

Bapuji Educational Association (Regd.)

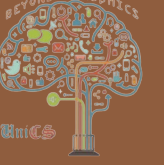


Bapuji Institute of Engineering and Technology

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An Autonomous Institute Affiliated to Visvesvaraya Technological University, Belagavi, Karnataka.
Approved by AICTE, New Delhi | Accredited by NAAC with 'A' grade and NBA (UG Programmes)
Recognized by UGC, New Delhi under 2(F) and 12(B)

Department of Computer Science & Engineering UniCS



The Tech Messenger

News Letter - Volume of the Year
July 2024 - December 2024

"There's always an opportunity to make a difference." - Michael Dell

Vision of the Institute

"To be a centre of excellence recognized nationally and internationally, in distinctive areas of engineering education and research, based on a culture of innovation and invention"

Mission of the Institute

"BIET contributes to the growth and development of its students by imparting a broad based engineering education and empowering them to be successful in their chosen field by inculcating in them positive approach, leadership qualities and ethical values "

Vision of the Department

"To be a center-of-excellence by imbibing state-of-the-art technology in the field of Computer Science and Engineering, thereby enabling students to excel professionally and be ethical".

Mission of the Department

M1: Adapting best teaching and learning techniques that cultivates Questioning and Reasoning culture among the students.

M2: Creating collaborative learning environment that ignites the critical thinking in students and leading to the innovation.

M3: Establishing Industry Institute relationship to bridge the skill gap and make them industry ready and relevant.

M4: Mentoring students to be socially responsible by inculcating ethical and moral values.

Program Educational Objectives (PEOs)

PEO1 - To apply skills acquired in the discipline of Computer Science and Engineering for solving societal and industrial problems with apt technology intervention.

PEO2 - To continue their career in industry/academia or to pursue higher studies and research.

PEO3 - To become successful entrepreneurs, innovators to design and develop software products and services that meets the societal, technical and business challenges.

PEO4 - To work in the diversified environment by acquiring leadership qualities with effective communication skills accompanied by professional and ethical values.

Program Specific Outcomes (PSOs)

PSO1 - Analyze and develop solutions for problems that are complex in nature by applying the knowledge acquired from the core subjects of this program.

PSO2 - Ability to develop Secure, Scalable, Resilient and distributed applications for industry and societal requirements.

PSO3 - Ability to learn and apply the concepts and construct of emerging technologies like Artificial Intelligence, Machine learning, Deep learning, Big Data Analytics, IoT, Cloud Computing, etc for any real time problems.

From the Editorial Desk...

Greetings!

We are thrilled to bring you the latest edition of the Department of CSE Newsletter. This publication is a celebration of the talent, hard work, and accomplishments of our students and faculty, showcasing their dedication to excellence both inside and outside the classroom.

The newsletter provides a platform to reflect on the various initiatives and events that have enriched our department over the past year. From faculty development programs to student-driven activities, every achievement highlights the enthusiasm and commitment that defines our community. It is our aim to share these milestones with you and inspire others to pursue similar excellence in their endeavors.

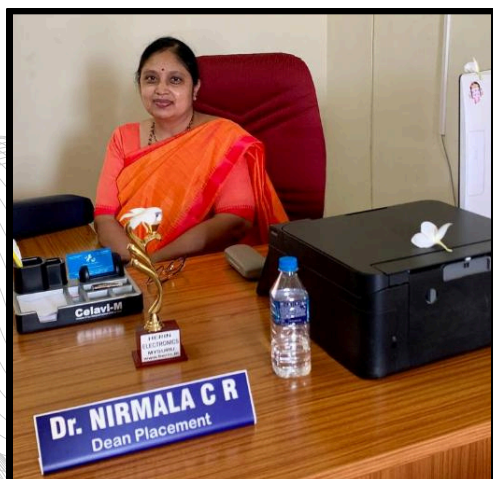
This edition serves not only as a chronicle of our department's journey but also as a testament to the collaborative spirit that drives us forward. We are proud to shine a spotlight on the diverse talents and efforts of our students and staff, whose contributions have set new benchmarks for academic and extracurricular achievements.

We warmly invite you to share your valuable feedback, comments, and suggestions to help us improve and elevate the quality of this newsletter in the future. Your insights are essential to making this publication a true reflection of our collective aspirations and growth.

Thank you for taking the time to engage with this newsletter. We hope it motivates you to strive for greater accomplishments and be a part of the exciting journey that lies ahead.

Sd/-

The Editorial



Message from the HOD's Desk

It gives me great pleasure to present the 2024 edition of the Department of Computer Science & Engineering newsletter, “Tech Messenger.” This publication reflects the innovation, achievements, and collaborative spirit that define our department.

Through our “Strong Alumni and Industry Connect” initiative, we strive to make our students industry-ready through hackathons, coding challenges, real-time projects, and awareness programs. Faculty members are equally encouraged to pursue impactful research in a supportive environment. Our forum, “UniCS,” continues to nurture and showcase the talents of our students.

This year, we organized a range of events, including technical talks, alumni sessions, workshops, and FDPs, in collaboration with industry experts and alumni. These activities bridge the gap between academics and industry while fostering professional growth.

I congratulate the editorial team for their exceptional effort in compiling this newsletter, highlighting our department’s journey from July to December 2024. Wishing them continued success in future editions.

