DEPARTMENT OF INFORMATION SCIENCE AND ENGINEERING

BEYOND EXPECTATIONS

NEWSLETTER

i-NEWS

July - December

2022

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About the department

Information Science and Engineering department focuses on current Information Technology trends, and Domain Specific Applications. The program facilitates the evolution of skills in students to help them attain a higher degree of knowledge, global competency and excellence, for the betterment of the society. The Department of Information Science and Engineering at NHCE was established in the year of 2001 and offers graduate, post graduate and PhD programs. The four year B.E degree equip the students to meet day-today Technological advancements of the ever dynamic IT field through adept training on various subjects of curriculum of Information Science and engineering and beyond. The department offers B.E program through autonomous scheme from the year 2015. The department has a very good team of highly qualified and talented faculty members including Professors, Associate Professors and Assistant Professors.

MISSION

- To strengthen the theoretical, practical and ethical dimensions of the learning process by continuous learning and establishing a culture of research and innovation among faculty members and students, in the field of Information Science and Engineering.

- To build long-term interaction between the academia and Information Technology industry, through their involvement in the design of curriculum and its hands-on implementation.

- To strengthen and mould students in professional, ethical, social and environmental dimensions by encouraging participation in cocurricular and extracurricular dimensions by encouraging participation in co-curricular and extracurricular activities

VISION

To emerge as a Department of eminence in Information Science and Engineering in serving the Information Technology industry and the nation by empowering students with a high degree of technical and practical competence.

Message from Principal

It gives me great pleasure to give my best wishes to i-News, a newsletter from the Department Of Information Science and Engineering Of New Horizon College Of Engineering, Bengaluru. The students and faculties of the department are always proactive in taking initiative in organizing all kinds of events. I congratulate all achievers, contributors and editorial board for bringing out such an informative newsletter. I hope this newsletter reflects all activities Of the department and inspires Others to do their best

Message from HOD

Welcome to i-News, the pulsating heartbeat of the ISE Department at New Horizon College of Engineering, Bengaluru. Our dedicated team of teachers and students have crafted this newsletter to showcase our remarkable achievements and vibrant activities.

Within these pages, you'll discover a world of opportunities for students to engage in curricular, co-curricular, and extra-curricular activities through our various clubs. We celebrate milestones, share captivating projects, and highlight the spirit of our department. To our students, seize the gift of today and make it extraordinary. Congratulations to our faculties and editors for creating an exciting and interesting issue. Join us on this captivating journey as we shape the future together. Welcome to i-News, where possibilities come alive.

NOTE CLUB

Note club of the Department of Information Science and Engineering conducted "REWIND 2.0" on 18th November 2022 from 9:00 am to 2:00 pm. The event was held for students from all the departments of NHCE. The event had active participation with more than 200 participants. It was a team event. The event consisted of one round which was based on a Treasure Hunt.

REWIND 2.0 was a continuation of the Note club event REWIND which was organized last year and it is based on a theme of Mystery and there are many technical tasks included in this to make it more interesting for the participants

Note club of the Department of Information Science and Engineering conducted "The Big 4" on 17th October 2022 from 1:50 pm – 4:30 pm. The event was held for students from all the departments of NHCE. The event had active student participation with more than 50 participants. It was a team event. The event consisted of 4 rounds. The qualifiers of the previous round proceeded to the next round.
- Find the Flow
- Capture the Flag
- Escape Room
- The Showdown

VMWare

The event Xenium was conducted on 20th October, 2022 under VMware IT Academy Club, an intra-collegiate technical event held by the Information Science & Engineering department. The event started around 10:00 a.m. in the morning with an enthusiastic participation of 100 students across various departments.
The event Xenium had two rounds in total:

Memory Express

Cautious Conscious

The entire event was based on problem solving ability, memorization skills and also focused on technical knowledge.

*The event Xenium was conducted on 20th October, 2022 under VMware IT Academy Club, an intra-collegiate technical event held by the Information Science & Engineering department. The event started around 10:00 a.m. in the morning with an enthusiastic participation of 100 students across various departments. The event Xenium had two rounds in total: Memory Express Cautious Conscious The entire event was based on problem solving ability, memorization skills and also focused on technical knowledge.
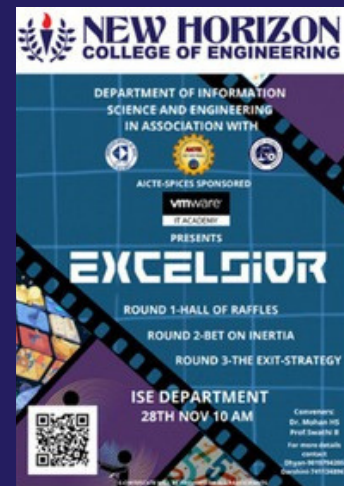
i-SCRUM

i-SCRUM club of Department of Information Science and Engineering conducted an event "Enigma" on 22nd November 2022 from 10:00 am onwards. The event was held for students from all the departments of NHCE. There was active student participation with more than 200 participants. It was a team event, with 4 participants in each team.

The first round was "Pitcher Upturn", a time-based round consisting of flipping the bottle by all the team members and solving puzzles involving words, emojis, and logic. The second round was "Ventura". Top 20teams were selected. They were provided 10 spots throughout the campus. Each team had to visit a particular spot and finish the task assigned at that spot.

i-SCRUM Club of Department of Information Science and Engineering conducted an event "Dinerotek-Spin, Bid and Win" on 13th October 2022 from 11:00am -4:30pm. The event was held for students from all the departments of NHCE. The event had active student participation with more than 40 participants.

The first round was "Wheel of fortune", and the second round was "Bid Fast and Last". The event was conducted with great enthusiasm and every participant put their best foot forward. Every round forced the participants to think harder in order to secure their position in the event.

i-CSEH

i-CSEH club of Information Science and Engineering department of New Horizon College of Engineering had conducted an event " TECH VERSE " on the 23rd of November 2022. Students from various departments of NHCE were actively participated in the event.

