





## HEAD OF DEPARTMENT

#### "Code with passion, debug with patience."



"As we continue to navigate the rapidly evolving landscape of technology, I am proud to see our Computer Science department thriving with innovative ideas and enthusiasm. Our students and faculty have been working tirelessly to push the boundaries of what is possible, and I am excited to see the impact of their work. In this celebrate their magazine, we achievements, share their stories, and inspire each other to strive for excellence. In this magazine, we celebrate their achievements, share their stories, and inspire each other to strive for excellence. From cuttingedge research projects to innovative startups, our department is buzzing with creativity and energy.

SUNIL SINGH HOD INFORMATION TECHNOLOGY - MCA, B.ED, M.COM, GNIIT

I would like to take this opportunity to thank our faculty members for their dedication and hard work. Your guidance and mentorship have been instrumental in shaping the minds of our future technologists.

To our students, I encourage you to continue exploring, learning, and innovating. The world needs your skills, creativity, and passion more than ever.

## Department of Computer Science and Information Technology



Sunil Singh HOD of Information Technology PGT (Computer Science) MCA, GNIIT, M.Com, B.Ed



Shivakumar Mathapti PGT(Information Technology) M.Sc. Computer Science



Ashwini Guttedar TGT(Computer) <u>M.Tech(Computer Network)</u>



Abhigyan Dixit TGT(Computer) BCA(Artificial Intelligence)

## Key Roles and Responsibilities

Student IT Council take on specific roles based on their interests and expertise, contributing to the overall success of the council's projects.

N. Jahnavi	XIth Science
T. Bhuvanaprathibha	XIth Science
Charan Kumar	XIth Science
Mahesh	XIth Science



## WAY TO ACCESS

## Vidyalaya (School ERP)

https://mps.onlinevidyalaya.net/Defualt.aspx\_

## **School Website**

2

https://manikpublicschool.org

## 3 Mobile App

Search Manik Public School app in google playstore Search Vidyalaya school app in app store

10.00

## **Evolution of Programming Languages**



The evolution of programming has transformed languages computing. Early languages like machine code and assembly were difficult and hardware-specific. In the 1950s. high-level languages like COBOL Fortran and made The programming more accessible. 1980s introduced **Object-Oriented** Programming (OOP) with languages like C++ and Smalltalk, enabling more modular, reusable code.

The rise of the internet in the 1990s brought scripting languages like JavaScript, PHP, and Python for dynamic web development. Today, languages like R and Go cater to modern needs such as data science and cloud computing, while the future holds potential with AI and quantum computing.

# ARTIFICIAL INTELLIGENCE



#### **Educational Technology**

In healthcare, AI is revolutionizing diagnostics, enabling faster and more accurate detection of diseases like cancer. In finance, Al-powered algorithms can analyze vast amounts of data to predict market trends. Self-driving cars are another example, where AI is used to enhance safety and efficiency.

As AI continues to advance, it promises even greater innovations, including smarter virtual assistants, enhanced automation, and more personalized experiences in everyday life. However, as AI grows, it raises important ethical questions about privacy, job displacement, and decision-making.

#### ΑΙ

Artificial Intelligence (AI)is rapidly transforming the way we live, work, and interact with technology. Al refers to the of simulation human intelligence in machines, allowing them to learn, reason, problem-solve. This technology and is already impacting various industries, from healthcare and finance to transportation and entertainment.



# CODING TUTORIALS AND TIPS

#### SNIPPETS OF CODE FOR PYTHON

In the world of programming, Python an incredibly is versatile and beginnerthat friendly language is widely used in various fields, from web development to data analysis. In this issue, we explore some fundamental Python code snippets that illustrate key concepts and techniques. with Starting the classic "Hello World," we dive into more complex examples like calculating the factorial of a number using recursion. creating a simple calculator, Fibonacci and generating sequences.



We also explore important data structures like stacks, demonstrating their implementation with Python lists. Other snippets include checking for prime numbers, verifying palindromes, and handling file I/O. Additionally, we highlight the importance of exception handling with a sample demonstrating how Python gracefully manages errors. Whether you're a beginner or looking to sharpen your skills, these code snippets provide a solid foundation for understanding Python and its practical applications in computer science.



