



# RAMCO INSTITUTE OF TECHNOLOGY

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## DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

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## **Editorial Message**

Since its inception in 2021, our AI&DS department magazine has served as a vibrant platform for sharing knowledge, showcasing achievements, and fostering creativity among students, faculty, and researchers. Over the years, it has evolved into a space where ideas meet innovation, academic excellence is celebrated, and diverse perspectives come together to inspire growth and collaboration.

With each edition, we bring you insightful articles, research highlights, arts and stories that reflect the dynamic spirit of our department. This magazine is not just a publication but a reflection of our collective journey—documenting progress, celebrating milestones, and shaping the future.

Together, let's uphold the legacy of excellence and innovation that defines our department.

Happy reading!

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Nithish S-IV AD

Jerita D-IV AD

NithyaShree-III AD

### **Editorial Assistant**

Dr.R.M.Rajeshwari

Associate Professor

### **Editor in Chief**

Dr.M.Kaliappan

Professor & Head

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## **Knowledge Bestows Power**



### **ABOUT THE DEPARTMENT**

The Department of Artificial Intelligence and Data Science was established in the year of April 2021 with a vision to Excel in the field of AI by making students to be competent engineers and adopt to the industry needs. The Department was started with intake of 60 in 2021 and in 2022 the intake of students has been increased to 120. The Department of Artificial Intelligence and Data Science has a team of well qualified and highly experienced faculty members and technical staff who deliver their skills to the students through 360 teaching-learning environments. The faculty members impart knowledge through curriculum based formal education and industry focused informal education to make them readily employable. The faculty members are pursuing the Post-Doctoral Research in Federal University of Ceara, Brazil and Ph.D Under Anna University in the fields such as Optimization, Artificial Intelligence, Data Analytics, Health Analytics, Computer Vision Algorithms and Networking, Cloud Computing, Machine Learning, Wireless Sensor Networks, Image and Video Processing, Block Chain, Internet of Things, Adhoc Networks and so on. The Department has applied for various funded projects in DST, SERB, ICMR, ICSSR. All the faculty members are well qualified and competitive enough in preparing the young mind (our students) for global

completion. Students of AD department are highly motivated and ready for IT Industry with hands on experience on cutting edge technologies and programming languages. The Department has good SCI Publications and IEEE Transactions Publications. The Department faculty member has achieved Top 2% scientist in world, released by Stanford University, USA for the year 2022 listed Under AI and Networking and achieved Top 4 Rankings out of 500 researchers in Anna University affiliated colleges researchers list published by SCIVAL-Elsevier. The Department has MoU with International Universities in Korea and Singapore for collaborative projects and student exchange programmes.

Students are facilitated with placement training in both aptitude and technical sessions, communication classes for better placement. The Department has well-connect with Industries and students are pursuing their Intern from Second year onwards based on their skills. Sports, Co-Curricular and Extra-curricular activities take place at institute level, Intra college and inter college level to improve their professional development. The Department works for overall growth of students and inculcate the qualities that are required and acceptable by society.

## **DEPARTMENT VISION, MISSION, PEO & PSO**

### **VISION**

To impart international quality education, promote collaborative research and graduate industry-ready engineers in the domain of Artificial Intelligence and Data Science to serve the society.

### **MISSION**

- Excel in Teaching-Learning process and collaborative Research by the use of modern infrastructure and innovative components.
- Establish an Artificial Intelligence and Data Science based centre of excellence to prepare professional technocrats for solving interdisciplinary industry problems in various applications
- Motivate students to emerge as entrepreneurs with leadership qualities in a societal centric programme to fulfil Industry and community needs with ethical standards.

### **PEO**

After successful completion of the degree, the students will be able to

1. Apply Artificial Intelligence and Data Science techniques with

industrial standards and pioneering research to solve social and environment-related problems forming sustainable ecosystems.

2. Excel with professional skills, fundamental knowledge, and advanced futuristic technologies to become Data Scientists, Data Analyst Managers, Data Science leaders AI Research Scientists, or Entrepreneurs.

### **PSO**

After successful completion of the degree, the students will be able to:

**PSO 1:** To apply analytic technologies to achieve at meaningful insight and observation from data to solve engineering problems.

**PSO 2:** To create and apply Artificial Intelligence and Data Science techniques to forecast future trends in the domain of Healthcare, Education, Agriculture, Manufacturing, Automation, Robotics, and Transport, etc.

**PSO 3:** To enrich the critical thinking skills in emerging technologies such as Hybrid Mobile application development, cloud technology stack, and cyber-physical systems with mathematical aid to foresee the research findings and provide the solutions.

The Department of Artificial Intelligence and Data Science is committed to the holistic development and welfare of its students by providing an excellent education, fostering innovation, and nurturing industry-ready professionals. Through a well-structured Teaching-Learning process and collaborative research initiatives, the department ensures that students gain hands-on experience using modern infrastructure and cutting-edge technologies. By establishing a Centre of Excellence, the department empowers students to tackle real-world interdisciplinary industry challenges in domains such as Healthcare, Education, Agriculture, Manufacturing, Automation, Robotics, and Transport. Furthermore, the department emphasizes ethical values and leadership qualities, encouraging students to emerge as entrepreneurs and industry leaders who contribute meaningfully to society. By integrating advanced analytic technologies, AI-driven solutions, and futuristic research areas such as Hybrid Mobile Application Development, Cloud Technology, and Cyber-Physical Systems, students are equipped

with critical thinking and problem-solving skills. The department ensures that graduates are not only technically proficient but also socially responsible professionals who can drive innovation while addressing environmental and societal challenges, ultimately creating a sustainable and progressive future.



With Regards,

Dr.M.Kaliappan

Professor and Head

Artificial Intelligence and Data Science

# DATA SCIENTIST vs DATA ENGINEER vs DATA ANALYST



## DATA SCIENTIST

Uses statistics and ML to make predictions and answer key business question

### SKILLS

- Math
- Programming
- Statistics

### TECH

- SQL
- Python
- R
- Cloud
- Tensorflow
- Tableau



## DATA ENGINEER

Build and optimize the systems that allow data scientists and analysts to perform their work

### SKILLS

- Programming
- Big Data & Cloud

### TECH

- SQL
- Cloud
- Hadoop
- Spark
- Kafka



## DATA ANALYST

Deliver values by taking data, communicating the results to help make business decisions

### SKILLS

- Communication
- Business Knowledge

### TECH

- SQL
- Excel,
- Tableau
- PowerBI
- Python

Comparison Infographic by

Dr.M.Kaliappan

Professor and Head

## WHAT'S NEXT FOR AI IN 2025

### **Agentic AI vs. Generative AI: Exploring the Key differences and Impacts**

Agentic AI and Generative AI are set to revolutionize industries with their unique capabilities. Understanding their differences and potential helps us harness their power to drive innovation forward. As technology continues to advance, these AI systems will play an increasingly crucial role in shaping our world.

#### **Generative AI**

Generative AI is a type of Artificial Intelligence focused on creating new content, such as text, images, music, or even video. It works by learning from vast amounts of data to understand patterns, styles, or structures, and then generates original content based on what it has learned. For instance, a generative AI like ChatGPT can produce unique text responses to questions, while image-generating models like DALL-E can create images from text descriptions. Essentially, generative AI is like a digital artist or writer, producing creative work based on what it has learned.

#### **Large Language Models (LLMs)**

Generative AI LLMs, like GPT can generate text, answer questions, and assist with many tasks. However, they are reactive, meaning they only respond to the input they receive based on patterns they've learned. LLMs can't make their own decisions; other than that, they can't plan or adapt to changing situations.

#### **Agentic AI**

Agentic AI comes into play to resolve this issue. Unlike generative AI LLMs, agentic AI can take initiative, set goals, and learn from its experiences. It is proactive, able to adjust its actions over time, and can handle more complex tasks that require ongoing problem-solving and decision-making. This shift from reactive to proactive AI opens up new possibilities for technology across many industries.

Agentic AI is an emerging technology that is set to transform industries everywhere. It combines LLMs, traditional AI such as Machine Learning, and enterprise automation to create autonomous AI agents that can

analyse data, make decisions, and take actions autonomously with decreasing human supervision. These agents are capable of dynamic problem-solving, learning, and improving through every interaction.

Agentic AI is a probabilistic technology with high adaptability to changing environments and events. Agentic AI now makes it possible to automate many workflows and business processes.

Task: Write a code function to calculate the Fibonacci Sequence up to the N-th number,;

**Agentic AI**

- **Plan Task:** Analyzes task and identifies requirements
- **Draft Code:** Writes initial version of function
- **Test Code:** Runs tests with different inputs and identifies edge cases and potential issues
- **Revise & Improve:** Updates code to handle edge cases and optimizes logic
- **Finalize & Document:** Adds comments and final refinements

**Generative AI**

- **Start: Generate code once**

User Report: "Write a function for Fibonacci"  
 → Generative AI  
 Generates Code Once

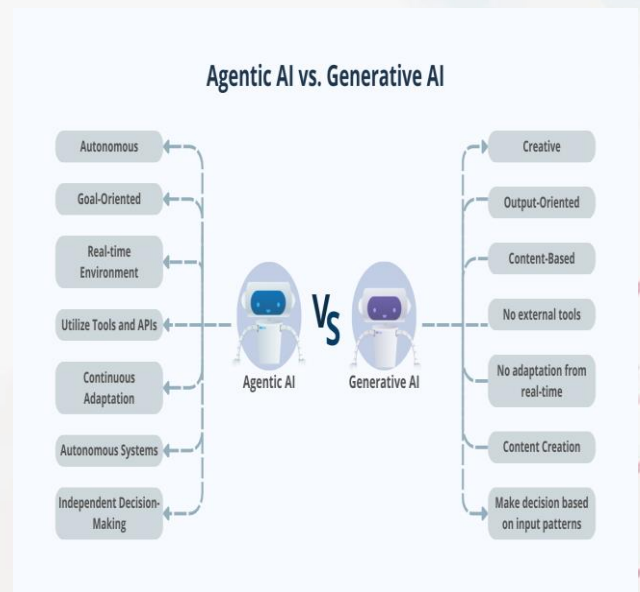
```
def fibonacci (n):
    fib_sequence = [0, 1]
    for i in range (2, n):
        fib_sequence.append(
            fib_sequence [-1] + fib_sequence [-2])
    return fib_sequence
```

- **Ends: Output Code (No Testing, refinement, or optimization)**

### Agentic AI vs. Generative AI

Generative AI	Agentic AI
Gen AI primarily focus on content generation	Agentic AI focuses on goal –oriented action and decision making
Require User prompts and inputs	Operates with minimum human oversight
Data driven learning learn from existing data	Follows reinforced learn approach learn through experiences

### Characteristics of Agentic AI and Gen AI



### Agentic AI vs Generative AI: A Comparative Analysis

Agentic AI doesn't just enable enterprises to automate specific tasks—it powers intelligent systems capable of

understanding context, adapting to new information, and collaborating with humans to solve complex challenges. For instance, self-driving cars exemplify agentic AI, as they make real-time decisions to safely navigate roads and reach destinations independently. Therefore, the future of enterprise workflows will be a combination of both probabilistic and deterministic technologies, working together.

**By**

**Dr. S. Selva Birunda,**

**Associate Professor-I -AD**

## **THE ROLE OF AI IN ONCOLOGY**

### **Introduction of AI in Precision Oncology:**

In precision oncology, AI is reshaping the existing scenario, aiming at integrating the large amount of data derived from multi-omics analyses with current advances in high-performance computing and ground breaking deep-learning strategies. Notably, the applications of AI are expanding and include new approaches for cancer detection, screening, diagnosis, and classification; the characterisation of cancer genomics; the analysis of tumour microenvironments; the assessment of biomarkers with prognostic and predictive purposes; and strategies for follow-up and drug discovery.