Dr. Nirmala C.R.
Dean of Placements
Professor & Head
Department of Computer Science & Engineering

NEWS LETTER COMMITTEE

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– Principal, BIET
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Professor and Head,
Department of CSE

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Assistant Professor
- Prof. Gangamma Hediylad,
Assistant Professor

Associate Editors:

- Dhyaan J N
Magzine Secretary - CSE
SWC 2024-25
- Dhruva N R
Green Campus Secretary
SWC 2024-25

FDP/WORKSHOP ATTENDED

- Dr. Abdul Razak M S has attended 8 weeks FDP on “**Google Cloud Computing**” Aug- Sep 2024 organized SWAYAM/NPTEL.
- Dr.Santosh.K.C, Dr.Gangadharappa.S, Dr. Jyothi G C, Dr. Naresh Patel K M, Prof.Shankar.Sarji.P, Prof. Nomitha Chawla has attended FDP on “**Gen AI**” organized by Dept.of ISE, VVCE, Mysuru (Online Mode) from 26th Aug to 5th Sep 2024
- Dr. Nirmal C R, Dr. Santosh.K.C, Dr. Jyothi G C, Dr. Anusha R, Prof. Jagadesh A N, Dr. Naresh Patel K M, Dr. Naveen H M, Prof. Waseem Khan, Prof. Radhika Patil, Prof. Chandrashekhar.M.V, Prof.Gangamma H, Prof. Shankar.Sarji.P, Prof. Madhu.N.Hiremath, Prof. Arjun.H have attended workshop on “**Effective English Communication, Content & Language Integrated Learning (CLIL)**” organised by BIET, Davangere from 12th to 13th September 2024
- Dr. Abdul Razak M S had attended 10 days FDP on “**GenAI for Intelligent Systems**” organized by NMIT-Bengaluru from Nov 04 to Nov 14, 2024
- Dr. Gururaj.T, Prof. Raghu B R, Prof. Chandrashekhar.M.V, Prof. Anu.C.S, Prof. Gangamma Hediylad have attended 6 days ATAL FDP on “**Advancing Frontiers in Supercomputing, AI, and Quantum Computing: Innovations, Applications, and Integration**” organized by GMIT from December 09 to December 12, 2024.
- Prof. Preethi B, Prof. Ranjitha H S have attended 5days FDP on “**Generative AI**” organised by Infosys Springboard from Nov 18 to Nov 22, 2024
- Dr. Abdul Razak M S, Prof. Waseem Khan have attended 6 days ATAL FDP on “**Quantum Technology**” organized by UBDTCE- Davangere from December 09 to December 16, 2024.

EVENTS ORGANIZED in Department

- In collaboration with the ICT Academy, the department organized an intercollege Faculty Development Program (FDP) on “**Advanced Teaching Techniques**” from July 22nd to July 24th, 2024. The workshop was attended by approximately 15 in-house faculty members and 15 external faculty members.



Glimpses of event

- Department organized a Technical Talk on “**Few shot learning: A Perspective on Face Recognition**”, for faculties of CSE and aligned branches on 31st July, 2024. The resource person being Dr. V.N. Manjunath Aradhya, Professor and Dean of Research at JSS Science and Technology University, Mysuru.



Glimpses of event

STUDENTS ACTIVITIES/Programs organized

- On June 27th, 2024, NSS 4th-semester students visited Kundavada Kere to learn about the significance of water conservation and the resources available for water pumping. Following this, the same students visited Jarikatte Govt. High School on July 13th, 2024, to share important information with the SSLC students. (Prof. Jagadish A N and Dr. Gangadharappa S).



Glimpses of NSS activities

- In collaboration with Infosys Springboard, the “Student Enablement” program was organized for 4th-semester students from July 22nd to July 26th, 2024, with Dr. Naseer R serving as the Infosys SPOC.



Glimpses of event

- The department warmly welcomed 3rd-semester students to the branch through **Fresher Launch Pad 1.0** on August 19, 2024, aiming to familiarize them with the academic environment, departmental culture, and growth opportunities.



Glimpses of Fresher Launch Pad 1.0

- The CSE staff and students conducted **Anti-Ragging Day** on August 19, 2024, and Sadbhavana Diwas on August 20, 2024, under the guidance of Prof. Jagadeesh N. The events aimed to foster a safe and inclusive campus environment while promoting unity, harmony, and mutual respect among students.



Glimpses of event

- The 3rd-semester students visited the **Infosys Springboard Summit 2024** at the Bengaluru campus on August 23, 2024. They were accompanied by Dr. Naseer R (Infosys SPOC), Dr. Nirmala C R, Dr. Pradeep N, Prof. Anu C S, Dr. Gangadhar S, and Dr. Naveen H M.



Glimpses of event

- In collaboration with the Training & Placement (T&P) Department, a **Pre-Placement Talk** was conducted by the TCS HR team on 24th August 2024 for 7th semester students. The session, led by Mr. Vinay Shivapura and Mr. Mahesh Kadam, aimed to provide insights into the hiring process, expectations from candidates, career opportunities, and strategies for successful placements.



Glimpses of event

- The Department of CSE conducted an interactive session on “**Data Structures and Algorithms**” for 3rd-semester CSE students on August 29, 2024. The session was led by Dr. Prasanna Kumar H R, Head of the ISE Department at PESITM, Shivamogga, as the resource person.



Glimpses of event

- In accordance with the VTU Internship Policy, an internship on the emerging topic “**AI-DevOps Engineer**” commenced on September 23, 2024, for 80 students of the 7th semester. Dr. Gururaj T and Dr. Abdul Razak M S, serving as SPOCs, are leading the internship in collaboration with VTU and ROOMAN Technologies, Bengaluru, conducted in online mode.



Glimpses of event

- The CSE Department organized an orientation session on “**Generative AI and IBM Watson Studio**” in collaboration with the IBM SkillsBuild Developer Program on September 2, 2024, for 3rd-semester students across CS and allied branches. The session was conducted by Mr. Chetan Hiremath and Mr. Piyush Pankaj, Master Trainers from Edunet Foundation. Dr. Jyothi G C serves as the SPoC for IBM activities at the institute.



Glimpses of event

- In collaboration with Infosys Springboard, a three-day workshop on "**Python Programming - Foundations**" was conducted for 3rd semester students from 18th to 20th September 2024. The session was coordinated by Dr. Naseer R (SPoC).



