



DRONTECHCONNECT

**DRON**

**TECH**

**CONNECT**

**C**

***SE (AI&ML)***

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DRONTECHCONNECT

# EDITORIAL MESSAGE



**Dr. Ashima Mehta**  
(HOD CSE)

**Dear Readers,**

**Welcome to the latest edition of DronTechConnect!**

**Our Computer Science and Engineering (CSE) Department stands as an exemplary hub of innovation and learning. With cutting-edge curricula and state-of-the-art facilities, we offer an unparalleled academic experience. Our esteemed faculty comprises industry experts and dedicated researchers, fostering an environment that encourages critical thinking, creativity, and problem-solving skills. Through robust industry connections and internships, students gain practical exposure and hands-on experience in diverse technological domains. Our CSE department prides itself on producing graduates equipped with the expertise and adaptability to thrive in the ever-evolving tech landscape, making a significant impact in the world of technology.**

**Throughout these pages, you'll discover insightful articles, thought-provoking research, and inspiring stories from our students. From groundbreaking projects to perspectives on emerging technologies, this magazine showcases the diverse talents and accomplishments that make the department truly exceptional.**

**We hope this edition sparks your curiosity, ignites your passion for technology, and provides a glimpse into the exciting advancements happening within department. Thank you to all the contributors for sharing your expertise and experiences. We invite you to explore, learn, and be inspired by the incredible work showcased in this edition of our CSE department magazine.**

**Happy Reading!**

**Warm Regards  
Dr. Ashima Mehta  
Editor-in-Chief, DronTechConnect**

# EDITORIAL BOARD



## Editor in Chief

It gives me immense pleasure to present our college magazine, a culmination of creativity, innovation, and academic excellence. Within these pages, you'll witness the remarkable dedication and hard work of our Computer Science and Engineering (CSE) department. In this issue, I encourage you to explore the diverse perspectives and accomplishments featured here.

**Dr. Ashima Mehta**  
(HOD CSE)



**Jatin Kansal**  
(24069; CSE)

**Editor- Design**



**Harshak Saini**  
(24055; CSE)

**Co- Editor**



**Khushi Aggarwal**  
(24086; CSE)

**Editor- Text**



DRONTECHCONNECT



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and Mission**

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# VISION

**To facilitate high quality education in Information Technology and progressive atmosphere to the students so that they can fit into the competitive atmosphere in the global market.**

**To provide a learning ambience to enhance innovations, problem solving skills, managerial qualities, team-spirit and ethical responsibilities.**

**To provide exposure to latest tools and technologies in the area of Information Technology.**

**To support society by participating in & encouraging technology transfer.**

**To undertake collaborative learning which offers opportunities for long term interaction with academia and industry.**

# MISSION

# PROGRAM EDUCATIONAL OBJECTIVES (PEO)

- **Apply the technical competence in Computer Science and Engineering for solving problems in the real world.**
- **Carry out research and develop solutions on problems of social applications.**
- **Work in a corporate environment, demonstrating team skills, work morals, flexibility and lifelong learning.**
- **Solve broad-based problems individually and as a team member effectively in the world of work.**

# PROGRAM SPECIFIC OUTCOME (PSO)

- **Exhibit design and programming skills to develop and mechanize business solutions using revolutionary technologies.**
- **Learn strong theoretical foundation leading to brilliance and enthusiasm towards research, to provide well-designed solutions to complicated problems.**
- **Work effectively with diverse Engineering fields as a team to design, build and develop system applications.**

# PROGRAMME OUTCOME (PO)

## Engineering Graduates will be able to:

**PO1. Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

**PO2. Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

**PO3. Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

**Po4. Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

**Po5. Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

**Po6. The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

**Po7. Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

**Po8. Ethics:** Apply ethical principles and commit to professional ethics and responsibilities & norms of the engineering practice.

