Martin are fantastic for those who prefer a good read.



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"The most important thing in programming is to think about the problem, not the solution."

—Donald Knuth

LIFE WITHOUT AI: A STEP BACK IN TIME

Artificial Insights (AI) has gotten to be profoundly coordinates into our day by day lives, regularly in ways we don't indeed take note. From voice associates like Siri and Alexa to suggestion frameworks on Netflix and YouTube, AI is implanted in nearly each aspect of cutting-edge living. But what would life see like without AI?

First and preeminent, every day assignments would be distant more time-consuming. Without AI-powered frameworks, unremarkable chores like sorting emails, planning arrangements, or setting updates would depend on manual exertion. This would increment workloads, taking off individuals with less free time.

In the domain of commerce, decision-making would be slower and more error-prone. AI-driven information analytics and prescient models are presently key in making a difference companies optimize forms, estimate patterns, and indeed personalize client benefit. Without AI, businesses would return to depending exclusively on human judgment, which, whereas profitable, is less productive and regularly needs the exactness that AI offers.

Healthcare too would take a major hit. AI is revolutionizing diagnostics, understanding care, and medicate revelation. Machines that can analyze therapeutic pictures with mind blowing precision or anticipate persistent disintegration based on information would no longer be accessible. This would put more strain on healthcare experts and might lead to slower reactions to basic situations.

Transportation, as well, would return to more seasoned strategies. Independent vehicles, guided by AI, have the potential to decrease activity mischances and make strides the proficiency of travel. Without AI, society would be stuck with conventional, human-operated frameworks, possibly driving to more street mischances and inefficiencies.

Ultimately, life without AI would be less helpful, slower, and more labor intensive. Whereas AI has its challenges, it irrefutably plays an imperative part in improving efficiency, healthcare, and by and large quality of life in today's fast-paced world.



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"Technology is just a tool. In terms of getting the kids working together and motivating them, the teacher is the most important."

—Bill Gates

AUGMENTED REALITY

Augmented Reality (AR) is swiftly becoming a global phenomenon, revolutionizing industries and everyday experiences alike. Its ability to overlay digital content onto the real world is driving innovation across sectors such as gaming, education, healthcare, and retail.

Augmented Reality (AR) has emerged as a transformative technology that is rapidly gaining momentum across the globe. Its ability to merge digital information seamlessly with the real world is revolutionizing various industries and enhancing everyday experiences in unprecedented ways.

One of the most notable trends driving AR's popularity is its widespread adoption in consumer applications. From gaming sensations like Pokémon Go to virtual try-on experiences in retail, AR is captivating users by offering immersive and interactive experiences that blur the line between virtual and physical environments.

In gaming, AR applications like Pokémon Go have captured worldwide attention by blending virtual characters with physical environments, creating immersive gameplay experiences that engage millions. Educational institutions are leveraging AR to enhance learning through interactive simulations and virtual labs, making complex Subjects more accessible and engaging for students.

In healthcare, AR is transforming surgical procedures by providing real-time data overlays and precision-guided tools that improve surgical outcomes and training. Meanwhile, retail is embracing AR for virtual try-ons and interactive product demonstrations, enhancing customer engagement and boosting sales.

A rising Trend Shaping the Global Landscape:

In conclusion, augmented reality is not just a trend but a transformative force reshaping how we perceive and interact with the world, offering limitless possibilities for innovation and enhancement across industries and daily activities.



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"I don't know what the language of the year 2000 will look like, but I know it will be called Fortran."
— CA Hoare