The event comprised of three rounds, the first round "Inverse" had a set of 10 questions of probablity where the team which chose the option that's least selected gets the point.

The second round "Find Fit Finish" was a Tic-Tac-Toe round where the teams that competed had to answer a technical question to play their turn. The third round "Twisted Ludo" was a game of ludo where the each team would have to answer a technical question when they reach a specific point.

i-CSEH club of Information Science and Engineering department of New Horizon College of Engineering had conducted an event "TECH CHARADES" on the 19th of October 2022. Students from various departments of NHCE were actively participated in the event.

The event comprised of two rounds, the first round "Strike Mind" had a set of 20 questions consisting of riddles, puzzles, syllgoism etc.Each team had to solve it in 1 hour.The second round "On the trail" was a technical treasure hunt where each clue given were either logic gates,pseudo codes, ciphers etc.

i-SWET

The event PRAVAH was conducted on18th October, 2022 by i-SWET(G)Club, an intra-collegiate technical event held by the Information Science &Engineering Department. The event started around 11:00 am in the morning with an enthusiastic participation of 65+ students across various departments. The event had three rounds in total:
Bidit
Digit marshalling
Guesstimate
PRAVAH-2022 was conducted to test participant's critical thinking, spontaneous decision making, team work and problem solving skills.

Achievements

Qualifiers at investors meet

I am delighted to share the exhilarating news that our team emerged as the top qualifiers at the prestigious Investors Meet, securing a coveted position among the top 3 teams out of a total of 200 teams from across the state of Karnataka. This outstanding recognition is a testament to our collective efforts, innovative ideas, and impeccable execution. By showcasing our expertise, professionalism, and strategic thinking, we have not only impressed the judges but have also demonstrated our ability to excel in a highly competitive environment. This accomplishment underscores our team's commitment to excellence and positions us as leaders in the field. We take immense pride in this achievement and look forward to further success as we continue to make strides in the world of investment and entrepreneurship.

NPTEL

Elite plus silver

Sucessfully completed B.E Honors

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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI

KARNATAKA, INDIA

Certifies that

SONALI PREETHA NANDAGOPALAN

ಬ್ಯಾಚೆಲರ್ ಆಫ್ ಇಂಜಿನಿಯರಿಂಗ್ ಆನರ್ಸ್

ಪದವಿಗೆ ಅಗತ್ಯವಾದ ಅರ್ಹತೆಗಳನ್ನು ಪೂರೈಸಿದ್ದು ಪರಿಗಣಿತವಾಗಿರುವ ಕಾರಣ
ಮೇಲೆ ಕಾಣಿಸಿದ ಪದವಿಗೆ ಅವರನ್ನು ಅಂಗೀಕರಿಸಲಾಗಿದೆ.

has been duly admitted to the Degree of

Bachelor of Engineering with Honours

in recognition of the fulfilment of requirements

for the said degree through

ವಿದ್ಯಾಲಯದ ಹೆಸರು Name of the College	: *New Horizon College of Engineering, Bangalore* *(Autonomous College)*
ಪರೀಕ್ಷಾ ಕ್ರಮ ಸಂಖ್ಯೆ University Seat Number	: *1NH18IS109*
ವಿಷಯ / Subject	: *Information Science & Engineering*
ಶ್ರೇಣಿ / Class	: *First Class with Distinction*

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ವಿಶ್ವವಿದ್ಯಾಲಯದ ಮುದ್ರೆಯೊಂದಿಗೆ ಕೊಡಲ್ಪಟ್ಟಿದೆ
Given under the seal of the University

ಬೆಳಗಾವಿ   **Month & year of passing : August, 2022**
Belagavi

ದಿನಾಂಕ
Date : FEB 24, 2023

ಕುಲಪತಿ
VICE CHANCELLOR

Note : The Honours degree is awarded to the student who has completed the prescribed credits for the bachelors degree programme along with additional 18 (or more) credits earned through online courses listed in the Grade card for Honours degree.

Department delighted to extend my warmest congratulations to you on the successful completion of your B.E. Honors degree. This remarkable achievement is a testament to your exceptional dedication, perseverance, and academic excellence.

Entrepreneurial Events

We are thrilled to announce our outstanding achievement in the South India Level competition, where we proudly secured a place among the top 33 out of 700 teams. This remarkable feat showcases our dedication, talent, and perseverance. We are immensely proud of our team's exceptional performance, and this accomplishment reinforces our commitment to excellence. It is a testament to the hard work and passion that our students and faculty bring to the table. We extend our heartfelt gratitude to everyone involved and celebrate this significant milestone in our journey of success.

Ph.D Holders

Dr.Baswaraju Swathi
Jain University,Bangalore
Date of Completion 8.8.2022
Specialization: Soft Computing and Testing
Title: Incorporating Soft Computing Techniques
for Test Optimization

Dr. Baswaraju Swathi is an Associate Professor in the Department of Information Science and Engineering at New Horizon College of Engineering in Bengaluru, India. He has over 12 years of teaching experience and a Masters Degree in Software Engineering, PhD in Computer Science and Engineering in Jain University in 2022. The research project entailed examining numerous optimisation methodologies with the purpose of increasing the application/program quality. In order to optimise test case generation with increased code coverage, a significantly modified optimisation algorithm has been proposed. Several test parameters were analysed in order to optimise the method. Programming Languages, Machine Learning, Data Science, and Software Engineering are among her research interests.

Mrs. Vandana C.P completed her Ph.D "Design of Resource Discovery Framework in IoT" from Visvesvaraya Technological University (VTU) in November 2022. Research work includes designing an IoT resource discovery framework that accomplishes the annotation of the IoT resource description, automatic attribute selection, semantic enrichment of resource constraint protocol and ranked retrieval of resources. Main research contribution highlights are developing an IoT resource annotation model for representing the vendor device specifications in a unified IoT resource format, design of attribute selection technique to identify discriminating and service relevant attributes from IoT resource annotations, demonstrated the efficacy of attribute selection methods with resource registration and discovery with IoT protocol attribute enrichment, redesigning of COAP protocol CoRE Link Format attributes to assist in semantic based user request and resource discovery, designed a multi criteria based IoT resource ranking technique with similar capabilities s considering system recommendation and user preferences, developed a real time application of the proposed IoT resource discovery model in a smart office environment, to retrieve the best IoT resource-based seating. Her area of research interest includes IoT, Machine Learning, Natural Language Processing NLP, Network security.

