TECHSPARK

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Chief Patron - Dr. Dipankar Sarkar

Editor in chief- Hossainara Begum

Student Coordinator- Hrithik Das

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DREAM INSTITUTE OF TECHNOLOGY
www.dreaminstituteonline.com

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CHAIRPERSON'S MESSAGE

Susmita Sarkar

Dream Institute of Technology aspires to build a strong technical foundation for new age engineering students. We impart skill-based industry driven knowledge over and above university defined curriculum. This will help to develop the broad technical outlook required for students to survive in this competitive market. We always encourage collaboration between students and faculties, reciprocity and cooperation among students, active learning, prompt feedback and experiential learning beyond classroom. Dream Institute of Technology imparts effective learning skills that helps student to accurately remember information learnt, recall them at the right point of time and utilize them effectively in a wide variety of situations.

We encourage students to attend their classes in the college regularly, so that they can build up the habit of attending the workplaces punctually. Besides knowledge, discipline is very much essential for every individual to succeed professionally. At Dream Institute of Technology, discipline is maintained on a priority basis within the college campus. Every student in our institute is made to understand that there can be no short-cut to success. I feel privileged to be a part of this institution and hope to fuel the intellectual energies of all our students with the support of dedicated faculty members of our institute.

PRINCIPAL'S MESSAGE

Prof. (Dr.) Dipankar Sarkar

India is a fast emerging destination for cutting-edge research & development. In the year 2020 India will be in need of large talent pool not only in information technology but also in other fields like nanotechnology, agricultural science, manufacturing etc. Our students must be equipped to meet these upcoming challenges. "Dream Institute of Technology" has become one of the leading engineering institutions in West Bengal as well as in India. Within a short span of time the institute has created a niche for itself by providing lucrative career opportunities with esteemed recruiters like TCS, Capgemini, Infosys, Reliance, Accenture, Wipro- spectra mind, Satyam Computers, Cognizant, etc.

We have well-equipped computer labs, central computer center and departmental labs to equip students as quality engineers not only in the core sectors but also in the field of software engineering. Dream Institute of Technology, a state-of-the-art engineering institute provides well-equipped workshops and advanced learning resources.

From a modest beginning in July 2006, the Dream Institute of Technology made a pledge to create the ideal environment for young, fresh, talents to realize and optimize their potentials. We facilitate students to develop a symbiotic relationship between the community, society, and the institution. We are at work in unison to ensure a tremendous value-addition among our students during their four years' of stay with us. At the same time, we are also confident to ensure that the alumni of our college always feel proud of their institution of choice in the days ahead of us.

HOD MESSAGE

Congratulations to the students and faculty associated to magazine committee for successfully publishing the 1st issue of departmental technical magazine. It is a platform which provides an opportunity to the students and staff to express their original thoughts on technical topics.

The magazine plays an instrumental role in providing exposure to the students to develop written communication skills and command over the language. It is a step towards building professional and ethical attitude in them. The entire journey of creating is an outcome of rigorous effort made by students and faculty. Students not only gain the knowledge about the latest technological developments and advancements through reading and writing articles but they also develop verbal and written communication skills.

On concluding note, I would like to thank all the stakeholders for their involvement and encouragement and wish all the best for their bright future.

Dr. Anindita Mukherjee

Vision & Mission

VISION

To be a front runner in Computer Science Engineering Department by achieving academic excellence and adopting the latest technologies.

MISSION

- Create an ambience of student centric learning by providing latest learning tools and technologies with Research and innovation orientation.

- Obtain consultancy and research projects from industry and other organizations to generate revenue and contribute to the growth of institute faculty and students.

- Promote entrepreneurship and social outreach programs and contribute to Digital India Mission for the benefits of society.
- To provide avenues of continuous development of faculty in upcoming technologies and latest ICT Tools.
- Introduce new programs at UG & PG levels in latest ICT domain.

PROGRAM EDUCATIONAL OBJECTIVES (PEOS)

COMPUTER SCIENCE DEPARTMENT

PEO 1: The student will be proficient in the area of developing, debugging, validation, deployment and maintenance as a professional in IT allied industry, capable of pursuing higher studies and or be an entrepreneur anywhere in the world.

PEO 2: The student will possess skill and knowledge for developing proper relevant solution to different problems regarding designing and analysis of algorithms, OS development and development of coding through different languages, construction of secured robust network.

PEO 3: The student will be knowledgeable about contemporary and ethical issues and possess managerial qualities with effective communication skills.

PEO 4: The students will be capable of adapting latest technology and be an innovator with lifelong learning.

PO (PROGRAM OUTCOMES)

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

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

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

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

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

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

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

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

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

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

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

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

PROGRAM SPECIFIC OUTCOMES (PSOS) COMPUTER SCIENCE DEPARTMENT

PSO1: Proficiency will be developed in designing and developing computer programs and possess acquaintance with emerging technologies in data sciences PSO2: A successful career will be achieved by applying innovative algorithmic principles for coding to propose optimal solutions to complex problems in recent trends in computer science.

PSO2: A successful career will be achieved by applying innovative algorithmic principles for coding to propose optimal solutions to complex problems in recent trends in computer science.
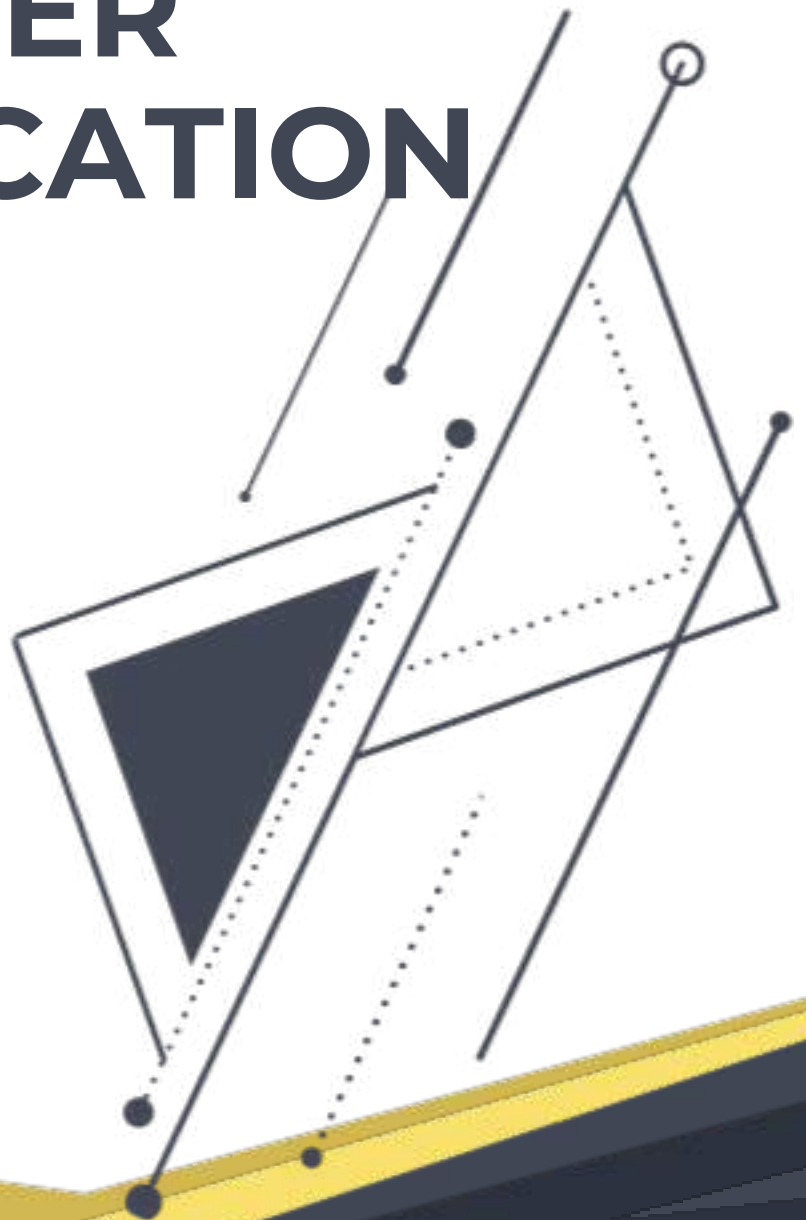
TEACHER PUBLICATION