### **AI in Anticancer Drug Prediction and Development:**

AI can predict anticancer drug activity and assist in drug development. High-throughput screening data often reveal the relationship between genomic variability of cancer cells and drug activity. It developed a random forest model using screening data and machine learning to

predict drug activity based on cancer cell genome mutations. It created a drug sensitivity prediction model using elastic net regression, successfully identifying drug resistance in ovarian, gastric, and endometrial cancer patients, all associated with poor prognoses. AI also helps address drug resistance in cancer by analyzing large datasets, improving drug development and optimizing drug use.

### **Challenges in Adopting AI for Oncology:**

While AI has great potential in oncology, its adoption into clinical practice will require additional testing and discussion. Research and collaboration between health care clinicians, researchers, and technology developers is still on-going in an effort to unlock the full potential of AI to benefit patients with cancer.

### **AI in Modern Medical Imaging Systems:**

Modern medical imaging systems are incorporating a range of ML techniques, including those found in technologies like computed tomography (CT) and magnetic resonance imaging (MRI). CT, a radiological imaging method, can capture volumetric and morphological details of a

patient's anatomical structure in medical images. A contemporary CT scanner can perform a comprehensive scan of a patient, covering everything from head to toe, with exceptional resolution. Another widely used medical imaging system is MRI. MRI excels at distinguishing soft tissues, making it particularly suitable for examining the interior of joints or ligaments. Surgical removal of tumours is frequently a critical step in cancer treatment. One subdomain of AI is utilized in computer-assisted surgery (CAS), which has become an integral part of routine clinical procedures. CAS has significantly enhanced the efficiency and effectiveness of managing oncological conditions requiring surgical intervention, making a substantial impact on the field of cancer care. Computer vision (CV) is extensively utilized in image-guided navigation, referring to a system created to aid surgeons by using preoperative CT images for guidance. This technology facilitates the exploration of a patient's anatomy, the identification of both pathological and vital structures, and the formulation of surgical plans for their removal or preservation. It combines radiological imaging with precise tracking technologies integrated into

surgical instruments, aligning them with the patient's coordinate system.

### **Conclusion:**

In conclusion, AI has shown to be a potent tool in the fight against cancer. Better patient outcomes could result from its use in research, diagnosis, and therapy. AI applications in biomedical cancer research offer significant potential, but they also come with several challenges such as validation and clinical adoption, bias and fairness, data privacy and security, data quality and quantity, and interpretability. The future is bright, and we can anticipate a more individualized and successful approach to controlling and treating cancer as we continue to hone and broaden AI-driven solutions.

**By**

**Mrs.C.Usha Rani**

**Assistant Professor-II /AD**

## **REVOLUTIONIZING HEALTHCARE: THE NEED FOR IOMT**



### **Transforming Precision and Relevance**

The Internet of Medical Things (IoMT) has ushered in a new era of precision and relevance in healthcare. By integrating connected devices with advanced data collection systems, IoMT ensures that healthcare providers can access real-time, accurate information. This seamless data flow leads to better diagnoses, more effective treatments, and a heightened level of care for patients.

### **Driving Cost Efficiency in Healthcare**

With its ability to monitor patients remotely, IoMT significantly reduces the need for hospital visits and lengthy stays. For chronic disease management, these systems minimize readmission rates and healthcare expenses, allowing resources

to be allocated more efficiently without compromising care quality.

### **Enhancing Patient Experience**

By bridging the gap between patients and providers, IoMT improves accessibility and convenience. Devices like smart glucometers, heart monitors, and telemedicine platforms make healthcare services available from the comfort of home. This not only reduces physical barriers but also fosters trust and satisfaction among patients.

### **The Role of IoMT in Modern Trends**

IoMT's importance is amplified in today's technology-driven world. From wearable health tech to AI-assisted diagnostic tools, IoMT applications are reshaping healthcare delivery. As AI and big data continue to evolve, IoMT's integration with predictive analytics promises a proactive approach to



healthcare, addressing potential issues before they arise.

### **Who Powers IoMT? The Role of IoMT Engineers**

IoMT engineers and specialists are the driving forces behind this transformative technology. Their responsibilities span a wide spectrum, including:

1. **System Design:** Developing innovative medical devices and integrating them into existing healthcare ecosystems.
2. **Interoperability Solutions:** Ensuring seamless communication between devices and platforms.
3. **Security Implementation:** Safeguarding sensitive patient data through robust encryption and compliance with privacy regulations.
4. **Performance Monitoring:** Continuously analyzing system efficiency and making improvements to optimize functionality.

### **Essential Skills for IoMT Innovators**

To thrive in IoMT-focused roles, professionals must cultivate the following competencies:

**Technical Foundations:** A solid education in biomedical engineering, computer science, or electronics is essential.

1. **IoT and Networking Mastery:** Understanding wireless protocols and IoT frameworks is crucial.
2. **Data-Driven Insight:** Skills in AI, machine learning, and data analytics enable meaningful interpretation of healthcare data.
3. **Programming Expertise:** Proficiency in Python, Java, or similar languages supports system development.
4. **Regulatory Knowledge:** Familiarity with standards like HIPAA and GDPR ensures compliance and ethical use.

### Charting a Career in IoMT

1. **Real-World Experience:** Engage in internships or projects to understand practical applications.

2. **Building Connections:** Network with professionals at conferences and forums to exchange insights.
3. **Portfolio Development:** Showcase IoMT projects that demonstrate innovative problem-solving and technical prowess.
4. **Commitment to Learning:** Stay informed about trends in IoT, AI, and healthcare to remain competitive in the field.

IoMT is not just a technological advancement; it is a catalyst for a healthier future. By embracing its potential and addressing its challenges, IoMT professionals are shaping a world where healthcare is smarter, more accessible, and profoundly patient-centered.

### Why IoMT is More Relevant Than Ever

With AI and machine learning enhancing its capabilities, IoMT is stepping into a future of endless possibilities. Predictive analytics can identify health risks before they become serious, while automated alerts ensure timely interventions. As the demand for smarter, faster healthcare

grows, IoMT is leading the charge with innovative solutions.

## Behind the Scenes: The Innovators of IoMT

IoMT wouldn't exist without the visionaries designing and optimizing its systems. These professionals focus on:

1. **Designing Smart Devices:** Creating user-friendly and reliable tools.
2. **Ensuring Seamless Integration:** Building networks where all devices communicate effortlessly.
3. **Prioritizing Data Security:** Protecting sensitive medical information.
4. **Driving Continuous Improvement:** Refining systems to meet evolving healthcare challenges.

## Skills You Need to Join the IoMT Revolution

Are you inspired to contribute to this transformative field? Here are the skills you need:

- **Educational Background:** Degrees in biomedical



engineering, computer science, or related fields.

- **Technical Proficiency:** Expertise in IoT frameworks, programming languages, and data analytics.
- **Problem-Solving Abilities:** Tackling challenges like device interoperability and user experience.
- **Knowledge of Regulations:** Understanding compliance standards ensures ethical practice.
- **Adaptability:** Staying current with emerging trends in AI, IoT, and healthcare.

## Carving Your Path in IoMT

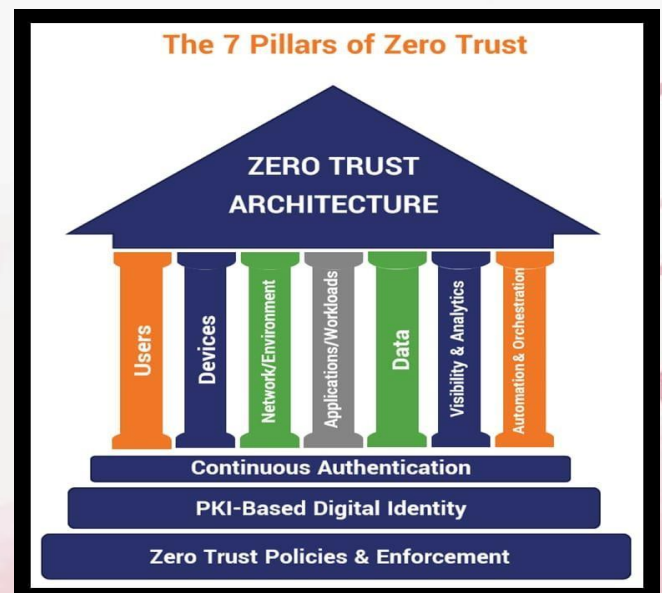
1. **Gain Hands-On Experience:** Pursue internships or projects focusing on IoMT.
2. **Build a Portfolio:** Showcase your innovative ideas and practical solutions.
3. **Network Effectively:** Attend industry events and join online communities to connect with experts.
4. **Stay Curious:** Keep learning about advancements shaping the future of IoMT.

## ZERO TRUST IN CYBER SECURITY



Zero Trust security means that no one is trusted by default from inside or outside the network, and verification is required from everyone trying to gain access to resources on the network. This added layer of security has been shown to prevent data breaches.

### Pillars of Zero Trust:



7 pillars of zero trust based on the U.S. Department of Defense's seven zero trust

By

Miss.V.LOGAPRIYA  
Assistant Professor/AD

pillars with the addition of CA and PKI-based digital identity

**Users** — Controlling access to protected resources by continuously authenticating users using digital identity components (such as client authentication certificates) and verifying users' access authorizations.

**Devices** — Use device digital identity (think TPMs, device certificates, etc.) to authenticate access in real time. Devices also must be patched to mitigate vulnerabilities.

**Network/Environment** --- Segmentation, isolation, and policy restrictions are three critical components to control access and manage how data moves on your network. This approach helps to restrict access and prevent lateral movement within the network.

**Applications and Workloads** — Whether you're using resources that are on-prem, cloud, or a hybrid approach, the idea here is to secure the application layer.

**Data** — Secure your data by developing a comprehensive data management

strategy and integrating data security measures such as at-rest and in-transit data encryption. This will help protect your data both while it's on your servers or moving between two endpoints.

**Visibility and Analytics** — Having full visibility of your IT environment is crucial to keeping it secure. You can't protect assets you don't know exist, and you can't stop attackers when you don't realize something is wrong. You can gain actionable insights to improve your cyber security by analyzing your network's traffic and user behaviors in real time to identify threats. Just be sure to consider that some traffic may contain sensitive data, so decide the best approach (such as informing users and obtaining their consent ahead of time).

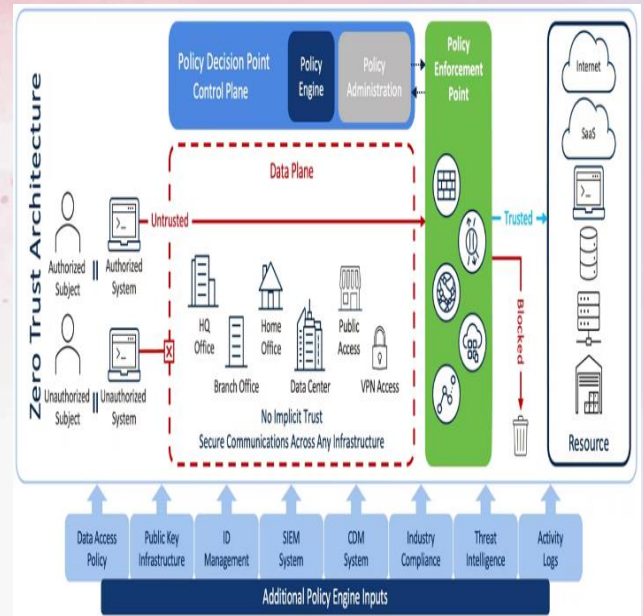
**Automation and Orchestration** — Automation is a scalable approach that takes monotonous tasks off your team's plates, freeing them up to focus on tasks that require critical thought processes. These tools also enable you to quickly sort through all the noise your security tools generate to find valuable data.

## Zero Trust Architecture:

Zero Trust is a strategic approach to cyber security that secures an organization by eliminating implicit trust and continuously validating every stage of a digital interaction. Rooted in the principle of —never trust, always verify.

Zero Trust is designed to protect modern environments and enable digital transformation by using strong authentication methods, leveraging network segmentation, preventing lateral movement, providing Layer 7 threat prevention, and simplifying granular and —least access policies.