ARTICLES

Deep Learning: A Comprehensive Overview on Techniques, Taxonomy, Applications and Research Directions.

Introduction: Deep learning has emerged as a powerful field within the realm of artificial intelligence and machine learning. With its ability to automatically learn and extract complex patterns from vast amounts of data, deep learning has revolutionized various domains, ranging from computer vision and natural language processing to speech recognition and robotics. This article provides a comprehensive overview of deep learning, exploring its techniques, taxonomy, applications, and future research directions.

I. Techniques of Deep Learning:

Artificial Neural Networks (ANNs): ANNs serve as the foundation of deep learning, mimicking the structure and functionality of the human brain. They consist of interconnected nodes (neurons) organized into layers, enabling the propagation of information through the network.

Deep Neural Networks (DNNs): DNNs are ANNs with multiple hidden layers, allowing them to learn hierarchical representations of data. They leverage techniques like backpropagation and gradient descent to optimize network parameters.

Convolutional Neural Networks (CNNs): CNNs excel in processing grid-like data, such as images and videos. They employ convolutional layers to capture local patterns and hierarchical structures, enabling them to achieve remarkable performance in computer vision tasks.

Recurrent Neural Networks (RNNs): RNNs are designed to handle sequential and temporal data. Their recurrent connections enable the network to retain information from previous steps, making them effective for tasks like language modelling, machine translation, and speech recognition.

Generative Adversarial Networks (GANs): GANs consist of a generator and a discriminator network, engaged in a game-theoretic setting. The generator aims to generate realistic data samples, while the discriminator aims to distinguish between real and generated samples. GANs have found applications in image synthesis, data augmentation, and anomaly detection.

II. Taxonomy of Deep Learning:

Deep learning techniques can be categorized based on their architectural designs and learning paradigms. Some common taxonomies include:

Feed forward Networks: These networks process information in a unidirectional manner, from input to output, without feedback loops. Examples include DNNs and CNNs.

Recurrent Networks: These networks incorporate feedback connections, enabling them to model sequential and temporal dependencies. RNNs, Long Short-Term Memory (LSTM), and Gated Recurrent Units (GRUs) fall into this category.

Auto encoders: Auto encoders are unsupervised learning models that aim to reconstruct input data. They consist of an encoder, which compresses the input into a latent space, and a decoder, which reconstructs the input from the latent representation.

Reinforcement Learning: Reinforcement learning combines deep learning with the principles of reward-based learning. Agents learn to interact with an environment, maximizing cumulative rewards through trial and error.

III. Applications of Deep Learning:

Computer Vision: Deep learning has revolutionized computer vision tasks, including image classification, object detection, semantic segmentation, and image generation. Applications range from autonomous driving and surveillance systems to medical imaging and facial recognition.

Natural Language Processing (NLP): Deep learning has significantly advanced NLP tasks, such as sentiment analysis, named entity recognition, machine translation, text generation, and question answering. Virtual assistants, language models, and chatbots heavily rely on deep learning techniques.

Speech and Audio Processing: Deep learning has made significant contributions to speech recognition, speaker identification, speech synthesis, and music generation. Voice assistants, transcription services, and audio analysis systems benefit from deep learning advancements.

Robotics: Deep learning plays a vital role in robotic perception, motion planning, and control. It enables robots to navigate their environment, manipulate objects, and interact with humans more effectively.

Healthcare and Biomedicine: Deep learning has shown promise in medical imaging analysis, disease diagnosis, drug discovery, genomics, and personalized medicine. It assists in early detection, treatment planning, and prognosis prediction.

IV. Research Directions and Future Challenges:
Explainable and Interpretable Deep Learning: Enhancing the interpretability of
deep learning models remains a challenge. Future research should focus on developing methods to provide meaningful explanations and justifications for the decisions made by deep learning algorithms.

Transfer Learning and Few-shot Learning: Transferring knowledge from pre-trained models to new tasks with limited data is a critical area of research.

Improving few-shot learning capabilities will enable deep learning models to generalize better in scenarios with scarce labelled data.

Continual and Lifelong Learning: Developing deep learning algorithms that can
learn incrementally over time, adapt to new tasks, and retain previous knowledge is crucial for building more intelligent and flexible systems.

Ethical and Fair Deep Learning: Addressing biases, fairness, and ethical concerns in deep learning models is essential to ensure equitable and unbiased decision-making. Future research should focus on mitigating these issues and promoting responsible AI development.

Hardware and Efficiency: Deep learning models are computationally demanding, requiring significant computational resources. Developing efficient algorithms and hardware architectures to accelerate deep learning training and inference processes is a priority.

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Senior Security analyst,
Fedility National finance,
Bengaluru

Mrs. LATHA S S
Sr.Assistant Professor

Automotive Technology:

Introduction to Latest Advancements, Sensors, Protocols and Programming languages used

The automotive industry has come a long way since the invention of the first automobile. From the introduction of seat belts to the development of electric cars, technology has played a significant role in shaping the industry. With the latest advancements in automotive technology, the future of transportation looks promising.

Autonomous Vehicles

One of the most significant advancements in automotive technology is the development of autonomous vehicles. Autonomous vehicles, also known as self-driving cars, are vehicles that can operate without human intervention. They use sensors, cameras, and software to detect obstacles and navigate the road.

The benefits of autonomous vehicles are numerous. They can reduce traffic congestion, increase safety on the roads, and improve fuel efficiency. In addition, they can provide mobility solutions for people who are unable to drive, such as the elderly and disabled.

Electric Cars

Electric cars are also a major development in the automotive industry. Electric cars run on electricity instead of gasoline, which makes them more environmentally friendly and cost-effective to operate. They also have fewer moving parts than traditional cars, which means they require less maintenance.