IMAGE PROCESSING AND FACE DETECTION ANALYSIS ON FACE VERIFICATION AND THEPERFORMANCE BASED ON THE AGE STAGES

Dr. Anandita Mukherjee
HOD, CSE Department

ABSTRACT

Face recognition is critical to social interaction and it has received extensive attention from researchers using a range of methods. Herein, we review key findings regarding the cognitive basis, neural basis, neuropsychological impairments, and development of face recognition. These studies indicate that face recognition involves a number of separate processes, including some processes that are specialized for faces. Cognitive experiments demonstrate that faces are represented in a more holistic manner than other objects which produces precise representations of both the features and their configuration. This paper focuses on the development of image processing and face detection on face verification system by improving the image quality. The research use computer simulation, comparative studies, and analytical studies. Damage or developmental failures affecting neural areas involved with face recognition can lead to a variety of face recognition deficits, most notably prosopagnosia. Finally, we outline the development of face recognition abilities.

A PRACTICAL APPROACH TOWARDS DETECTION OF FACE MASKS IN PUBLIC SECTOR

Mr. Sandip Bose
Assistant Professor , CSE
Department

ABSTRACT

In recent years COVID-19 pandemic has rapidly affected our day-to-day lives and has disrupted the normal movement of world. The way the scenario has been changed has forced us to inculcate a "new normal" method to survive in this current situation which mandatorily implements usage of a protective face mask. Needless to say, this has made 'detection of facial mask' a crucial factor considering health & hygiene, societal and economical point of view. In our work we have given a try to form an algorithm which will run on OpenCV, Pytorch, TensorFlow software's and can detect the face mask on real time basis. Implementation of this in crowded public areas can also be quite useful in demolishing the global pandemic by monitoring the public in general, who are obstinate to maintain COVID-19 protocols. Keywords: Covid-19, Deep Learning, Machine Learning, Face masks
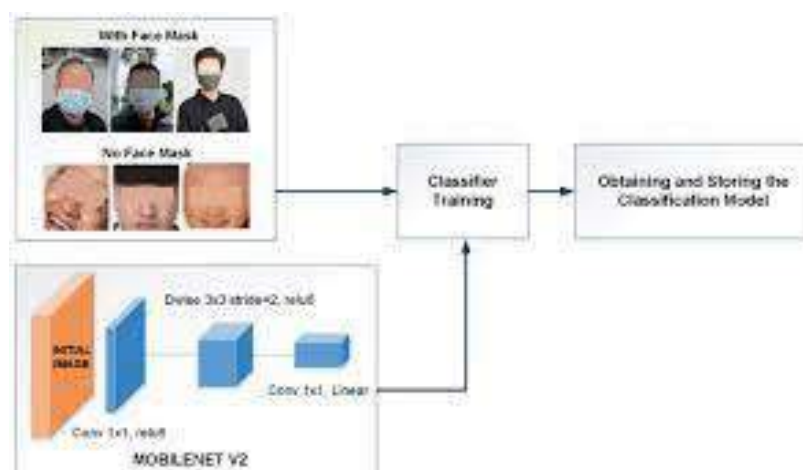
Agent Oriented Patient Scheduling System: A Concurrent Metatem Based Approach

Mrs. Hossainara Begum
Assistant Professor, CSE Department

ABSTRACT

The Problem of Patient Scheduling[6] is a major issue in a Medical Healthcare System. In India, Healthcare is an 80 billion dollar Industry and is growing at an average rate of 17% annually. However, quality healthcare is still out of reach for many. Each year thousands of fatalities arise simply due to the fact that patient could not be provided with proper medical facilities at the right time. A software agent may be a member of a Multi-Agent System (MAS) which is collectively performing a range of complex and intelligent tasks. Using oncurrent Metatem, a Multi-Agent Language, we have attempted to model a patient scheduling system that can help hospitals collaborate among them through a Liaison-Agent, in order to provide patients with the best care possible. Patients should no longer have to be turned down when hospitals are packed to capacity; instead, they could simply be shifted to another hospital. Hospitals and even doctors are assigned to patients after an automated process of matching patient needs with doctor expertise and hospital .
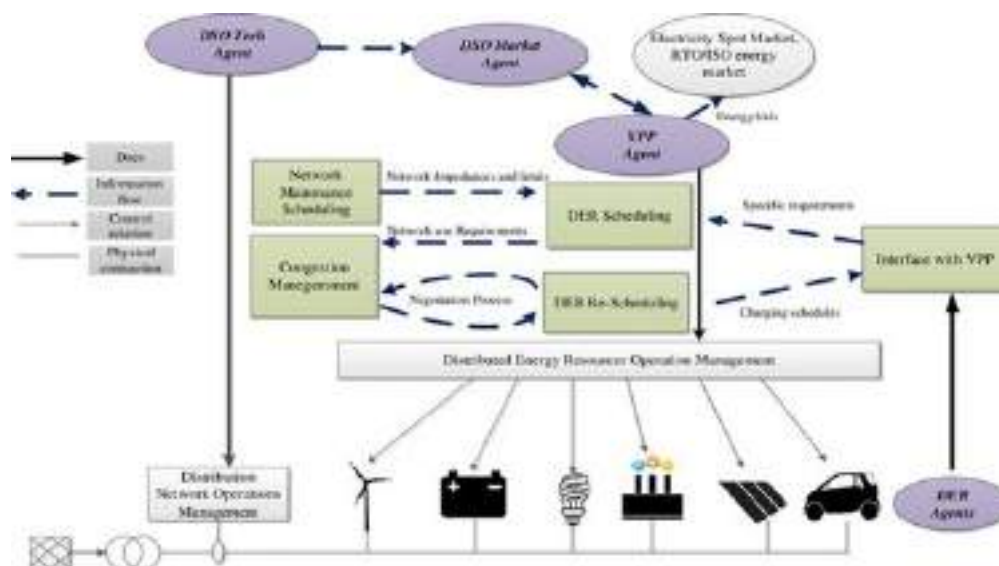
Secured Transmission of Sensitive Images of Skin Diseases Using Steganography and Cryptography

Mr. Kunal Hossain
Assistant Professor, CSE Department

ABSTRACT

With the evolution of technology, wireless

transmission of sensitive images especially images of skin disease has facilitated doctors to obtain updates regarding the current progress of the disease from various experts. But transmission of such images is vulnerable to serious threats and attacks. To protect

the sensitive images from intrusion, certain security measures need to be adopted. LSB based encoding method has been proposed in this paper that utilizes DCT and pixel flipping techniques to form the stego-image. Stego-key generation method is also implemented to validate the authorized receiver during retrieval. The image of the skin disease is considered to be both cover image and stego- image. The receiver can retrieve the original image using key-based decryption algorithm, LSB, and pixel flipping method. The extensive experimental analysis is conducted to demonstrate the efficacy of the proposed method with existing ones.