**Po9. Individual & team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

**Po10. Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give & receive clear instructions.

**Po11. Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

**PO12. Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

# Software Development for Portable Gadgets: Innovating Mobility



**Aditya Raj Gupta**

(23035; CSE)

In the fast-paced world of technology, the rise of portable gadgets has transformed the way we interact with digital devices. From smartphones and tablets to wearables and IoT devices, these portable gadgets have become indispensable tools in our daily lives, driving the need for innovative software development tailored to their unique capabilities and constraints.

Software development for portable gadgets presents a distinct set of challenges and opportunities compared to traditional computing platforms. These devices often have limited processing power, memory, and screen real estate, requiring developers to optimize their applications for efficiency and usability. Additionally, the diverse range of form factors and operating systems in the portable gadget market necessitates adaptability and versatility in software development practices.





## Stages of Software Development Processes



One of the key considerations in developing software for portable gadgets is user experience (UX). With smaller screens and touch-based interfaces, UX design plays a critical role in ensuring that applications are intuitive, responsive, and visually appealing on portable devices. This entails simplifying user interfaces, optimizing navigation flows, and leveraging device-specific features such as touch gestures and sensors to enhance usability and engagement.

Furthermore, software developers must prioritize performance optimization to deliver smooth and responsive experiences on portable gadgets. This involves minimizing resource usage, optimizing code for speed and efficiency, and leveraging hardware acceleration where available to maximize performance within the constraints of the device's hardware specifications.

Security is another crucial aspect of software development for portable gadgets. With the increasing prevalence of mobile malware and privacy concerns, developers must implement robust security measures to protect user data and mitigate the risk of unauthorized access and data breaches. This includes encrypting sensitive information, implementing secure authentication mechanisms, and regularly updating software to address known vulnerabilities.

In conclusion, software development for portable gadgets represents a dynamic and evolving field at the intersection of mobility, usability, and innovation. By embracing the unique challenges and opportunities presented by portable devices, developers can create compelling and impactful experiences that enhance productivity, connectivity, and convenience for users in today's increasingly mobile world.

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**Aditya Raj Gupta**  
(23035; CSE)

# Merits and Demerits of Cloud Storage



**Neerav Rathi**

(23109; CSE)

Cloud storage has revolutionized the way we store, access, and share data, offering numerous benefits alongside potential drawbacks. Understanding the merits and demerits of cloud storage is essential for individuals and organizations seeking to leverage its capabilities effectively.

### **Merits:**

**Accessibility:** Cloud storage provides anytime, anywhere access to data, enabling users to retrieve and share files from any internet-connected device. This flexibility enhances collaboration and productivity, as team members can collaborate on documents and projects in real-time, regardless of their location.

**Scalability:** Cloud storage offers virtually unlimited scalability, allowing users to scale their storage capacity on-demand to accommodate changing needs. This scalability eliminates the need for costly hardware upgrades and provides cost-effective storage solutions for businesses of all sizes.

**Cost-Effectiveness:** Cloud storage eliminates the need for physical storage hardware and maintenance costs associated with traditional on-premises storage solutions. With pay-as-you-go pricing models, users only pay for the storage resources they consume, reducing upfront capital expenditures and optimizing cost-efficiency.

**Disaster Recovery:** Cloud storage providers implement robust backup and disaster recovery mechanisms, ensuring data redundancy and resilience against hardware failures, natural disasters, and other unforeseen events. This mitigates the risk of data loss and downtime, providing peace of mind to users and organizations.