Glimpses of event

- As part of the UniCS initiative, the department conducted a session on “**Animation and Cinematic Visual Effects**” on September 27, 2024, for 3rd and 5th semester students. The session was led by Mr. Chetan I Naik, Head of the Animation and VFX Department at Vistara Pvt. Ltd., Davangere.



Glimpses of event

- The department hosted a two-day workshop on “**Mastering the Fundamentals of ReactJS: Code, Create, Conquer**” on October 4-5, 2024, for 5th-semester students. The session was conducted by Mr. Vijay Kogali, Frontend Technical Lead, with Prof. Muthahir and Prof. Dhruv serving as event coordinators



Glimpses of event

- In collaboration with the Training & Placement (T&P) Department, a **demo session** was conducted by the Codingeni team on 5th October 2024 for 7th semester students. The session aimed to enhance students' coding skills and provide industry-relevant insights, helping them bridge the gap between academic learning and job readiness in the tech industry.



Glimpses of event

- The department hosted the “**Forum Inauguration and Welcome Ceremony**” for 3rd-semester students on October 8, 2024. The event aimed to introduce students to the forum's objectives, activities, and learning opportunities, fostering collaboration, innovation, and professional growth. The occasion was graced by Mr. Vinay Karki, Program Manager at Rakuten, and Mr. Aravind B K, Team Builder at Rakuten, Bengaluru, as the chief guests.



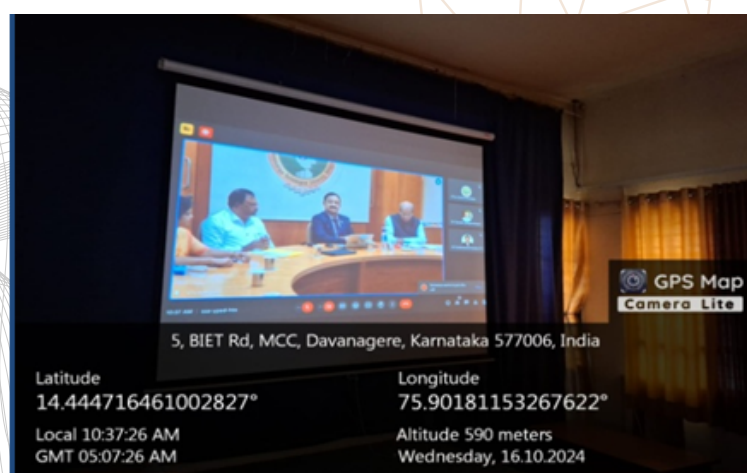
Glimpses of event

- **Placement activities** for the 2024-2028 Autonomous batch commenced on October 14, 2024. These activities include “technical training, verbal skills enhancement, personality development, and communication skills training”, aimed at preparing first-semester students for future career opportunities.



Glimpses of event

- VTU conducted the 6th Monthly UHV Lecture on "**Embedding Human Values into Engineering Education to Build a Sustainable Career**" for 1st-semester CSE students on October 16, 2024, through virtual mode. The session was held at two locations: Placement Seminar Hall and Aryabhata Seminar Hall. The event was coordinated by Dr. Naresh Patel K M, Prof. Rahima B, Prof. Dhrushti S, and Prof. Anusha N.



Glimpses of event

- In collaboration with the Sports Department, BIET, the "**UniCS Champions League**" inter-departmental sports competition for BIET students was inaugurated on October 18, 2024. The event is being coordinated by Dr. Santosh K C and Dr. Naresh Patel K M.



Glimpses of event

- In collaboration with the Training & Placement (T&P) Department, a Technical Talk on "**Introduction to Cyber Security**" was organized on 19th October 2024 for 5th semester students. The session was led by Mr. Ajay Ganapule, Program Manager, Cyber Security Practices, Bengaluru, who provided valuable insights into cybersecurity concepts and industry practices.



Glimpses of event

- The Department under UniCS - Binary Blooms Coding Club conducted "**Code Quest 1.0**", an inter-collegiate coding competition on 25th October 2024. This competition aimed to provide a platform for students from our institute and other institutions to showcase their programming prowess, creativity, and technical expertise. 110 teams in total participated from across the institutes and BIET. (Prof. Vishwanath V K and Prof. Nomitha Chawla)



Glimpses of event

- Under the banner of UniCS, department organised a session on “**Animation and Cinematic Visual Effects**” on 06/11/2024 for 3rd and 5th semester students and the resource person being Mr. Chetan I Naik , HoD, Animation and VFX Department,Vistara Pvt. Ltd, Davangere.



Glimpses of event

- As per the VTU 2021 Scheme syllabus, the “**NSS camp activity**” for 7th-semester students was conducted on 13/11/2024 near Amrutha Hostel. The event aimed to promote community service, personal growth, teamwork, and the principles of Swachh Bharat while raising awareness about Skill India and Digital India. The camp was guided by Dr. Naresh Patil, Prof. Jagadish A. N, and Prof. Gangamma H.



Glimpses of event

- The 3rd and 5th semester students have attended "**AI-nization 4 all**" at “Rakuten Technology Conference 2024”, Bengaluru on 16th November 2024. Two student teams showcased their projects Smart Mirror and Voice to Code. Only two institutes were identified for this event and BIET is one amongst them. Dr. Nirmala C R, Rakuten SPOC along with, Dr. Pradeep N, Dr. Naresh Patel K M, Prof. Jagadeesh A N, Prof. Vishwanath V K, Prof. Rachana G S and Prof. Archana T C visited the company.