Keywords—Steganography; LSB; Stego-image; Encrypted
image; DCT; Flip; Stego-key; Skin disease .

student
PUBLICATION

> "Choose a job you love, and you will never have to work a day in your life."
> —Confucius

Career Guidance App

-By Antarik Pandit, Chayan Das, Debjit Bhattacharya & Partha Pratim Ghorui of CSE, 4th Year

When it comes to choosing a career it's not only on what career you choose, it's more than what you want to become after your graduation. Career guidance is more about knowing and understanding about yourself and your capabilities and abilities. Most of the students after completing graduation in CSE department are always in confusion that which career field is appropriate for their future. The students don't have adequate knowledge to accurately understand what path has got to follow so as to decide on a congenial career field. Then comes the subsequent agony whether or not they have essential skills for the field they need chosen. We had multiple rounds of deliberation with students who are currently doing their engineering in computer science. Then we came up with an idea of providing an objective assessment of one's skill set and calibre that recommend a right field to choose and hence we picked this as our problem statement and started thinking through how we can help the students in addressing this question.Our computerized career guidance system is employed to predict the acceptable career field for a personal supported their skills assessed by rating which will be based on their skills and knowledge on the particular subjects chosen. If one completes their ratings, which we've created in our system, then automatically they'll find an appropriate career field which is able to also reduce the failure rate by choosing a wrong career path.

> "Personality is an unbroken series of successful gestures."
> — F.Scott Fitzgerald
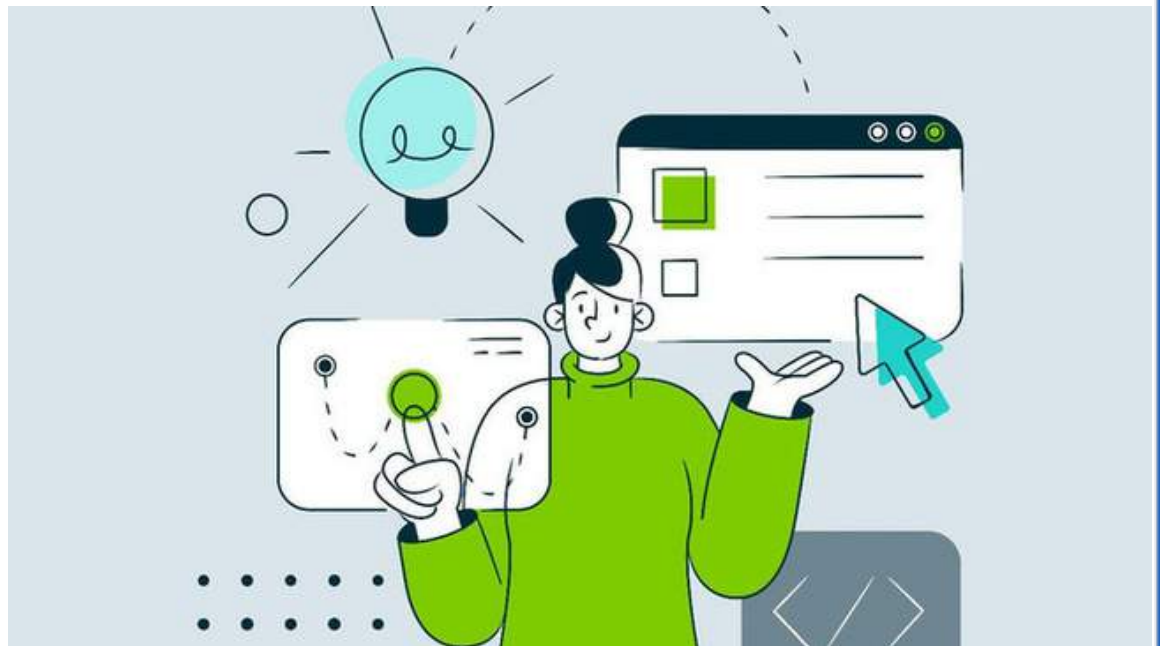
Personality Prediction Using CV

-By Aditya Asis Khan, Rabia Sultana, Pratyay Pramanik, Sumanta Sahu, Snehil Sparsh from CSE, 4th Year

Human resource management is designed in such a way to support and provide opportunities to the employees which is based on the concept of modern job design. Due to the ever increasing modern information system, easy access to universal electronic technology as well as the internet boosted the development of Human Resource management and made it applicable. Personality Prediction System is designed to plan various job characteristics in this internet age which will help the HR. In this system, we are trying to combine a set of techniques that can make the whole recruitment process more effective, easy and efficient. Nowadays, there is a growing interest in the personality traits of a candidate by the organization which is used to better examine and understand the candidate's response to similar circumstances. Therefore, this system will conduct a personality prediction test to determine the personality traits of the candidate. This system also provides aptitude questions in order to know the knowledge of the candidate in a particular field. Finally, this system will present the results of the candidates to the recruiter or admin who evaluates the candidates and provides jobs based on their CV which will be provided to the admin by the candidate.

"Drones overall will be more impactful than I think people recognize, in positive ways to help society."