Zero Trust was created based on the realization that traditional security models operate on the outdated assumption that everything inside an organization's network should be implicitly trusted. This implicit trust means that once on the network, users – including threat actors and malicious insiders – are free to move laterally and access or exfiltration sensitive data due to a lack of granular security controls.



## Use Cases of Zero Trust:

1. Reduce Business and Organizational Risk
2. Gain Access Control over Cloud and Container Environments
3. Reduce the Risk of a Data Breach
4. Support Compliance Initiatives

## Benefits of Zero Trust

1. Offers threat protection against both internal and external threats
2. Provides increased visibility into all user access
3. Limits the possibility of data exfiltration
4. Secures Cloud adoption
5. Ensures data privacy
6. Enables hybrid workforce security

7. Lowers reliance on endpoint protection
8. Supports regulatory compliance

**Article by**

**Mrs.M.Santhi Kala**

**Assistant Professor-AD**

## UNDERSTANDING THE CONFUSION MATRIX IN MACHINE LEARNING

A confusion matrix is a simple table that shows how well a classification model is performing by comparing its predictions to the actual results. It breaks down the predictions into four categories: correct predictions for both classes (true positives and true negatives) and incorrect predictions (false positives and false negatives).

		True Class	
		Positive	Negative
Predicted Class	Positive	True Positive	False Positive
	Negative	False Negative	True Negative

- ✓ **True Positives (TP):** The model correctly predicts a positive outcome when the actual outcome is positive.
- ✓ **True Negatives (TN):** The model correctly predicts a negative outcome when the actual outcome is negative.
- ✗ **False Positives (FP):** The model incorrectly predicts a positive outcome

when the actual outcome is negative  
(Type I Error).

**✗ False Negatives (FN):** The model incorrectly predicts a negative outcome when the actual outcome is positive (Type II Error).

Metrics based on Confusion Matrix  
Data:

- Accuracy
- Precision
- Recall
- F1 – score
- Specificity
- Type 1 and Type 2 Error
- Matthews Correlation Coefficient

**Accuracy:** Measures overall correctness.

$$Accuracy = \frac{TP+TN}{TP+TN+FP+FN}$$

**Precision (Positive Predictive Value):**

Measures how many predicted positives are actually correct.

$$Precision = \frac{TP}{TP + FP}$$

**Recall (Sensitivity or True Positive**

**Rate):** Measures how many actual positives were correctly identified.

$$Recall = \frac{TP}{TP + FN}$$

**F1Score:** The harmonic mean of precision and recall, balancing the two.

$$F1 = 2 * \frac{Precision * Recall}{Precision + Recall}$$

**Specificity (True Negative Rate):**

Measures how many actual negatives were correctly identified.

$$Specificity = \frac{TN}{TN + FP}$$

**Type 1 error:** Measures how many actual negatives were incorrectly predicted as positives. It is also known as FPR (False Positive Rate)

$$FPR = \frac{FP}{FP+TN}$$

**Type 2 error:** Measures how many actual positives were incorrectly predicted as negatives. It is also known as FNR (False Negative Rate)

$$FNR = \frac{FN}{FN+TP}$$

**Matthews Correlation Coefficient**

**(MCC):** A balanced measure even for imbalanced datasets.

$$MCC = \frac{(Tp * Tn) - (Fp * Fn)}{\sqrt{(Tp + Fp)(Tp + Fn)(Tn + Fp)(Tn + Fn)}}$$

## Real-World Examples:

1. Spam Email Classification
2. Medical Diagnosis (COVID-19 Test)
3. Fraud Detection in Banking:
4. Sentiment Analysis (Positive/Negative Reviews)

Article by,  
IInd Year- AD-B Sec  
S. Aswitha  
P. Subha Dhanusha  
S. Athithya  
R. Divya Dharshini

## FIVE REAL-WORLD APPLICATIONS OF MACHINE LEARNING

### 1. Supervised Learning

#### 1.1 Classification

1. **Email Spam Detection** - Classifies emails as "spam" or "not spam" based on labeled data.
2. **Medical Diagnosis** - Predicts diseases based on patient data like symptoms and test results.
3. **Sentiment Analysis** - Classifies customer reviews as "positive," "negative," or "neutral."
4. **Face Recognition** - Identifies individuals based on labeled facial images.
5. **Fraud Detection** - Classifies credit card transactions as "fraudulent" or "legitimate."

#### 1.2 Regression

1. **House Price Prediction** - Predicts house prices based on features like size, location, and amenities.
2. **Stock Market Prediction** - Estimates future stock prices based on historical data.

3. **Sales Forecasting** - Predicts future sales based on past trends.
4. **Weather Forecasting** - Uses past weather data to predict temperature and precipitation.
5. **Customer Lifetime Value Prediction** - Estimates how much a customer will spend over time.

## 2. Unsupervised Learning

### 2.1 Clustering

1. **Customer Segmentation** - Groups customers based on purchasing behavior.
2. **Image Segmentation** - Identifies objects in an image by grouping similar pixels.
3. **Document Clustering** - Groups news articles or research papers based on content similarity.
4. **Genetic Data Analysis** - Clusters genes with similar expression patterns.
5. **Market Basket Analysis** - Groups frequently bought products together to optimize store layouts.

### 2.2 Dimensionality Reduction

1. **Feature Selection in Machine Learning** - Reduces the number of

features while preserving essential information.

2. **Compression of High-Dimensional Data** - Reduces the size of large datasets for efficient storage.
3. **PCA in Image Processing** - Reduces image dimensions while retaining essential features.
4. **Speech Recognition** - Removes irrelevant noise and retains important speech components.
5. **Gene Expression Analysis** - Reduces thousands of gene expression variables to a few meaningful dimensions.

### 2.3 Anomaly Detection

1. **Credit Card Fraud Detection** - Identifies unusual spending patterns.
2. **Network Intrusion Detection** - Detects abnormal network activity that may indicate cyberattacks.
3. **Medical Anomaly Detection** - Identifies unusual patterns in patient test results that could indicate rare diseases.
4. **Equipment Failure Prediction** - Detects abnormal machine sensor readings to prevent failures.

5. **Fake News Detection** - Identifies news articles with anomalous characteristics suggesting misinformation.

**Article by,  
IInd Year AD-B  
Gopikrishna M  
Arunraja N  
Uthandavinayaga.A**

## **ORANGE DATA MINING TOOL AND ITS ADVANTAGES**

### **Introduction**

Data mining has become an essential process for extracting meaningful insights from large datasets. Various tools are available for this purpose, and one of the most user-friendly and efficient ones is **Orange**. Orange is an open-source data visualization and analysis tool that allows users to build workflows through a simple drag-and-drop interface. It is widely used in academia, research, and industry for machine learning, predictive modeling, and data analytics. This essay explores the features of Orange and highlights its advantages in data mining.

### **Features**

Orange provides an interactive and visual approach to data mining. Some of its key features include:

1. **Graphical Interface** – Unlike traditional coding-based tools, Orange uses a visual programming interface, enabling users to create workflows without writing complex code.

## 2. **Data Import and Pre-processing**

– Orange supports various file formats such as CSV, Excel, and SQL databases. It provides tools for data cleaning, normalization, feature selection, and transformation.

## 3. **Machine Learning Algorithms** –

The tool offers classification, regression, clustering, and deep learning techniques, allowing users to apply different models with ease.

## 4. **Data Visualization** –

Orange provides a wide range of visualization tools such as scatter plots, bar charts, histograms, box plots, and network graphs to help users understand patterns in data.

## 5. **Text and Image Mining** –

Users can analyse textual data with natural language processing (NLP) tools and work with image recognition models.

## 6. **Extensibility** –

Orange allows integration with Python scripting, enabling advanced users to customize their workflows and add additional functionalities.

## Advantages of Orange Data Mining Tool

Orange offers several benefits that make it an attractive choice for data mining and machine learning applications.

### 1. **User-Friendly Interface**

One of the biggest advantages of Orange is its intuitive graphical user interface. This makes it accessible to beginners who do not have extensive programming knowledge. Users can quickly design experiments by dragging and connecting widgets instead of writing code.

### 2. **Open-Source and Free**

Orange is completely open-source and free to use, making it a cost-effective solution for students, researchers, and small businesses. Unlike proprietary software, it does not require expensive licenses.

### 3. **Comprehensive Data Analysis**

The tool provides a complete suite of data analytics, from pre-processing and visualization to model training and evaluation. This makes it a one-stop solution for data mining tasks.

### 4. **Versatile and Customizable**

Orange supports a wide variety of

machine learning techniques and statistical methods, making it useful for diverse applications such as business analytics, bioinformatics, social science research, and text analysis.

#### 5. **Integration with Python**

Advanced users can integrate Orange with Python to enhance its functionality. Python scripting allows users to implement custom algorithms and interact with additional data science libraries such as NumPy, pandas, and scikit-learn.

#### 6. **Strong Community Support**

Being open-source, Orange has an active community of developers and users who continuously contribute to its improvement. The availability of tutorials, documentation, and forums makes it easier for new users to learn and troubleshoot issues.

#### 7. **Efficient Prototyping and Rapid Experimentation**

Orange enables quick prototyping and testing of machine learning models, allowing users to explore multiple approaches before implementing a final solution. This makes it a great

tool for research and experimentation.

### **Conclusion**

Orange is a powerful, user-friendly data mining tool that provides extensive features for data analysis, visualization, and machine learning. Its drag-and-drop interface makes it accessible to both beginners and experts, while its open-source nature ensures cost-effectiveness. With strong community support, integration with Python, and a wide range of functionalities, Orange is an excellent choice for anyone looking to explore data science and machine learning efficiently. Whether for academic purposes, research, or business intelligence, Orange continues to be a valuable tool in the world of data analytics.

**II Year AD-B**

**C.Thirulingam**

## INTELLIGENT SYSTEMS FOR SPACE MISSIONS

### Overview

**Understanding Artificial Space** exploration captivates scientists and governments worldwide, holding answers to the origins of humanity and the universe's wonders, including potential extra-terrestrial life. The visible universe is what we can observe through telescopes, but it's believed to be just a fraction of the total universe. So far, only 4% of the visible universe has been explored, with 96% remaining uncharted territory.

### Intelligence and Machine Learning

AI refers to machines programmed to simulate human intelligence, including learning and problem-solving. Machine learning is a specialised branch of AI that trains machines to perform complex tasks by using data to learn from experience.

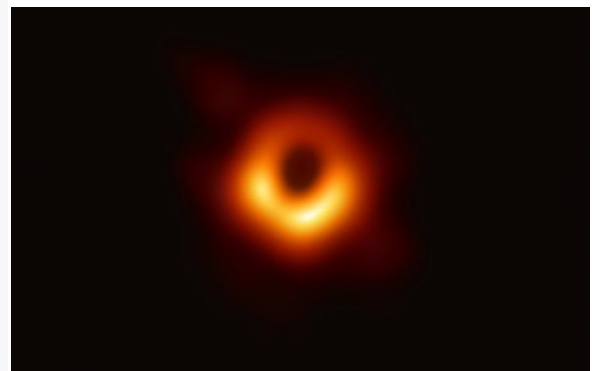
### AI/ML in Space Exploration

Now if we were to combine the ideas of these two massive terms, namely AI and space exploration, keeping in mind the recent developments in the fields of machine learning and artificial intelligence, imagine how easy it would

be for scientists and explorers to achieve their goal and how it would affect our lives.

Let us bring together these two ideas and see what has already been done, what is going on, and what else could be done.

### *1. First Image of Black Hole*

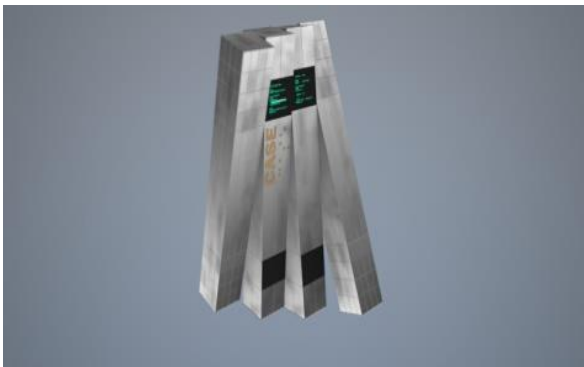


**Black Hole**

The first black hole image was obtained using the CHIRP algorithm, developed by a team of researchers from MIT's Computer Science and Artificial Intelligence. This Bayesian algorithm performs deconvolution on radio astronomy images, which were obtained from the Event Horizon Telescopes. The data was scaled down and calibrated using Python libraries like Numpy and Pandas, and ML was used in image analysis. While the first image is a significant achievement, scientists aim to obtain more accurate images using more

complex algorithms that incorporate machine learning and AI. Additionally, the use of ML and DL could aid in classifying unknown objects in deep space, leading to the discovery of new objects and helping in space exploration.