The latest advancements in electric cars include longer battery life, faster charging times, and increased range. In addition, many car manufacturers are developing electric cars that can compete with traditional cars in terms of speed and performance.

Connected Cars

Connected cars are vehicles that are connected to the internet and can communicate with other vehicles, infrastructure, and devices. Connected cars can provide drivers with real-time information about traffic, weather, and road conditions. They can also communicate with other vehicles to improve safety on the roads.

The latest advancements in connected cars include the development of advanced driver-assistance systems (ADAS). ADAS technologies use sensors and cameras to detect obstacles and alert drivers to potential hazards. They can also assist drivers in parking, lane changing, and adaptive cruise control.

There are several standard protocols used in driverless cars, some of which are:

1. Controller Area Network (CAN): CAN is a communication protocol that allows different electronic systems within a vehicle to communicate with each other. In driverless cars, it is used to communicate between the vehicle's sensors and the vehicle's central processing unit (CPU).

2. Local Interconnect Network (LIN): LIN is a low-cost, low-speed communication protocol used for subsystems in vehicles. In driverless cars, it can be used to communicate with various actuators, such as doors, windows, and mirrors.

3. FlexRay: FlexRay is a high-speed communication protocol used in data-intensive applications, such as driverless cars. It can transmit data up to 10 times faster than CAN and is used to transfer data between the vehicle's various sensors.

4. Ethernet: Ethernet is a widely-used communication protocol that allows devices to connect and communicate with each other within a network. In driverless cars, it can be used to connect the vehicle's sensors, cameras, and processors.

5. Automotive Open System Architecture (AUTOSAR): AUTOSAR is a standardized software architecture that allows software modules to be developed independently and then integrated into a larger system. In driverless cars, AUTOSAR can be used to integrate software from different suppliers and ensure compatibility between different systems.

Vehicle operation, ensure safety, and improve performance. Here are some commonly employed sensors in modern automobiles:

1.Accelerometer: Measures acceleration forces to detect changes in speed and direction, used in stability control and airbag deployment systems.

2.Throttle Position Sensor (TPS): Monitors the position of the throttle valve, providing feedback to the engine control unit (ECU) for optimizing fuel injection and throttle response.

3.Mass Air Flow Sensor (MAF): Measures the amount of air entering the engine, allowing the ECU to calculate the appropriate fuel-to-air ratio.

4.Oxygen (O2) Sensor: Monitors the level of oxygen in the exhaust gases, enabling the ECU to adjust the fuel mixture for optimal combustion efficiency.

5.Wheel Speed Sensor: Installed on each wheel to detect rotational speed, used in anti-lock braking systems (ABS), traction control systems (TCS), and stability control systems.

6.Crankshaft Position Sensor (CKP): Monitors the rotational speed and position of the crankshaft, providing crucial information for ignition timing and fuel injection.

7.Camshaft Position Sensor (CMP): Determines the position of the camshaft(s), assisting the ECU in controlling fuel injection, ignition timing, and valve timing.

8.Knock Sensor: Detects abnormal combustion, commonly caused by engine knocking or pinging, allowing the ECU to adjust ignition timing to prevent damage.

9.Tire Pressure Monitoring System (TPMS) Sensor: Monitors tire pressure and alerts the driver if any tire is underinflated, enhancing safety and fuel efficiency.

10.Rain Sensor: Detects rain on the windshield, automatically activating wipers at the appropriate speed.

11.Park Assist Sensors: Utilizes ultrasonic or electromagnetic technology to detect obstacles during parking, providing proximity warnings to the driver.

12.Blind Spot Detection (BSD) Sensor: Uses radar or cameras to detect vehicles in the driver's blind spots and alerts the driver to potential lane-changing risks.

In the automotive domain, several programming languages are utilized for various purposes, such as embedded systems, vehicle software, and connected car applications. Here are some programming languages commonly used in the automotive industry:

1.C/C++: These languages are extensively used for embedded systems programming in automotive applications. They offer low-level control, efficiency, and direct hardware access, making them suitable for developing software components like engine control units (ECUs), vehicle diagnostics, and real-time systems.

2.Python: Python is gaining popularity in the automotive domain due to its simplicity and versatility. It is commonly used for developing higher-level applications, data analysis, machine learning, and artificial intelligence algorithms in areas like autonomous driving, vehicle connectivity, and infotainment systems.

3.Java: Java is used for building Android-based applications in the automotive sector. It is employed in developing in-car infotainment systems, multimedia interfaces, and applications that run on connected car platforms.

4.MATLAB/Simulink: While not a traditional programming language, MATLAB/Simulink is widely used in the automotive industry for model-based design and simulation. It allows engineers to develop and test control algorithms, perform system modeling, and validate designs before implementation.

5.Ada: Ada is a programming language known for its safety and reliability features. It is commonly used in the automotive domain for safety-critical systems development, such as engine control, braking systems, and airbag control units.

6.AUTOSAR (AUTomotive Open System ARchitecture): Although not a programming language, AUTOSAR is a standardized software architecture for automotive ECUs. It supports the integration of software components written in various languages like C, C++, and more.

It's important to note that the choice of programming language, sensors and protocols in the automotive domain depends on the specific application, hardware platform, performance requirements, and the expertise of the development team. Different programming languages, sensors and protocols may be used for different parts of an automotive system, depending on their specific needs.

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MICROSOFT AZURE FEATURES AND ITS CHALLENGES

1. Introduction to Microsoft Azure:
 Microsoft Azure is a cloud computing platform and service provided by Microsoft. It offers a wide range of cloud-based services, including virtual machines, storage, databases, networking, analytics, AI, and more. Azure enables organizations to build, deploy, and manage applications and services on a global scale, utilizing Microsoft's data centers located worldwide.