Glimpses of event

- The 5th-semester students participated in an activity-based learning session on the “**Marshmallow Challenge**” under the Software Engineering subject on 19th November 2024. The session aimed to enhance creativity, teamwork, and problem-solving skills, guided by Prof. Madhu N. H



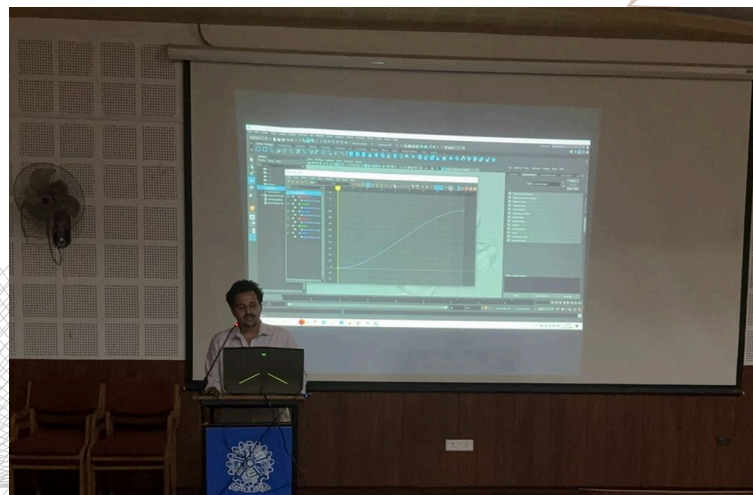
Glimpses of event

- Department of Computer Science and Engineering organised a workshop on “**Visual effects in films and games**” by 3D animation & VFX team for 3rd semester students from 25th to 30th November 2024. The resource persons were Mr. Sunil M K, Graphic Designer and Mr. Chethan I Naik, 3D Generalist. (Dr. Gangadhar S & Prof. Archana T C)



Glimpses of event

- In Association with the Team Master Campus, dept. Of CS&E organised a technical session on “**Data Science and Predictive Modelling**” for 5th semester students on 28th november 2024. The sessions aimed to provide insights into the field of Data Science and its applications in predictive analytics, equipping the participant with the fundamental knowledge and understanding of industry use cases. The resource person called was Mr. Sunil Gowda T H, Founder and Chief Data scientist, Master Campus Academy. (Dr. Santhosh K C)



Glimpses of event

- As part of their academic coursework, the final presentation of the **Mini Project-BCS586** for 5th-semester students was conducted on 06/12/2024, under the guidance of Dr. Jyothi G. C., Prof. Shankar Sirji, and Prof. Archana T. C.



Glimpses of event

- A **Jamming Session** for 3rd-semester students was scheduled on 10th December 2024 as part of the Social Connect and Responsibility (SCR) activity, guided by Prof. Rahima B., Prof. Anusha N, and Prof. Drushti S.



Glimpses of event

- 3rd-semester students advanced to the final round of **Smart India Hackathon 2024** conducted by Ministry of Education, Govt. of India scheduled from 11th December 2024 to 12th December 2024 at National Institute of Technology Karnataka, Surathkal under the mentorship of Prof. Arjun H



Glimpses of event

PAPER PRESENTED /PUBLISHED by faculty

- Prof. Jagadish A N presented paper on “**Segmentation of Mitral and Aortic Valves from Echocardiographic Images using Morphological Operations**” in the 5th International Conference on Data Science and Applications held at Malaviya National Institute of Technology, Jaipur on 17th to 19th, July 2024.
- M. S. Abdul Razak, C. R. Nirmala, R., Published a paper on "**Enhancing Student Support with AI: A College Assistance Chatbot Using NLP and ANN.**" 2024 Second International Conference on Networks, Multimedia and Information Technology (NMITCON), Bengaluru, India, 2024, pp. 1-8, doi: 10.1109/NMITCON62075.2024.10699279.
- Santosh K. C., Abdul Razak, M. S. published a paper on “**Plant leaf disease detection using hybrid feature extraction techniques**” in Archives of Phytopathology and Plant Protection, 57(3), 200–218. Dr. Nirmala C R and Prof. Anu C S published a paper on “A review on Estimation of Crop Yield using Different Machine Learning approaches in precision agriculture” Proceedings of YMER, Volume 23, Issue 04
- Prof. Gangamma H published a paper “**A comprehensive survey exploring the application of machine learning algorithms in the detection of land degradation**” Proceeding of Journal of Degraded and Mining Lands Management.
- Dr. Naseer R, published a paper “**Eco Friendly Waste Solution: A Path to Responsible Resource Management**”, Proceeding of Seybold Report Journal, DOI:10.5110/77.1404. Vol 19, Issue 4, April 2024.
- Dr. Naseer R, published a paper “**AI based Gait Recognition for Biometric Surveillance**”, Proceeding of Journal of emerging technologies and Creative research, ISSN:2349-5162, <http://doi.one/10.1729/Journal.38765>
- Dr. Gururaj T, published a paper “**Safeguarding Digital Spaces: Employing NLP & Machine Learning To Combat Intimidator On Social Platforms**”, Proceeding of Technische Sicherheit, ISSN NO: 1434-9728, Volume 23, Issue 12, December 2023, PAGE NO: 253-267, DOI:22.8342.TSJ.2023.V23.12.01213. Scopus-Ranked Q4 in SJR
- Dr. Naveen H M, published a paper “**An application of FCM and CNN for Efficient Lung Segmentation**”, Proceedings of SN Computer Science (Q2 Indexed, Springer Nature Journal), ISSN No:2661-8907

- Dr. Naveen H M, published a paper “**Computer Aided Detection of Lung Nodules using Swarm Intelligence**”, Proceedings of SN Computer Science (Q2 Indexed, Springer Nature Journal), ISSN No:2661-8907
- Dr. Naresh Patel K M published a paper “**Parsing Unstructured Healthcare Data using Regular Expressions**” Proceedings of International Research Journal on Advanced Engineering Hub.
- Dr. Naresh Patel K.M published a paper on “**Parsing Unstructured Healthcare Data using Regular Expressions**” in International Research Journal on Advanced Engineering Hub in Volume 2 Issue 07 July 2024.
- Anusha R, and Sunil C K. published a paper on “**Feature Integration for Frontal Gait Recognition through Contour Image Analysis**” in Journal of Signal, Image and Video Processing, Springer. (SCI and Scopus Indexed)
- Anusha R, and Jaidhar C D. published a paper on “**FASE Module Enabled Recognition of Individuals Using Distinct Gait Patterns**”, in IEEE International Conference on Electronics, Computing and Communication Technologies (CONECCT 2024). (Scopus Indexed)
- Anusha R, and Shridhar Sanshi. published a paper on “**Spatial Dynamics for Identification of Individuals through Gait and Other Locomotion Activities**”, In IEEE International Conference on Intelligent Signal Processing and Effective Communication Technologies (INSPECT 2024). (Scopus Indexed)
- Anusha R, and Shridhar Sanshi. Published a paper on “**Score-based Feature Reduction for Efficient Frontal Gait Recognition**”, in 6th International Conference on Communication and Intelligent Systems (ICCIS 2024). (Scopus Indexed)

