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ECHELON
TRANSFORMING THE EDUCATION

18 YEARS OF EXCELLENCE

ECHELON INSTITUTE OF TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

TECHPULSE

Exploring Digital World 2023–24

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EDITORIAL BOARD

INTRODUCTION

Welcome to the **Department of Computer Science and Engineering.**

The Department of Computer Science and Engineering is enriched with competent and well-qualified faculty members who strive to bring out the best in students. Since its inception, the department has consistently maintained a high growth pace, driven by a strong dedication to providing exceptional engineering education. The department boasts well-equipped laboratories with internet access, web application facilities available on LAN and Wi-Fi, providing students with hands-on experience on the latest software and technological tools used in industries. To prepare students as future software professionals, the department organizes seminars, corporate training, and workshops conducted by experts. Additionally, PDP classes are conducted to enhance their technical skills further. Many of our students have graduated through campus placements, securing positions in multiple organizations.

MESSAGE FROM HOD'S DESK

Dr. Jugnesh Kumar
Professor & HOD

On behalf of the Computer Science and Engineering Department at Echelon Institute of Technology, I am delighted to announce the launch of our Technical Magazine, making it accessible to all. This publication aims to disseminate achievements in research and developments, showcasing new breakthroughs in the field of Computer Science, Engineering and Technology. Our dedicated Editorial team has worked tirelessly to create a platform for distinguished faculties, researchers, industry experts, and students to share their latest accomplishments, thereby disseminating knowledge gained from their technical endeavors. As Department Head, I am eager to explore opportunities to establish this Technical Magazine as a premier and authoritative forum for attracting and publishing high-impact research contributions that are innovative, transformative, and stimulating. I envision this magazine serving as a catalyst for disseminating timely and exciting ongoing research that can inspire innovation and progress. Finally, I extend my sincere gratitude to the editorial board members, faculties, industry experts, and students, and I am confident that our collective efforts will drive further progress in this domain with unwavering determination at both national and international levels.

"An invitation to the culture of inspiration, exploration, invention & growth."

INSTITUTE VISION

"Technical and Management leaders engaged in the evolution of life, being at the frontiers of the continuous technological and administrative breakthroughs, inspired by ongoing exploration of self, society, and nature through self-reflective consciousness by building a culture of inspiration, exploration and growth."

INSTITUTE MISSION

M1 Having a culture of inspiration, exploration and invention through effective, experiential teaching-learning giving rise to ever evolving knowledge and wisdom.

M2 To have self-inspired students ever engaged in continually working upon and sharpening & deepening computational, creative, innovative and leadership consciousness.

M3 Having students established in self - reflective consciousness, committed to personal, social & human integrity an engaged in deep inquiry & conversation, giving rise to shared, inter-subjective human values & consciousness.

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

DEPARTMENT VISION

"To develop competent computer professionals who solve real-world problems through continuous learning and adaptive to rapid changes in computer science and engineering with ethical, social, and managerial capabilities."

DEPARTMENT MISSION

M1 To produce industry-ready professionals for successful careers in computer science and related domains.

M2 To provide exposure to cutting-edge computational tools in the field of computer science & engineering.

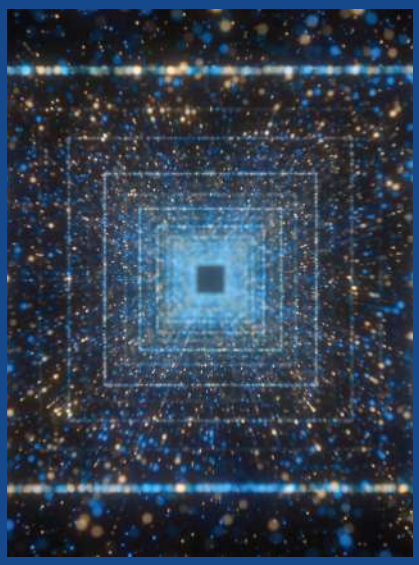
M3 To create competent and ethical computer professionals through quality education, innovative research, and exposure to entrepreneurship.

TECH NEWS

As we forge ahead into an era marked by rapid technological evolution, staying informed about the latest advancements and shifts in the tech landscape is more crucial than ever. The recent flurry of developments across various sectors not only hints at the shape of things to come but also outlines the challenges and opportunities that lie ahead. Here's a concise overview of some of the most significant recent technology news and developments up to June 2024.

Breakthroughs in Artificial Intelligence (AI)

AI continues to dominate tech headlines, with generative AI models, in particular, garnering significant attention. OpenAI's release of GPT-4 has pushed the boundaries of language models, showcasing improved understanding and generation capabilities that promise to enhance applications from contentcreation to coding assistance. Meanwhile, AI ethics and regulation discussions have gained momentum as governments & organizations seek to address the implications of these rapidly advancing technologies on privacy, employment, & misinformation.



Quantum Computing Leaps Forward

Quantum computing has taken several significant steps forward, with multiple companies reporting breakthroughs in qubit stability & error correction. These advancements are crucial for the realization of practical quantum computers, capable of solving problems beyond the reach of classical computers, from drug discovery to complex system simulations. As the quantum race heats up, partnerships between academia, industry, & governments are becoming increasingly vital to unlock the potential of this transformative technology.

Cybersecurity in the Spotlight

With digital transformation accelerating, cybersecurity has never been more important. Recent high-profile cyberattacks have highlighted vulnerabilities in critical infrastructure & major corporations, prompting a global reassessment of cybersecurity strategies. Advances in encryption, threat detection AI, and blockchain are on the frontline of defending against cyber threats, yet the human element remains a critical factor. Education and training in cybersecurity practices are being emphasized as essential components of organizational resilience.

The Expansion of the Metaverse

The concept of the metaverse continues to evolve, with tech giants and startups alike investing heavily in what many see as the next frontier of digital interaction. Recent developments have focused on creating more immersive experiences through advances in virtual reality (VR), augmented reality (AR), and mixed reality (MR) technologies. Furthermore, discussions around the economic, social, and ethical frameworks of the metaverse are intensifying, as stakeholders aim to build an inclusive and secure digital ecosystem.

Sustainability & Tech Innovation

As climate concerns grow, technology is playing a pivotal role in the quest for sustainability. Innovations in renewable energy, such as enhanced solar panels and wind turbines, are making clean energy more accessible and efficient. Electric vehicle (EV) technology is also advancing, with major automakers announcing breakthroughs in battery technology and charging infrastructure. Additionally, the tech industry is increasingly focusing on reducing electronic waste & promoting recycling & sustainable manufacturing practices.

Looking Ahead

The pace of technological change shows no signs of slowing down, with each advancement opening new possibilities and raising fresh challenges. As we navigate this ever-evolving landscape, the interplay between innovation, regulation, and ethical considerations will be crucial in shaping a future where technology continues to serve as a force for good.

In conclusion, these developments underscore the vibrant and dynamic nature of the tech industry. From AI to cybersecurity, quantum computing to the metaverse, and the pivotal role of sustainability, the journey ahead is fraught with both challenges and opportunities. Staying informed and engaged with these changes is essential for anyone looking to understand the future direction of our increasingly digital world.

GADGET CORNER

List highlighting the latest and most intriguing gadgets, software, and books. Remember, the tech landscape evolves rapidly, so it's advisable to check the latest developments for the most current innovations.

Tech Gadgets

Apple iPhone 14 Pro

Featuring the A16 Bionic chip, the iPhone 14 Pro introduces groundbreaking advancements in processing power, battery efficiency, and photography capabilities. Its Always-On display and Dynamic Island for notifications represent Apple's latest innovations in user interface design.

Samsung Galaxy Z Fold4

Samsung continues to refine its folding phone technology with the Galaxy Z Fold4. This device combines a tablet's expansive screen with the portability of a smartphone, enhanced by an improved hinge mechanism and screen durability, making it a fascinating gadget for tech enthusiasts.

Oculus Quest 3

As the next iteration in standalone VR headsets, the Oculus Quest 3 is anticipated to offer higher resolution displays, improved tracking capabilities, and even more immersive VR experiences, without the need for an external PC.

Framework Laptop

Addressing the growing concern over electronic waste, the Framework Laptop offers a high-performance, customizable, and repairable laptop option. Its modular design allows for easy upgrades and repairs, significantly extending the device's lifespan.

Software & Platforms

ChatGPT by OpenAI

Revolutionizing the way we interact with AI, ChatGPT offers a conversational interface capable of generating human-like text responses. Its applications range from drafting emails to coding assistance, making it an essential tool for any tech-minded individual.

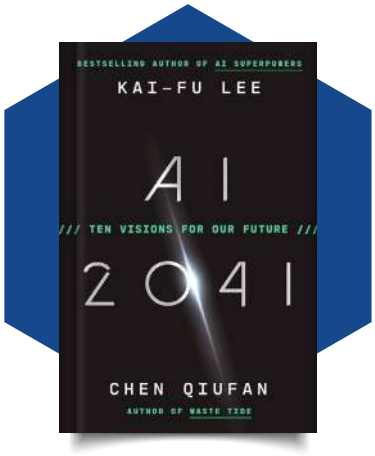
Adobe Firefly

Adobe's entry into the generative AI space, Firefly, is a suite of creative tools designed to empower creators with AI generated art and design elements. It simplifies complex design tasks, allowing users to create sophisticated visual content with ease.