KUBERNETES

Kubernetes (sometimes shortened to K8s with the 8 standing for the number of letters between the “K” and the “s”) is an open source system to deploy, scale, and manage containerized applications anywhere. It is well-known open-source environment which mainly work for automation of particular applications containerization, scaling, and management. It is used for creating and managing orchestration of several nodes containing containers and helps the provision of high availability, optimal resource usage, and scalability as well. It is a platform that groups workloads into the forms of pods, which are the most basic unit of work within the system and contain one or more containers. Forwards features such as load balancing and scaling which automatically cycles containers and restarts or reschedules them on wholesome nodes in case they crash or fail. With Kubernetes, users only give instructions through a declarative model where they state what they want the system to be through YAML or JSON. The control plane consists of the API server, scheduler, and a controller manager that constantly check to match the actual state of the cluster with the intended state of the cluster. Network management abstractions are also part of Kubernetes that offers service discovery and internal DNS as well as external traffic handling. The basic features such as running updates, rollbacks, and being integrated with other tools such as Helm make Kubernetes a fundamental component of building modern, scalable and reliable infrastructure when working with complex containerized applications.



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kubernetes

*“In 2031,
lawyers will be
commonly a part
of most
development
teams.”*

— Grady Booch

GLUCOSE METER

In a range of healthcare settings, glucose meters are a ubiquitous tool for managing hypoglycemia and hyperglycemic illnesses. Since glucose is unstable in whole blood, glucose meters can only measure it in that state. In hospitals, emergency rooms, outpatient clinics, ambulatory medical care and home self-monitoring, glucose meters are commonly utilized. Depending on the patient group, glucose meters enable fast blood glucose analysis and therapy of hyperglycemic and hypoglycemic illnesses with the aim of bringing glucose levels to a near-normal range.

In the medical field, glucose meters are now widely used for a variety of diagnostic tasks, such as detecting hypo- or hyperglycemia in the ER and doctor's office, managing strict glycemic control in ICUs, and assisting with self-medication.

Two components are necessary for glucose meters: a detector and an enzymatic reaction. Usually, the glucose meter's enzyme section is packaged in a reaction cuvette or disposable strip desiccated. The patient's blood sample's glucose rehydrates and combines with the enzymes to create a detectable result.

Current glucose meters use three main enzymatic reactions: hexokinase, glucose oxidase, and glucose dehydrogenase. Every enzyme has unique benefits and drawbacks.

Since enzymes are proteins that can denature and become inactive at very high

temperatures, all meters are sensitive to heat and cold. Even though the enzymes are packaged in a dry state, exposure to humidity can cause the proteins to prematurely rehydrate and reduce their reactivity when used in patient testing.

Test strips need to be kept out of the rain, snow, and other elements and shouldn't be kept inside of cars for long periods of time.



T. Varsha Reddy
(M.Sc Comp Sci)



**"Computer viruses
are an urban leg-
end."**

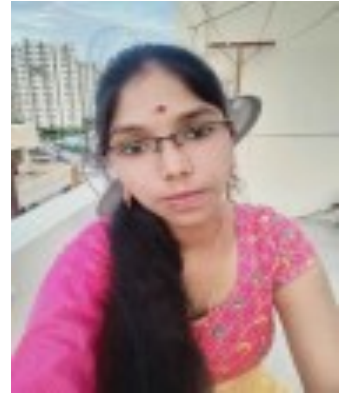
— Peter Norton

HOW ARTIFICIAL INTELLIGENCE IS CHANGING YOUR LIFE?

As the world rapidly evolves, artificial intelligence (AI) has emerged as a crucial role across all sectors. AI is a wide-reaching change in everyday process in several industries and changing the core of how business is done. We are seeing many changes in Society even in manpower-oriented Industry like education, retail, healthcare, and manufacturing. Humans take months to make decisions because of manual processing in many industries but now it takes few minutes as a machine can identify patterns, measure, create models, divide the requirements, and indicate the risks about the accuracy and decisions.