2. Core Services and Features:
Azure provides several key services and features, including:
 - Virtual Machines (VMs): Allows users to create and manage virtual machines in the cloud, providing scalability and flexibility.
 - Azure Storage: Offers different types of storage options, such as Blob storage, File storage, and Disk storage, to store and access data.
 - Azure App Service: Enables the development and deployment of web, mobile, and API applications.
 - Azure SQL Database: A managed, relational database service for storing and retrieving structured data.
 - Azure Networking: Provides services like virtual networks, load balancers, and VPN gateways to connect resources securely.
 - Azure Active Directory (Azure AD): Offers identity and access management services for authentication and authorization.

3. Hybrid and Multi-Cloud Capabilities:
 Azure supports hybrid cloud scenarios, allowing organizations to integrate their on- premises infrastructure with the cloud. Azure Stack enables the deployment of Azure services on-premises, while Azure Arc extends Azure management and services to other cloud providers.

4. Scalability and Elasticity:

Azure offers scalable services that can adjust resources based on demand. This elasticity allows organizations to scale up or down resources, such as virtual machines or storage, as needed, ensuring optimal performance and cost efficiency.

5. Challenges of Using Microsoft Azure:

While Azure provides numerous benefits, there are also challenges to consider:

- Learning Curve: Adopting Azure requires knowledge and training to effectively utilize its features and services.
- Cost Management: Without proper monitoring and governance, Azure costs can escalate, necessitating effective cost management strategies.
- Security and Compliance: Ensuring data security and compliance with regulatory requirements is crucial when using cloud services.
- Migration and Integration: Migrating existing applications and data to Azure, as well as integrating with on-premises systems, can pose challenges.
- Vendor Lock-In: Organizations must consider the potential dependence on a single cloud provider and plan for mitigating vendor lock-in risks.

6.How does Microsoft Azure work?

Once customers subscribe to Azure, they have access to all the services included in the Azure portal. Subscribers can use these services to create cloud-based resources, such as VMs and databases. Azure resources and services can then be assembled into running environments used to host workloads and store data.

7.Azure Services:

Compute services: It includes the Microsoft Azure Cloud Services, Azure Virtual Machines, Azure Website, and Azure Mobile Services, which processes the data on the cloud with the help of powerful processors.

Data services: This service is used to store data over the cloud that can be scaled according to the requirements. It includes Microsoft Azure Storage (Blob, Queue Table, and Azure File services), Azure SQL Database, and the Redis Cache.

Application services: It includes services, which help us to build and operate our application, like the Azure Active Directory, Service Bus for connecting distributed systems, HDInsight for processing big data, the Azure Scheduler, and the Azure Media Services.

Network services: It helps you to connect with the cloud and on-premises infrastructure, which includes Virtual Networks, Azure Content Delivery Network, and the Azure Traffic Manager.

8. Azure Marketplace and Ecosystem:
Azure has a rich ecosystem and marketplace, offering a vast selection of pre-built solutions, third-party services, and Azure-certified products that can be easily integrated into Azure deployments.

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Sathesh Kumar V
Associate Vice President
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What is Big Data Analytics?

Big data analytics is a rapidly growing field that involves extracting insights and value from large and complex data sets. It involves using advanced technologies and techniques to collect, process, and analyze vast amounts of data in order to identify patterns, trends, and relationships that can inform decision-making and drive business outcomes.

Here are some of the key aspects of big data analytics:

1. **Data collection and storage:** Big data analytics relies on large and diverse data sets. This data may come from a variety of sources, including sensors, social media, customer interactions, and other sources. To make this data useful, it must be collected, stored, and organized in a way that allows for easy retrieval and analysis.

2. **Data processing:** Once the data is collected and stored, it must be processed and cleaned to remove errors, inconsistencies, and duplicates. This can involve using machine learning algorithms to automatically categorize and tag data, as well as using human analysts to review and verify data.

3. **Data analysis:** Once the data is processed, it can be analyzed using a variety of techniques, including statistical analysis, machine learning, and data visualization. These techniques can help to identify patterns, trends, and correlations in the data, and to generate insights that can inform decision-making.

4. **Business outcomes:** The ultimate goal of big data analytics is to drive business outcomes by using data-driven insights to inform decisions and strategies. This can involve optimizing operations, improving customer experiences, developing new products and services, and more.

By Akash S (6 A)

OpenAI's ChatGPT: Revolutionising Conversational AI

In recent years, artificial intelligence (AI) has made remarkable strides in various fields, and one area where it has particularly excelled is in natural language processing. OpenAI, a leading AI research organization, has been at the forefront of this progress with their groundbreaking language model called ChatGPT. Combining advanced machine learning techniques with vast amounts of training data, ChatGPT is revolutionizing conversational AI and paving the way for more interactive and intelligent virtual interactions.

What is OpenAI?

OpenAI, short for Open Artificial Intelligence, is an artificial intelligence research organization founded in 2015 with a mission to ensure that artificial general intelligence (AGI) benefits all of humanity. They aim to build safe and beneficial AGI or assist others in achieving this outcome. OpenAI has garnered widespread recognition for its contributions to the AI community, and it has consistently pushed the boundaries of what is possible in the field.

Introducing ChatGPT

ChatGPT is one of OpenAI's most impressive creations, building upon the foundation laid by its predecessor, GPT-3. GPT, or Generative Pre-trained Transformer, is a deep learning model that uses a transformer architecture to generate human-like text based on a given prompt. ChatGPT takes this concept a step further by specializing in interactive conversations.

ChatGPT has undergone extensive training on an enormous dataset, encompassing diverse sources of information from the internet. By leveraging this vast knowledge base, it can generate responses that are contextually relevant and display a high level of language understanding. It can comprehend and respond to questions, provide explanations, suggest solutions, and engage in meaningful conversations across a wide range of topics.

Training Process and Iterative Refinement

Training ChatGPT is an iterative process that involves two key steps: pre-training and fine-tuning. In the pre-training phase, the model is exposed to a massive amount of publicly available text from the internet, allowing it to learn grammar, facts, and a general understanding of language patterns. However, it's important to note that the training data is anonymized and carefully stripped of any personally identifiable information to ensure privacy and security.

After pre-training, fine-tuning is conducted using a narrower dataset created with human reviewers. These reviewers follow guidelines provided by OpenAI to review and rate possible model outputs, helping to refine the model's responses. OpenAI maintains an ongoing relationship with these reviewers, fostering a feedback loop to continuously improve the system's performance and address any biases that may arise.