Unity 2023

For game developers and AR/VR creators, the latest Unity release offers enhanced performance, improved workflows for creating interactive 3D content, and expanded support for AR and VR platforms, making it an indispensable tool in game development and immersive experiences.

Books

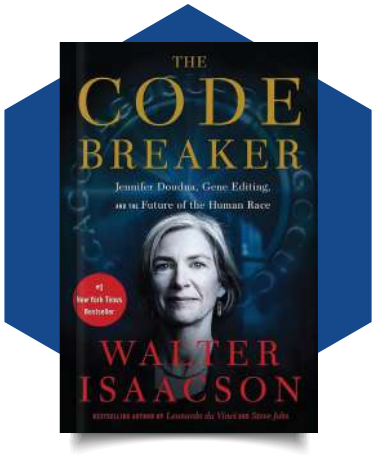


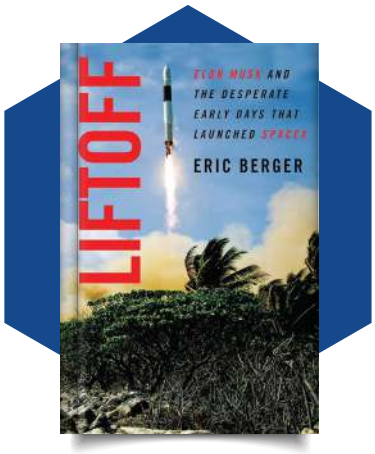
AI 2041

Ten Visions for Our Future" by Kai-Fu Lee and Chen Qiufan: Blending science fiction with scientific forecast, this book offers a compelling look at the potential futures shaped by artificial intelligence over the next two decades.

The Code Breaker

Jennifer Doudna, Gene Editing, and the Future of the Human Race" by Walter Isaacson: This biography of Nobel Prize winner Jennifer Doudna explores the groundbreaking discovery of CRISPR technology and its profound implications for medicine, agriculture, and humanity.





Liftoff

Ten Visions for Our Future" by Kai-Fu Lee and Chen Qiufan: Blending science fiction with scientific forecast, this book offers a compelling look at the potential futures shaped by artificial intelligence over the next two decades.

Final Thoughts

For tech-minded readers, staying abreast of the latest gadgets, software, and insightful literature is essential to understanding and participating in the rapidly evolving technological landscape. Whether you're interested in cutting-edge devices, transformative software, or thought-provoking reads, there's no shortage of materials to fuel your curiosity and inspire your next project.

FACULTY LIST

CSE

S. No.	Faculty Name	Designation
01	Dr. Sudarshan Goswami	Professor
02	Dr. Vikesh Kumar	Professor
03	Dr. Rajesh Kumar Singh	Professor
04	Dr. Ranjeet Kumar	Professor
05	Dr. Jugnesh Kumar	Professor
06	Dr. Monika Garg	Associate Professor
07	Dr. Manish Kumar	Associate Professor
08	Ms. Shefali Madan	Associate Professor
09	Mr. Mohammad Danish	Associate Professor
10	Ms. Ruchika Aggarwal	Associate Professor
11	Ms. Amita Kumari	Assistant Professor
12	Ms. Pinky Yadav	Assistant Professor
13	Ms. Rachna Srivastava	Assistant Professor
14	Ms. Charu Rohilla	Assistant Professor
15	Ms. Priyanka Singh	Assistant Professor
16	Ms. Stuti Saxena	Assistant Professor
17	Ms. Savita	Assistant Professor
18	Ms. Laxmi	Assistant Professor
19	Ms. Shikha Taneja	Assistant Professor
20	Ms. Suman	Assistant Professor
21	Mr. Trilok Rawat	Assistant Professor
22	Ms. Jagriti Malviya	Assistant Professor
23	Ms. Sandeep Mittal	Assistant Professor
24	Ms. Tripti	Assistant Professor
25	Ms. Lavali	Assistant Professor
26	Mr. Izhar Ahmad	Assistant Professor
27	Ms. Priya Singh	Assistant Professor
28	Ms. Kavita	Assistant Professor
29	Ms. Arshi Fariya	Assistant Professor

FIRST YEAR

S. No.	Faculty Name	Designation
01	Ms. Mahima	Associate Professor
02	Ms. Neha Bhati	Assistant Professor

M.TECH

S. No.	Faculty Name	Designation
01	Ms. Swati Gupta	Assistant Professor
02	Mr. Ravi Singh Rana	Assistant Professor
03	Mr. Bhupendra	Assistant Professor

MOUs Signed

S. No.	Name of MOU
01	IBM Skills Build EDU net
02	GTT Foundation
03	NASSCOM
04	CodeSqaudz Education Pvt. Ltd.
05	SoftPro India Pvt. Ltd.

INNOVATIONS AT CAMPUS

Student Corner-Projects

Sahayak - Communication Disability Aid : A Comprehensive Project Analysis

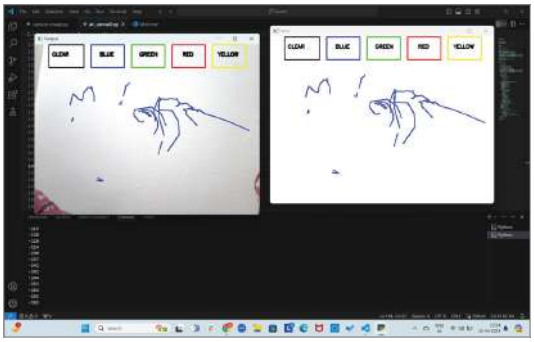


Figure 1: Showing use case diagram of the proposed model

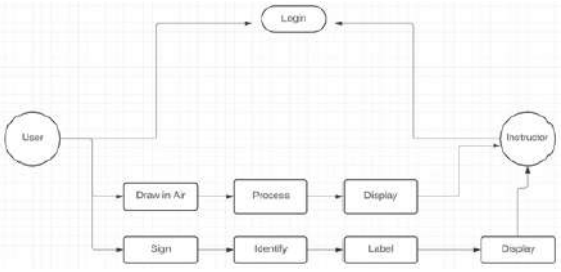


Figure 2: Showing results of Air Writing

ABSTRACT

Sahayak - Communication Disability Aid research paper presents a comprehensive solution to address the challenges speaking and hearing impaired students face in their day to day life. Communication is the only medium by which we can share our thoughts or convey the message but a person with such a disability faces difficulty in communication with a normal person. By developing an ML based solution, Sahayak aims to provide a web based interface to impaired students through which they can communicate with their instructors and peers. This solution leverages dynamic technology to create a platform with multiple applications.

By: Apoorva Jha, Mohan Tiwari, Ms. Jagriti Malviya, Ms. Suman
CSE, Echelon Institute of Technology

Fortifying the Internet-of-Things: A Holistic Examination of Security Challenges and Innovations

Figure 1: Applications of IoT

Figure 2: Introduction to Iot

ABSTRACT

The Internet of Things (IoT) has emerged as a transformative paradigm, connecting an extensive array of devices and systems to facilitate seamless communication and data exchange. Presently IoT applications proliferate across diverse domains, ensuring robust security measures have become paramount. This review paper comprehensively examines the landscape of security in IoT, encompassing its challenges, solutions, and future directions. Beginning with an overview of IoT architecture and its inherent vulnerabilities, the paper delves into the multifaceted aspects of IoT security, including authentication, access control, data integrity, and privacy preservation. Various security mechanisms and protocols tailored for IoT environments are scrutinized, alongside their effectiveness and limitations. Additionally, the paper explores emerging trends such as block chain-based solutions, machine learning-driven security analytics, and edge computing paradigms in bolstering IoT security. Moreover, the paper sheds light on the evolving regulatory frameworks and standards aimed at enhancing IoT security practices. Through a systematic synthesis of existing research and insights, this review aims to provide a comprehensive understanding of the current state of security in IoT and offer valuable insights for researchers, practitioners, and policymakers striving to mitigate the evolving threats in the IoT ecosystem. The future scope of IoT security, including the integration of AI-driven adaptive security measures, the development of lightweight cryptographic techniques for resource-constrained devices and the exploration of decentralized identity management systems.