Artificial intelligence has created many changes in our life like

- ☐ In Education : AI is enabling personalized learning experiences and improving student outcomes. AI-powered chatbots can answer students' questions and provide feedback in real-time. AI algorithms can analyse student data to identify areas where they need additional guidance and recommend personalized study plans.
 - ☐ In Healthcare: AI aids in developing new drugs and therapies, accurately diagnosing diseases, and personalizing treatments based on genetic and clinical data. It enhances medical imaging, predicts patient outcomes, and automates tasks like billing and scheduling. Machine learning algorithms analyse patient data to identify patterns for diagnosing illnesses.
 - ☐ In Retail industry : AI is revolutionizing stock keeping with personalized recommendations, enhancing customer experiences, and optimizing supply chains. AI-powered robots in warehouses improve inventory management and order fulfillment. E-commerce site recommendations are AI-driven, predicting consumer behavior and optimizing shopping experiences. AI's role in online shopping's future is promising with ongoing technological advancements.
- In a smart city, everything is connected—traffic signals, street lights, security cameras—allowing data to move quickly and efficiently between people and devices. And with more daily advancements, there's no telling how far AI can take us! AI's rapid and accurate data processing supports faster, informed decisions, transforming various sectors and industries, impacting our daily lives significantly. As AI technology continues to evolve and mature, AI will impact our daily lives in almost everything we do....



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"The problem of viruses is temporary and will be solved in two years."

— John McAfee

CYBER FRAUD: UNDERSTANDING THE THREATS IN THE DIGITAL AGE

Cyber fraud is a blanket term to describe crimes committed by cyber attackers via the internet.

In an interconnected world, where we are influenced by digital technology, the prevalence of cyber fraud has emerged as a significant concern. Cyber fraud encompasses a wide range of activities conducted through digital means, targeting individuals, businesses, and even governments.

Types of Cyber Fraud

1. Identity Theft:

Cyber criminals steal personal information, such as Social Security numbers or bank account details, to impersonate individuals for financial gain. This can result in unauthorized transactions, fraudulent loans, or damage to credit ratings.

2. Online Scams:

Scams come in various forms, including fake job offers, online auctions with non-existent goods, or fraudulent investment schemes promising unrealistic returns. These prey on victims' trust and desire for financial gain.

3. Ransomware:

Ransomware attacks encrypt victims' data and demand payment, often in cryptocurrency, for decryption. This type of cyber extortion has targeted businesses, hospitals, and even government agencies, causing significant operational disruptions.

Prevention and Strategies

1. Education and Awareness:

Training individuals to recognize phishing attempts and other forms of social engineering can significantly reduce the risk of falling victim to fraud.

2. Robust Cybersecurity Measures:

Businesses should invest in cybersecurity tools such as firewalls, antivirus software, and intrusion detection systems to protect against malware and other cyber threats.

3. Regular Updates and Patch Management:

Keeping software and systems up to date helps mitigate vulnerabilities that cyber criminals often exploit.



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"I am not out to destroy Microsoft, that would be a completely unintended side effect."
— Linus Torvalds

THE FUTURE OF ARTIFICIAL INTELLIGENCE IN HEALTHCARE

“The Future of Artificial Intelligence in Healthcare” holds immense promise for transforming the medical landscape. Artificial intelligence (AI) is already embedded in many aspects of our lives, from voice recognition devices such as Alexa and Siri to personalized recommendations on streaming platforms and enhanced internet searches. In the healthcare industry, there is a significant opportunity for developing AI-enabled solutions.

AI is already being used as a co-pilot in many aspects of healthcare. For example, it assists healthcare professionals in reviewing MRI and X-ray images, helping them make informed decisions about patient treatment and care. AI is poised to revolutionize healthcare by enhancing diagnostics, improving treatment outcomes, and streamlining patient care. In the coming years, AI-powered technologies like machine learning and natural language processing will play a pivotal role in early disease detection, personalized medicine, and predictive analytics algorithms that can analyze vast amounts of medical data to identify patterns and trends that may elude human practitioners. This capability enables quicker and more accurate diagnoses, leading to timely interventions and improved patient outcomes. Moreover, AI-driven tools can assist healthcare providers in developing tailored treatment plans based on individual patient data, optimizing therapeutic strategies for better results. Despite its transformative potential, the integration of AI in healthcare raises ethical and regulatory challenges. Issues such as data privacy, algorithm bias, and accountability require careful consideration to ensure that AI technologies are deployed ethically and responsibly. Striking a balance between innovation and ethical standards will be crucial in harnessing the full benefits of AI in healthcare.