## JAVA

Java is а popular, high-level, object-oriented programming language known for its portability, security, and versatility. Developed by Sun Microsystems in 1995, it follows the "write once, anywhere" philosophy, run meaning Java programs can run on any platform that supports Java without modification. This is made the Java Virtual possible by Machine (JVM), which translates Java bytecode into machine code for the host system. Java is widely used in web development, mobile applications (especially Android), enterprise-level systems, and more.

features robust standard It а multilibrary and supports threading, making it suitable for high-performance applications. With its focus reliability, on simplicity, and scalability, Java is chosen large-scale often for applications. Its syntax is similar developers familiar with those languages to learn Java. Additionally, Java's widespread use, strong community support, and continuous updates ensure its relevance in the software development industry.



## Alumni Spotlight

Spotlight Google CEO Sundar Pichai famous for his phenomenal memory



# Feature a successful alumnus from the field of computer science.!

notable successful alumnus One from the field of computer science is Sundar Pichai, the current CEO of Google and Alphabet Inc. Pichai's journey to success began with his education in computer science. He earned his Bachelor's degree in Metallurgical Engineering from IIT Kharagpur in India, where he was known for his academic excellence. He then went on to complete an MBA Wharton School of from the University of Pennsylvania, along with a Master's degree in Material Engineering Sciences and from Stanford University. Sundar Pichai joined Google in 2004, where he initially worked on the Google Toolbar and later oversaw the development of Google Chrome. which became one of the most popular web browsers globally.

His work on Chrome, as well as his leadership on Google's suite of applications, such as Gmail, Google Maps, and Android, helped him rise through the ranks. Pichai became the CEO of Google in 2015, and in December 2019, he took on the role of CEO of Alphabet Inc., Google's parent company. Pichai's success story is a testament to how a solid foundation in computer science. combined with leadership and innovation, can lead to remarkable achievements in the tech industry. His work has not only influenced the development of cutting-edge technologies but also shaped the direction of one of the most influential tech companies in the world.

# CROSSWORD

# Computing

Across 2. Something that most websites have starting with L 3. what is the most popular search engine? 6. what do you use to add a paragraph? 7. a search engine begging with Y 8. What does www stand for? 10. Tim -Lee

### Down

 What do websites contain?
makes up the layout and structure for your website
What do you use to underline?
what search engine is starts with B and ends in G



# COMPUTER SCIENCE IN DAILY LIFE



Computer science shapes daily life through communication telemedicine. platforms, and personalized education tools. It optimizes transportation with navigation and ride-sharing, while enhancing shopping experiences with Al-based recommendations. In finance, it ensures secure transactions, and in entertainment, it powers streaming services and smart devices. making life more efficient and connected.

#### HOW COMPUTER SCIENCE IMPACTS EVERYDAY ACTIVITIES.

Computer science impacts daily life by instant communication, enabling enhancing healthcare with telemedicine and wearables, revolutionizing education through e-learning, optimizing transportation with GPS and self-driving cars, and personalizing shopping and entertainment experiences. It also powers smart financial systems, home technologies, and entertainment, making tasks more efficient and connected.



## AI: A DOUBLE-EDGED BRUSH OF CREATIVITY BY P. SAHITH XII(SCI)

AI, a marvel, built with care,Solves big problems, ideas to shares,It writes, it paints, it even sings,Bringing life to so many things.

But does it dim the human spark, Making paths too easy, stealing the mark? Will creators fade, their voices lost,

To machines that learn at any cost?

Yet Al's just a tool, not the guide, Its impact depends on how it's applied. Let it support, not take control, So creativity stays the heart and soul.

The Impact of AI on Creativity: Balancing Innovation and Originality AI is a powerful tool that enhances

creativity by offering innovative solutions and ideas. However, its misuse may lead to over-reliance, diminishing human originality. To balance its role, here are some tips: Use AI as a Helper: Let AI handle repetitive tasks while you focus on creative thinking.

Keep Learning: Build your skills to complement Al's capabilities, ensuring you remain unique.

Stay Original: Use AI to inspire, not replace, your own ideas.

 Limit Overuse: Avoid depending entirely on Al—practice your creativity without it.
Blend Efforts: Combine Al's efficiency with your personal touch



ON HORE OF HERE

## KEY ASPECTS OF ONLINE GAMING

Online gaming has rapidly become a dominant aspect of the entertainment industry, driven by advancements in computer science and technology. It encompasses a wide range of genres, from multiplayer battle arenas to massive open-world experiences, all of which rely on complex algorithms, real-time data processing, and cloud computing. As gaming communities expand globally, the demand for fast, reliable servers, optimized graphics, and immersive gameplay experiences continues to rise. Online gaming also serves as a platform for learning and innovation, encouraging collaboration, problemsolving, and the development of advanced AI, making it a fascinating intersection of entertainment and technology.