Benefits and Applications

The development of ChatGPT holds immense potential for various applications. It can be integrated into chatbots and virtual assistants to enhance their conversational capabilities and provide more accurate and contextually relevant responses. This can greatly improve customer support experiences, automate routine inquiries, and increase overall efficiency in interactions with AI systems.

Furthermore, ChatGPT can serve as a valuable tool for education and research. Students can engage with the model to receive explanations, ask questions, and explore complex topics. Researchers can leverage its extensive knowledge base to gain insights, generate hypotheses, and conduct exploratory analyses. Its versatility and adaptability make it a powerful asset across numerous domains.

Conclusion

OpenAI's ChatGPT represents a significant leap forward in conversational AI, enabling more engaging and dynamic interactions with AI systems. Its ability to comprehend context, generate coherent responses, and provide valuable insights makes it a versatile tool with vast potential across various industries.

While ChatGPT continues to evolve and improve, OpenAI remains committed to ensuring the system's safety, transparency, and ethical usage. They actively seek user feedback to address biases and refine the model's behavior, striving to create a more inclusive and reliable AI experience.

As we witness the remarkable advancements in conversational AI, it is clear that OpenAI and ChatGPT are at the forefront of this transformative technology. With ongoing research and development, we can expect even more sophisticated and intelligent conversational agents that will revolutionize the way we interact with AI systems, bringing us closer to a future where AI seamlessly integrates into our daily lives.

By Samit Mohan (6 C)

What is Cloud Gaming?

Cloud gaming is a type of online gaming that runs video games on remote servers and streams them directly to a user's device, or more colloquially, playing a game remotely from a cloud. With cloud gaming, users can play their favorite games on any device with an internet connection, including laptops, tablets, and smartphones. This technology is bound to revolutionize the gaming industry, providing gamers with unprecedented flexibility, accessibility, and convenience.

One of the key benefits of cloud gaming is its accessibility. With traditional gaming, players need to purchase expensive gaming hardware and software in order to play the latest games. However, with cloud gaming, users can simply stream the games they want to play over the internet, without the need for any additional hardware. This means that gamers can access their favorite titles from any device, anywhere in the world, making it easier than ever to play games on the go. Another benefit of cloud gaming is its scalability. Cloud gaming platforms typically offer a range of plans and pricing options, allowing users to pay for only the games they want to play, without having to invest in expensive gaming hardware. Additionally, cloud gaming allows users to scale their resources up or down as needed, making it easy to switch between different games and play styles. Cloud gaming is also cost-effective. Instead of investing in expensive gaming hardware and software, users can pay for only the games they want to play, when they want to play them. This means that gamers can save money on hardware and software costs, while still enjoying the latest and most advanced games.

By Amogh B (6 A)

Introduction to DevOPS

If you want to build better software faster, DevOps is the answer. DevOps integrates development and operations to improve the efficiency, speed and security of software development and delivery compared to traditional processes. A more agile software development lifecycle gives companies and their customers a competitive advantage.

DevOps is best explained as people working together to create, build and deliver secure software as quickly as possible. DevOps practices enable software development (dev) and operations (ops) teams to accelerate delivery through automation, collaboration, rapid feedback, and iterative improvements.

Derived from an agile approach to software development, the DevOps process extends a cross-functional approach to building and delivering applications faster and more iteratively. When you adopt a DevOps development process, you decide to improve your application flow and value proposition by encouraging a collaborative environment at all stages of the development cycle. DevOps represents a change in mindset in IT culture. Based on agile, lean practices and systems theory, DevOps focuses on incremental software development and rapid delivery. The basis of success is the ability to create a culture of responsibility, better cooperation, empathy and shared responsibility for business results.

By Harshita M (6 A)

NH BYTES

2022

Expert Talk on "Machine Learning and its Industrial Applications"

23rd December 2022,
11:00 AM (IST)

Students of ISE Department, NHCE

The Department of Information Science and Engineering has conducted Industry Expert Talk on the topic "Machine Learning and its Industrial Applications" for the 5th semester students on the 23rd of December, 2022 under the supervision of ISE Head of the Department, Dr. Mohan H S in offline mode. The Expert speaker, "Mr. Darpan Majumder" was invited to conduct the same.

The Speaker, Mr. Darpan Majumder is currently working as a Principal Engineer in Zebra Technologies, who examines the puzzle of motivation starting with a fact of Machine Learning Algorithms in various Applications

TOPICS COVERED:
• Machine Learning Algorithms
• Machine Learning Process
• Machine Learning Techniques
• Genetic Algorithms Crossovers and Mutations

The resource person shared his knowledge to the students about the various algorithms involved in machine learning Applications and what are the processes involved in training the data. Machine learning algorithms like supervised learning and unsupervised learning are determined based on classification and prediction. Case Study was given to the students to share their ideas in Genetic Algorithms and its mutations.

Technical Training for the Lab Instructors (2022-2023)

**71h October 2022 to 81h October 2022 ,
10:00 AM (IST)**
Technical Staffs of ISE Department, NHCE
The department of Information Science and Engineering has conducted the technical training for the lab instructors of the ISE department from 07-10-2022 to 08-10-2022 under the supervision of ISE Head of the Department, Dr. Mohan H. S.
The recourse persons of the training program: Dr. D Kalaivani, Dr. Arvind S. Kapse, Dr. K Sarvanan and Dr. L Srinivasan.
The following sessions were conducted:
·DLD Lab
·Data Science Lab
·DBMS Lab
·VMware Lab-1
The outcome of this training is that, the lab instructors should be trained so that they can help and solve the student's problems/errors during the lab sessions.