By: Chaman Prakash Bhardwaj, Chhavi Baweja, Ms. Stuti Saxena
CSE, Echelon Institute of Technology

Streamlining Trading Practice for India: A Comprehensive Project Analysis

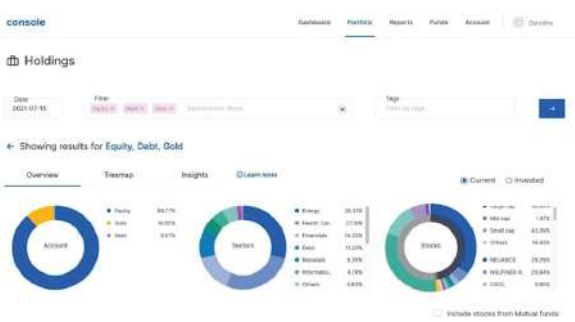


Figure 1: Showing trading console screen layout

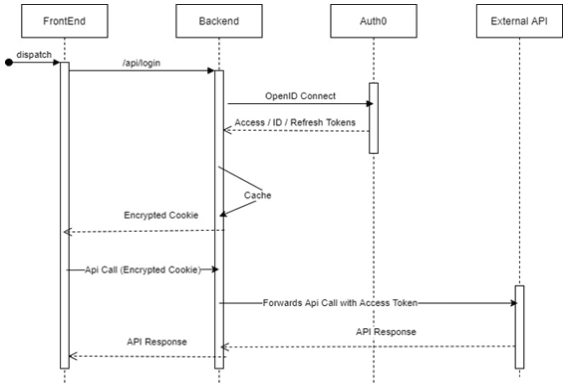


Figure 2: Showing use case diagram of the proposed model

ABSTRACT

The financial trading landscape in India faces a significant challenge, with approximately 90% of traders incurring losses. This paper proposes a comprehensive platform that allows users to practice real-world trading in a virtual setting, with real financial consequences to build financial discipline and emotional resilience. The platform leverages AI to analyze user trades, providing personalized feedback and recommendations to improve trading strategies. It includes extensive educational resources and a robust online community for support. Built on scalable cloud technologies, the platform ensures security and compliance with financial regulations. By offering a realistic practice environment, the platform helps users refine their trading strategies and develop better money management skills. Case studies demonstrate the platform's effectiveness in transforming trading practices and improving financial outcomes. This innovative solution aims to revolutionize trading in India, enhancing trader skills and success rates through continuous education, personalized feedback, and community support.

By: Abhishek Sharma, Ms. Suman, Ms. Rachna Srivastva, Ms. Laxmi
CSE, Echelon Institute of Technology

Driver Drowsiness Detection System: A Deep Learning Approach

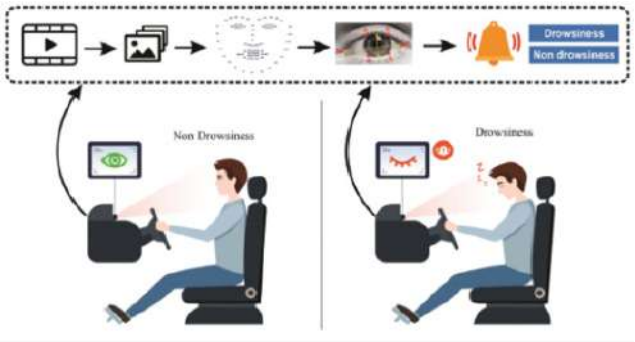


Figure 1: General model of the drowsy detection system

ABSTRACT

This paper introduces a novel approach to address the critical issue of driver drowsiness, a major contributor to road accidents worldwide. Leveraging advanced deep learning techniques, the proposed drowsiness detection system offers robust detection capabilities. While driving, any one of us can come across an accident, that may be due to lack of sleep, uneven physical health, or prolonged traveling. The lack of sleep or any unfair condition deviates from a higher chance of accidents. The weakness or sluggishness is among the major causes of road accidents. Due to this, there is a higher number of accidents, annually across the globe. It utilizes Convolutional Neural Networks (CNNs) to analyze real-time video feeds captured by in-car cameras, focusing on subtle indicators of drowsiness like drooping eyelids, and lowering of the head. By integrating CNNs with temporal dependencies, the system can provide early warnings of escalating fatigue levels. For the deep learning part, we have used Keras, TensorFlow for providing a high-level API for building and training models. It is widely used in industry and academia, and has a large and active community of users. Through extensive experimentation, the system's effectiveness is validated, demonstrating superior performance when compared to traditional methods. The potential integration of this system into existing automotive safety frameworks offers promising prospects for enhancing road safety by enabling timely interventions to prevent accidents caused by driver fatigue.

By: Aniket Kaushik, Apoorva, Manik, Ms. Suman
CSE, Echelon Institute of Technology

Automated Subdomain Discovery and Information Extraction Tool for Linux

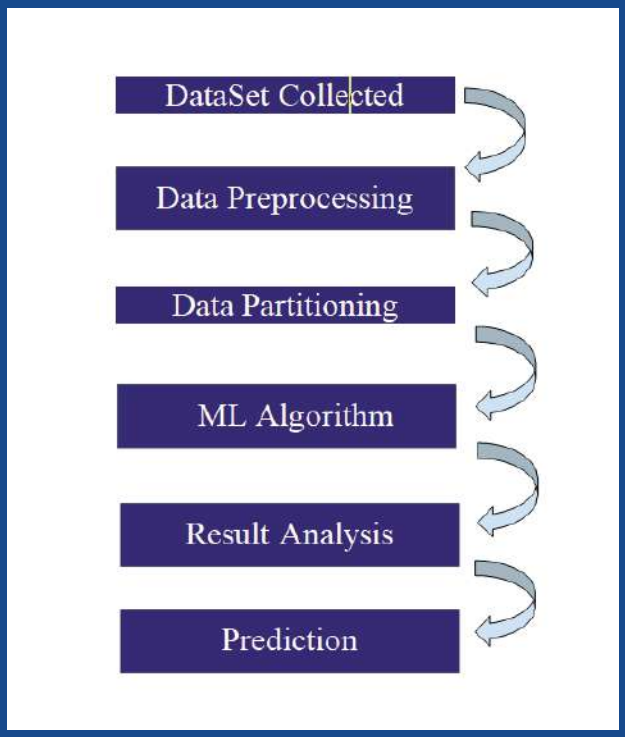
Figure 1: Tool Interface

ABSTRACT

In the realm of cybersecurity, reconnaissance plays a pivotal role in identifying potential vulnerabilities and securing systems against malicious attacks. The reconnaissance phase often involves tasks such as subdomain discovery and information extraction, which are crucial for understanding the attack surface and gathering intelligence. This paper introduces a custom-built Python tool designed to automate these tasks, leveraging the capabilities of Kali Linux, a renowned platform for penetration testing. By utilizing various libraries and techniques, including web scraping and pattern matching, the tool efficiently identifies subdomains and extracts valuable information such as email addresses and phone numbers from web pages. The implementation details, methodology, and potential applications of the tool are thoroughly discussed, highlighting its significance in enhancing the reconnaissance process for cybersecurity professionals.

By: Abhishek, Amita, Ms. Suman
CSE, Echelon Institute of Technology

Detecting Depression using Decision Trees



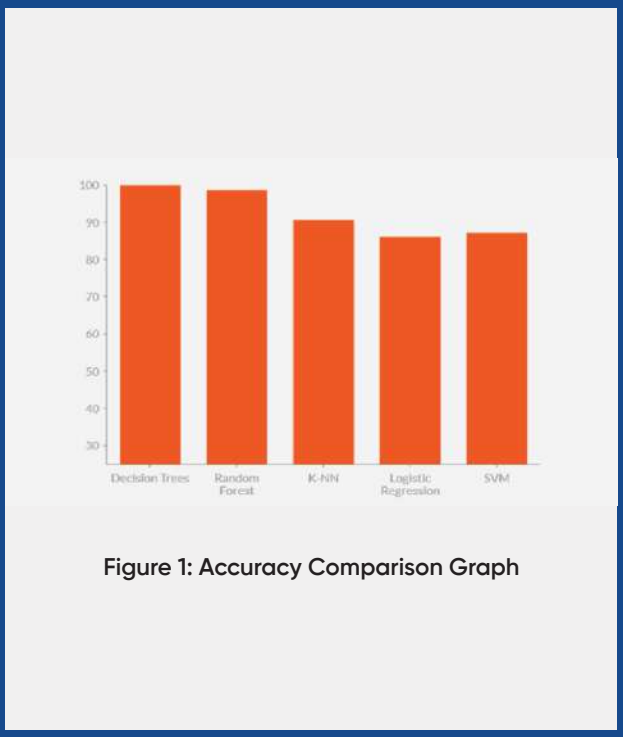


Figure 1: Accuracy Comparison Graph

ABSTRACT

Depression has been one of the leading factors of death in recent years, especially in youngsters' lives. According to WHO. Approximately 280 million people have depression and 50%it is more commonly detected in women as compared with men. This research paper aims to use different Supervised machine-learning techniques namely KNN, SVM(Support Vector Machine), Logistic Regression, Decision Trees and Random Forest for detecting the depression rate and the suicide factor related to it. Our main objective is to determine whether the patient is diagnosed with depression. The Machine Learning algorithms were applied to the obtained dataset and the algorithms were evaluated using Accuracy as the performance measure. The obtained accuracy scores after applying KNN, SVM, LR, DT, RF are 90.7%, 87.2%, 86.2%, 99.89%, 98.8% respectively. Early detection of this upcoming fatal diesease is very important as on the later stage it can be one of the reasons of performing life-threatening tasks like suicide attempts, etc. . With the help of various ML techniques, we can detect Depression more efficiently and effectively.