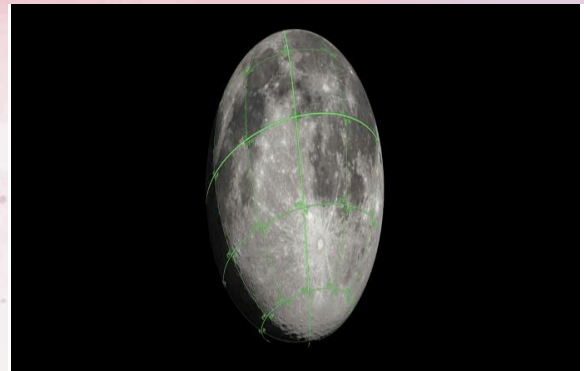
## **2. AI-Based Assistants and Robots**



**CASE from “Interstellar”**

AI-based assistants and robots, similar to TARS and CASE from the movie 'Interstellar,' are being developed to aid astronauts in their missions. These assistants can understand and predict the crew's requirements, monitor their mental health, and respond to emergencies using sentiment analysis. Robots can assist with physical tasks such as piloting and docking spacecraft and handling dangerous conditions in space.

## **3. Intelligent Navigation System**



**Moon’s 3D model (SOURCE: Nasa)**

In 2018, NASA collaborated with Intel to develop an AI-based navigation system to help astronauts explore planets. The system simulated the moon's surface and used a neural network to create a virtual map by analyzing millions of images. The same algorithm was applied to the Mars exploration program.

## **4. Discovery of Kepler Exoplanets**

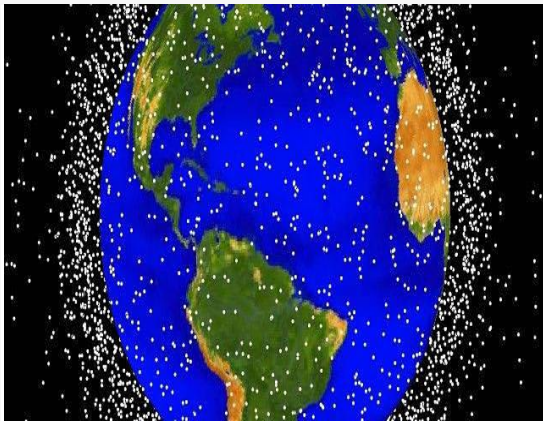


**Kepler 90i**

Researchers from Google and other scientists used a Convolutional Neural

Network named AstroNet K2 to predict whether a given signal from NASA's Kepler space telescope is a transiting exoplanet or a false positive. This model successfully identified two new exoplanets, Kepler 80g and Kepler 90i.

### **5.Space Debris Solution**



**Space Debris around Earth**

Space debris, or space junk, refers to any debris left by humans in space, such as dead satellites. The issue has become critical, with over 23,000 large and 500,000 small fragments in space that pose a danger to spacecraft. Deep learning is being used to improve the accuracy of laser ranging technology to pinpoint the location of debris and prevent collisions with spacecraft. By using backpropagation neural network models, scientists can accurately identify debris with a cross-sectional area of 1 meter

squared and a distance of 1500 kilometres.

### **Outlook**

AI is being increasingly used in space exploration, and ongoing research continues to explore its potential. However, human intervention is still necessary, and AI is constantly evolving to provide new insights and aid in innovative projects.

**Explored By**

**IV Year AD**

**M.Sandeep Kumar**

# **BEYOND CODE: HOW AI IS SHAPING THE FUTURE OF TECHNOLOGY**

## **Introduction**

Artificial Intelligence (AI) is no longer just a concept from science fiction. It is revolutionizing industries, redefining human capabilities, and transforming the way technology interacts with society. From healthcare and finance to entertainment and education, AI's influence is growing at an unprecedented rate. This article explores the future impact of AI, its evolving capabilities, and how it is shaping the technological landscape beyond coding.

## **AI in Automation and Efficiency**

One of AI's primary contributions is enhancing efficiency through automation. Businesses are leveraging AI-powered tools to streamline operations, reduce human errors, and optimize decision-making. Machine learning models analyze vast datasets, predict trends, and automate repetitive tasks, allowing humans to focus on creative and strategic initiatives. For example:

- **Manufacturing:** AI-driven robotics enhance production lines, improving speed and precision.
- **Customer Service:** Chatbots and virtual assistants provide 24/7 support, reducing response time.
- **Healthcare:** AI assists in diagnosing diseases, detecting anomalies in medical scans, and personalizing treatments.

## **The Role of AI in Innovation**

AI is fueling innovation in various fields, pushing the boundaries of what technology can achieve:

- **Generative AI:** AI models like ChatGPT and MidJourney create content, from writing articles to generating realistic images.
- **Autonomous Systems:** Self-driving cars and smart drones rely on AI for navigation and decision-making.
- **Quantum Computing Integration:** AI and quantum computing together promise breakthroughs in complex problem-solving and data analysis.

## **Ethical and Societal Implications**

While AI presents groundbreaking opportunities, it also raises concerns regarding ethics and societal impact. Key issues include:

- **Job Displacement:** Automation threatens traditional jobs, necessitating reskilling initiatives.
- **Bias in AI Models:** AI algorithms may inherit biases from training data, leading to ethical concerns in decision-making.
- **Data Privacy:** AI's reliance on big data raises questions about personal data security and ethical usage.

### **The Future of AI: A Collaborative Approach**

The future of AI lies in collaboration between humans and machines. Rather than replacing human intelligence, AI will augment it, creating opportunities for innovation and problem-solving. Governments, industries, and researchers must work together to ensure AI development aligns with ethical and inclusive principles.

As AI continues to evolve, it is essential to strike a balance between technological advancements and responsible use. By integrating AI thoughtfully into various

sectors, society can harness its potential to drive progress, enhance human experiences, and build a smarter future.

### **Conclusion**

AI is more than just lines of code; it is a force reshaping technology and society. Embracing AI responsibly will determine how effectively we leverage its power for the greater good.

**Article by**  
**IV Year AD**  
**G.Bala Sankar**

# QUANTUM AI: THE FUTURE OF COMPUTING AND INTELLIGENCE

## **Introduction**

Artificial Intelligence (AI) has revolutionized industries, but as problems become more complex, traditional computing struggles to keep up. Quantum AI, a fusion of quantum computing and AI, is set to redefine problem-solving by leveraging the power of quantum mechanics.

## **What is Quantum AI?**

Quantum AI uses quantum computing principles—such as superposition and entanglement—to process vast amounts of data simultaneously. Unlike classical computers that use bits (0s and 1s), quantum computers use qubits, enabling them to perform multiple calculations at once.

## **Workflow of Quantum AI**

1. **Input Data Processing:** Quantum algorithms analyze complex datasets.
2. **Quantum Computation:** Qubits perform computations simultaneously.

3. **AI Model Training:** Quantum-enhanced optimization speeds up learning.
4. **Output & Applications:** Used in industries like healthcare, finance, and cybersecurity.

## **Applications of Quantum AI**

- **Drug Discovery:** Simulating molecular interactions for faster drug development.
- **Financial Modeling:** Enhancing market predictions and risk assessments.
- **Cybersecurity:** Strengthening encryption techniques with quantum cryptography.
- **Traffic Optimization:** Managing smart city traffic with real-time routing.

## **Challenges & Future of Quantum AI**

Despite its promise, Quantum AI faces challenges like hardware limitations, error rates, and infrastructure requirements. However, companies like Google, IBM, and Microsoft are making strides toward practical implementation.

## **Conclusion**

Quantum AI is a game-changer, unlocking solutions for problems once considered unsolvable. As research

progresses, it has the potential to revolutionize industries and push the boundaries of intelligence.

**Article by**  
**IV Year AD**  
**B.Shanmugavel**

## **AI-POWERED SMART** **AGRICULTURE SYSTEMS**

### **Introduction**

Agriculture faces challenges like unpredictable weather, inefficient resource use, and declining soil quality. By integrating Artificial Intelligence (AI), IoT, and Data Analytics, we can create a Smart Agriculture System that improves crop yield, reduces water consumption, and enhances decision-making for farmers.

### **Concept:**

This system utilizes AI, IoT sensors, and cloud-based analytics to monitor soil health, predict weather conditions, and optimize farming techniques in real-time.

### **Technical Stack:AI/ML: Crop disease detection, yield prediction**

- IoT: Sensors for soil moisture, temperature, and pH
- Cloud Computing: Real-time analytics and storage
- Mobile App (React Native): Farmer alerts and recommendations
- Drone Technology: AI-driven aerial monitoring of fields

### **Working Mechanism:**

1. IoT-Based Soil Monitoring: Sensors detect soil moisture, temperature, and nutrients.
2. AI-Powered Crop Disease Detection: Image recognition identifies plant diseases early.
3. Automated Irrigation System: AI predicts water needs and optimizes irrigation.
4. Drone Surveillance: AI-driven drones monitor crop health and pest infestations.
5. Farmer Decision Support System: Provides personalized farming recommendations.

### **Expected Outcomes:**

- Increased Crop Yield: Data-driven insights improve production.
- Water & Resource Efficiency: Smart irrigation minimizes wastage.
- Reduced Pesticide Use: AI helps in targeted pest control.
- Farmer Empowerment: Access to real-time agricultural insights.

### **Open-Ended Problem: Climate-Resilient Agriculture**

### **Challenge:**

- How can we use AI to make farming more resilient to climate change?
- What are the best techniques for real-time pest and disease detection?

### **Solution Proposal:**

- AI-Powered Weather Forecasting: Predicts extreme weather to prevent crop loss.
- AI-Based Pest Management: Detects pests early and suggests natural pest control methods.
- Automated Hydroponics & Vertical Farming: Reduces dependency on arable land.
- Blockchain for Supply Chain Transparency: Ensures fair pricing and reduced food waste.
- Government Subsidy: AI-driven insights help policymakers support farmers effectively.

**Idea is cultivated by  
IV Year AD  
M.Vishnu Shankar**

# THE RISE OF AI POWERED CHATBOTS

## **Introduction**

In today's fast-paced digital world, artificial intelligence (AI) is transforming the way we communicate. One of the most prominent applications of AI is chatbots—intelligent virtual assistants that can simulate human conversation. From customer service to healthcare and education, AI-powered chatbots are reshaping industries by providing instant, automated, and efficient interactions.

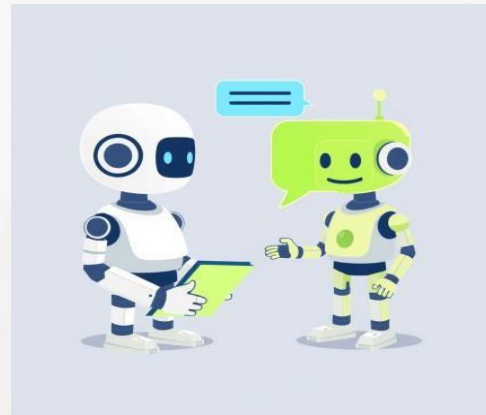
## **How AI-Powered Chatbots Work**

Chatbots operate using Natural Language Processing (NLP) and Machine Learning (ML) to understand and respond to user queries. There are two main types of chatbots:



**Rule-Based Chatbots** – These bots follow pre-defined scripts and can only respond to specific commands.

**AI-Powered Chatbots** – These bots use machine learning algorithms and NLP to understand context, learn from interactions, and provide more human-like responses. AI chatbots are trained using large datasets, enabling them to understand different languages, analyze user intent, and offer accurate responses. Advanced models, such as GPT (Generative Pre-trained Transformer) and Gemini AI, can engage in meaningful conversations, making them highly effective in various industries



## **Applications of AI Chatbots**

- **Customer Service:** Companies use AI chatbots to handle inquiries, complaints, and feedback efficiently, reducing wait times and

improving customer satisfaction.