PLACEMENT DETAILS

Sl.No	Name of the Employer	No.of students placed
1	TCS Ninja	22
2	Code Young	07
3	Cognizant	08
4	KPMG	12
5	Dhee Coding Labs	05
6	Infosys Ltd.	01
7	Kasmo Technology	12
8	IBM	01
9	TAP Academy	06
10	Zosh	01
	Total no. of Students Placed	64
	No. Students with Multiple offers	10

UNIVERSITY WORK carried by Faculty

- Dr. NirmalaC R has been nominated as **BOE Chairman** by VTU for the academic year 2024-2025.
- Prof. Raghu B.R, Dr. Naresh Patel K M, Dr. Naveen H M, Dr. Santosh K C, Dr. Gangadharappa S appointed as **valuator for UG answer scripts** and **examiner for UG practical examination**.
- Prof. Waseem Khan, Prof. A N Jagadish, Prof. Preethi B, Prof. Gangamma Hediylad, Prof. Anu C S appointed as **examiner for UG practical examination** and **UG answer scripts**.

Faculty Corner

Dr. Nirmala C.R.

Dean of Placements

Professor & Head

Department of Computer Science
& Engineering



Agentic AI: The Future of Autonomous Intelligence

Introduction

Artificial Intelligence (AI) has evolved from simple rule-based systems to sophisticated deep learning models capable of performing complex cognitive tasks. A major paradigm shift in this evolution is the emergence of Agentic AI—an advanced form of AI designed to operate autonomously, make independent decisions, and perform tasks without continuous human intervention.

Agentic AI is fundamentally different from conventional AI models in that it exhibits autonomy, adaptability, and goal-oriented behavior. These systems can perceive, reason, and act in dynamic environments, making them suitable for high-stakes applications like robotics, autonomous vehicles, finance, cybersecurity, and scientific discovery.

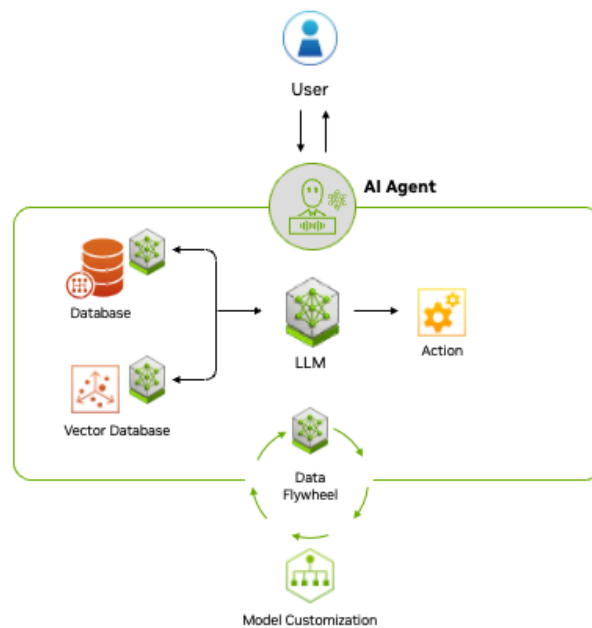
This article explores the foundations, capabilities, challenges, and future implications of Agentic AI.

Understanding Agentic AI

At its core, Agentic AI refers to AI systems that exhibit agency—the ability to take initiative, plan actions, and adapt to changing environments. Unlike traditional AI, which often requires explicit input for every task, agentic AI operates more like a human agent by:

- Perceiving the environment through sensors, APIs, or data streams.
- Reasoning and making decisions based on predefined goals and learned experiences.
- Taking action autonomously and refining its approach based on feedback loops.

This makes Agentic AI proactive rather than reactive, enabling it to handle complex, multi-step processes that require long-term planning and execution.



Key Characteristics of Agentic AI

1. Autonomy

Agentic AI can function independently without requiring human input at every step. Once given a goal, it can determine how to achieve it using its own reasoning and decision-making mechanisms.

2. Adaptability

These systems can learn from their interactions with the environment and modify their behavior dynamically. They can adjust their strategies based on changing conditions, improving their effectiveness over time.

3. Goal-Oriented Behavior

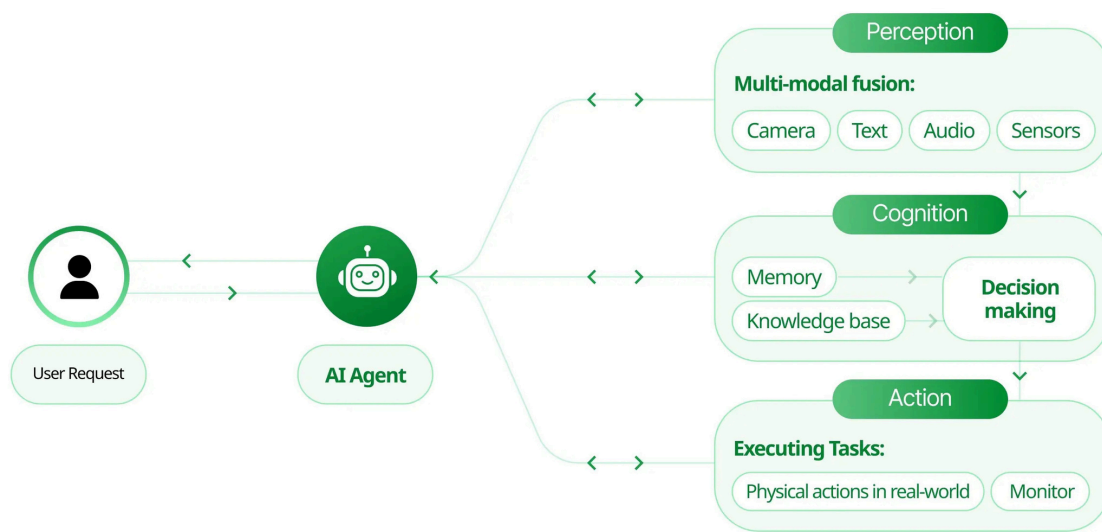
Unlike traditional AI, which often follows predefined steps, Agentic AI is designed to set, pursue, and achieve goals with minimal supervision. It continuously evaluates progress and refines its approach as needed.