In conclusion, the future of AI in healthcare is bright, with the potential to significantly improve patient care, optimize medical practices, and advance research and development. By leveraging the power of artificial intelligence responsibly, the healthcare industry can usher in a new era of precision medicine and enhanced healthcare delivery for all.



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“Java is the most distressing thing to hit computing since MS-DOS.”

— Alan Kay

DIGITAL ART IN REAL WORLD

Digital art in real world is explained as a art that is created or presented using digital technologies. One of the most known and used is Adobe Photoshop till to the date. World is getting habituated to digital things. To create any art on digital media all we need is a computer, a program that allows digital drawing tools, and a tablet. The digital art tools contains all the basic and high profession tools such as Photoshop, Procreate, Illustrator, MySketch etc. It can be easily created in computers- choosing a digital art software that is suitable for us then choose a sketch, design several layers of the sketch, draw using colours , add final details of the sketch, and finally save the digital illustration so far created . Digital art work is sold in market too. Digital artist no longer have to go to art institutions or art galleries to showcase artwork to the audience, they can directly interact with their audience. We can explore digital art through online tutorials, courses, and practise. Digital art is a big world where we can explore many things . Digital Art is an artistic composition that relies heavily on the use of technology in its creation. It's been around since the 70s, and is used mainly for advertising and visual effects for film. Our digital art effects will turn your photos into stunning, unique works of art in a single click. Choose from oil painting, watercolor, sketch, and more. Just like traditional fine art, digital art offers multiple platforms and types that artist can express their thoughts. Digital art has infinite applications and uses but is most used in commercial settlements such as media advertisements and producing visual graphic effects and animations in films, video games, etc. One of the advantages of digital art is its versatility and the ability to easily edit and manipulate artwork using software like Adobe Photoshop, Procreate, or Autodesk Maya. This allows artists to experiment more freely and iterate quickly compared to traditional media .Digital art has become increasingly popular due to its accessibility and the expanding capabilities of digital tools.



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"Software is like entropy: It is difficult to grasp, weighs nothing, and obeys the Second Law of Thermodynamics; i.e., it always increases."

— Norman Augustine

5TH GENERATION- A NEW ERA OF CONNECTIVITY

Imagine it's an emergency and you want to call someone for a help or downloading a movie in HD quality within a few seconds, Cool Right? The 5th Generation is all set to transform our life where virtual reality experience is as smooth as real life!!!

5G is notably faster than 4G as it provides 10-Gigabits Per Second (Gbps) to 100 Megabits Per Second (Mbps) which is 100 times faster than 4G.

The influence of 5G on user experience will become higher as it delivers several key factors such as Speed & Performance, Connectivity, Low- Latency, capacity, Support for Emerging Technologies such as Virtual Reality (VR).

The Speed & performance will allow the users a smooth online experience, flawless streaming, faster downloads.

5G has a low latency that is 1 millisecond which enables in real time data processing across various fields such as remote surgery or self-driving vehicles where each and every second is very crucial for providing smooth and better experience.

5G has the ability to connect millions of devices at the same time which will result in the support of the growing Internet of Things (IoT), and cover the smart cities with traffic systems or any other public services.

5G can be used in Agriculture which enables farmers to use sensors and drones which will collect the information about soil condition, crop health & weather which will help farmers to make proper decisions about irrigation, use of fertilizer, use of pest and maximizing the crop yield.

The role of 5G in entertainment increases user experience as live events, gaming tournaments can be held in real-time with high quality & video streaming over 5G networks.

As the technology is evolving there will be some challenges for everything, similarly 5G also faces challenges such as high infrastructure and cost, security, possible health effects which needs to be properly and carefully managed.



Gadale Sneha,

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"The world needs people who think and understand deeply, people who ask questions and are creative and are willing to take risks."

—Maria Klawe's

CYBERSECURITY : SAFEGUARDING OUR DIGITAL LIVES

In today's digital world, cybersecurity is a critical concern for everyone. Our reliance on technology for communication, business, and data storage makes protecting information from cyber threats essential. This article highlights the common cyber threats, and ways to safeguard digital assets.