By: Manik Jain, Ms. Stuti Saxena, Dr. Sudarshan Goswami
CSE, Echelon Institute of Technology

Data Analysis on the Food Places of Zomato

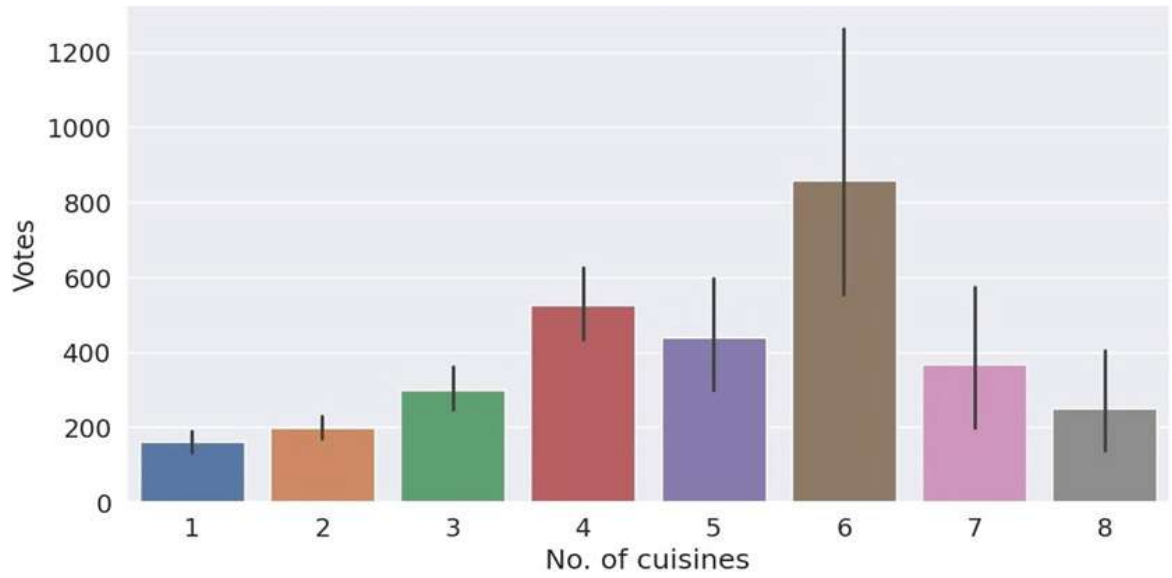


Figure 1: The above data shows if the restaurant consists of more than 5 cuisines are likely to receive more votes

ABSTRACT

The survey report is conducted on food places in India about how they are influencing more customers to the cafes, restaurants that are listed on zomato website. The main purpose behind this survey and observation was to find the influencing factors behind popularity of food places, with their working areas, prices, online availability and many more other things. The entire data analysis consists of graphs and figures that helps us understand the rating based popularity of the restaurants in a specific region. The main focus of the analysis is to identify the distribution of cuisines across different restaurants from different parts of India and their popularity by aggregating user ratings. Statistical techniques and other data visualization tools are utilized to explore patterns and relationships within the dataset. Machine learning algorithms such as clustering or classification are also used to understand the trend of popularity to the type of cuisines provided by the restaurants.

By: Prashun Pareek, Nidhi Kumari, Ms. Stuti Saxena, Dr. Manish Kumar
CSE, Echelon Institute of Technology

Analyzing the causes of Mood Disorders : A Comprehensive Study

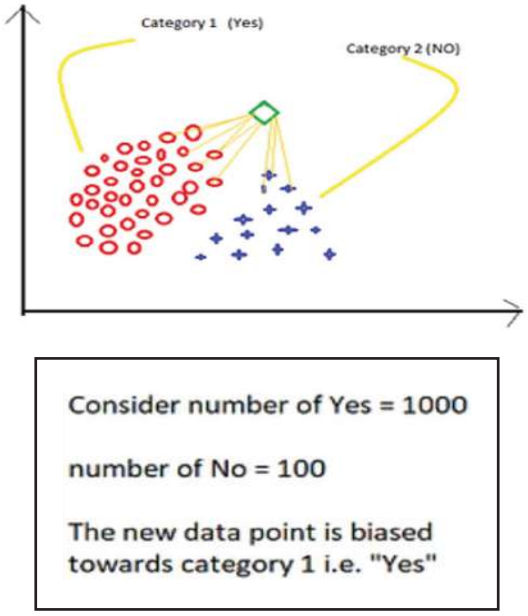


Figure 1: K-nearest neighbours algorithm on a dataset

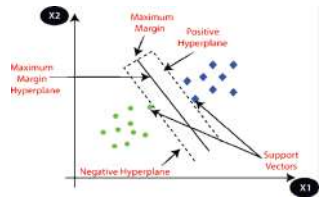


Figure 2: SVM algorithm

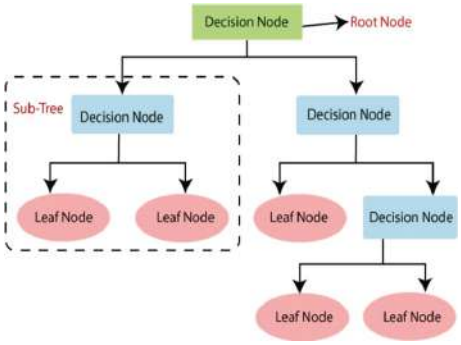


Figure 3: Decision Tree Algorithm

ABSTRACT

Depression or Mood Disorder has been one of the most prevalent mental disorders. According to WHO in 2020, more than 380 million people were diagnosed with Depression and more than 1050 thousand deaths have been reported globally. that can cause a loss of interest in general action that can lead to suicidal thoughts. This research paper aims to use different machine-learning techniques namely KNN, SVM (Support Vector Machine), Decision Tree, Naive Bayes and Logistic Regression for depression detection. Early detection and accurate prediction are fundamental to identifying patients who could benefit from the treatment and reduce the mortality rate due to depression. With the help of various ML techniques, we can detect depression more efficiently and effectively. This research's primary contribution is exploring the features and their impact on detecting depression levels.

By: Vidushi Gandhi, Ms. Stuti Saxena, Dr. Vikesh Kumar
CSE, Echelon Institute of Technology

STUDENT CORNER-ARTICLES

5G Technology

5G technology is a breakthrough ,with a goal to design a real wireless world that is free from the obstacles of the earlier generation. The 5G technology includes all major and advanced features which make it popular and in huge demand in the future. It offers bidirectional huge bandwidth. It makes the wireless world with no more limitations with access and zone issues. It creates one unified global standard. The advanced charge interfaces of 5G technology make it a lot of enticing and effective. The 5G technology is providing up to 25 Mbps connectivity speeds. 5G technology also supports virtual private networks. Security increases and no one can easily hack the system but this problem occurs with the 4G technology. Simply said, 5G is widely believed to be smarter, faster and better than 4G. As compared to speeds 5G is 100 times faster than 4G technology. 5G will be used to fix bandwidth issues. There are major benefits of 5G Technology like some are: What if you can access your office desktop right now while you are laying on your bed? What if you can identify your stolen phone in a nanosecond? What if you're mobile can identify the best server and many more. Some Specific Uses of 5G technologies are like it will not only be faster than current 4G but also can revolutionize other sectors such as production, automotive, healthcare, and energy.

5G will replace the experience and support up to 10 to 20 GBPS download speed. It's equivalent to a fiber optic internet connection accessed wirelessly. The two components, Radio access network' & Core network' have varied kinds of facilities together with little cells, towers, masts and are dedicated in-building and residential systems that connect mobile users and wireless devices to the main core network. Low latency and IOT are main features for development using a supercharged 5G wireless network. IoT connects every appliance with sensors and it could be better developed with the help of 5G technology like Logistic, Shipping industry and Smart farming.

By: Abhishek Sharma
CSE, Echelon Institute of Technology

Artificial Intelligence In Autonomous Vehicles

Artificial Intelligence is the intelligence that is displayed by machines. AI can perform functions like learning, problem-solving and implementation in various fields. AI has an application in various fields like machine learning, natural language processing, robotics, medical diagnosis, computer vision, and planning. Autonomous vehicles are one of the greatest uses of AI. Autonomous vehicles are vehicles that are self-driven, driverless or robot-driven cars. It is a vehicle that can sense the environment around it and moves with no input or partial input by the human. These driverless cars combine a variety of sensors to understand and realize their surroundings. These sensors are sonar, odometer and inertial measuring units, radar and GPS (Global Positioning System). The autonomous vehicles become aware of the obstacles coming their way and also identify the suitable navigation paths. Though people think that self-drive cars are the future, there is still a no. of challenges in its way.

These cars cannot recognize the presence of bicyclists and pedestrians on roads, as well as any animal which might appear on a road. AI will be used for speech recognition, eye tracking, camera capturing, road condition evaluation, virtual assistance, and driver monitoring. The autonomous vehicles are provided with cognitive functions and logical as well as decision-making capabilities just like the human drivers possess so that they can adjust to any situation of traffic to avoid any accidents. These cars are provided with these sensors and other communication devices so that they can store this huge amount of data and AI enables them to analyze the way the car should drive. This data is processed by supercomputers and other data communication systems. The radars and cameras are used to generate the surrounding area, the traffic conditions and give all the valuable inputs to the autonomous driving cloud platform. There is an intelligent agent that makes use of AI algorithms to make meaningful and correct decisions. All the previous data is also stored which might help in making future decisions if any same condition is encountered. All the driving experiences are stored in the database so that safer and better experiences can be created for the users. Artificial Intelligence, especially the neural networks and deep learning are the key factors in the proper and safe functioning of the autonomous vehicles.