- **Healthcare:** Chatbots assist in symptom checking, appointment scheduling, and mental health support through AI-driven interactions.
- **Education:** AI tutors and virtual assistants help students with doubts, provide personalized learning experiences, and even conduct assessments.
- **E-commerce:** Businesses integrate chatbots to assist shoppers, recommend products, and streamline the buying process.
- **Finance:** AI-powered bots help users manage expenses, answer banking-related queries, and detect fraudulent activities.

### Advantages of AI-Powered Chatbots

- ✓ **24/7 Availability:** Unlike human agents, chatbots are available around the clock, ensuring continuous support.

- ✓ **Cost-Effective:** Businesses save on customer service costs by automating responses.
- ✓ **Personalized Responses:** AI chatbots analyze user behavior and preferences to offer tailored interactions.
- ✓ **Scalability:** They can handle thousands of queries simultaneously without any performance drop.

### Challenges & Future of AI Chatbots

Despite their advantages, AI chatbots face challenges like:



- ❖ **Understanding Complex Queries:** Some chatbots struggle with sarcasm, slang, or emotional context.
- ❖ **Data Privacy Concerns:** AI bots process large amounts of data, raising concerns about security and misuse.

- ❖ **Dependence on AI:** Over-reliance on bots may lead to reduced human interactions, affecting customer experience.

### **Future of AI Chatbots**

The future of AI chatbots is promising. With advancements in Conversational AI, Emotional AI, and Multimodal AI, chatbots will become more intuitive, human-like, and context-aware. Integrating AI with voice assistants and AR/VR will further enhance chatbot capabilities, making them an integral part of our digital lives.

**Article by**  
**IV Year AD**  
**S.Sachin**

## **EXPLORING AI IN HEALTH CARE: REVOLUTIONIZING DIAGNOSIS AND DRUG DELIVERY**

### **Introduction**

In recent years, Artificial Intelligence (AI) has made remarkable strides in various sectors, and the healthcare industry is no exception. From improving diagnostic accuracy to accelerating drug discovery processes, AI is transforming the way medical professionals and researchers approach patient care and treatment development. This article delves into the profound impact of AI in two major areas of healthcare: diagnosis and drug discovery.

### **AI in Healthcare: Changing How We Diagnose and Treat Diseases**

Artificial Intelligence (AI) is changing the world, and healthcare is one of the areas where its impact is most exciting. AI is helping doctors and researchers make better decisions, faster. From diagnosing diseases to developing

treatments, AI is making healthcare more accurate and efficient. Here's how it's happening.



### Better Diagnosis with AI

In the past, doctors had to rely on their knowledge and tools to diagnose illnesses. But AI is helping doctors spot problems earlier and more accurately. AI can look at medical images like X-rays, MRIs, and CT scans to find signs of diseases such as cancer, heart conditions, and brain disorders.

For example, AI systems can help radiologists spot cancer in medical images more accurately and quicker than before. This means diseases can be caught earlier, giving patients a better chance of recovery.

### Personalized Treatment Plans

AI can also help doctors create treatment

plans that are just right for each patient. By analyzing a person's medical history, genetics, and lifestyle, AI can suggest the best treatments that will work for that specific patient, with fewer side effects.



For example, in cancer treatment, AI can identify the specific genetic mutations in cancer cells and suggest targeted therapies. This makes treatments more effective and helps doctors avoid treatments that might not work for a particular patient.

### AI in Drug Delivery

Developing new medicines can take a long time and cost a lot of money. AI is speeding up this process by predicting which drugs might work for certain diseases. It can analyze large amounts of data to find promising drug candidates

much faster than traditional methods. This is especially useful in diseases that have been difficult to treat, like Alzheimer's. AI is helping researchers find new ways to treat these diseases and bring new drugs to market faster.

### **Improving Healthcare Administration**

AI is also helping to make the behind-the-scenes parts of healthcare work better. Tasks like managing patient records, scheduling appointments, and handling paperwork can be time-consuming. AI is streamlining these tasks, saving time and helping healthcare workers focus more on caring for patients.

For example, AI chatbots can help answer patient questions and schedule appointments, making things easier for both patients and healthcare providers.

### **Challenges and Concerns**

While AI offers many benefits, there are some challenges. One big concern is the privacy and security of patient data. Since AI systems need a lot of information to work, keeping that data safe is very important. Another concern is how AI might change the roles of healthcare workers. While AI can help

doctors and nurses by handling routine tasks, it's important that these professionals still play a central role in patient care.

### **The Future of AI in Healthcare**

Looking ahead, AI will continue to grow and improve healthcare. It will make diagnosing diseases even faster, help create personalized treatments, and assist in discovering new drugs. AI could even help prevent diseases by spotting health risks early.

In the future, AI might also help manage global health challenges, like pandemics, by analyzing large amounts of data to predict and prevent outbreaks.

### **Conclusion**

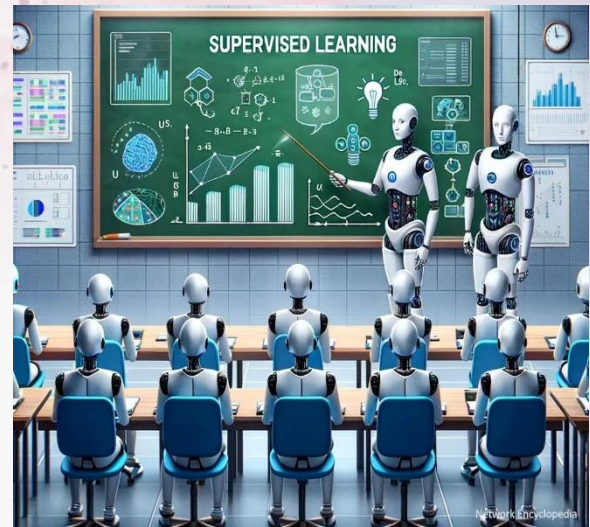
AI is already making a big difference in healthcare, from diagnosing diseases to



improving treatments and speeding up drug discovery. While there are challenges, AI's potential to improve patient care is huge. With the right safeguards, AI can help create a healthier future for everyone.

**Article by,  
IV Year AD  
N.Arul Prakash**

## **SUPERVISED LEARNING**



### **Introduction**

Supervised learning is a type of machine learning where an algorithm is trained on labeled data. This means that each training example is paired with an output label. The goal is for the algorithm to learn a mapping from inputs to outputs and make accurate predictions on new, unseen data.

### **Features of Supervised Learning**

**1.Labeled Data:** The training data includes input-output pairs. The labeled data set is essential for supervised learning as it provides the ground truth for the model to learn from.

**2. Training Process:** The algorithm learns from the labeled data to make predictions. The training process involves feeding the input-output pairs to the model, which then adjusts its parameters

to minimize the error between its predictions and the actual outputs.

**3. Feedback Loop:** The model's predictions are compared to the actual output, and adjustments are made to improve accuracy. This feedback loop is crucial for the model to learn and improve over time.

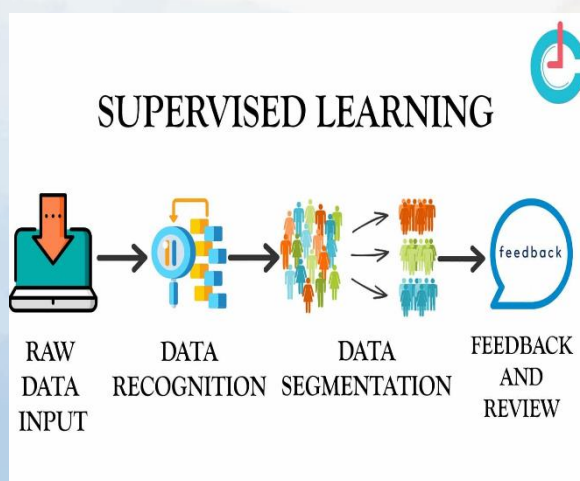
**Labeled Data:** Requires a dataset with input-output pairs.

**Training and Testing Phases:** The dataset is divided into training and testing subsets.

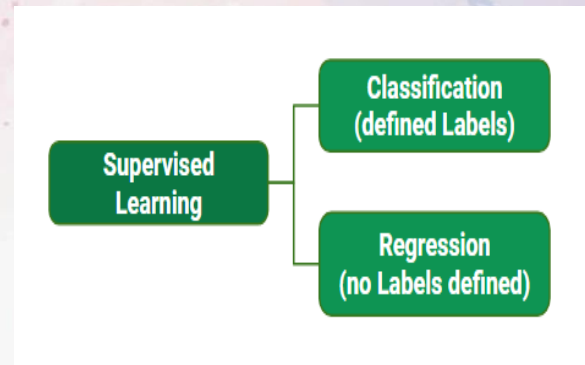
**Prediction Capability:** Can predict outcomes for unseen data based on learned patterns.

**Error Correction:** The model improves through feedback by minimizing the difference between actual and predicted values.

**Types of Problems:** Used for classification (categorizing data) and regression (predicting continuous values).



## Types of Supervised Learning Algorithms



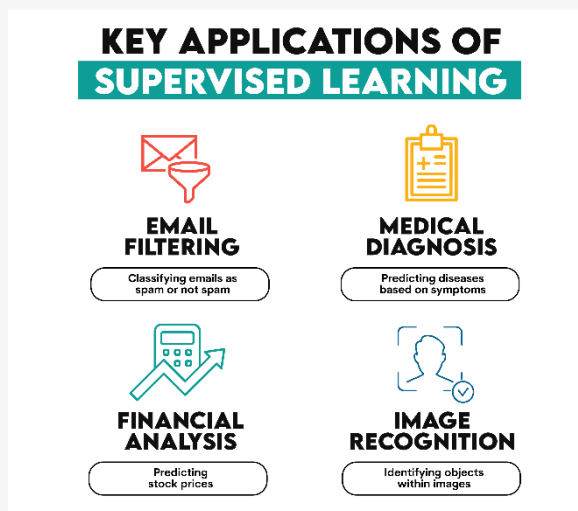
**Regression:** Regression algorithms are used to predict continuous outcomes based on input variables. Some common regression algorithms include Linear Regression, Polynomial Regression, Support Vector Regression (SVR), Decision Trees for Regression, and Random Forest Regression.

**Classification:** Classification algorithms are used to predict categorical outcomes. Some common classification algorithms include Logistic Regression, K-Nearest Neighbors (KNN), Support Vector Machines (SVM), Decision Trees for Classification, Random Forest Classification, and Naive Bayes.

**Supervised learning has a wide range of applications across various fields, including:**

1. Medical Diagnostics

2. Financial Forecasting
3. Spam Detection
4. Sentiment Analysis
5. Image and Object Recognition
6. Natural Language Processing (NLP)
7. Customer Relationship Management (CRM)
8. Recommendation Systems



### Applications of Supervised Learning

**Healthcare:** Disease prediction, medical image analysis, patient risk assessment.

**Finance:** Fraud detection, credit scoring, stock market prediction.

**Marketing:** Customer segmentation, sentiment analysis, targeted advertising.

**Speech and Image Recognition:** Voice assistants, facial recognition, handwriting recognition.

**Autonomous Vehicles:** Object detection, lane detection, traffic sign recognition.

### Advantages of Supervised Learning

1. High Accuracy
2. Efficiency
3. Versatility
4. Interpretability
5. Automated Feature Engineering
6. High Accuracy: Produces reliable and precise results with sufficient training data.
7. Clear Objective: The goal is well-defined since the model is trained on labeled data.
8. Efficient for Known Patterns: Works well when patterns in the data are well understood.
9. Improves Over Time: Can be fine-tuned for better performance with more data and iterative learning.