Alumni Talk on "AI & It's ETHICS"

23rd December 2022 , 12:00 AM (IST)
Students of ISE Department,NHCE
The department of Information Science and Engineering has conducted Expert talk on the topic "AI and IT'S EHICS" for the 3rd semester students on the 8th of December, 2022
under the supervision of ISE Head of the department, Dr. Mohan H S online. The expert speaker, Ms.SonaliPreethaNandagopalan was invited to conduct the same.
The Speaker is an alumna from the 2021 batch. She is currently pursuing MSc in Machine Learning University of Bath, UK. She had also worked in projects like Automatic Waste Segregator , Face Recognition System , Stress Detection Using Facial Cues .
TOPICS COVERED:
- What are ethics in AI?
- What is an AI code of ethics?
- Why are AI ethics important?
- What are the ethical challenges of AI?
- What are the benefts of ethical AI?
- Examples of AI codes of ethics
- Future Scope of AI and Its Ethics.
- How to build a career in Artificial Intelligence.
The outcome of this program is that the students were provided good knowledge about the future scope of Artificial Intelligence.

Alumni Talk on "Future Scope of Data Science"
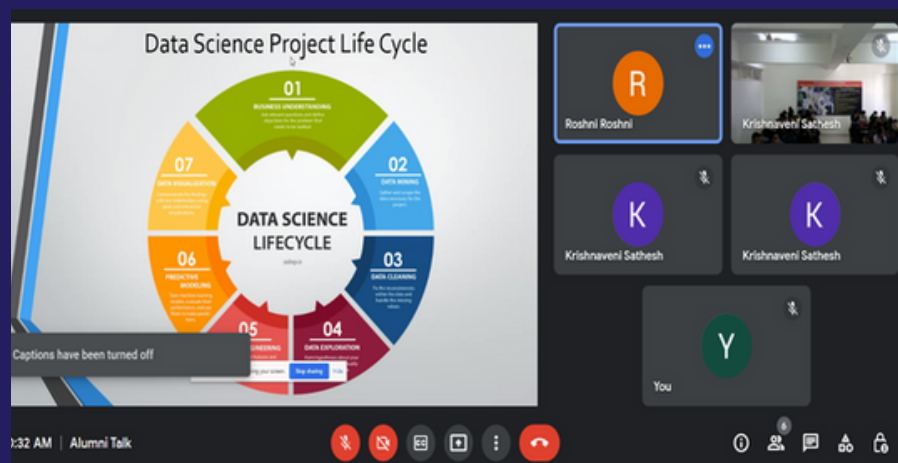

20 1h September 2022 , 10:00 AM (IST)
7 th semester students of ISE department of NHCE
The Department of Information Science and Engineering has conducted an online Alumni Talk on the topic "Future Scope of Data Science" for the 7th semester students on 20th September 2022. Ms. Roshni Katta was invited to conduct the same. The Speaker is an alumni from the 2014 batch. She is currently working as Data Science Engineer in Bighaat, Banglore. She also has involved in development of many projects in the field of Neural Networks, Machine Learning and many more.

TOPICS COVERED:
- Introduction to Data Science and Machine Learning.
- Importance of Data Science.
- Data Science Project Lifecycle.
- Applications of Data Science.
- Does Data Science have a good scope.
- Future Scope of Data Science.
- How to build a career in Data Science.

The outcome of this program is that the students were provided good knowledge about the future scope of Data Science.

Alumni Talk on "Full Stack Web Development"

20 1h October 2022,
11:10 AM (IST)

The Department of Information Science and Engineering has conducted Alumni talk on the topic "Full Stack Web Development" for the 5th semester students on 20th of October, 2022.

The expert speaker, Mr. Aditya Srivastav was invited to conduct the same. The Speaker, Aditya is an alumnus from the 2013 batch and is currently working as a Senior Application Analyst Developer in Accenture. He aims at solving everyday problems to provide the best experience on the web.

TOPICS COVERED:
- What is full stack Web Development?
- How websites are developed.
- Difference between frontend, backend and full stack web development.
- How to choose best technologies available.

The outcome of this program is that the students were provided good knowledge about the future scope of Full Stack Web Development and development of various websites.

Faculty Training Program on "Smart Board++"

11 1h July 2022 to 13 th July 2022,
10:00 AM (IST)

Faculty Members and Technical Staffs of NHCE
Office of Dean academics in association with Department of Information Science and Engineering of New Horizon College of Engineering arranged a Faculty training program for faculty member and technical staffs of various department of New Horizon College of Engineering. Faculties and technical staffs across department attended Faculty training session on 11-07-2022, 12- 07-22, 13-07-22 & 25-07-22. The event started at 10:00 AM, 11-07-22 with welcome speech and brief description on smart board++ by Dr. Manjunatha, Principal, NHCE. The Speaker of the day was Ms. Sumitha, Senior Product Manager, Senses electronics Pvt. Ltd, Bangalore.
The main objective of the FTP is to explore the salient features of smart board and use the same efficiently and effectively in the class room. The faculty members interacted with the resource person with many queries and all query was clarified The Session ended with a positive note enriching the Faculty members to use smart board efficiently.

VMware vSphere

11 1h July 2022 to 13th July 2022,
9:00 AM (IST)

6th and 4th semester students of Bachelor of Computer Applications (BCA) from New Horizon College.
Department of Information Science and Engineering in collaboration with Indian Society for Technical Education organized a "Three Days workshop on "VMware vSphere". 6th and 4th semester students of Bachelor of Computer Applications (BCA) from New Horizon College participated in the event. Participants gained knowledge on Virtualization Overview, Data Center virtualization and benefits of Virtual Machines, VMware vSphere, VMware vCenter and its cloud concepts with hands-on session in VMware HOL.
Students further apply this knowledge gained in the workshop for developing Desktop virtualization which will help the students to utilize older PCs. All the students who attended the Workshop showed immense interest and enthusiasm and were motivated to learn new things.

Expert Talk on
"Evolving Nature of Cyber Security Crime in the present Era and Being Vigilant"

2 nd November 2022,
11:00 AM (IST)

Students of ISE Department, NHCE.
The department of Information Science and Engineering has conducted Expert talk on the topic "Evolving Nature of Cyber Security Crime in the present Era and Being Vigilant" for the 5th semester students on 2nd of November,
2022. The expert speaker, "Sri.Shashidhar T.K" was invited to conduct the same. The Speaker, is currently working as Principal Consultant, Data Security Council of India
TOPICS COVERED:
• What is Cyber Security Crime?
• How to be vigilant against crime activities?
• Difference between various Security Measures.
• How cybercrime evolved?
The speaker answered questions-based on Queries of students. The outcome of this program is that the students were provided good knowledge about the various types of Cyber Crime and how to be vigilant towards crime.