#### **Multiplayer Experiences**

Online games often feature multiplayer modes, allowing players to compete or cooperate with others in real-time. This can include everything from cooperative team missions to largescale competitive battles.

#### **Global Reach**

Online gaming connects players across the globe, breaking down geographical enabling cross-cultural barriers and interactions. This international scope contributes to the growth of the gaming community. Online gaming has transformed the entertainment landscape, creating new opportunities for social interaction, competition, and creative expression.

Gaming is immersive, engaging, entertaining, strategic, interactive, thrilling, challenging, competitive, relaxing, and adventurous.

#### Accessibility and Convenience

Online gaming allows players to access games from various devices, including PCs, consoles, and mobile phones. flexibility makes gaming more This accessible to a broader audience

#### Social Interaction

Many online games integrate social features. such voice chat. as messaging, and friend lists, enhancing interaction player and fosterina communities. Players often form teams, guilds, or clans to engage in collective goals.

# ETHERAL R. R. R. R. C.

Ş

Ethical hacking is a specialized field in cybersecurity where skilled professionals, known as ethical hackers or white-hat hackers, simulate potential cyberattacks to identify and fix vulnerabilities in computer systems, networks, and applications.



Unlike malicious hackers, ethical hackers work with the permission of the organization or entity they are testing, adhering to a strict code of ethics and compliance with legal standards. Their primary goal is to strengthen security by exposing and addressing flaws before malicious actors can exploit them.

# ETHICAL HACKING



#### **IMPORTANCE IN CYBERSECURITY**

Ethical hacking is critical in an era where data breaches and cyberattacks can have catastrophic consequences, including financial damage, reputational and losses. legal repercussions. By proactively identifying ethical hackers security help gaps, organizations implement robust defenses, such as encryption, multi-factor authentication, and intrusion detection systems.





#### **CAREER AND CERTIFICATIONS**

Ethical hacking requires strong technical expertise in like areas programming, systems. networking. and operating Certifications such as Certified Ethical Hacker (CEH), Offensive Security Certified Professional (OSCP), and Certified Information Professional Systems Security (CISSP) validate the skills of ethical hackers and are often prerequisites for employment in the field.



BRITISH-CANADIAN COMPUTER SCIENTIST, COGNITIVE SCIENTIST, COGNITIVE PSYCHOLOGIST, KNOWN FOR HIS WORK ON ARTIFICIAL NEURAL NETWORKS WHICH EARNED HIM THE TITLE AS THE "GODFATHER OF AI".



## GEOFFREY HINTON

Geoffrey Hinton has been called "the godfather of AI" and is considered one of the most important thought leaders on the emergence of artificial intelligence and its implications for business and society. Hinton is considered a pioneer in the field: it was Hinton, in 2012, who created the technology that would become the foundation for the AI systems that are emerging as potential game-changers for business. But Hinton is not entirely a proponent of the rapid development of AI: he left his position at Google in 2023 so that he could speak freely about the potential dangers of the technology to humankind.



Geoffrey Hinton is one of the most influential figures in the field of artificial intelligence, particularly in deep learning. He is known for his groundbreaking work on neural backpropagation, networks and а that has technique become fundamental to the training of modern Al systems. Hinton's research laid the foundation for many advancements in development AI. including the of convolutional neural networks (CNNs) and deep belief networks. both of which have been instrumental in the field. transforming His most significant achievement came in 2012, when he and his team developed AlexNet, a deep learning model that drastically improved performance in image recognition tasks, sparking a revolution in computer vision and deep learning applications. This milestone paved the way for AI systems to excel speech recognition, tasks like in natural language processing, and driving. autonomous Hinton's contributions earned him the prestigious Turing Award in 2018. shared with which he other AI pioneers, Yoshua Bengio and Yann LeCun. Over the years, Hinton has mentored numerous prominent AI researchers and played a key role in shaping the future of AI technologies. success, he Despite his remains cautious about the ethical implications of AI, urging careful consideration of its potential impacts privacy, on employment, and societal structures, the advocating for responsible real-world deployment of AL in scenarios.