### Disadvantages of Supervised Learning

1. Data Dependency
  2. Overfitting
  3. Limited Scope
  4. Human Bias
  5. Computational Complexity
- Requires Large Labeled Data:** Needs a significant amount of labeled data, which can be expensive and time-consuming to obtain.

Limited to Known Patterns: Cannot handle completely new or unseen categories effectively.

Computationally Expensive: Training complex models requires high computational power and resources.

Overfitting Risk: The model may memorize the training data rather than generalizing well to new data.

### Future Trends in Supervised Learning

1. Transfer Learning
2. Semi-Supervised Learning
3. Explainable AI (XAI)
4. Federated Learning
5. Automated Machine Learning (AutoML)

recognition, image classification, and medical diagnosis. While it offers high accuracy and efficiency, the need for large labeled datasets and computational resources remains a challenge.

**Article by: II AD B Sec**

**Su.Dhananjai**

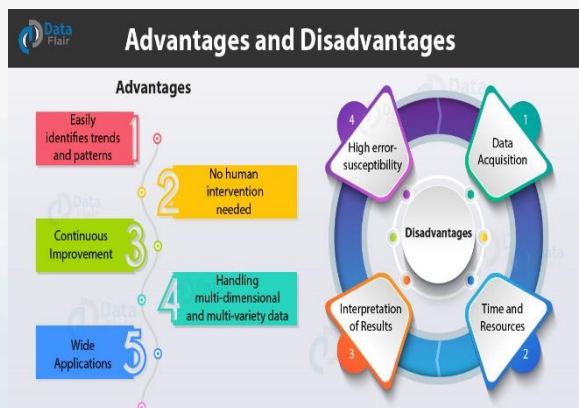
**M.Jeevanandham**

**R.Esaki Raja**

**R.SelvaGanesh**

**M.Sundar Karthick**

**R.Vishwa Kumar**



### Conclusion

Supervised learning is a fundamental approach in machine learning with numerous applications such as speech

## NATIONAL CADET CORPS

Parade is our paradise;

We have fire in our eyes, that range in our heart!

Sacrifices are nothing to us, when we serve our purpose;

Those 3 words made us “NATIONAL CADET CORPS”.

**“SOME GOALS ARE SO WORTHY, IT’S GLORIOUS EVEN TO FAIL”**

The national cadet corps is the youth wing of the Indian armed forces. It is a tri-service organization comprising of the Army, Navy, Air wing. The motto of NCC is “UNITY AND DISCIPLINE in Hindi (EKTA AUR ANUSHASAM) which was taken in the 12<sup>th</sup> CAC meeting held on 12 October 1980. The NCC was founded by the Government of United Kingdom on 16 April 1948, however it came into existence from 15<sup>th</sup> July 1948. The NCC is headed by director who is responsible for the functioning of NCC in country through NCC headquarters situated at New Delhi. NCC its own Flag it contains NCC crest in gold in the middle with the letters “NCC” enriched

by a wreath of 17 lotuses with a background in red, blue and light blue, red depicts the Army, deep blue depicts the Navy and light Blue depicts the Air Force. The 17 lotus represent the 17 state Directorates. “UNITY OF DISCIPLINE” (EKTA AUR ANUSHASAN) is written by the bottom of NCC Flag. NCC aims at developing leadership, commending, discipline, team spirit, courage and confidence

The NCC, started in 1948 with 2000 cadets, today is the largest uniformed youth organization in the world with more than 14.5 lakhs cadets. With headquarters (HQs) at New Delhi. A tri services organizations today has 17 state directorates, 98 group HQs and 825 NCC unit from the Army, Navel, Air force wings.

Cadets in NCC are exposed to training on service subject, social service &community development, disaster management, attachment training with Army/Air force/Navy sport and adventure activities. Core values of NCC include of patriotic commitment, unity, values in the Indian constitution, a healthy life style, self-awareness and values of honestly,

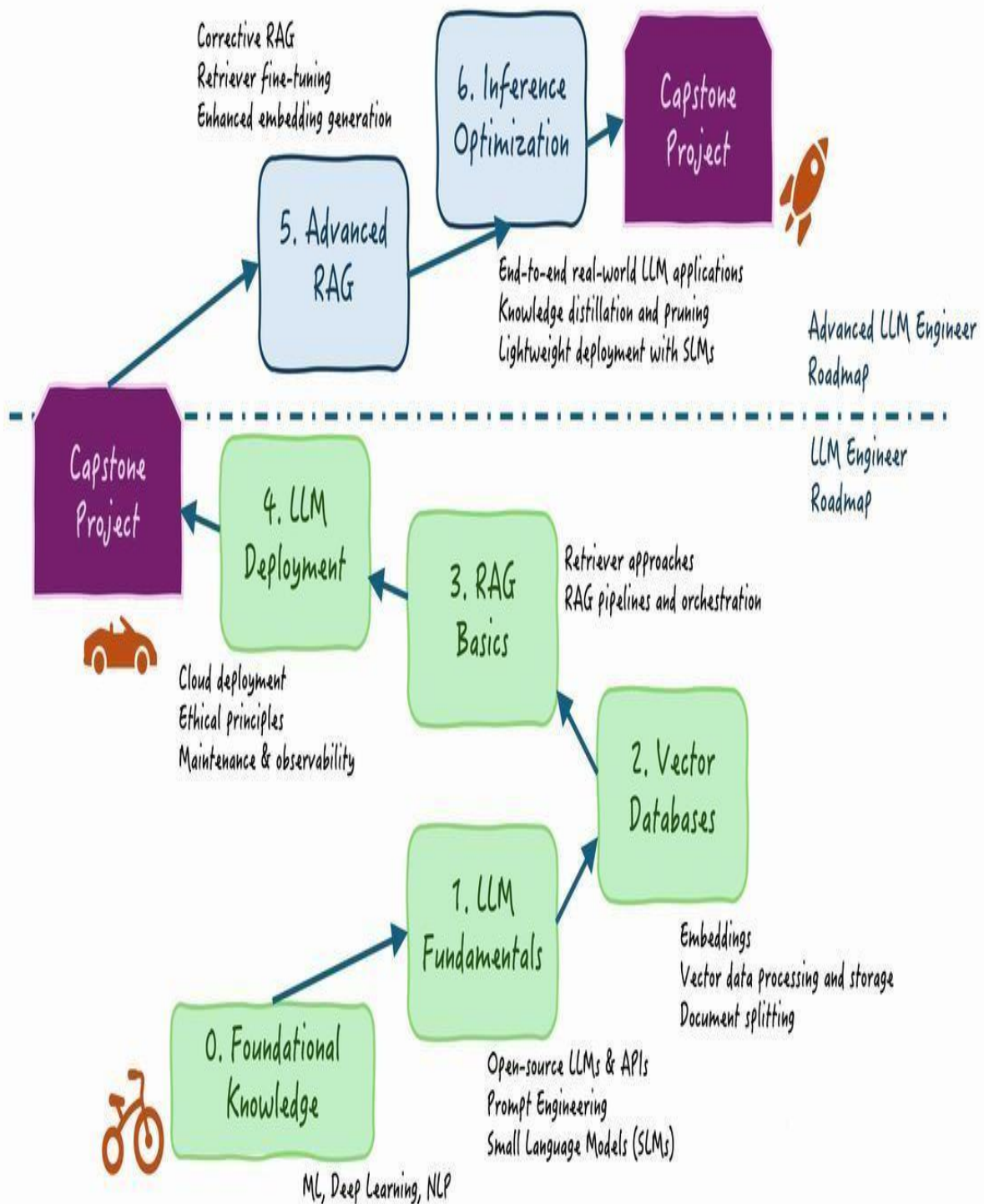
truthfulness, hard work, perseverance,  
etc.,

### **NCC Day**

The 76<sup>th</sup> raising day was celebrated on 22 NOV 2020 where the function was marked by paying homage. At the National War Memorial to the fall in heroes who made the supreme sacrifice of their lives. The NCC raising the day was also celebrated all over India, with cadets participating in blood donation camps, and social development programs.

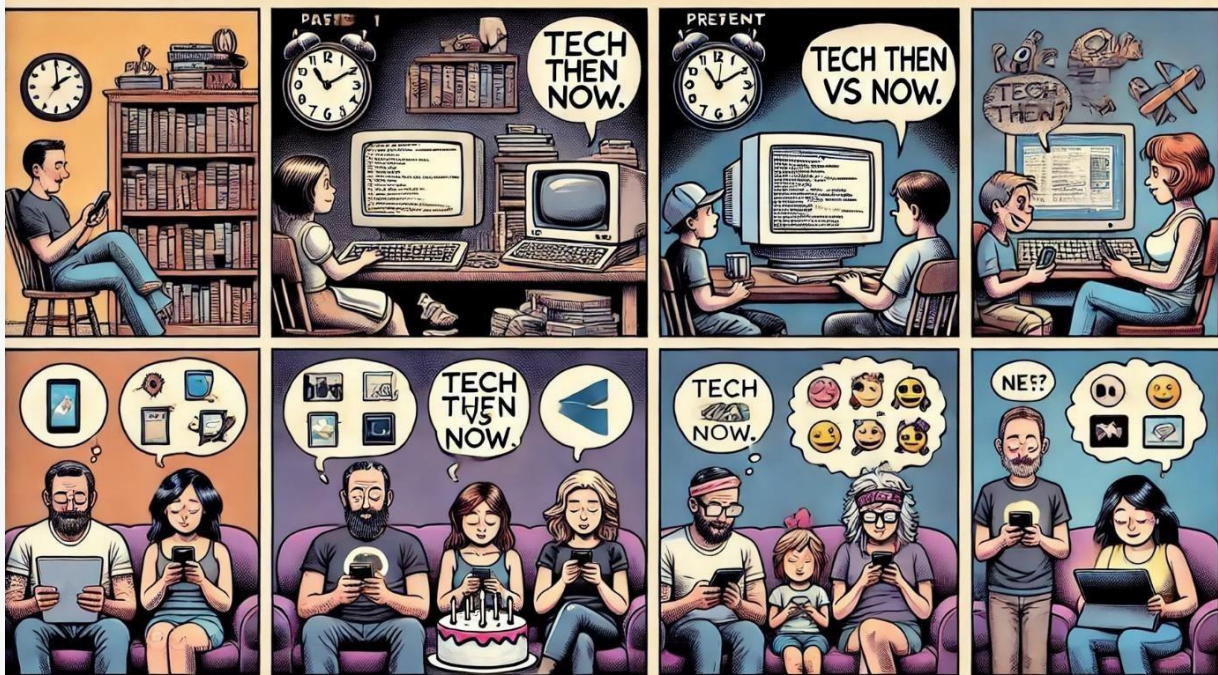
**Prepared by**  
**III year-A-AD**  
**SGT. V.Thangamaheswaran**

# LLM Roadmap



Mr. M. Ramnath, AP /AD  
RIT

## TECHNICAL POETRY –TECH THEN vs NOW



Time passes,

Days run fast forward.

Now, computers tick in pace.

With the clocks ticking.

Tell me, when did our dialect

Evolve into a source code?

Tell me, when did our family time

Get trapped by a compact communicator?

Tell me, when did our moods

Shrink into mere avatars and emojis?

Tell me, when did heartfelt celebrations

Turn into hashtag celebrations?

Tell me, when did human brilliance

Transform into artificial intelligence?

Tell me, how seriously have we learnt?

From virtual staff?

They say,

"Technology is our future."

Then, let me ask them:

If technology is our future,

Could they live without it now?

Tell me, when did book pages  
Compress into web pages?

The answer is yes and  
no. Yes, they know it  
very well.

Because no, they couldn't live  
without it. Technology isn't our  
future.

It's our present.