4. Long-Term Planning

Agentic AI can engage in long-term decision-making by predicting possible future states and selecting actions that optimize desired outcomes. This is particularly useful in fields like supply chain management, automated trading, and scientific research.

5. Interactive and Collaborative

Many Agentic AI systems are designed to collaborate with humans and other AI agents. They can communicate, negotiate, and share information to enhance their decision-making process.



Examples of Agentic AI in Action

1. Autonomous Vehicles

Self-driving cars, like those developed by Tesla and Waymo, rely on Agentic AI to perceive traffic, make driving decisions, and navigate complex road conditions without human intervention.

2. AI-Powered Personal Assistants

Advanced AI assistants like OpenAI's GPT-4, Google's Bard, or Microsoft's Copilot are becoming more agentic, handling multi-step tasks, automating workflows, and making proactive suggestions.

3. AI in Finance and Trading

Autonomous trading bots analyze market trends, predict future stock movements, and execute trades in real-time, optimizing financial portfolios with minimal human input.

4. AI in Cybersecurity

Agentic AI can detect, respond to, and mitigate cyber threats autonomously by analyzing network traffic, identifying vulnerabilities, and deploying countermeasures in real-time.

5. AI in Scientific Discovery

AI-powered agents in research labs are designing drugs, conducting simulations, and even formulating hypotheses, accelerating scientific breakthroughs in medicine, materials science, and space exploration.

Challenges and Risks of Agentic AI

1. Control and Safety

As AI systems become more autonomous, ensuring they align with human values and ethical standards is a significant challenge. AI misalignment could lead to unintended consequences, such as unsafe decisions or harmful actions.

2. Explainability and Transparency

Agentic AI often relies on complex deep learning models, making its decision-making process opaque. Ensuring transparency and interpretability is crucial for trust and accountability.

3. Bias and Fairness

AI systems trained on biased data can exhibit discriminatory behavior, leading to unfair outcomes in hiring, lending, and law enforcement. Addressing bias in agentic AI is an ongoing challenge.

4. Security Vulnerabilities

Highly autonomous AI systems can be hacked or manipulated, leading to malicious exploitation. Ensuring robust security measures is critical to prevent AI from being used for harmful purposes.

5. Ethical and Societal Implications

The rise of Agentic AI raises ethical concerns about job displacement, decision-making power, and human-AI collaboration. Policymakers must establish guidelines to ensure responsible AI deployment.



The Future of Agentic AI

1. AI Agents in Everyday Life

In the near future, we may have fully autonomous AI assistants that manage schedules, handle communications, and make purchases on our behalf, acting as digital agents tailored to individual needs.

2. AI-Driven Scientific and Technological Breakthroughs

Agentic AI will play a significant role in solving global challenges, from climate change modeling to discovering new materials for renewable energy.

3. Human-AI Collaboration

Instead of replacing humans, Agentic AI will serve as intelligent partners that enhance human capabilities, allowing for better decision-making, creativity, and problem-solving.

4. Regulation and Ethical AI Governance

Governments and organizations will develop AI governance frameworks to ensure that autonomous AI systems operate safely, ethically, and transparently.

Conclusion

Agentic AI represents a transformative leap in artificial intelligence, bringing us closer to truly autonomous and intelligent systems. As these technologies continue to evolve, they will reshape industries, enhance human productivity, and unlock new frontiers of innovation. However, their rise also presents significant ethical, security, and societal challenges that must be addressed through careful regulation and responsible AI development.

The future of Agentic AI lies in striking a balance between autonomy and control, ensuring that AI systems work in harmony with human values while unlocking their full potential.

Dr. Naveen H M
Associate Professor
CS&E Department
BIET, Davanagere



Digital Twin Technology: Bridging the Physical and Digital Worlds

A Digital Twin is a virtual replica of a physical object, system, or process, continuously updated with real-time data to simulate, predict, and optimize performance. It serves as a bridge between the physical and digital worlds.

In an era of increasing connectivity and smart systems, Digital Twin technology has emerged as a groundbreaking innovation that's transforming industries across the board. Whether in manufacturing, healthcare, smart cities, or aerospace, digital twins are reshaping how we monitor, maintain, and optimize physical assets.

But a digital twin is more than just a static 3D model—it's a living, evolving simulation that helps engineers, data scientists, and decision-makers predict outcomes, prevent problems, and drive efficiencies in a risk-free digital environment.

For instance, in manufacturing, sensors installed on a factory machine send operational data (temperature, pressure, usage) to its digital twin, which then uses this data to detect anomalies, forecast failures, and recommend maintenance schedules.

Key Applications Across Industries

- **Manufacturing:** Digital twins enable predictive maintenance, reduce downtime, and simulate production lines before implementation.
- **Healthcare:** Virtual replicas of organs or patients can assist in personalized treatment plans and surgery simulations.
- **Smart Cities:** Urban planners use digital twins to model energy usage, traffic flow, and emergency response systems.
- **Aerospace and Defense:** NASA pioneered digital twin use to simulate and troubleshoot spacecraft systems.
- **Automotive:** Car manufacturers use digital twins to test autonomous driving systems and optimize vehicle design.