GATES AND ALLEN ESTABLISHED MICROSOFT ON APRIL 4, 1975

# HISTORY OF MICROSOFT

## Satya Nadella

#### CEO of Microsoft

Satya Nadella is a visionary leader, renowned for driving innovation, digital transformation, cloud computing, and artificial intelligence, reshaping industries with a focus on growth, empathy, and fostering a culture of inclusivity. Microsoft's vision is to empower every person and organization on the planet to achieve more. Through innovative technoloav. AI. and cloud services. Microsoft drives digital transformation, fosters sustainability, promotes inclusivity, and enhances productivity to create a positive global impact.

In 1985, Microsoft launched Windows, a graphical user interface for MS-DOS, which became the company's flagship product and helped establish Microsoft as a dominant force in personal computing. In the 1990s, Windows' success expanded, and the company introduced Microsoft Office, becoming the leading productivity software suite Throughout the late 1990s and

2000s, Microsoft ventured into new. markets, includina web browsers with Internet Explorer and gaming with the release of the Xbox in 2001. Despite facing increasing competition from companies like Google and Apple, Microsoft remained a dominant player in software, hardware, and services. Today, Microsoft is a leader in cloud services. AI. gaming, and enterprise solutions, with a continued focus on digital transformation and global inclusivity. The

company has evolved from a software giant into a technology powerhouse shaping the future of innovation.



## IEEE SPECTRUM

IEEE Spectrum provides expert insights, news, and analysis on electronics, robotics, Al, and technology's societal impact for professionals and enthusiasts.

### ACCESSIBILITY

"ACCESSIBILITY" IS GENERALLY USED TO REFER TO THE USABILITY OF A TOOL OR OBJECT BY THE BROADEST POSSIBLE RANGE OF USERS INCLUDING THOSE WITH PHYSICAL, COGNITIVE, OR TECHNOLOGICAL DISABILITIES. WEB ACCESSIBILITY IS THE EASE WITH WHICH PEOPLE WITH DISABILITIES CAN PERCEIVE, UNDERSTAND, NAVIGATE, INTERACT WITH, AND CONTRIBUTE TO THE WEB. WEB ACCESSIBILITY ALSO BENEFITS OTHERS, INCLUDING OLDER PEOPLE WITH CHANGING ABILITIES DUE TO AGING.



### **DIVERSE TOPICS**

The purpose of diversity, equity and inclusion (DEI) in IEEE PES is promoting an inclusive and equitable culture that welcomes, engages and rewards all who contribute to the field, without regard to race, religion, gender, professional role, educational background, disability, age, national origin, sexual orientation, gender identity, or gender expression. This is enhanced by a conscious strategy that focuses on developing the structures, systems, processes and culture that generate respect for the individual characteristics of all people within the organization, while also fostering a sense of belonging that makes everyone feel valued and part of the group and wider community.



Moreover, the creation of cartoons itself is testament to the advancements in а computer science and technology. Modern animation relies heavily on powerful software, algorithms, and Al-driven tools to bring characters and stories to life. From 2D animations to cutting-edge 3D creations, computer-generated cartoons highlight the seamless integration of art and technology. They showcase the potential immense of codina and innovation in fields like animation, gaming, reality, and virtual inspiring budding coders to explore these exciting avenues.

Including cartoons in a computer science magazine not only adds a touch of humor but also fosters an engaging learning environment. They can depict real-life scenarios in the tech world, poke fun at programming struggles, or even provide insightful commentary on the evolution of technology. By combining entertainment with education, cartoons make learning enjoyable and memorable, ensuring that readers stay inspired and connected to the ever-evolving world of computer science.



Cartoons have been of а source and education entertainment for generations, captivating audiences with vibrant visuals their and engaging storytelling. In the world of computer science, cartoons take on a unique role, transforming complex concepts into simple, relatable, and enjoyable visuals. They help bridge the gap between technical jargon and everyday making understanding, topics like algorithms, data structures, and coding practices more accessible to learners of all levels. Through humor and creativity, cartoons offer a fresh perspective on challenges faced by programmers and computer enthusiasts alike.



### DATAVERSE

## Departmental Magazine

Editorial Team	
Chief Editor	: Mr. Sunil Singh (HOD IT)
Assistant Editors	: Mr. Shivakumar Mathapti Mrs. Ashwini Guttedar Mr. Abhigyan Dixit
Student Editors	: Jessy Praveen (XIIth Science) Rajeev Kumar(XIIth Science) Sahith (XIIth Science)

Published By: Department of Computer Science and IT The Manik Public School

www.manikpublicschool.org