By: Aniket
CSE, Echelon Institute of Technology

Azure Spring Cloud: Fully Managed Service for spring boot microservices

As customers have moved their workloads to the cloud, we've seen a growth in the use of cloud native architectures, particularly micro-services. Micro-service-based architectures help improve scalability and velocity but implementing them can pose challenges. For many Java developers, Spring Boot and Spring Cloud have helped address these challenges, providing a robust platform with well-established patterns for developing and operating microservice applications. But creating and maintaining a Spring Cloud environment requires work, such as setting up the infrastructure for dynamic scaling, installing and managing multiple components, and wiring up the application to your logging infrastructure. To help make it simpler to deploy and operate Spring Cloud applications, together with Pivotal, Microsoft has created Azure Spring Cloud. Azure Spring Cloud is jointly built, operated, and supported by both Pivotal and Microsoft.

This means that you can use Azure Spring Cloud for your most demanding applications and know that both Pivotal and Microsoft are standing behind the service to ensure your success. High productivity development Azure Spring Cloud abstracts away the complexity of infrastructure management and Spring Cloud middleware management, so you can focus on building your business logic and let Azure take care of dynamic scaling, security patches, compliance standards, and high availability. With a few clicks, you can provision an Azure Spring Cloud instance. After configuring a couple of dependencies in your pom file, your Spring Cloud app is automatically wired up with Spring Cloud Config Server and Service Registry. Furthermore, you can deploy and scale Spring Boot applications in seconds. Ease of monitoring With out-of-the-box support for aggregating logs, metrics, and distributed app traces into Azure Monitor, you can easilyvisualize how your applications are performing, detect and diagnose issues across microservice applications and their dependencies, drill into monitoring data for troubleshooting and gain a better understanding of what end-users do with your apps. Open-source innovation with Spring integrations Azure Spring Cloud sets up the compute foundation for cloud-native Spring applications. From there, Azure Spring Cloud makes it simple to connect to data services such as Azure SQL Database, MySQL, PostgreSQL, or Cosmos DB to enable enterprise-grade end-user authentication and authorization using Azure Active Directory, to bind cloud streams with Service Bus or Event Hubs, and to load and manage secrets with Azure Key Vault.

By: Nikita
CSE, Echelon Institute of Technology

FACULTY CORNER-RESEARCH

RESEARCH PAPERS

S. No.	Name of the Author	Title of Research Paper	Name of the Journal	Indexed by	Year
01	Ms. Stuti Saxena, Ms. Savita	Revolutionizing Ecological Data Analysis: Integrating Count Regression & Quantum Learning For ZeroInflated Over Dispersed Count Data	Weblogy	SCOPUS	2023-24
02	Dr. Sudershan Goswami	Enhancing Cybersecurity in Smart Grids through Machine Learning-Based Intrusion Detection Systems	Journal of Electrical Systems	SCOPUS	2023-24
03	Ms. Rachna Srivastava	Optimizing Power Management in IoT Devices Using Machine Learning Techniques	Journal of Electrical Systems	SCOPUS	2023-24
04	Dr. Monika Goyal, Ms. Rachana Srivastava, Mr. Mohammad Danish	AI-Driven Model for Accurate Cancer Diagnosis	Grenze International Journal of Engineering & Technology (GIJET)	SCOPUS	2023-24
05	Ms. Pinky Yadav, Dr, Vikesh Kumar, Mr. Izhar Ahmad	Exploring The Efficacy of Graph-Based Algorithms for Recommendation Systems	Journal of Pharmaceutical Negative Results	Google Scholar, Index Copernicus, Scimago Journal Ranking	2023-24
06	Dr. Manish Kumar, Ms. Amita Kumari, Dr. Sudarshan Goswami, Mr. Trilok Rawa	Unlocking Cellular Antenna Capacity: Cell Splitting Enhanced by Machine Learning	Journal of Pharmaceutical Negative Results	Google Scholar, Index Copernicus, Scimago Journal Ranking	2023-24
07	Ms. Suman, Ms. Amita Kumari	Automated Subdomain Discovery and Information Extraction Tool for Linux	International Journal of IT and Knowledge Management	-	2023-24
08	Ms. Suman, Ms. Rachna Srivastva, Ms. Laxmi	Streamlining Trading Practice for India: A Comprehensive Project Analysis	International Journal of IT and Knowledge Management	-	2023-24
09	Ms. Suman, Ms. Jagrati Malviya	Sahayak-Communication Disability Aid: A Comprehensive Project Analysis	International Journal of IT and Knowledge Management	-	2023-24
10	Ms. Suman, Ms. Charu Rohilla	Driver Drowsiness Detection System: A Deep Learning Approach	International Journal of IT and Knowledge Management	-	2023-24
11	Ms. Stuti Saxena, Ms. Ruchika Aggarwal	Fortifying IOT: A Holistic Examination of Security Challenges and Innovations	International Journal of IT and Knowledge Management	-	2023-24
12	Ms. Stuti Saxena, Dr. Vikesh Kumar	Analysing the causes of Mood Disorders: A Comprehensive Study	International Journal of IT and Knowledge Management	-	2023-24

CONFERENCE PAPER

S. No.	Name of Author	Title of Conference Paper	Name of the Conference	Indexed By	Year
01	Ms. Stuti Saxena	SVM-Based Framework for Breast Cancer Detection	Com-IT-Con 2023	Springer Nature	2023-24
02	Ms. Savita	An Optimized and Efficient Approach for Unknown Attack Detection using Advance Defence-GAN with PSO in Cloud Environment	International Conference on Artificial Intelligence and Information Technologies (ICAIIT-2023)	CRC Press	2023-24
03	Ms. Sudesh Kumari, Ms. Savita	Exploring Quantum-Inspired Parallel Computing Architectures for Big Data Analytics: A Performance Investigation	International Conference On Evolving Science & Intelligence	Accepted	2023-24
04	Ms. Pinky Yadav, Ms. Amita Kumari	Strengthening Cybersecurity with Quantum Technology: Quantum-Enhanced Authentication for Secure Cloud-Connected IoT Environments	International Conference On Evolving Science & Intelligence	Accepted	2023-24
05	Ms. Suman, Ms. Shefali Madan	Quantum-Secured IoT: A Multilayered Framework for Enhanced Security	International Conference On Evolving Science & Intelligence	Accepted	2023-24
06	Mr. Mohammad Danish, Ms. Ruchika Aggarwal	Exploring Sentiment Analysis in Social Media: A Comparative Study of Machine Learning and Quantum- Based Approaches	International Conference On Evolving Science & Intelligence	Accepted	2023-24

BOOK PUBLISHED

S. No.	Name of Author	Book Title	Publisher	ISBN No.	Year
01	Ms. Ruchika Aggarwal, Dr. Monika Garg, Mr. Mohammad Danish	Fundamental of Information Technology	Satya Prakashan, New Delhi	ISBN:978-93-5192-327-5	2023
02	Ms. Ruchika Aggarwal, Dr. Monika Garg, Mr. Mohammad Danish	Advances in Information Technology	Satya Prakashan, New Delhi	ISBN:978-93-5192-7	2023

PATENT

S. No.	Author Name	Title of Patent	Country
01	Dr. Monika Goyal	Machine Learning Based Electricity Consumption Monitoring Device	UK
02	Dr. Monika Goyal	Banana Fiber based low cost Sanitary Pads Production machine using IoT (Bananenfaser-basierte, kostengünstige Produktionsmaschine für Damenbinden mit IoT)	German
03	Ms. Shefali Madan	Noval Device to Assess Customer Emotions and Provide Feedback by Using Face Recogination	India
04	Ms. Shefali Madan Ms. Ruchika Aggarwal	Water Tank Cleaning Robot	India

Analysis and Implementation of DDOS Attacks and Prevention

ABSTRACT

Distributed Denial-of-Service (DDoS) attacks remain a pervasive threat in the digital landscape, continually challenging organizations worldwide. Our study employs the Slow Loris method, characterized by its low-bandwidth 'low and slow' approach, effectively mimicking normal traffic patterns when targeting servers. This technique offers a unique perspective, distinguishing it from the more bandwidth-intensive reflection-based DDoS attacks. Our comprehensive analysis, guided by the FAIR methodology, unveils a troubling trend. DDoS attacks are increasing in size, frequency, and complexity. To address this escalating threat, we explore a wide range of defense strategies, including both on-premises solutions like Arbor APS and cloud-based options such as Arbor Cloud. Our research underscores the effectiveness of a multifaceted approach that combines on-premises and cloud-based solutions, significantly reducing risk and loss exposure. Furthermore, our study underscores the critical importance of adopting a proactive approach in dealing with cybersecurity threats. Emphasis is placed on the significance of confidentiality, robust security measures, and the use of encrypted communication channels to thwart DDoS attacks. As part of our comprehensive approach, we present a compelling business case for DDoS attack protection, highlighting the substantial benefits of employing a layered security approach, which yields an impressive return on investment of approximately 150%.