-Bill Gates

—

Hand Gesture Controlled Drone

-By Rishi Majumdar, Sagar Singh, Shafiqur Rahman, Subhadeep Das and Subhadip Dhara from CSE, 4th Year

This thesis presents research detailing the use of hand gestures as a HDI (Human-Drone Interface) method to control the flight of drones. In this system, the drone's absolute position is not being monitored or recorded. Instead, the drone is being told to move relative to its current position based on the detected gesture of the user's hand. This work consists of three main modules: Hand Detector, Gesture Recognizer and Drone Controller. A deep learning method is incorporated and utilized in the first module to detect and track the hands in real-time with high accuracy and from a single Red-Blue-Green (RGB) image. Image processing algorithms and techniques are introduced as a dynamic way to identify the hand gestures and motions. Finally, the Drone Controller module is responsible for communicating with the drones. It sends and receives the messages between the proposed system and the drone which is connected to the system.
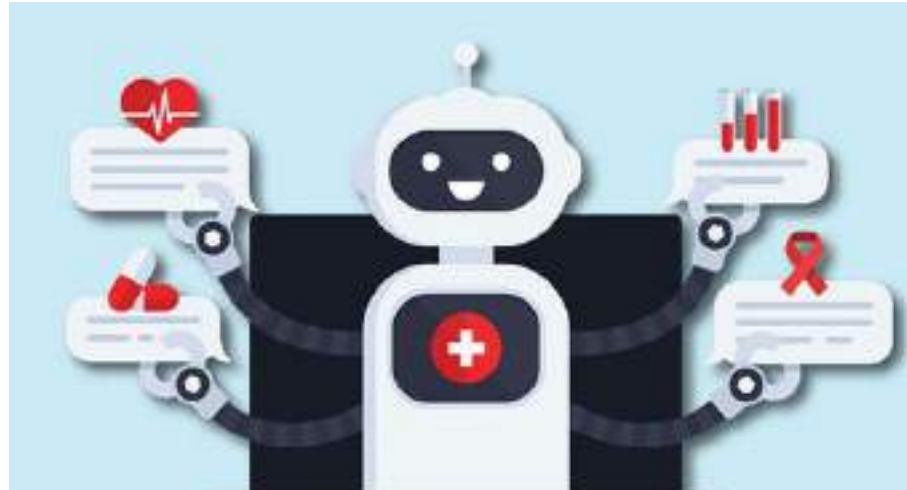
Healthcare Chat Bot

-By Sahil Ali, Sreeperna Bera, Tathaghata Roy, Suryayan Dey & Sayatan Sadhufrom from CSE, 4th Year

The AI Chatbot Dietitian is a revolutionary website designed to cater to the unique dietary needs of individuals. By leveraging artificial intelligence and machine learning techniques, the chatbot interacts with users, collecting essential data such as age, gender, weight, height, and any existing medical conditions. With this information, the chatbot provides personalized insights and recommendations to improve the user's overall health and well-being.

The primary focus of the AI Chatbot Dietitian is to calculate and analyze key health indicators, including Body Mass Index (BMI) and Basal Metabolic Rate (BMR). By considering these metrics, the chatbot generates a comprehensive diet plan tailored to the individual's specific requirements. The diet plan incorporates essential nutrients, portion sizes, and meal timings, ensuring a balanced and healthy lifestyle.

With its user-friendly interface, the website aims to make nutrition guidance accessible to everyone. Users can conveniently input their details and receive real-time feedback, empowering them to make informed decisions about their diet and wellness. The chatbot offers personalized recommendations, taking into account the user's goals, dietary preferences, and any dietary restrictions.

The AI Chatbot Dietitian goes beyond providing generic dietary advice and considers the unique needs and circumstances of each user. By combining the power of artificial intelligence and nutrition expertise, the chatbot offers a reliable and efficient solution to support individuals in achieving their health and fitness goals. With continuous learning and regular updates, the chatbot evolves to stay up-to-date with the latest research and recommendations, ensuring the most accurate and relevant guidance.

The AI Chatbot Dietitian aims to bridge the gap between individuals and professional nutritionists, making dietary guidance easily accessible and cost-effective. By providing personalized diet plans, BMI analysis, and BMR calculations, the chatbot empowers users to make positive changes in their lives, leading to improved health outcomes and a better understanding of nutrition's role in overall well-being

"It's so difficult to describe depression to someone who has never been there because it is not sadness."

– F.Scott Fitzgerald

Depression Prediction Using ML

-By Nikhil Chandra Mahato, Aniket Ghosh, Pulak Das, Sourav Basak, Rohit Mondal and Argha Maity from CSE, 4th Year

Depression is a significant mental health issue that affects millions of people worldwide, and early detection is crucial in preventing its long-term effects. This project proposes a machine learning-based solution to predict depression among individuals by analysing various factors related to their lifestyle and behaviour. The project aims to develop an interactive user interface that will make the solution engaging and accessible to users.

The project will involve using various data structures and algorithms to build a machine learning model that accurately predicts the risk of depression. The team will conduct extensive research on the factors that contribute to depression and identify the most informative data points to include in the model. Additionally, the team will explore different machine learning algorithms and techniques to determine the most effective approach for the task.

The development of the solution will involve the use of Python, Pandas, NumPy, andScikit-learn. The effectiveness of the model will be evaluated by conducting user testing with a group of participants with varying levels of risk for depression. The results of the user testing will show whether the solution effectively predicts depression and offers an enjoyable user experience.

The project's successful completion will provide a valuable contribution to the field of mental health by offering a reliable and accessible solution for depression prediction. The incorporation of machine learning and data structures in the solution's design can also offer insights into the relationship between various factorsand depression, contributing to the development of more effective interventions in future.

THE IMPACT OF BROWSER NETWORKING ON USERS

-By Subhankar Ghosh from CSE, 2nd Year

To decrease the load time of a webpage, it's important to use optimized code and maintain a well-organized file and folder structure for the program. This includes considering the downloading of attached files like CSS, scripts, and others.

In HTML, we can use different files to keep our CSS and JavaScript code, but this can sometimes cause delays depending on the type of project and design. The writing complexity of the code and the use of media queries can also affect the download time, especially when trying to access images, videos, and other files on the live server. The live server is the HTML page.

However, adding CSS rules to each HTML page can make the HTML structure unorganized and difficult to maintain, reuse, and scale up. To quickly and easily insert CSS rules into an HTML page, it's useful for testing or previewing changes and performing quick fixes on the website.