## Demerits:

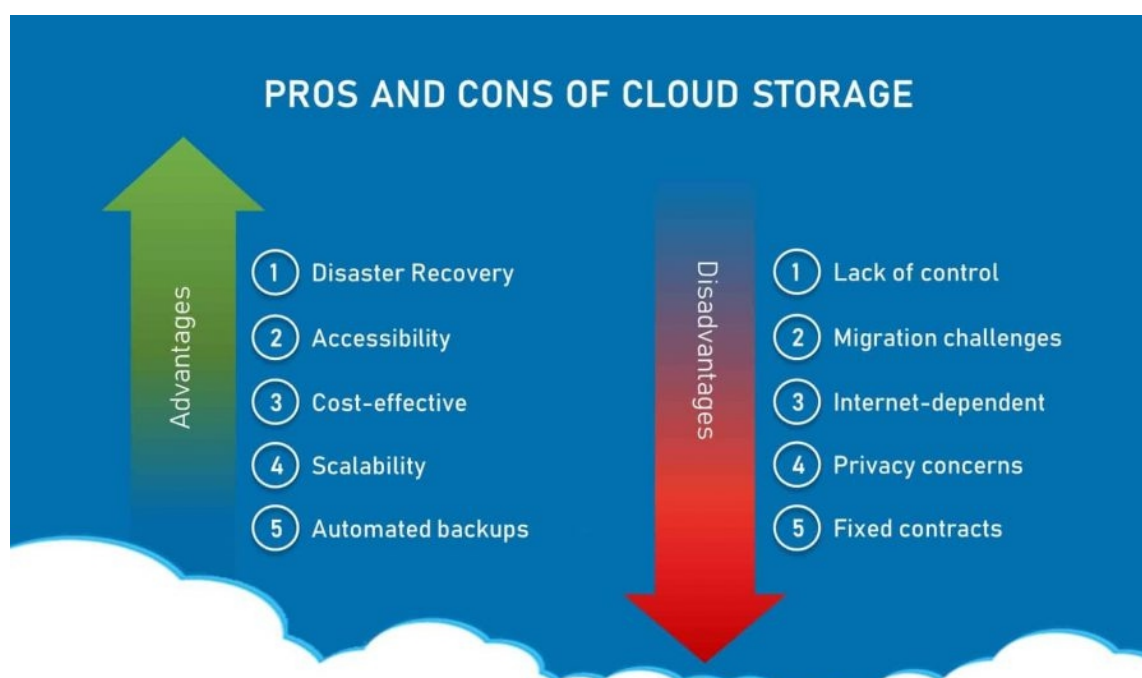
**Security concerns:** Despite advancements in security measures, cloud storage remains vulnerable to cyber threats such as data breaches, malware, and unauthorized access. Entrusting sensitive data to third-party providers raises concerns about data privacy, compliance, and regulatory requirements, necessitating stringent security measures and risk mitigation strategies.

**Reliance on internet connectivity:** Cloud storage relies on internet connectivity for data access and synchronization, posing challenges in environments with limited or unreliable internet access. Interruptions in connectivity can hinder productivity and accessibility, highlighting the importance of offline access and data synchronization capabilities.

**Dependency on service providers:** Cloud storage users are dependent on service providers for data availability, reliability, and performance. Service outages, maintenance down time, or provider shutdowns can disrupt access to data and services, emphasizing the need for contingency plans and vendor evaluation criteria.

**Data transfer limitations:** Uploading and downloading large volumes of data to & from the cloud can be time-consuming and bandwidth-intensive, particularly for organizations with substantial data requirements. Transfer speeds and data transfer costs may vary based on network bandwidth and provider policies, impacting overall efficiency and operational costs.

In conclusion, while cloud storage offers compelling advantages in terms of accessibility, scalability, and cost-effectiveness, it also presents challenges related to security, connectivity, dependency, and data transfer. By carefully evaluating these merits and demerits and implementing appropriate strategies and safeguards, users & organizations can harness the power of cloud storage while mitigating associated risks effectively.



# What Next in Search Algorithms: Navigating the Future of Information Retrieval



**Pooja**  
(23115; CSE)

As we venture deeper into the digital age, the landscape of search algorithms continues to evolve, driven by advances in artificial intelligence, natural language processing, and user behavior analytics. The quest for more relevant, personalized, and efficient search results has spurred innovation in search algorithms, paving the way for exciting developments on the horizon.