By: Dr. Monika Goyal
Associate Professor, CSE

Journal: ICAICCIT

Speech Recognition Intelligence System for Desktop voice Assistant by using AI & IoT

ABSTRACT

This paper deals with the Speech Recognition Intelligence System for Desktop Voice Assistant by using AI &IoT, with statistical testing of hypotheses. In the modern era of reckless technology, we are able to carry out tasks that we never could have imagined we would be able to prepare for. However, in order to carry out these daydreams, we need a method that makes it simple for us to automate the things we do every day. As a result, we created applications like Voice Assistant that can communicate with us solely through human interaction. A voice assistant can be used by a number of applications, including AI and IoT. It has the ability to alter how users and machines communicate. By using voice commands, the user can access all of the features of this application, which has been designed to work with mobile phones.The primary difficulties and drawbacks of various voice assistants will be discussed in this paper. In this paper, we talk about how to make a voice-based assistant that doesn't need cloud services, which would help these devices grow in the future.

By: Mr. Mohammad Danish
Associate Professor, CSE

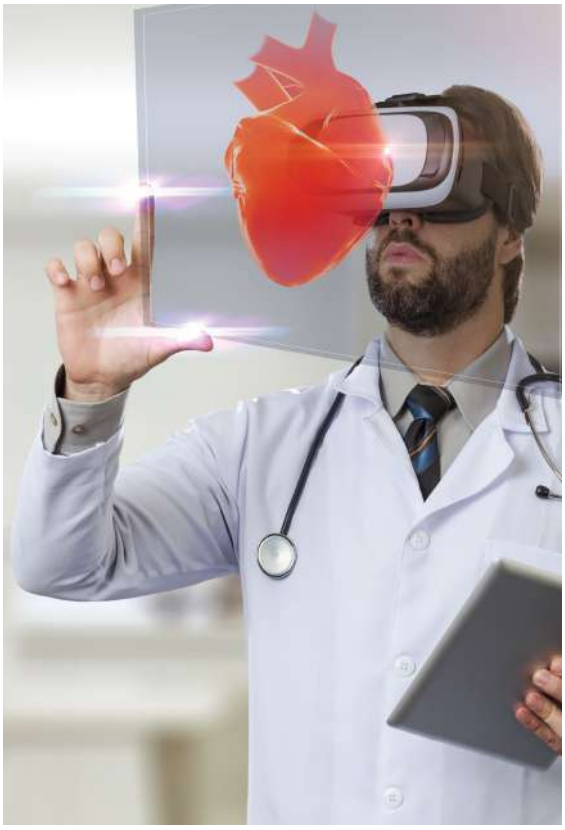
Journal: International Journal of Intelligent & applications in Engineering

FACULTY CORNER-ARTICLES

Heart Failure Detection Using Ai In A Single Heartbeat

Artificial Intelligence (A.I.) is a multidisciplinary field whose goal is to automate activities that presently require human intelligence. The primary goal is to improve computer behavior so that it can be called intelligent. It is a field of study based on the premise that smart thought can be regarded as a form of computation that can be formalized and ultimately mechanized. The major problem areas addressed in A.I. can be summarized as Perception, Manipulation, Reasoning, Communication, and Learning.

The success of AI:



Artificial Intelligence has revolutionized the diagnosis of cancer. The supercomputer of IBM Watson is already able to see deviations in the health of the individual. Statistically, it is found that about 30 % of cases Watson puts patients with an additional diagnosis which is generally missed by medical people. Even more impressive results achieved by AI at the Houston Methodist Research Institute in Texas. Artificial intelligence is used to explore millions of mammograms (the speed of analysis is 30 times more than human) and gives solutions with 99% accuracy. A driver in the US, who suffered a pulmonary embolism while driving was saved by the Tesla Autopilot system to drive him to a nearby hospital. Microsoft has demonstrated that AI caught up with the man in the efficiency of automatic speech recognition. The company used the so-called high-precision with recurrent neural networks to achieve results.

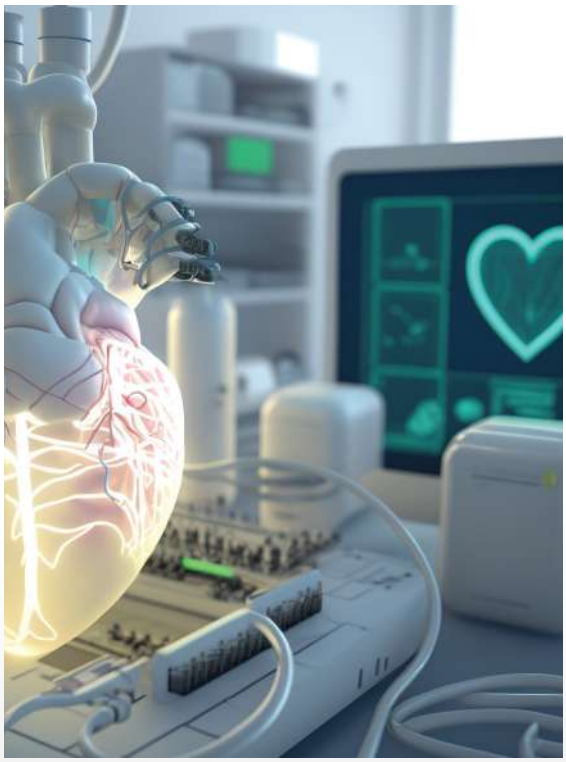
The success of AI:

Nearly 10 %of adults with age above 65 suffer from some congestive heart failure (CHF). There are a variety of different causes for CHF but the fundamental chronic condition generally results from the heart being unable to pump blood effectively through the body. X-rays, blood tests, and ultrasounds all offer clinicians useful ways to diagnose CHF, but one of the more common methods involves using electrocardiogram (ECG) signals to determine heart rate variability over several minutes or even multiple measurements over days. An impressive new approach has now been demonstrated, using a convolutional neural network (CNN) that can identify CHF nearly instantly by checking ECG data from just one heartbeat.

How it can be detected using AI:

Applying artificial intelligence to the electrocardiogram (ECG) enables early detection of left ventricular dysfunction and can identify individuals at increased risk for its development in the future. The research published in Nature Medicine found that the accuracy of the AI/ECG compares favorably to other standard screening tests like prostate specific antigen for prostate cancer and mammography for breast cancer.

Asymptomatic left ventricular dysfunction (ALVD) is characterized by the presence of a weak heart pump with a risk of heart failure. It is present in 3% to 6% of the general population and is associated with reduced quality of life and longevity. However, it is treatable when found. Currently, there is no inexpensive, non-invasive, painless screening tool for ALVD available for diagnostic use. To address this, Paul Friedman and colleagues tested whether ALVD could be reliably detected in the ECG by a properly trained neural network. The team used paired 12 lead ECG and echocardiogram data, including the left ventricular ejection fraction (a measure of contractile function), from 44,958 patients at the Mayo Clinic, and trained a convolutional neural network to identify patients with ventricular dysfunction, defined as ejection fraction less than 35%, using the ECG data alone.

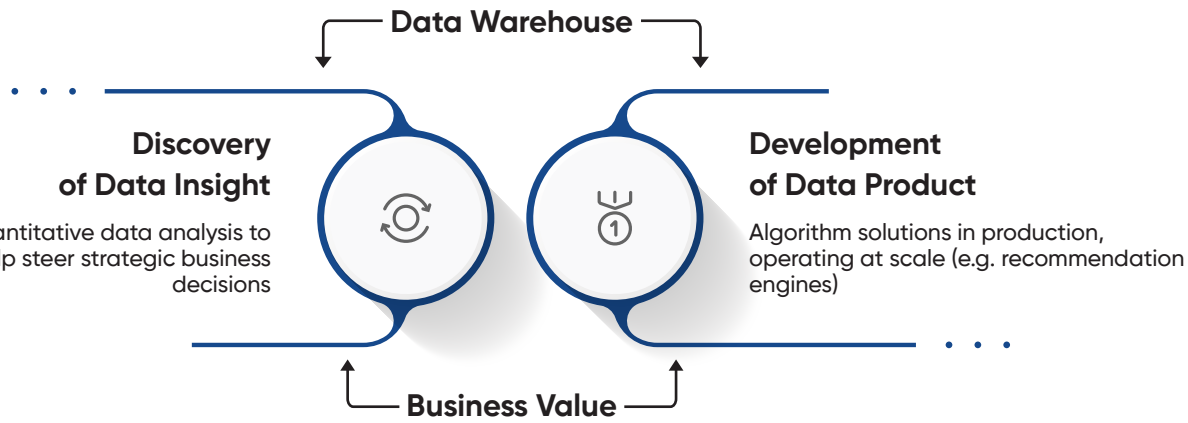


This suggests the network detected early, subclinical, metabolic or structural abnormalities that manifest in the ECG, says Friedman. He trained and tested the CNN model on large publicly available ECG datasets featuring subjects with CHF as well as healthy, antiarrhythmic hearts. As Massaro proposes, the team's system is currently reporting an incredible 100% accuracy rate, but the research is not without some limitations. Most importantly, the data used in the current study only consisted of ECG readings from either severe CHF patients or healthy subjects.