When it comes to JavaScript, it's important to avoid render-blocking JavaScript (Render-blocking JavaScript is a term used to describe JavaScript code that prevents the web browser from rendering the webpage until the script is fully loaded and executed. This can slow down the page loading time and affect the user experience.) and consider the design of other code when thinking about other JavaScript files. By organizing your files and using optimized code, you can improve the performance of the responsive web design.
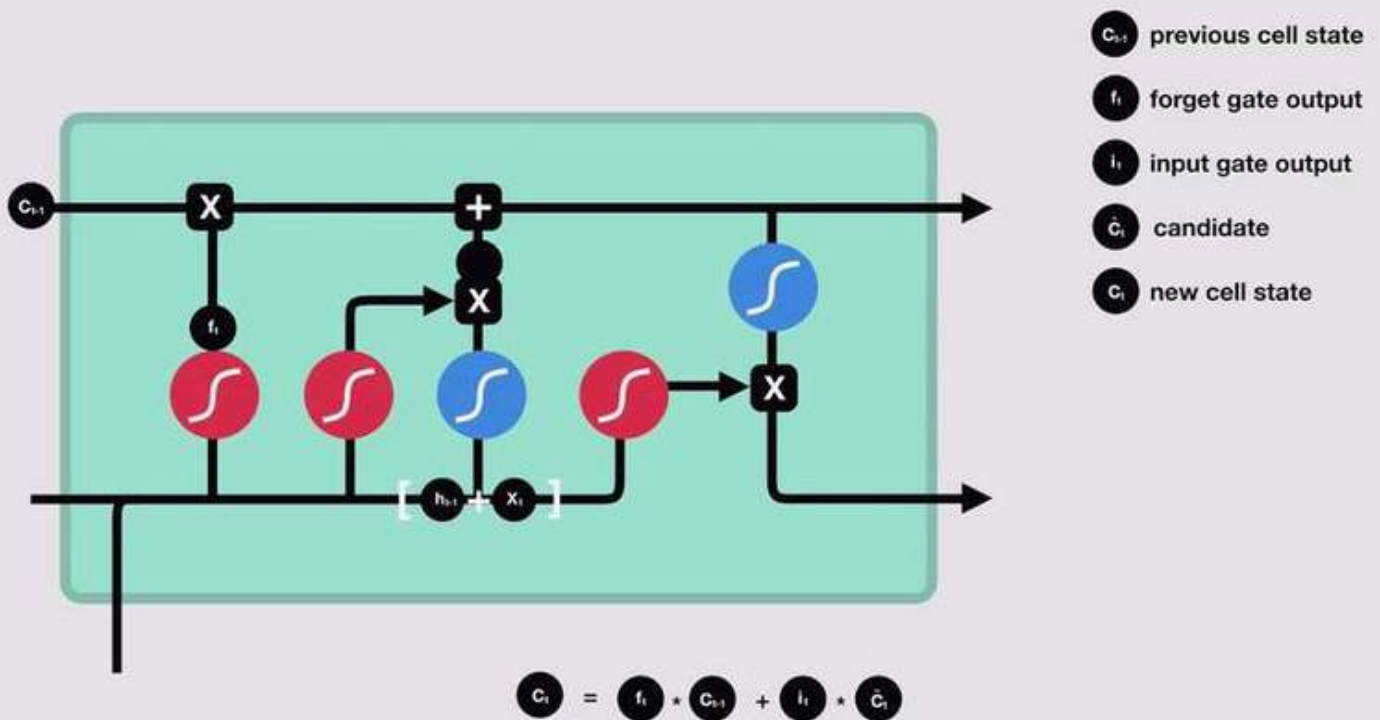
LSTM Models: A Comprehensive Analysis and Applications

Snahashis Kanrar , Nimai Chand Giri , Debjyoti Adak , Suman Paul , Saikat Ghosh , Shreya Das,

Department of Computer Science and Engineering

Long Short-Term Memory (LSTM) is a type of Recurrent Neural Network (RNN) that is designed to handle the problem of vanishing gradients in traditional RNNs. LSTM models are widely used in a variety of applications such as speech recognition, natural language processing, and imagecaptioning, among others. The architecture of an LSTM model consists of a memory cell, three gates (input, forget, and output), and an output. The memory cell is responsible for maintaining information over time, while the gates regulate the flow of information into and out of the memorycell. The forget gate determines which information to discard from the memory cell, while the input gate controls which new information to add. The output gate controls the output of the LSTM model. The gates are implemented using sigmoid and element-wise multiplication functions. One of the key advantages of LSTM models is their ability to handle long-term dependencies in data. This is achieved by allowing the model to selectively remember or forgetinformation from the past, depending on its relevance to the current task. LSTM models have been used in a wide range of applications, including speech recognition, natural language processing, image captioning, video analysis, and music composition, among others. In speechrecognition, LSTM models have been used to improve the accuracy of speechto-text systems. In natural language processing, they have been used to generate text, classify text, and performsentiment analysis, among other tasks. In image captioning, LSTM models have been used to generate captions for images, by processing the image and generating a natural language description. In video analysis, they have been used for activity recognition, action detection, andvideo summarization. In music composition, LSTM models have been used to generate music based on a given set of musical parameters. LSTM models have also been extended to addressvarious limitations, including the ability to handle multiple types of input data, such as images and text, and the ability to handle variable-length inputs. These extensions have led to the development of hybrid models, such as the Convolutional LSTM (CLSTM) and the Attention LSTM (ALSTM), which combine the strengths of different architectures. In conclusion, LSTM models are a powerful tool for modeling sequential data, and their ability to handle long-term dependencies has made them widely used in a variety of applications. The development of hybrid models and extensions has further improved their performance and expanded their applicability to different types of input data
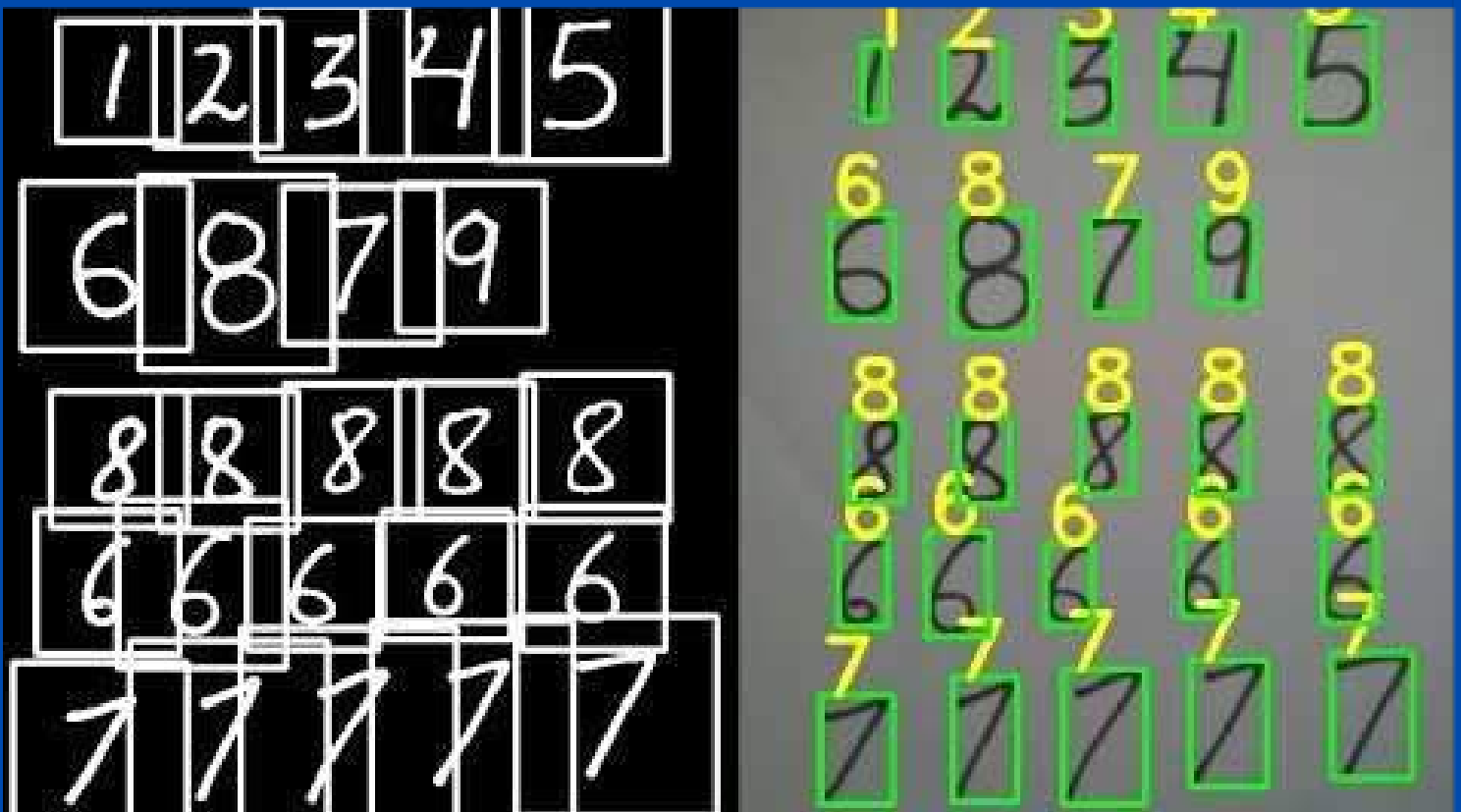
Handwritten Digit Recognition