Understanding Cybersecurity

Cybersecurity involves protecting systems, networks, and programs from digital attacks aimed at accessing, altering, or destroying sensitive information, extorting money, or disrupting business processes. Effective measures are challenging due to the increasing number of devices and the growth of attackers.

Types of Cyber Threats

1. **Malware:** Malware, short for malicious software, includes viruses, worms, trojans, and spyware. These harmful programs can infiltrate systems to steal, encrypt, or delete sensitive data.
2. **Phishing:** Phishing attacks involve sending misleading emails that appear to be from reputable sources to steal sensitive data such as login credentials and credit card numbers.
3. **Ransomware:** This type of malware encrypts a victim's files, and the attacker demands a ransom payment to restore access to the data.

Measures to Enhance Cybersecurity

1. **Strong Passwords and Authentication:** Using strong, unique passwords and enabling multi-factor authentication can enhance security.
2. **Data Encryption:** Encrypting sensitive data makes it unreadable to unauthorized users, even if they manage to gain access to it.
3. **Firewalls and Antivirus Software:** Implementing firewalls and using reputable antivirus software can protect against various types of cyber threats.



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*"Everybody should learn to program a computer, because it teaches you how to think."
– Steve Jobs,*



IMPACT OF VIRTUAL REALITY ON EDUCATION

When it comes to new innovations and technology, the field of education often lags far behind. However, one cannot overlook the renaissance of VR, as it could be the next breakthrough in educational technology. It would certainly provide an opportunity to provide student with true experiential learning environment. With the VR, it is possible to make gamification of education and allow students to learn while having fun. Thus, they will definitely imbibe the knowledge and skills better this way through the immersive process.

Advantages of Virtual Reality in Education

Technically, it is already possible to recreate a classroom in virtual reality. It allows recreating any experience within a virtual environment. The development of a virtual school enables their learners to meet from anywhere and collaborate remotely and thereby creating a true global environment. The environment may even be less formal than a real classroom, and may therefore be more conducive to the development of the learners.

The benefits of this concept include the unlimited capacity of a virtual classroom, the ability to share numerous experiences in 'real life' kind of simulation, and facilitating access to school for learners living in remote communities. Similarly, it makes possible for students to choose the subjects of their interest, and to specialize in the areas where they excel. Virtual Reality in education could replace textbooks with interactive educational experiences. For materials such as History, Geography, Social, physical science, this medium could prove to be much more suitable than printed books or even today's audio-video materials. Some students may be interested in disciplines that needs eye-hand coordination such as mechanics, medicine etc. Today, they must wait for many years before they can carry out the real time experiments necessary for professional application.

For instance, a student interested in mechanics can learn how to change engine parts in a virtual environment. This will allow him to develop his passion and skills sooner and more quickly.

Through VR education, students can develop dexterous skills at an early stage without exposing themselves or the subjects of their experiment todanger.



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*"Hardships often
prepare ordinary
people for an ex-
traordinary desti-
ny."*

— C.S. Lewis

VIRTUAL AND AUGMENTED REALITY: THE FUTURE OF IMMERSIVE EXPERIENCES

Virtual Reality (VR) and Augmented Reality (AR) represent groundbreaking technologies reshaping our digital and physical realities. VR transports users into entirely synthetic environments, creating immersive experiences through specialized headsets and controllers. This technology finds applications in diverse fields such as gaming, where users can interact with virtual worlds, and education, offering immersive learning experiences that enhance comprehension and retention.

In contrast, AR enriches the real world by overlaying digital information onto the user's immediate environment, typically accessed through smartphones or AR glasses. This capability enhances everyday activities like navigation, allowing users to receive real-time directions or information about their surroundings. Industries such as retail benefit from AR by enabling virtual try-ons of products and personalized shopping experiences, while healthcare leverages AR for surgical planning and training simulations.