Guest Talk on "Product Management"

8th November 2022
11:00 AM (IST)

Students of ISE Department, NHCE.
The Department of Information Science and Engineering has conducted Guest Lecture on the topic "Product Management" for the 5 th semester students on the 8th of November, 2022 under the supervision of ISE Head of the department, Dr. Mohan H S in offline mode. The Expert speaker, Ms. Rinku Stephen was invited to conduct the same.

The Speaker, Ms. Rinku Stephen is currently working as a Product Manager in Microsoft, who examines the puzzle of motivation starting with a fact of how to manage the product.

TOPICS COVERED:
• Project Modules
• Gathering Requirements
• Different approaches to gather Requirements by asking why, what and How.

The resource person shared her knowledge to the students about the various phases involved in developing the product, role of product manager how to satisfy the user requirements and collecting the feedback from the user to attract the right customers. Case Study was given to the students to share their view in collecting the requirements.

Role of Virtual Reality in Education Sector

11th November 2022,
11:00 AM (IST)

Students of ISE Department, NHCE.
NHCE Institutions Innovation Council and Department of Information Science and Engineering Organized Webinar on Role of virtual reality in education sector on 11th Nov 2022 . This event was organized in line with the celebration of national education day, the birth anniversary of Mr. Abdul Kalam Azad, the first Education Minister of India.
The speaker of the event is Dr. Brindha, Associate Professor, Department of computer science and Engineering, National Institute of Technology, Tirchy. Dr. Mohan H.S.HOD-ISE Welcomed the Resource Person. The Speaker has delivered the talk on why we should care about virtual reality in class room, how virtual reality will help students to do enquiry based learning, How students can explore the 360 degree of interactive content on any topic which helps them to learn better. She also embarked on how VR will help in building imagination and creative thinking and she also talked about how VR helps in peer interaction inside the class room. Her main focus on the talk was about computer vision and how computer vision can be used in education to maximize students' academic output by providing a customized learning experience based on their individual strengths and weaknesses.

Motivational Talk on "My Story – How to become a Successful Entrepreneur

11th November 2022,
2:00 PM (IST)

Students of ISE Department, NHCE.
Dept. of Information Science Engineering and Dept. of Computer Engineering in

association with the Institution's Innovation Council has organized a Motivational Talk titled "My Story – How to become a Successful Entrepreneur" on 23rd November 2022 from 2.00 – 3.30 pm. The welcome address was given by Dr. Mohan H.S., HOD, ISE Department followed by the Introduction of speaker Mr. Narasimha Naidu, Founder, STEMx, Ed-Tech Company was given by Dr. S. P. Manikandan, HOD, CE department Dr. Agalya V, IIC President, NHCE addressed the audience about the role and responsibility of IIC – NHCE.

Mr. Narasimha Naidu is alumni of NHCE, completed BE Mechanical Engineering during 2016 and done a course on Thinking and Learning in the Maker-centered classroom education from Harvard University during 2022. He has good knowledge of the franchise, its opportunity, and collaborations. He can guide in building STEM services, product models, new age pedagogy, and Design of STEM curriculum with consideration of inner human dimensions. His domain expertise includes K12 Maker spaces, STEM, STEAM, XR/AR in Education, 3D Printing, Drones, Robotics, Playful Learning.

Students actively participated in the session by interacting with the speaker. The outcome of the event is that the students got knowledge about the different processes involved in becoming an entrepreneur and insights on different topics such as how to find a business idea and how to convert it into a profitable business. Students also learned about the different steps involved in creating a business such as creating a business plan to create value in the market. Finally, the students got the landscape to start a new venture.

JWALAN-2022

16th November 2022,
11:00 AM (IST)
Students of NHCE.

The event JWALAN was conducted on16th November, 2022 by i-SWET(G) Club, an intra-collegiate technical event held by the Information Science & Engineering Department. The event started around 11:00 am in the morning with an enthusiastic participation of 56 students across various departments. The event had three rounds in total:
1. Sounds of secrets
2. Catch up!!
3. Go get them!!
JWALAN -2022 was conducted to test participant's critical thinking, spontaneous decision making, team work and problem solving skills.
The winners are:
1st Place: Srujan Reddy
2nd Place: Sandeep V
3rd place: Vigneshwara T

TECHIE TALK ON VMWARE – OVERVIEW OF IT INFRASTRUCTURE

2nd December 2022 ,
11:00 AM (IST),

The 'techie talk' was conducted on 2nd December 2022 under VMware IT Academy Club, guest lecture held by the Information Science and Engineering. The guest talk started around 11am with an enthusiastic participation of students. The guest Ms. Sushma D S, CLOUD SRE, VMware Software India Pvt. Ltd. enlightened us with the topics:
- Virtualization
- Virtual machine
- Data center- WDC, hosts, servers
- Clone, template and snapshots
- VMware high availability
- Vmotion
- Storage vmotion
- VMware fault tolerance
- Disaster recovery method
- Role of site reliability Engineer
- VMware products
- Fail over method from data center

Parent Teachers Meeting

10th December 2022 ,
10:30 AM (IST)

The Department of Information Science & Engineering, New Horizon College

of Engineering has organized a Parent-Teachers meeting on Saturday, 10th December 2022 in ISE Department Library and class room , Chatrapathi Shivaji Block, NHCE at 10:30 am. The main purpose of the meet was to create a common platform, where teachers and parents come together to enrich the student's educational experiences and discuss variety of issues, regarding all round development of the students.
The meeting was organized under guidance of Dr. Mohan H S, HOD, Department of Information Science & Engineering Teachers, mentors and parents of 3rd and 5th Semester attended the meet.

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