Swarup Kumar Supakar , Mubasshir Ali , Sutapa Das , Ekant Singh

Department of Computer Science and Engineering

Project deals with the applications of ML (Machine Learning) techniques for detecting Hand written digit classification, with many real-world applications such as digitizing historical documents, recognizing handwritten addresses on envelopes, and processing handwritten forms. In this project, we aimed to develop a machine learning model that can accurately identify and classify handwritten digits from an image. We trained our model on a dataset of handwritten digit images, the MNIST dataset, using convolutional neural network (CNN) architecture. Our preprocessing techniques included resizing, normalization, and augmentation. We evaluated our model on a separate set of test images and achieved an accuracy of 99.3 Our results demonstrate the effectiveness of CNN architecture for handwritten digit recognition, as well as the importance of preprocessing techniques in improving accuracy. We discuss potential areas for further research, such as exploring different CNN architectures or datasets, and the implications of our findings for real world applications. Overall, this project serves as an example of the potential of machine learning and computer vision to automate tasks and improve efficiency.

A Machine Learning Approach to Detect Fake News

Arindam Ojha , Hrithik Das, Atiqur Rahman, Piu Mondal, Rupam Mukherjee, Soumik Mukherjee

Department of Computer Science and Engineering

The project comes up with the applications of Machine Learning Technique to generate optimal model which is usedto detect the fake news, spreading day by day in our life . Due to its potential to have major negative social, national, and international repercussions, fake news on social media and other media is pervasive and of serious concern. There has been a lot of study done already to try to find it. In order to choose the optimum machine learning model, this study analyses the research on the identification of fake news. In this machine learning model we Use the Python Scikit- Learn package to tokenize and extract features from text data because it has helpful tools like the count vectorizer and tiff vectorizer. In order to create a model of a product with the supervised machine learning algorithm where some data will be train and then after their training some sub-data will be tested for the required result, whetherit is true or false. Our machine learning model will very appropriate to test the given news input.

A Machine Learning Technique for Predicting the Demand of a Product

Yogesh Summan , Arghya Ghosh , Soumyajit Paramanick , Bandana Nanda , Debayan Ghosh , Suvojit Baidya

Department of Computer Science and Engineering

The Product Demand Prediction Model is a machine learning-based approach that utilizes historical data, market trends, and other relevant information to forecast the future demand fora particular product. This model is designed to help businesses optimize their operations, reduce costs, and increase profitability
by making informed decisions about production planning, inventory management, and sales forecasting. The model starts by analyzing historical data such as sales, customer behavior, and seasonality patterns to identify trends and patterns. It then usesthis information to create a predictive model that can
forecast future demand with a high degree of accuracy. By integrating external factors such as economic indicators and industry trends, themodel can adjust its predictions to reflect changes in the market. One of the key advantages of this model is its ability to identify demand patterns and trends that may not be immediately apparent to human analysts. By providing a more accurate and granular understanding of product demand, businesses can make better-informed decisions about inventory management, production planning, and sales forecasting. This can help them optimize their supply chain, reduce waste, and increase profitability. The Product Demand Prediction Model offers a powerfultool for businesses in various industries to gain insight into their product demand and optimize their operations. By leveraging this technology, businesses can increase efficiency, reduce costs, and ultimately deliver better products and services to their customers

A Machine Learning Technique for detecting Online Fraud Payment

Sougata Das , Abhijit Rauth , Sujoy Sarkar , Sk Moksadul Rahaman
, Souvik Mondal , Tofayel Molla

Department of Computer Science and Engineering

Online fraud payment detection is a critical challenge in the e-commerce industry. As online payment methods gain more popularity, the instances of fraudulent activities also increase. To tackle this problem, machine learning algorithms have been employed to develop models that can detect fraudulent transactions. This study explores the use of Python machine learning tools to detect fraudulent online payment transactions. The dataset used in this study is collected from a large e-commerce firm with considerable online transactions. Feature engineering and preprocessing techniques such as one-hot encoding, feature scaling, data cleaning, and data normalization are used to prepare the data for model training. Three machine learning algorithms, namely Random Forest, Support Vector Machine, and
Logistic Regression, are utilized to develop fraud detection models. These algorithms are trained using
the prepared dataset, and their performance is evaluated using metrics such as precision, recall and F1- score. The results show that the Random Forest algorithm outperforms the other two models, achieving an F1-score of 97.5% in detecting fraudulent transactions. This study demonstrates the effectiveness of using Python machine learning tools to detect online fraud payments and highlights the importance of continuous improvement of fraud detection methodologies for the e-commerce industry.

ARTICLE

BRIDGING THE INDUSTRY-ACADEMIC GAP IN COMPUTER SCIENCE: COLLABORATIVE APPROACH

Introduction: The field of Computer Science and its allied subjects are witnessing rapid advancements and evolving technologies. To ensure the alignment of academic education with industry demands, bridging the gap between industry and academia is of utmost importance. In this article, we will explore the significance of industry-academia collaboration in the realm of Computer Science and related subjects. Additionally, we will discuss effective strategies and the key stakeholders responsible for driving this initiative.

Why is Industry-Academia Collaboration Important? Industry-academia collaboration plays a vital role in addressing the gap between theory and practice, ensuring a relevant curriculum, fostering research and development, providing practical experiences for students, facilitating technology transfer, and promoting economic growth. By actively involving industry professionals in curriculum design, academic institutions can stay updated with industry trends and ensure that graduates are equipped with the necessary skills and knowledge.

One of the key benefits of industry-academia collaboration is bridging the gap between theoretical knowledge gained in academic settings and practical applications in real-world scenarios. Computer Science is a rapidly evolving field, and industry collaboration helps ensure that academic programs are aligned with the latest technological advancements. By incorporating industry insights into curriculum design, academic institutions can prepare students to meet industry needs and enhance their employability.

Collaborative projects, internships, and work experiences also play a crucial role in bridging the gap. These opportunities allow students to apply their theoretical knowledge in real-world settings, gain practical experience, and establish industry connections. Engaging in industry-sponsored projects or internships exposes students to industry practices, challenges, and requirements. Moreover, it helps students develop problem-solving skills, teamwork, and communication skills, making them better prepared for the professional world.