Both VR and AR continue to evolve rapidly, driven by advancements in hardware capabilities, software development, and user experience design. Challenges like motion sickness in VR and privacy concerns in AR are actively addressed through innovation. As these technologies become more accessible and integrated into various sectors, their potential to revolutionize how we work, learn, and interact is increasingly apparent. Embracing the possibilities of VR and AR requires not just technical innovation but thoughtful consideration of their societal impacts and ethical implications. The future promises a seamless blend of virtual and physical worlds, where VR and AR enhance our capabilities, redefine entertainment, and provide innovative solutions across industries, paving the way for a more immersive and interconnected digital era.



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"You are the author of your own story."

- Dan Zadra

CLOUD COMPUTING

Cloud computing has revolutionized the way businesses and individuals store, manage, and process data. This technological paradigm shift offers unparalleled flexibility, scalability, and efficiency, making it a cornerstone of modern IT infrastructure. This article explores the fundamentals of cloud computing, its various models, benefits, and challenges, as well as its impact on industries and future prospects. Cloud computing represents a flexible, cost-effective, and proven delivery platform for business and consumer information services over the Internet. Cloud computing has become an industry game changer as businesses and information technology leaders realize the potential in combining and sharing computing resources as opposed to building and maintaining them. Cloud computing poses privacy concerns because the service provider can access the data that is in the cloud at any time. Cloud computing is the on-demand delivery of compute power, database, storage, applications, and other IT resources via the internet. Cloud computing is the use of various services, such as software development platforms, servers, storage and software, over the internet. In the Cloud Computing environment, the Service Provider can provide only 3 types of services. They are:

Infrastructure as a Service

Platform as a Service

Software as a Service

IAAS (Infrastructure as a Service): It is the most basic category of cloud computing services that allows us to rent IT infrastructure from a cloud provider on a pay-as-you-go basis. PAAS (Platform as a Service): It refers to the supply an on-demand environment for developing, testing, delivering and managing software applications.

SAAS (Software as a Service): It is a method for delivering software applications over the Internet as per the demand and on a subscription basis.

Conclusion:

Cloud computing is a fundamental change in how we utilize IT resources. It's an ongoing evolution will definitely shape the future of business.



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*"The best way to
find yourself is to
lose yourself in
the service of
others."*

**-Mahatma
Gandhi**

BOLT.NEW: A CODING SUPERPOWER

Have you ever felt weighed down by the challenges of developing an app or a simple website? If you are currently working on one, you are probably familiar with hurdles like setting up environments, troubleshooting issues, handling dependencies and many more. These obstacles can easily eat up your time and energy. What if I tell you that there is a platform that can make an entire website or an application for you in seconds? From AI code generation to handling dependencies to deployment, Bolt.new does it for you. It's quick, straightforward, and stress-free, allowing you to save time and effort while concentrating on building your project rather than dealing with technical roadblocks. "Talk is cheap. Show me the code." By Linus Torvalds. Bolt.new turns this philosophy into reality. This game-changing platform allows your work to speak for itself. Bolt.new is a cutting-edge, AI-driven platform designed to make full-stack app development as seamless as possible. According to Statista, 82% of developers are currently using AI for app development, and Bolt.new taps into this trend. Built on Stack Blitz's Web Containers technology, Bolt.new supports popular frameworks like Next.js, Astro, Vite, Svelte, Vue, and Remix, and integrates with deployment platforms such as Netlify. It also integrates with cloud-based databases such as Supabase, Firebase, and other services, allowing for strong backend solutions. You can use bolt.new for a variety of projects like:

- Web applications using HTML, CSS and JavaScript
- API development
- Game development
- Data science and machine learning projects

Bolt.new offers its benefits for students and teachers as well. Teachers can use bolt.new to teach various coding concepts without worrying about configurations and installations. The AI-powered feature for debugging allows the students to learn faster and independently. Students can also build their portfolio and college projects within seconds. The only thing that you need to do is to give thoughtful and detailed prompts. The prompts must include :

- frameworks or technologies needed,
- key features and functionalities,
- target audience details,
- the desired UI/UX style,
- Example scenarios or references (Example: Build an e-commerce site similar to Amazon, but for handcrafted items)

Let us see what does bolt.new generate after entering the given prompt:

"Create a web application where students can learn about Java arrays through interactive coding examples. The application should allow students to modify the code and see the results in real time."