Benefits of Digital Twins

- **Predictive Insights:** Anticipate issues before they arise, reducing costly downtime.
- **Enhanced Performance:** Continuously monitor and adjust systems for optimal efficiency.
- **Reduced Costs:** Test new designs and changes virtually, avoiding expensive trial-and-error.
- **Faster Innovation:** Accelerate research and development through real-time simulation.
- **Informed Decisions:** Data-driven insights lead to smarter strategic choices.

Despite their potential, digital twins come with challenges:

- **Data Complexity:** Integrating massive volumes of sensor data in real-time is technically demanding.
- **Cybersecurity Risks:** Connecting physical and digital systems introduces new vulnerabilities.
- **Model Accuracy:** Building and maintaining high-fidelity models requires significant expertise and resources.
- **Scalability:** Managing thousands of digital twins in large enterprises can be overwhelming without robust infrastructure.

As AI, 5G, edge computing, and IoT evolve, digital twins are expected to become even more intelligent and autonomous. We'll likely see cognitive digital twins systems capable of learning, reasoning, and making decisions on their own.

In the coming years, entire factories, cities, and even human bodies could be mirrored digitally, paving the way for hyper-personalized services, automated operations, and data-driven governance.

Student Corner

Kushal K C
4BD22CS072
6TH Semester



AI and the Future of Finance

Artificial Intelligence (AI) is rapidly reshaping the financial world. Banks, investment firms, and fintech startups are increasingly using AI to streamline operations, enhance security, and deliver personalized services.

In banking, AI-powered chatbots handle routine customer inquiries, freeing up human agents for more complex tasks. Investment firms leverage machine learning to predict market trends and optimize portfolios faster and more accurately than ever before.

One of AI's most critical roles lies in fraud detection. Real-time monitoring systems powered by AI can detect suspicious activities immediately, reducing financial crime and increasing trust. Additionally, biometric security features like facial recognition are becoming more common, offering users safer ways to access their accounts.

Personalization is another key benefit. AI can analyze spending habits and investment behaviors to create tailored financial advice and products, making financial services more accessible and inclusive.

However, the rise of AI also brings challenges, particularly around data privacy and algorithmic bias. As technology continues to evolve, regulators are working to ensure AI remains transparent, fair, and ethical.

One thing is clear: AI is not just improving finance — it's revolutionizing it.

Chasing Dreams

Somewhere beneath the stars, a dream is born,
Soft as a whisper, fierce as a storm.
It calls you gently, “Come, take flight,”
Beyond every shadow, there’s more to light.

The mountains may rise, the rivers may bend,
But dreams have roots — they break, they mend.
They grow through courage, through laughter and tears,
They carve out a path through your deepest fears.

So dare to dream, and dream out loud.
Reach for the sky, break through the clouds.
In every heartbeat, in every gleam,
Wake up, stand tall — and chase your dream.



Kavyashree H G
4BD21CS059
8th Semester

ಸಾಗರ ತೀರ

ಬಿಳಿ ಬಿರುಗಾಳಿ ಬೀಸಿತು ತೀರ,
ಹೊಟ್ಟೆ ಹೊಗಳಿದ ಕಡಲಿನ ಗೀರ.
ನಾರ್ಲಿನ ಗಿಡಗಳ ತೊಗಲು ಗಾನ,
ಮುತ್ತಿನ ಬಿಂಬದ ಮುಗಿಲಿನ ಜಗಣ.

ಉಡುಪಿ ದೇವರ ಬೆಳಕು ಹರಿದು,
ಕಾರವಾರ ತೀರಕೆ ಕನಸು ಹರಿದು.
ಮೀನುಗಾರರ ಹಾಡಲ್ಲಿ ಹರುಷ,
ಅಲೆಗಳ ಹಕ್ಕಿಗೆ ತಂಪಾದ ಸ್ಪರ್ಶ.

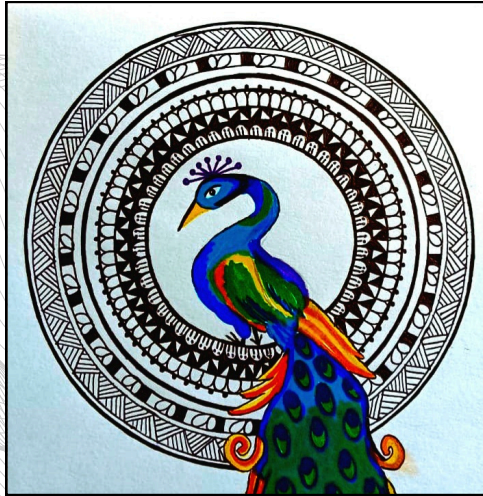
ಮದ್ದಳಿಯ ಶಬ್ದ, ತಾಳದ ಮಿಂಚು,
ಹಬ್ಬದ ನೆನೆಪಿಗೆ ಹೃದಯದ ಬಿಂಚು.
ಮಣ್ಣಿನ ಸುವಾಸನೆ ಮಳೆಯ ಚುಂಬನೆ,
ತೀರದ ಕಥೆಗೆ ನಾವೆನು ಮುಗ್ಧ ನೆನೆ.