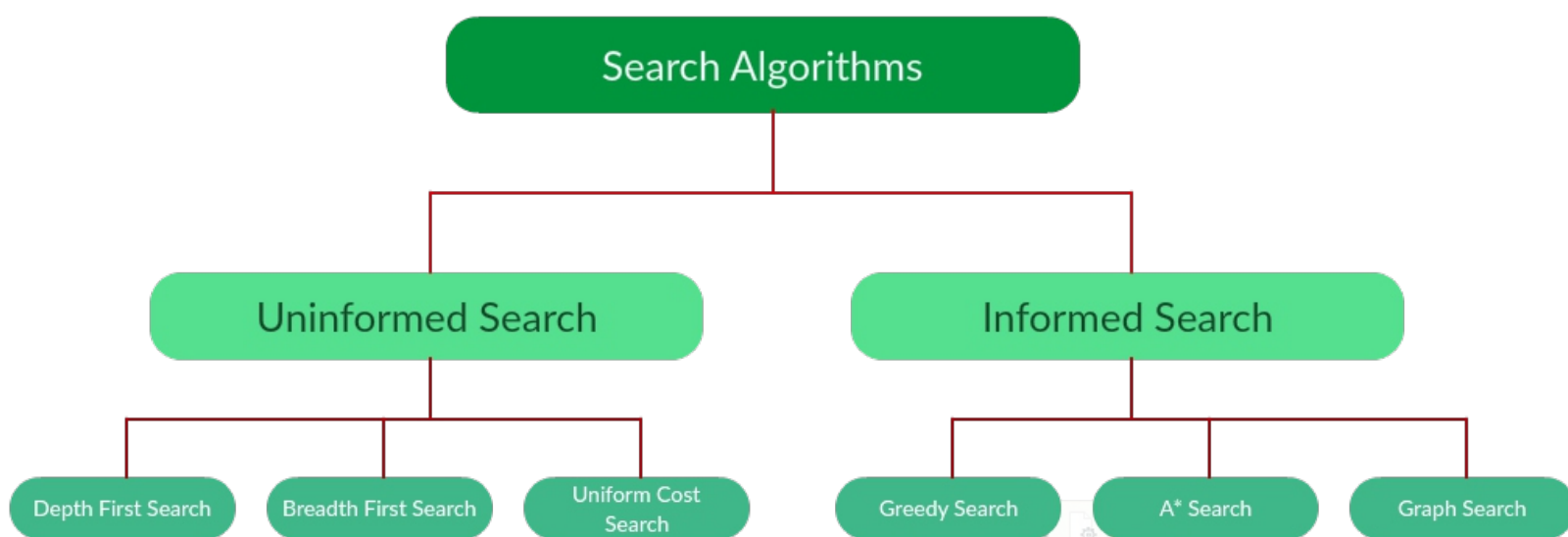
One area of focus in the future of search algorithms is enhanced personalization. With the proliferation of data and the growing diversity of user preferences, search engines are increasingly adopting personalized algorithms to deliver tailored search results. By leveraging user context, search history, and demographic information, these algorithms aim to provide more relevant and personalized recommendations, improving user satisfaction and engagement.

Furthermore, the integration of AI and machine learning techniques holds immense promise for the future of search algorithms. By analyzing vast amounts of data and learning from user interactions, AI-powered algorithms can anticipate user intent, understand complex queries, and deliver more accurate search results. Natural language understanding and generation capabilities enable search engines to interpret user queries in context, facilitating more nuanced and conversational interactions.

Another frontier in search algorithm development is the incorporation of multimodal search capabilities. With the proliferation of multimedia content such as images, videos, and voice-based queries, search engines are evolving to support multimodal search experiences. By combining text-based & visual cues, these algorithms enable users to search for information across different modalities, enhancing the richness and diversity of search results.

Moreover, the future of search algorithms is intertwined with advancements in data privacy and ethical considerations. As concerns over data privacy and algorithmic bias continue to garner attention, search engines are under pressure to prioritize transparency, accountability, and user control. Ethical search algorithms aim to mitigate biases, promote diversity, and respect user privacy rights, fostering trust and confidence in the search ecosystem.