Furthermore, industry-academia collaboration fosters research and development (R&D) activities. By working closely with industry partners, academic researchers gain access to real-world problem statements, data, and resources. This collaboration accelerates the pace of research, facilitates the validation of theories, and leads to the development of practical solutions. Joint research initiatives also enable the transfer of knowledge and technology between academia and industry, resulting in the creation of innovative products, services, and industries.

Mitigating the Gap: Strategies and Key Stakeholders: To effectively bridge the industry-academic gap in Computer Science and related subjects, a collaborative approach involving various stakeholders is essential:

1.**Academic Institutions**: Academic institutions play a central role in driving industry-academia collaboration. They should actively engage with industry partners and take the lead in implementing strategies to bridge the gap.

Curriculum Development: Academic institutions should regularly review and update their curricula to align with industry needs. Involving industry professionals, advisory boards, and alumni in curriculum design ensures that academic programs are relevant and responsive to industry trends.

Industry Partnerships: Establishing strong relationships with industry partners is crucial. Collaborating on research projects, joint initiatives, internships, and industry-sponsored programs allows academic institutions to provide students with real-world experiences and practical skills.

Faculty Development: Offering professional development opportunities for faculty members is essential to keep them updated with industry practices and advancements. Engaging in industry collaborations, attending industry conferences, and participating in industry-relevant projects enables faculty members to bring practical knowledge and experiences back to the classroom.

Industry Mentorship: Implementing industry mentorship programs connects students with industry professionals who can provide guidance, insights, and advice. Mentors can offer valuable perspectives on industry practices, career pathways, and professional development opportunities.

2. **Industry Partners**: Industry partners have a vested interest in the talent pipeline and the quality of graduates entering the workforce. They should actively participate in bridging the industry-academic gap.

Collaboration with Academic Institutions: Industry partners can contribute by providing input on curriculum design, offering internships, and engaging in collaborative research projects. By sharing their expertise and industry insights, they ensure that academic programs are aligned with industry needs.

Guest Lectures and Industry Talks: Industry professionals can share their practical experiences, insights, and real-world case studies by delivering guest lectures, workshops, and seminars in academic institutions. These interactions enhance students' understanding of industry practices and current trends.

Internships and Cooperative Education: Offering internships and cooperative education programs provides students with valuable practical work experience, industry exposure, and the opportunity to apply their knowledge in real-world settings. These experiences bridge the gap between academia and industry and enhance students' employability.

3. **Government and Policy Makers**: Governments and policy makers play a crucial role in creating an enabling environment for industry-academic collaboration.

Funding and Incentives: Providing funding and incentives for collaborative research projects, industry-academia partnerships, and initiatives that bridge the industry-academic gap encourages academic institutions and industries to actively engage in collaborations. Financial support allows for the implementation of joint programs and the development of industry-relevant infrastructure.

Policy Frameworks: Developing policies and frameworks that support collaboration between academic institutions and industries is crucial. Creating mechanisms for knowledge transfer, intellectual property management, and technology commercialization facilitates industry-academic collaboration and supports innovation and economic growth.

Skill Development Initiatives: Governments can support skill development initiatives that focus on industry-relevant skills. Providing financial assistance for industry-academia collaborative programs, workshops, and training activities helps bridge specific skill gaps identified by the industry.

4. **Professional Associations and Industry Bodies**: Professional associations and industry bodies can play a crucial role in bridging the gap by facilitating collaboration and knowledge exchange.

Networking and Collaboration: These organizations can provide platforms for networking and collaboration between academia and industry professionals. Organizing conferences, seminars, and events where academics and industry experts can exchange ideas and build partnerships fosters a culture of collaboration.

Advocacy and Best Practices: Professional associations and industry bodies can advocate for industry-academic collaboration and promote best practices in bridging the gap. They can develop guidelines, standards, and frameworks that facilitate collaboration and knowledge transfer between academia and industry.

Continuing Education and Certification: Offering continuing education programs and certifications ensures that professionals remain updated with industry-relevant skills. Professional associations can work in collaboration with academic institutions to develop programs that cater to industry needs and facilitate the upskilling and reskilling of professionals.

Conclusion: Bridging the industry-academic gap in the field of Computer Science and its related subjects requires a collaborative effort from academic institutions, industry partners, government and policy makers, and professional associations. By actively involving all stakeholders, curriculum relevance can be ensured, practical experiences can be provided to students, collaborative research can flourish, and technology transfer can be facilitated. This collaboration ultimately leads to the development of industry-ready graduates, the transfer of knowledge and technology, and the continued growth of the field. Embracing industry-academia collaboration is crucial to preparing students for the demands of the rapidly evolving Computer Science industry and ensuring their success in the professional world.

Reena Sengupta, Assistant Professor , CSE Department

Have you ever thought about what will happen if our smartphones, tablets, and computers acquired the ability to sense our emotions? Imagine a world where machines can identify us, feel our presence, and interact with us the way we interact with each other. All these things will soon be a part of the world we are living in and will be achieved with the help of Blue Eyes technology.

BLUE EYES TECHNOLOGY

SINCE 1997

Blue eyes technology has been conducted by the research team of IBM at Almaden Research Centre (ARC) in San Jose, California since 1997. It is an amalgamation of both hardware and software technologies with the help of which we can build machines having human-like sensory and perceptual capabilities are embedded in the gadgets using the Blue Eyes Technology. This shows how far science and technology can progress and develop. The Blue eyes technology identifies human emotions using image processing techniques by

.Blue eyes technology has been conducted by the research team of IBM at Almaden Research Center (ARC) in San Jose, California since 1997. It is an amalgamation of both hardware and software technologies with the help of which we can build machines having human-like sensory and perceptual abilities.

extracting eye portion from the captured image and compares it with the stored images in the database. This high-end technology facilitates the computers to talk, listen and feel our presence with various tools of artificial intelligence like face recognition, fingerprint, and video calls etc. This technology is used to simplify life by providing userfriendly facilities. It also helps in reducing the gap between the computer and human.

Hardware used in Blue Eyes Technology: The Blue Eyes technology has two main hardware components - 1. Data Acquisition Unit (DAU) 2. Central System Unit (CSU). Data Acquisition Unit's main objective is to acquire data with the aid of numerous sensors such as beepers, LCD screens, LED indicators, etc., and to transfer all that data to CSU with the help of Bluetooth. It uses Atmel 89C52 as its principal component. The Central System Unit's task is to analyze and process the data sent by DAU. It also performs access verification and system maintenance.

Software used in Blue Eyes Technology: The software present in a Blue-Eyes device continuously monitors the conditions of the surroundings. When the conditions change, the software performs real-time analysis of the incoming data and triggers several operations based on the captured data. The connection manager manages wireless communication between Data Acquisition Unit and Central System Unit. The physiological conditions of the user received by the sensors are analyzed by the Data Analysis module. The Visualization module acts as a UI for the superiors and helps them to watch the physiological condition of the user with a preview of the audio and video streams.