ಹೆಜ್ಜೆ ಹೆಜ್ಜೆಗೆ ಮರಳಿನ ಚುಂಭನೆ,
ಮರುಳು ತರುವ ಕಡಲಿನ ಗುಂಪನೆ.
ಮಾತಿನಲಿ ಸಾಗರದ ಮೋಡಿ,
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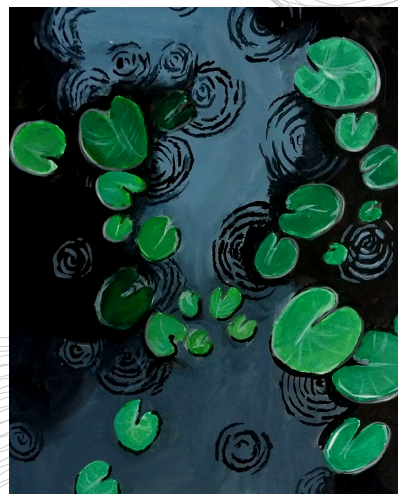


Prajwal L Bhat
4BD23CS138
4TH Semester

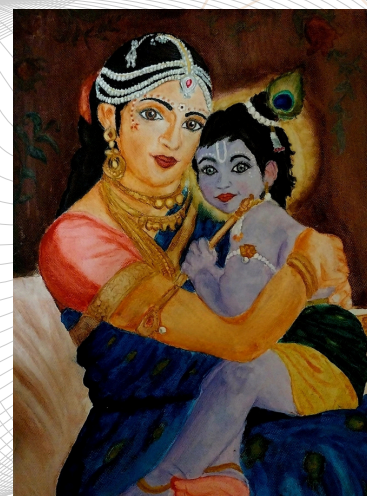
Art Gallery



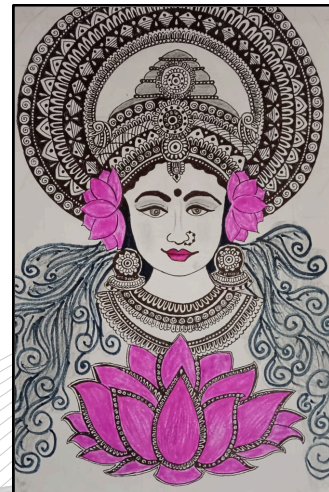
Vibha G S
4BD22CS183
6th Sem C sec



Kavana T N
4BD22CS066
6th sem C sec

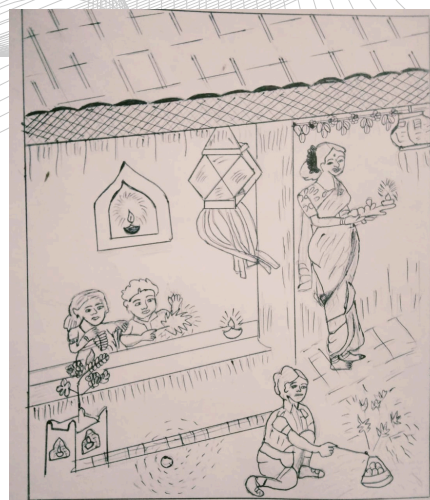


Anushree H S
4BD23CS026
4th Sem B Sec



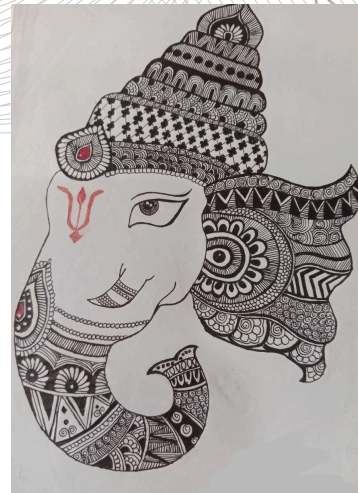
PRERANA H D
4BD23CS150
4th Sem D Sec

Madhu Ravi Kolar
4BD24CS406
4th Sem B Sec

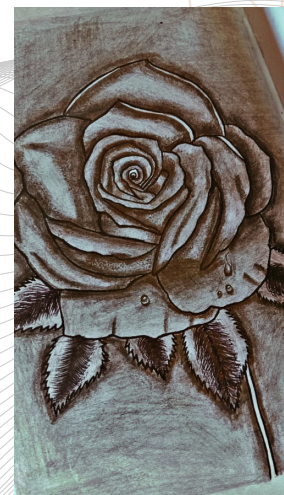
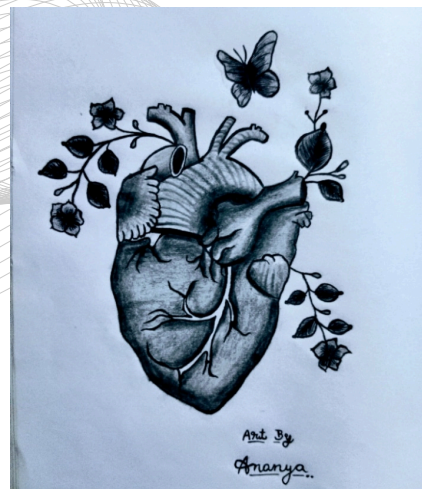


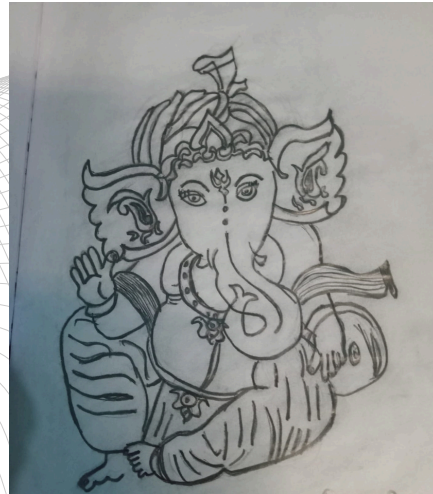
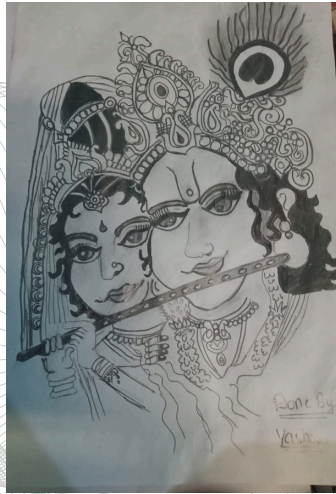


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