By: Dr Vikesh Kumar
Professor, CSE

Data Science

Data science is a multidisciplinary blend of data inference, algorithm development, and technology to solve analytically complex problems. At the core is data. Troves of raw information, streaming in and stored in enterprise data warehouses. Much to learn by mining it. Advanced capabilities we can build with it. Data science is ultimately about using this data in creative ways to generate business value:



This aspect of data science is all about uncovering findings from data. Diving in at a granular level to mine and understand complex behaviors, trends, and inferences. It's about surfacing hidden insight that can help enable companies to make smarter business decisions. For example:

- Netflix data mines movie viewing patterns to understand what drives user interest, and uses that to make decisions on which Netflix original series to produce.
- Target identifies what are major customer segments within its base and the unique shopping behaviors within those segments, which helps to guide messaging to different market audiences.
- Procter & Gamble utilizes time series models to more clearly understand future demand, which helps plan for production levels more optimally.

How do data scientists mine our insights? It starts with data exploration.

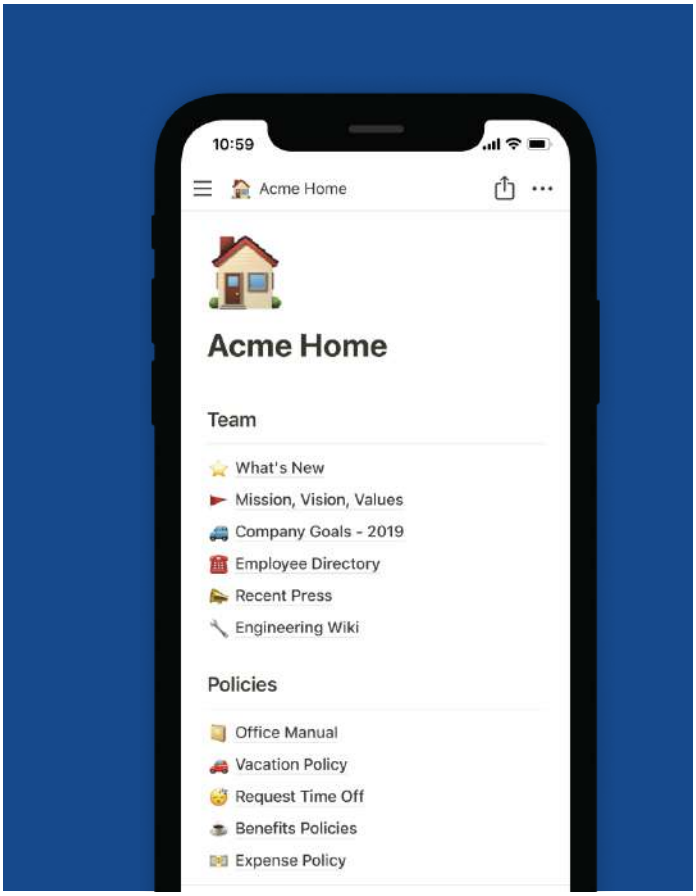
When given a challenging question, data scientists become detectives. They investigate leads and try to understand patterns or characteristics within the data. This requires a big dose of analytical creativity. Then as needed, data scientists may apply a quantitative technique to get a level deeper – e.g. inferential models, segmentation analysis, time series forecasting, synthetic control experiments, etc.

By: Dr. Manish Kumar
Associate Professor, CSE

APP OF THE YEAR

Notion: The all-in-one workspace for your college needs

In the fast-paced and diverse world of college life, where the blend of academic, extracurricular, and personal tasks can be overwhelming, finding a tool that can seamlessly manage and integrate these aspects is crucial. Enter Notion, an app that has rapidly gained popularity among students for its versatility, ease of use, and comprehensive features that cater to nearly every need a college student might have. Below, we delve into the details of Notion, exploring why it's becoming an indispensable tool in the student toolkit.



OVERVIEW

Notion is a productivity app designed to accommodate a wide range of functions, including note-taking, database management, project tracking, and schedule planning, all within a single, unified interface. Its flexible structure allows users to create custom pages that can serve as notebooks, calendars, to-do lists, or any combination thereof, making it an incredibly powerful tool for organizing academic and personal life.

KEY FEATURES

Customizable Templates: Notion offers a plethora of templates tailored to different uses, from lecture notes and study plans to job applications and personal budgets. These templates can be further customized to suit individual preferences and requirements, offering a truly personalized organization system.

Integrated Workspace: Unlike other apps that specialize in one area, Notion brings together notes, tasks, databases, and calendars in one place. This integration reduces the need to switch between multiple apps, streamlining workflow and increasing productivity.

Collaborative Tools: Notion shines in its support for collaboration. Students can share their pages or databases with peers for group projects, study sessions, or club organization. Real-time editing, commenting, and permission settings facilitate seamless

Cross-platform Accessibility: With apps available for iOS, Android, Mac, Windows, and a web version, Notion ensures that your workspace is accessible from any device, anytime, keeping you connected to your work whether you're on campus, at home, or on the move.

Rich Media Support: Notion's pages support multimedia elements like images, videos, bookmarks, code snippets, and files, allowing for rich, engaging notes and resources that go beyond traditional text.

INNOVATIVE USES FOR STUDENTS

Comprehensive Course Organizer:

Create a dedicated page for each course, where you can compile syllabus details, lecture notes, reading lists, assignment trackers, and grade calculators, all in one easily accessible place.

Research Project Management:

Utilize databases to manage research projects, tracking sources, notes, deadlines, and progress. The ability to tag and filter items makes managing extensive projects more manageable.

Personal Dashboard:

Beyond academics, Notion can serve as a personal dashboard, organizing travel plans, workout schedules, meal plans, and more, helping students maintain a balanced lifestyle.

LOOKING AHEAD

Notion stands out as a multipurpose tool that addresses the diverse needs of college students, from academic organization to personal management. Its adaptability, combined with powerful collaborative features and cross-platform accessibility, makes it a standout choice for students seeking to enhance their productivity and organization.

Notes, docs

Knowledge base

Tasks, projects

Databases

CAREER ADVICE

Embarking on a career in the rapidly evolving tech industry requires a blend of technical savvy, strategic networking, and an understanding of the hiring landscape. Here are fresh insights and strategies beyond the basics to help you navigate the path to a successful career in tech, focusing on mastering interviews, seizing internship opportunities, and enhancing your job search.

Diving Deeper into Tech Interviews

Understand the Role & Its Impact

Beyond the technical requirements, understand how the role you're applying for fits into the larger mission of the company. Being able to speak to this during the interview shows depth of understanding and enthusiasm for the position.

Technical Storytelling

Develop a narrative around your technical projects and experiences. Be ready to discuss the challenges you faced, the solutions you implemented, and the results of your efforts. This storytelling approach can make your technical achievements more relatable and memorable to interviewers.

Soft Skills Showcase

Technical prowess is crucial, but soft skills like communication, teamwork, and problem-solving are equally valued. Prepare examples of how you've used these skills in a technical context to stand out.

Maximizing Internship Opportunities in Tech

Early Engagement

Engage with companies you're interested in before they start their formal internship recruitment process. Follow them on social media, attend their public events, and if possible, reach out to current employees for informational interviews. This can put you on their radar early on.

Project-Based Learning

When you lack professional experience, personal or school projects can fill that gap. Tailor your projects to match the interests of the companies or roles you're aiming for. This not only shows initiative but also directly demonstrates your capabilities.

Hackathons & Competitions

Participating in hackathons or coding competitions can be a fast track to internships. Many tech companies scout these events for emerging talent. Plus, they offer a real-world glimpse into problem-solving under pressure, a desirable trait for potential interns.

Job Hunting Strategies in Tech Fields

Industry Specialization

Consider specializing in a growing niche within tech, such as cybersecurity, data science, or blockchain technology. Specialized roles often have less competition and higher demand, making it easier to stand out.

Continued Education & Certifications

Pursue certifications or micro-degrees that are recognized in your chosen tech specialization. This not only boosts your resume but also keeps you up to date with the latest technologies and practices.

Portfolio with a Twist

Instead of a traditional portfolio, consider creating an interactive application or website that showcases your work. For example, a data scientist could build a dynamic visualization of their projects' results, while a web developer might design an innovative personal website.