**By**

**J Ebenezer Linneta**

**II-AD**



*Arts & Gallery*



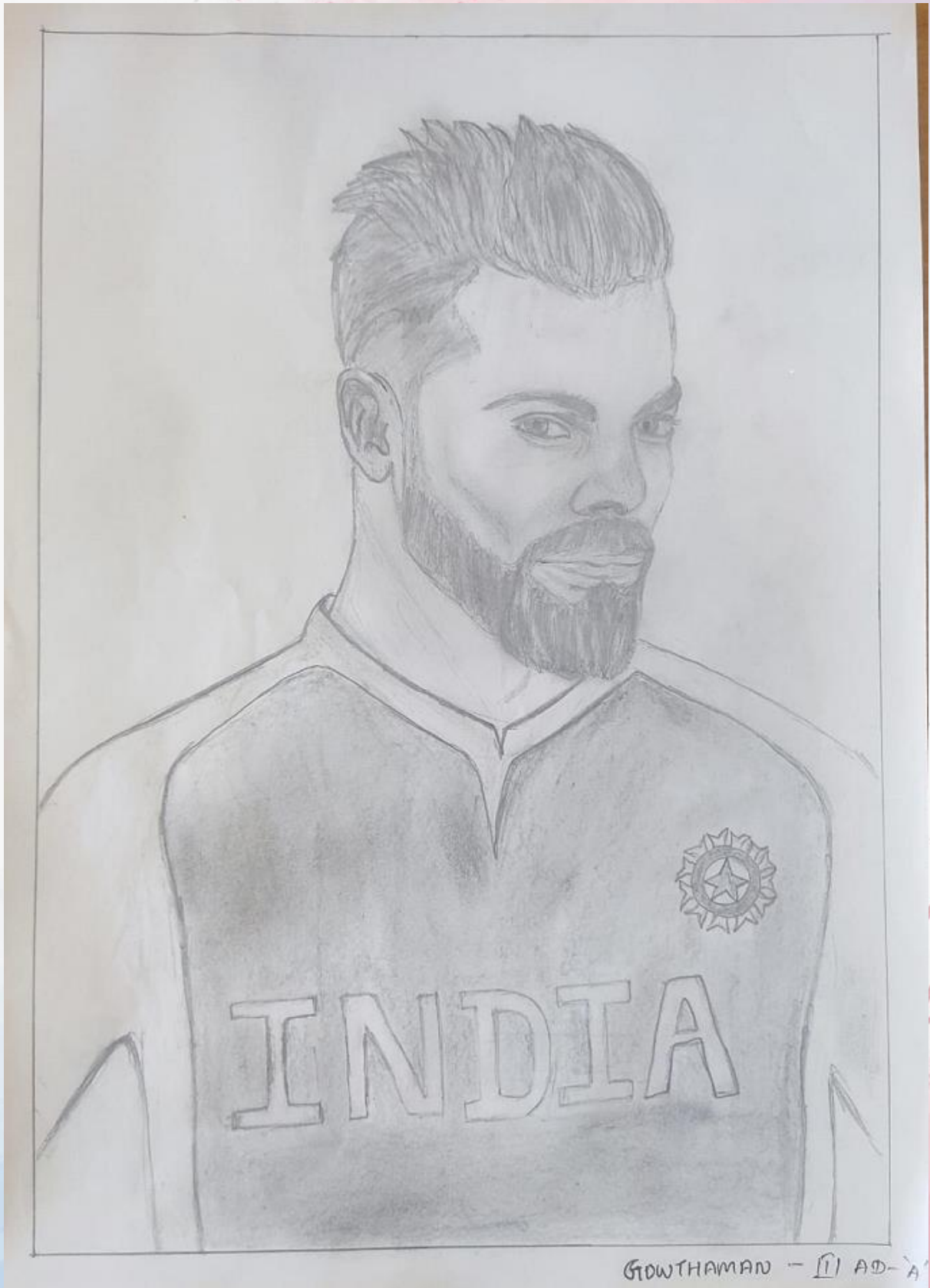
**Art by**  
**Ms.L.Varsha**  
**III AD-B**