In conclusion, the future of search algorithms holds immense potential for innovation and transformation in the field of information retrieval. Enhanced personalization, AI-driven insights, multimodal capabilities, and ethical considerations are shaping the next frontier of search, promising more intuitive, intelligent, and inclusive search experiences for users worldwide. As we navigate this evolving landscape, collaboration between researchers, developers, and policymakers will be crucial in realizing the full potential of future search algorithms.



# Department Achievers



## Congratulations

for being honored with

### Research Excellence Award

#### Vishwa IP Conclave 2023





**Prof.(Dr.) Ritu Pahwa**  
Computer Science Dept.



## Research Excellence Award



## Congratulations

for being qualified for

### International Collegiate Programming Contest (ICPC)

#### ICPC Asia Amritapuri Onsite Regional Contest 2023

Shortlisted Teams

Team Name	College Name
FacelessMen3.1	Indian Institute of Technology- Kanpur
OnTheSpot	Indian Institute of Technology- Varanasi
SkilIssue	Indian Institute of Technology- Delhi
DunderMiflin	Indian Institute of Technology- Kharagpur
lazy three	Indian Institute of Technology- Hyderabad
XOReists	Indian Institute of Technology - Varanasi
Leaf Papad	Indian Institute of Technology - Bombay
Yorozya Forever	Indian Institute of Technology - Madras
PerfectTerror	Indian Institute of Technology - Varanasi
CodeTraversers	Dronacharya College of Engineering



**Kanak**  
25077(CSE) 2<sup>nd</sup> Year



**Dipti**  
25046(CSE) 2<sup>nd</sup> Year



**Pulkit**  
25127(CSE) 2<sup>nd</sup> Year



Team Name:  
**Code Traversers**



View Details :  
<https://bit.ly/489vxXn>

## ICPC Shortlisted Team

# Department Achievers



Winners of SIH-2023 (Software Edition) Team LifeLine Meds



ET Campus Star Class 2022-23

# Department Achievers



**G20** 2023 INDIA | **75** Azadi Ka Amrit Mahotsav | **DRONACHARYA** College of Engineering | Gurugram University

*Congratulations!*  
For Winning

Organized By:  
**Gurugram University**

**IDEATHON 2023**

**SECOND RUNNER-UP**

Team Members :

- **Divyam Mishra** (AI&ML, 3<sup>rd</sup> Sem)
- **Vivek Chahal** (CSE, 3<sup>rd</sup> Sem)
- **Bhavishya** (AI&ML, 3<sup>rd</sup> Sem)
- **Tanisha Chauhan** (CSE, 3<sup>rd</sup> Sem)
- **Yogita** (CSE, 3<sup>rd</sup> Sem)

Project Title : Smart Switch Board

## 2nd Runner up @ Ideathon 2023 Gurugram University



**DRONACHARYA** College of Engineering | **IITD**

*Congratulations!*  
for being selected in

**Internship Programme at IIT, Delhi**

11/08/2023, 21:48 | IIT Delhi Mail - Request for providing internship opportunity in Indraprastha Institute of Information Techno...  
Abhishek Halder <abhishekh@iitd.ac.in>

**Request for providing internship opportunity in Indraprastha Institute of Information Technology Delhi**

Debarika Sengupta <cdebarika@iitd.ac.in> | Tue, Aug 8, 2023 at 4:55 PM  
To: Piyush <piyush.g2345@gmail.com>  
Cc: abhishekh@iitd.ac.in

Dear Piyush,

Based on the above, I am happy to extend (unpaid) internship for the period June 5 to Oct 13, 2023. You can produce this email to your college as a formal invitation. During this time you will abide by IIT-D guidelines and bear your own cost for stay etc.

Dr. Debarika Sengupta  
Website: www.dhsenguptalab.com  
Twitter: @hsenguptalab

**Piyush**  
Roll No. : 23085 (CSE)

## Selected in Internship @ IIT, Delhi