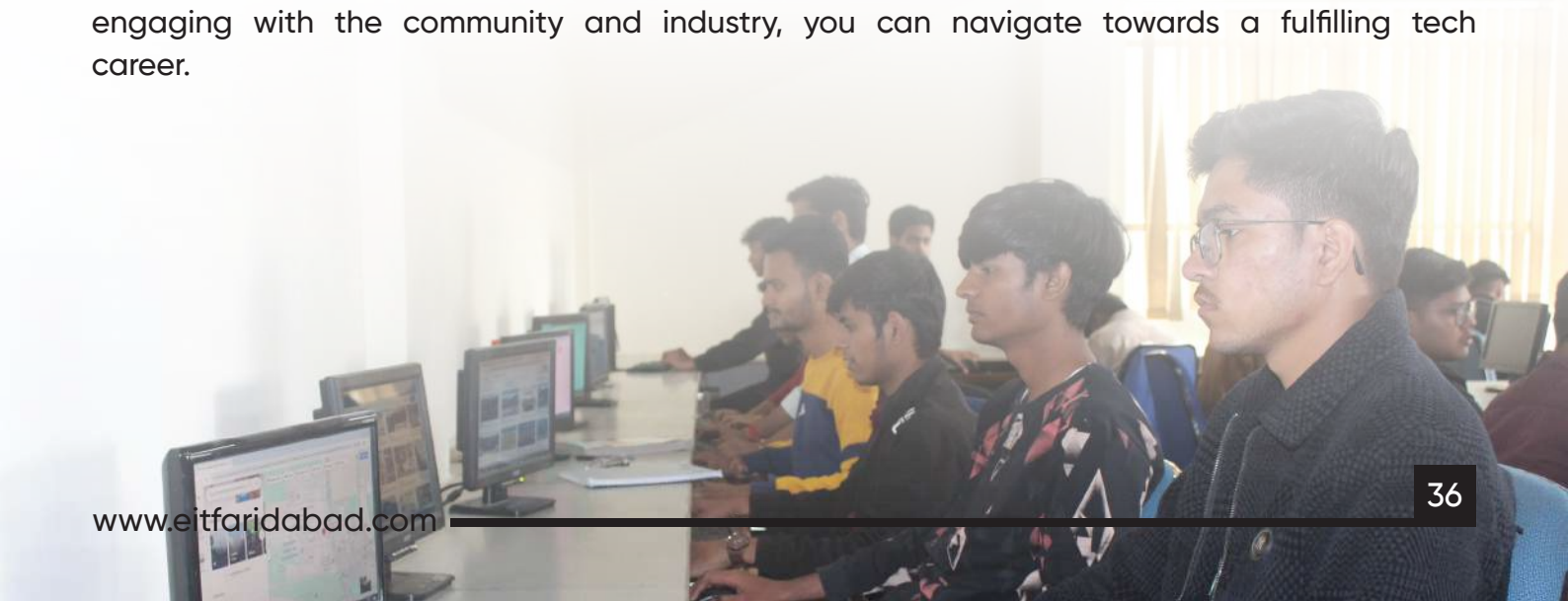
The Power of Networking

Leverage alumni networks, LinkedIn, and professional associations not just for job leads but for mentorship. Finding a mentor in your desired field can provide invaluable insights, advice, and potentially open doors to unadvertised positions.

Mindset & Resilience

Finally, maintaining a positive mindset and resilience is crucial. The tech job market can be competitive and fast-moving, so it's important to view each setback as a learning opportunity and stay adaptable in your approach.

Entering the tech industry is a journey of continuous learning and adaptation. By focusing on building your skills, strategically showcasing your capabilities, and actively engaging with the community and industry, you can navigate towards a fulfilling tech career.



Placement of 2023 Batch students

S. No.	Name of the Students	Enrollment No.	Name of the Company
1	ANASUYA PAUL	19015004003	Extention Technology Erp
2	ANIROODH PRASAD	19015004004	Turing Minds.AI
3	ANKUR SHARMA	19015004005	Global Logic
4	ISHITA BHATT	19015004007	Capital Business System Pvt. Ltd.
5	KIRTI SHARMA	19015004009	Growth X
6	MEHUL SUNEJA	19015004011	British Telecom
7	NIKITA YADAV	19015004012	British Telecom
8	ROHIT LAMBA	19015004014	British Telecom
9	SHIVAM PRASAD	19015004015	Incedo
10	ABHINAV CHAUHAN	19015004018	Amplify Private Solution
11	ALISHA MOHAPATRA	19015004020	Spinks India
12	DEVESH KUMAR JHA	19015004026	Planet Spark
13	HEMANT SOROUT	19015004029	Planet Spark
14	JATIN KUMAR	19015004030	Contaque
15	RUPAL	19015004032	Ipsos Research Pvt. Ltd.
16	MOKSH SHARMA	19015004035	Weavings Manpower Solutions pvt ltd
17	MUSKAN	19015004036	Go2market India Pvt. Ltd.
18	NISHANT CHAUHAN	19015004040	Hobit Technologies Pvt. Ltd.
19	PRIYANKA	19015004042	Indian Navy
20	PURVI DHAMIJA	19015004043	Testyantra
21	RAHUL MALHOTRA	19015004044	Planet Spark
22	RISHABH SINGH	19015004046	Techcrumb
23	ROHIT	19015004048	Rishikirti Technologies PVT. LTD.
24	SAHARSH SINGH	19015004052	Oat India Pvt Ltd
25	SAKSHAM MISHRA	19015004053	Upgrad
26	SARGUN SINGH	19015004054	British Telecom
27	SHREYA GUPTA	19015004055	Techcrumb
28	SIDDHARTH VERMA	19015004058	Contaque
29	TANUJ AGARWAL	19015004059	Metazone Technologies
30	VINAY AGGARWAL	19015004063	Humanitics Dimensions Software Pvt. Ltd.
31	YATHARTH ARORA	19015004068	Flipkart
32	MANSI	20015004502	Tech Mahindra
33	NIKHIL AGGARWAL	20015004538	Imperial Auto Industries Pvt Ltd
34	ANKUR SHARMA	20015004505	Global Logic
35	RITIKA BHATIA	20015004547	Foundation For Innovation & Technology Transfer
36	MANISH	19015004033	Ecs Infotech Pvt Ltd
37	VIPIN KUMAR VERMA	19015004064	Epam Systems
38	AYUSH KUMAR	19015004006	Defence Institute Of Advanced Technology, Pune
39	VIKAS SINGH	19015004062	Indraprastha Institute Of Information Technology, Delhi

Events organized in the department

S. No.	Name of the Events	Organised By
1	Lightroom Photo Challenge	ADOBE CLUB
2	Youtube Content Creation Workshop	ADOBE CLUB
3	Adobe Stock Challenge	ADOBE CLUB
4	Creative Cloud Crash Course	ADOBE CLUB
5	Big Data Trends Seminar	BIG DATA HADOOP CLUB
6	Mapreduce Coding Challenge	BIG DATA HADOOP CLUB
7	Spark Integration Workshop	BIG DATA HADOOP CLUB
8	Case Study Presentation	BIG DATA HADOOP CLUB
9	Linux Masterclass	OPEN SOURCE CLUB
10	Open Source Licensing & Ethics	OPEN SOURCE CLUB
11	Open Data Visualization	OPEN SOURCE CLUB
12	Documentation Jam	OPEN SOURCE CLUB
13	Summer Training Program On Core Python	ISTE STUDENT CHAPTER
14	Motivational Session By Successful Innovator	ISTE STUDENT CHAPTER
15	Netcoreinfo Institute Of Training Development Workshop	ISTE STUDENT CHAPTER
16	Orientation Cum Workshop On Cyber Security By Cisco	ISTE STUDENT CHAPTER
17	Summer Training On Java	ISTE STUDENT CHAPTER
18	Digital Marketing	ICT ACADEMY
19	Seminar And Quiz Competition On Google Technology	GDSC
20	Fundamental Of C Language	ICT ACADEMY
21	Workshop On Cyber Security	ICT ACADEMY
22	Fundamental Of "C" Language	ICT ACADEMY
23	Career Animation, Vfx, & Multimedia	ICT ACADEMY
24	Digital Marketing	ICT ACADEMY
25	Full Stack Developer	ICT ACADEMY
26	A Perfect Blend: Data Analytics And A Future-proof Career	ICT ACADEMY
27	Hacksplash	CSE DEPTT
28	Student Workshop On Data Science Using Python	CSE DEPTT AND BRAINOVISION
29	Business Analytics	ICT ACADEMY

Professional Societies & Technical Clubs In The Department

S. No.	Professional Society Name	Membership Number
01	Computer Society of India	1054230005
02	ISTE Institutional Membership	IM1814
03	ISTE Student Chapter	HR27
04	ICT Academy	141640

Technical Club Categorised As

Google Developer Club	Open-Source Development Club	Big Data Hadoop Club	Adobe Club

Students Participation In MOOCs (Our MOOC Toppers)

S. No.	Name	Final Score	Certificate Type
01	Priyanka	96	Elite+Gold
02	Yashvinder	100	Elite+Gold
03	Shivam Kumar	91	Elite+Gold
04	Lokesh kumar	91	Elite+Gold
05	Mohit Kumar	96	Elite+Gold
06	Neha singh	99	Elite+Gold
07	Lal Singh	96	Elite+Gold
08	Vipanshu Sharma	93	Elite+Gold
09	Ankit	92	Elite+Gold
10	Khushi Mittal	95	Elite+Gold
11	Pranay Kumar	91	Elite+Gold
12	Rishav Mandal	90	Elite+Gold
13	Yogesh kashyap	98	Elite+Gold
14	Sweta Tiwari	93	Elite+Gold
15	Smruti Ranjan Swain	94	Elite+Gold
16	Yash	91	Elite+Gold

GLIMPSES OF THE ORGANIZED EVENTS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Affiliated To Shri Vishwakarma Skill University (Palwal) |1st Government Skill University Of India, Set Up By The Government of Haryana

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