Art By  
Mr.M.Ragunath  
III AD-A

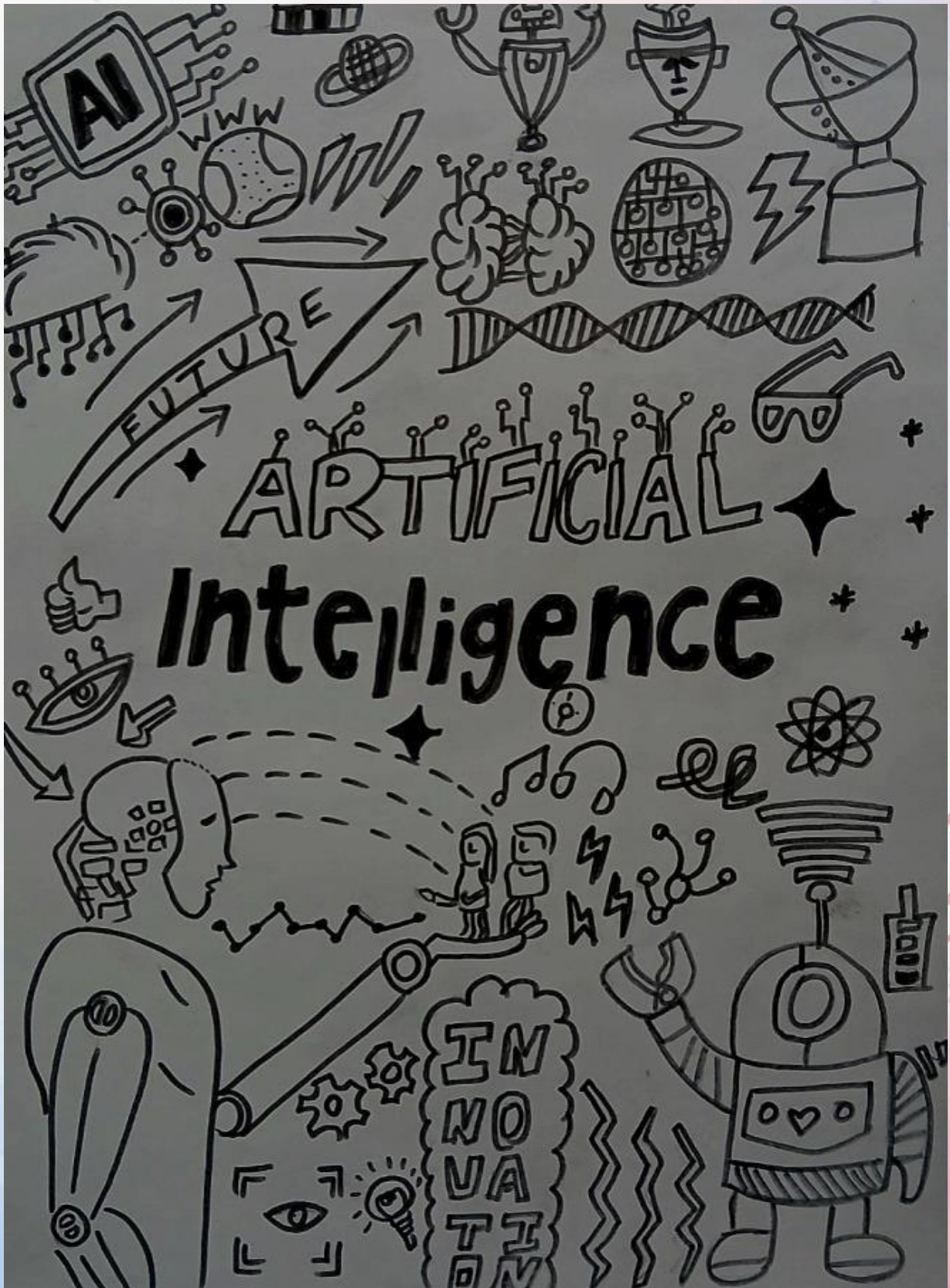


Art by  
**K.Divyalakshmi**  
III AD-A





*Nivi's Arts Album*





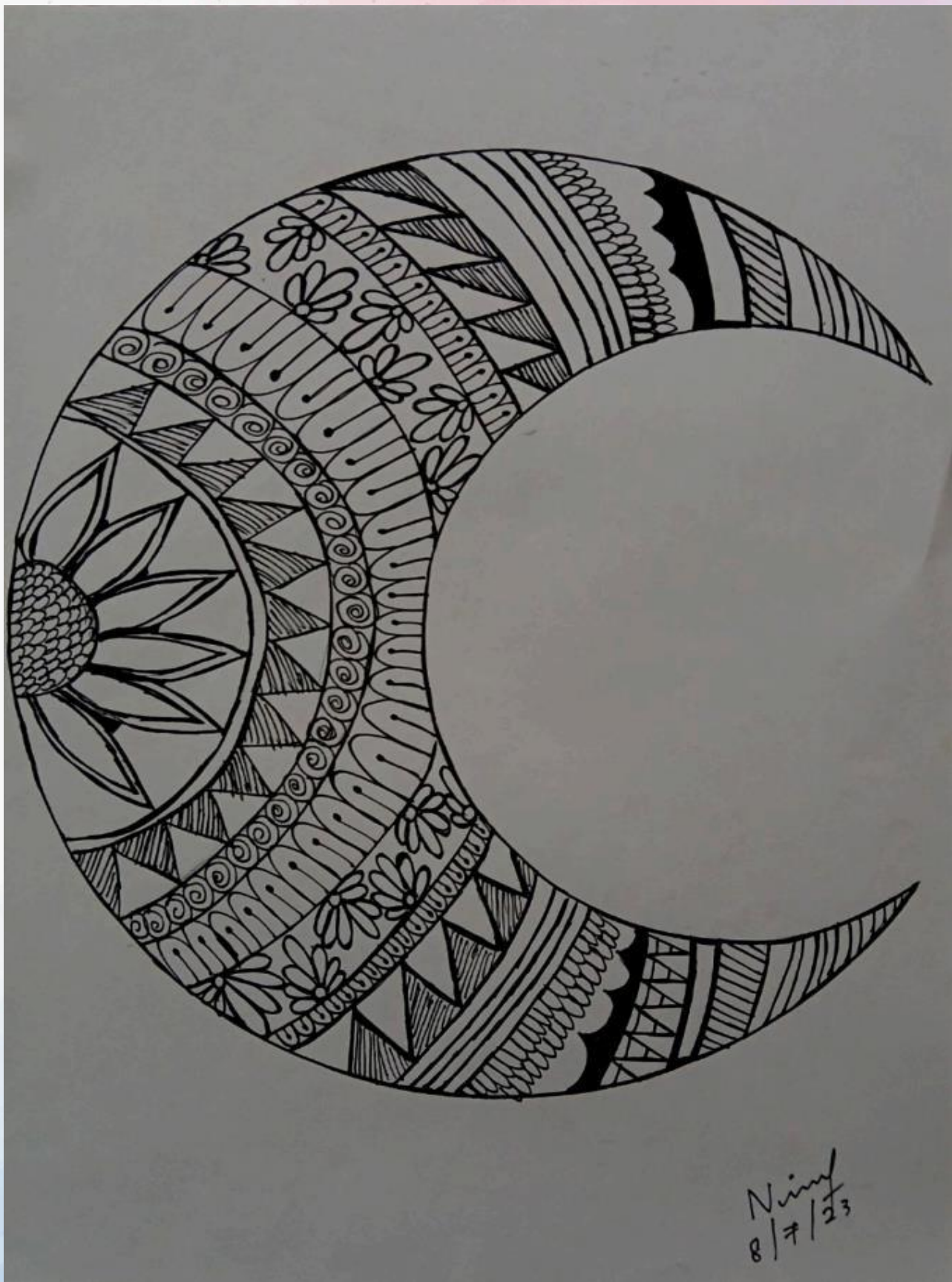




LOVE IS IN  
the Air

Nina





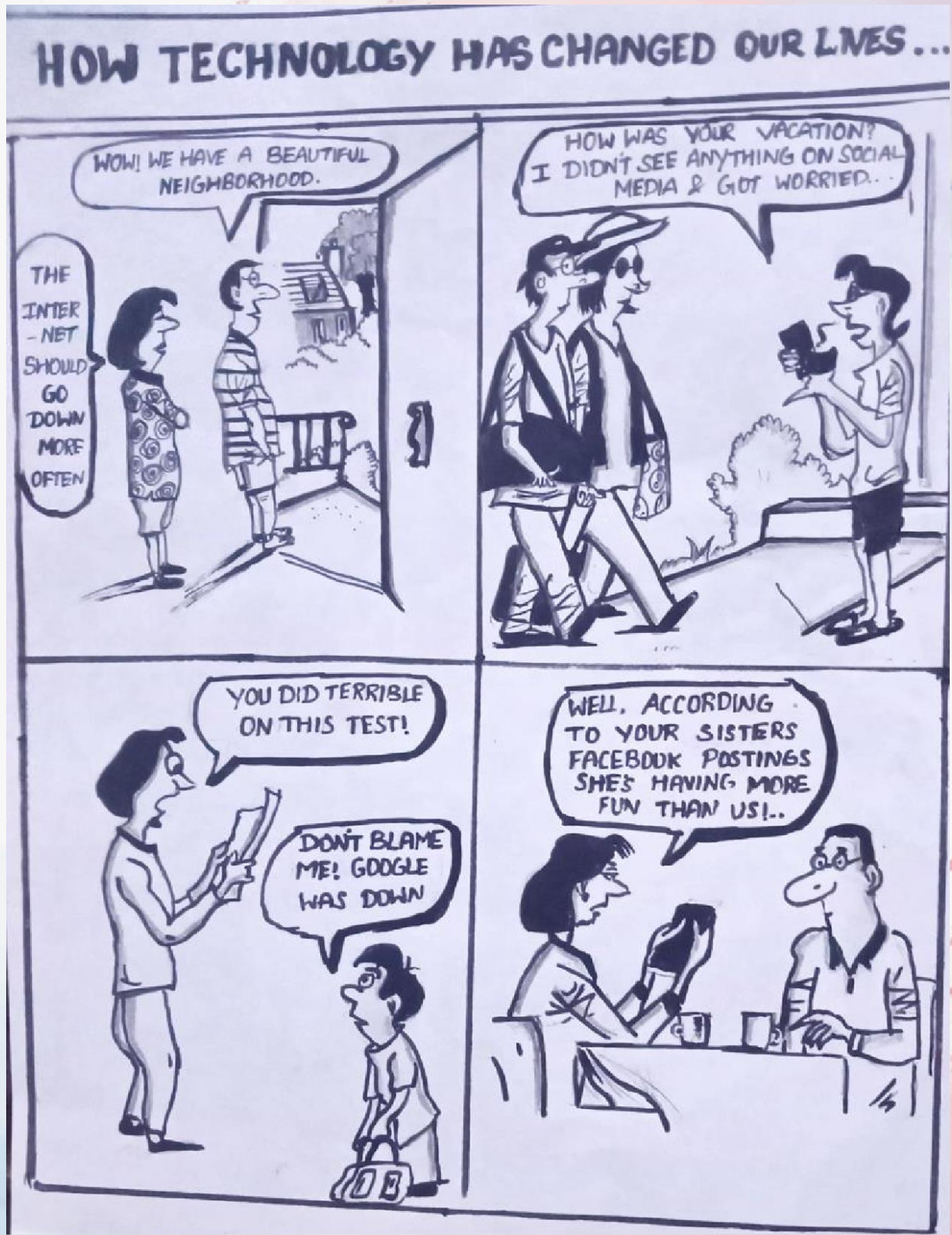


Art book by

I Nivetha

II AD-A

TECH TOON

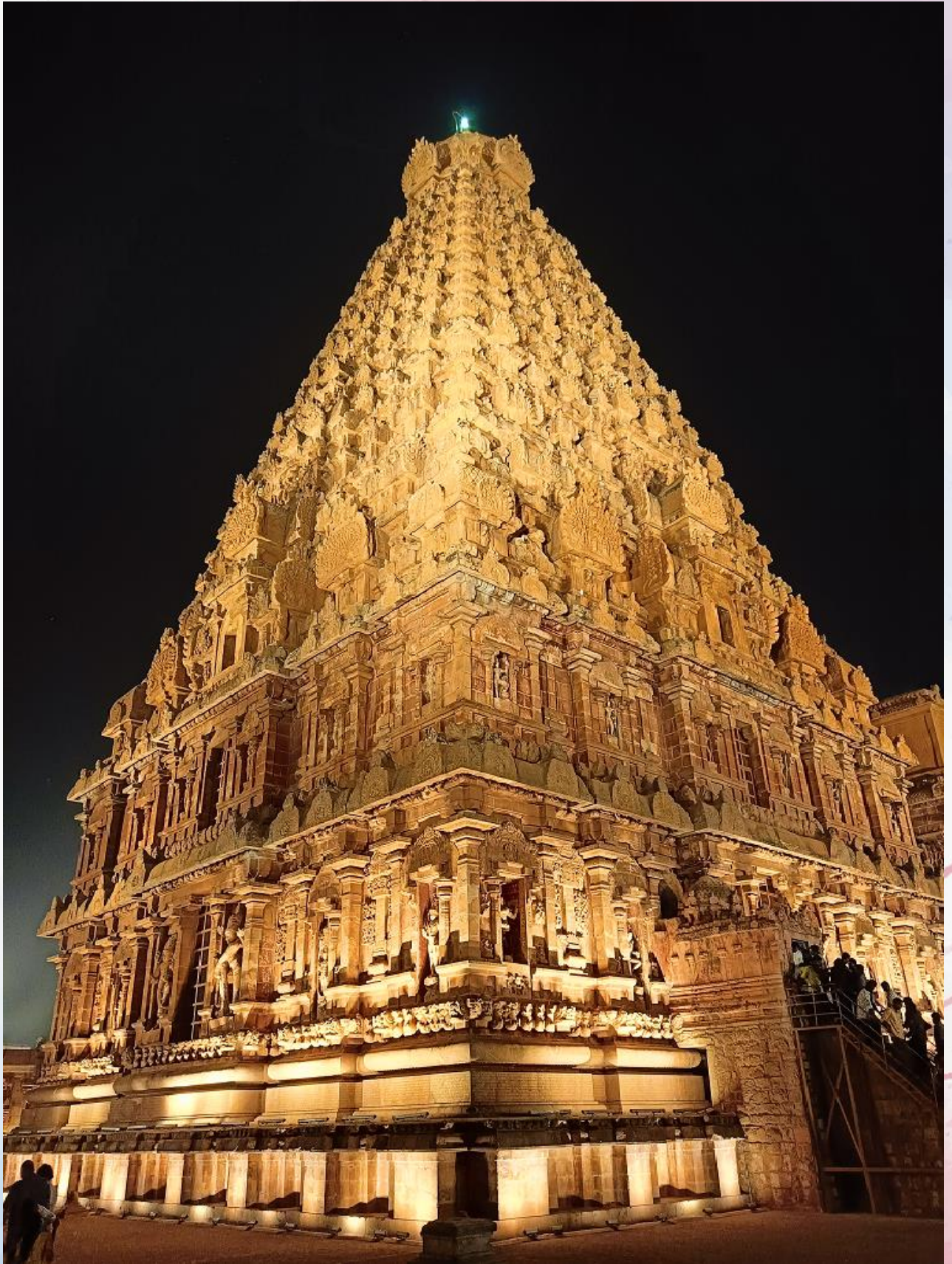


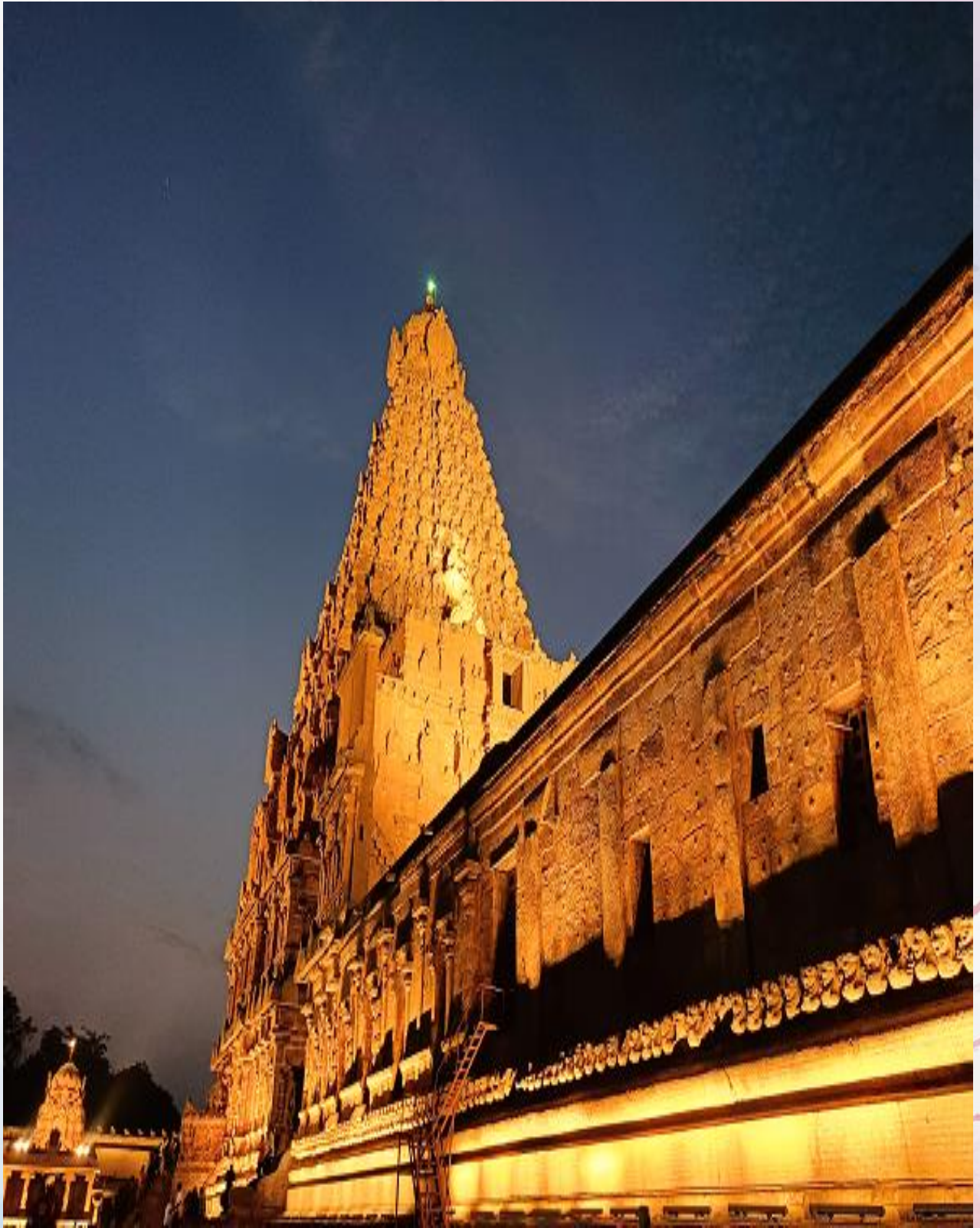


Digistrip By  
E.Dhanalakshmi  
II AD- B



*Vetri's Visual portfolio*





The magnificent beauty of the Cholas Temple with its gleaming appearance is captured by

**Mr.P.Vetrivel**  
**Assistant Professor**



*Meera's Photo Gallery*





Pixel craft by  
K.Meeradarsini  
II AD-B

## **"Your Contributions Made All the Difference!"**

**Dear Students and Staffs,**

I would like to extend my heartfelt gratitude to each of you for your incredible contributions to our department magazine. Your dedication, creativity, and enthusiasm in submitting articles, photos, and artwork have truly made this edition a remarkable one.

Your words, images, and artistic expressions have added depth and vibrancy to our publication, making it a true reflection of the talent and passion within our community. It is because of your efforts that this magazine serves not only as a source of inspiration but also as a platform to showcase the diverse perspectives and skills of our students and staffs.

Thank you once again for your hard work and for sharing your creativity with us. Your contributions are deeply appreciated, and we look forward to your continued participation in future editions!

**With gratitude,**

Dr.R.M.Rajeshwari,  
Associate Professor,  
Editorial Assistant