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*"Happiness is
when what you
think, what you
say, and what you
do are in
harmony."*

*-Mahatma
Gandhi*



ARTICLE FROM OTHER COLLEGE



6 WAYS GENERATION ALPHA WILL CHANGE THE TECH

Generation Alpha, born from the mid-2010s onward, is growing up in a world where technology is integrated into every aspect of life. Unlike previous generations, who witnessed technology unfold over time, Gen Alpha is immersed in it from birth. As they mature, they are expected to make a significant impact on the tech industry. There are six ways that will transform the tech world.

Artificial Intelligence Integration: Gen Alpha will be the first generation to interact with artificial intelligence (AI) seamlessly in their daily lives. From voice assistants to AI-driven educational tools, they will use AI as a standard part of technology. This comfort with AI will drive industries to refine and personalize these technologies even further.

Immersive Technologies in Daily Life: Virtual reality (VR) and augmented reality (AR) will become integral to Gen Alpha's experiences. They will use VR for learning and entertainment and engage in AR-enhanced shopping and immersive gaming. As these technologies continue to evolve, Gen Alpha will expect even more sophisticated applications, blending the physical and digital worlds.

Demand for Sustainable Tech: With environmental challenges becoming more pressing, Gen Alpha values sustainability. They will demand eco-friendly products, such as energy-efficient gadgets and renewable energy solutions. As they grow, they will push the tech world to create innovations that minimize technology's environmental impact.

Automation and the Future of Work: Automation will be central to Gen Alpha's world, from self-driving cars to robotics in manufacturing. Unlike previous generations, who feared automation as a job threat, Gen Alpha will embrace it as a productivity tool, focusing on creativity and problem-solving as many tasks become automated.

Hyper-Connected Ecosystem: Generation Alpha will live in a hyper-connected world, where everything—from cities to wearables—is linked through the Internet of Things (IoT). They will demand seamless connectivity, driving the development of integrated digital ecosystems that redefine communication and commerce.



Sai Vinith Reddy
B.Tech II year
IARE, Hyderabad

*"Happiness is
when what you
think, what you
say, and what you
do are in
harmony."*

*-Mahatma
Gandhi*

6 WAYS GENERATION ALPHA WILL CHANGE THE TECH WORLD

Evolving Data Privacy: Expectations Raised in a digital world, Gen Alpha will have a unique relationship with data privacy. While accustomed to sharing information online, they will expect greater control over how their data is used. Their demand for transparency will push companies to adopt stricter data protection measures.

In conclusion, Generation Alpha is set to lead the next wave of technological advancements, shaping a future that is smarter, more sustainable, and highly interconnected. Their preferences and values will redefine how we interact with technology, transforming industries and daily life in ways we are just beginning to understand.

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Gen Alpha people Illustration



Gen Alpha Children illustration pic

DEPARTMENT OF COMPUTER SCIENCE

Dept.of Computer science

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DEPARTMENT OF COMPUTER SCIENCE

The department was established in 1988, an iconic year in the lifeline of St. Francis College as it marks the grant of autonomy to the college. Computer Science is an interdisciplinary field and it is as much about teaching and learning of computer science as it is about the areas that impact on computer science – mathematics, linguistics, natural sciences, psychology, philosophy and how they interrelate with the theory and practice of education. Highly qualified and dedicated teaching faculty supported by equally able and competent lab faculty are the strength of the department. The college has hi-tech state of the art computer labs with over 400 high end computer terminals facilitated with high-speed internet access and connected to Linux and Windows servers equipped with all the required licensed software.

The department offers an assortment of programs at the undergraduate level, M.Sc. Computer Science at the postgraduate level and CCNA certification course. While we believe man is still the most extraordinary computer of all, we endeavour to provide the best possible exposure and training to the students, making them strong to face the IT challenges of the world.