Blue Eyes Devices: The devices used for collecting the information in this technology are as unique as the technology itself. These are specially designed to obtain a plethora of data through touch, perception, hearing, etc. Emotion Mouse (For Hand): Emotion mouse is an input device that looks like a conventional mouse but it serves the purpose of evaluating the emotions of the user. It has pressure, photo, temperature, and GSR sensors that can classify a user's emotions into different categories like - fear, surprise, anger, sadness, happiness, disgust, etc. while the user is interacting with the computer.

Sentic Mouse: Sentic mouse is also an extension to computer mouse having directional pressure sensors giving conventional mouse the ability to measure emotional valence i.e. to sense attraction or avoidance for objects present on the computer screen.

Expression glass (For Eyes): Expression glasses are wearable devices that help in determining what the user is interested in at a particular time by analysing the interaction between user and computer. These glasses remember what the user is watching and also catch the facial expressions of the user at that time. Combining that visualization with the emotion of the user gives the level of interest a user has for that thing. One of its prototypes used piezoelectric sensors. Blue eyes applications in real life: The Technology can be used in automobiles for simple touch computer devices. Electric power stations for sensing the measures of current. Generic control rooms use this technology for sensing. Used for flight communication and control purposes for accurate voice transmission. Medical people use this technology for operation. Used in robots and military purposes. Used in household gadgets and control systems in our rooms. Used highly in speech recognition.

Advantage of blue eyes technology: To speak about the blue eyes technology advantages, it has high accuracy and speed. Compared to other technology there is no need for high physical effort compared to manual level. This technology gives different forms of information. We can make proper and accurate surveys in the biometrics field. It can recognise figure print and its wheel secured than other technology. It makes less error compared to manual work in the technological field. This technology even uses biometrics for accurate result

BY SUBHANKAR GHOSH
2ND YEAR,CSE

TREES AND TREE TRAVERSING: SKYPE, UBER, AND UI FRAMEWORKS:
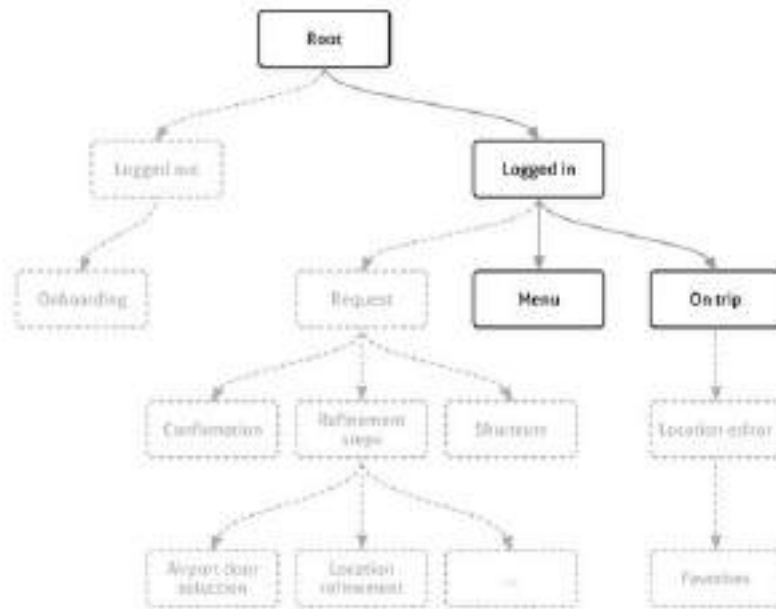
WHEN WE DEVELOPED SKYPE FOR THE XBOX ONE, WE WORKED WITH A BASIC XBOX OS THAT LACKED ESSENTIAL LIBRARIES. ONE OF THE FIRST COMPLETE APPLICATIONS ON THE PLATFORM WAS BEING DEVELOPED BY US. WE REQUIRED A NAVIGATION SOLUTION THAT WE COULD INTEGRATE WITH BOTH VOICE COMMANDS AND TOUCH GESTURES. ON TOP OF WINJS, WE CONSTRUCTED A GENERAL NAVIGATION FRAMEWORK. TO ACCOMPLISH THIS, WE HAD TO KEEP TRACK OF THE ACTIONABLE ITEMS IN A GRAPH THAT RESEMBLED THE DOM. WE USED DOM TRAVERSAL, WHICH IS ESSENTIALLY A TREE TRAVERSAL, TO SEARCH THE EXISTING DOM FOR THESE ELEMENTS. THIS IS A TYPICAL APPLICATION OF BFS OR DFS, OR DEPTHFIRST SEARCH. YOU ALREADY WORK WITH A TREE STRUCTURE CALLED THE DOM IF YOU DESIGN WEBSITES. EVERY DOM NODE HAS THE ABILITY TO HAVE CHILDREN, AND THE BROWSER DISPLAYS NODES ON THE SCREEN AFTER NAVIGATING THE DOM TREE. YOU CAN UTILIZE THE BUILT-IN DOM METHODS TO RETRIEVE A SINGLE ELEMENT, SUCH GETELEMENTBYID, OR YOU CAN CONSTRUCT A BFS OR DFS SEARCH TO ITERATE THROUGH ALL THE NODES, AS SHOWN IN THIS EXAMPLE. TREE TOPOLOGIES ARE FREQUENTLY USED IN THE BACKGROUND OF FRAMEWORKS THAT RENDER UI ELEMENTS. BY JUST RERENDERING THE PORTIONS OF THE SCREEN THAT HAVE CHANGED, REACT MAINTAINS A VIRTUAL DOM AND ACHIEVES EXCELLENT PERFORMANCE. THIS IS DONE THROUGH THE USE OF A "DIFFING" METHOD. IN HIS ARTICLE ON REACT RECONCILIATION, RYAN BAS PROVIDES AN ILLUSTRATION OF THIS PROCEDURE. SIMILAR TO OTHER UI FRAMEWORKS THAT RENDER ITEMS IN A HIERARCHY, UBER'S MOBILE ARCHITECTURE, KNOWN AS RIBS, ALSO USES TREES. FOR STATE MANAGEMENT, RIBS KEEPS TRACK OF A RIB TREE, ATTACHING AND REMOVING THE RIBS THAT NEED TO BE RENDERED. WHEN WORKING WITH RIBS, WE OCCASIONALLY DREW A ROUGH OUTLINE OF WHERE THE NEW RIBS WOULD BELONG IN THE HIERARCHY AND TALKED ABOUT WHETHER THE RIBS IN

IF YOU EVER FIND YOURSELF WANTING TO CREATE A VISUALIZATION OF HIERARCHICAL ELEMENTS, A COMMON METHOD IS TO UTILIZED A TREE-LIKE STRUCTURE, NAVIGATE THE TREE,
AND RENDER THE ELEMENTS YOU ENCOUNTER.

WEIGHED GRAPHS AND SHORTEST PATHS: SKYSCANNER: - SKYSCANNER LOCATES THE MOST AFFORDABLE FLIGHTS. IT ACCOMPLISHES THIS BY FIRST COMBING OVER EVERY ROUTE ON THE PLANET. AS AIRLINES DETERMINE THE LAYOVER CHOICES, THE NATURE OF THE PROBLEM SHIFTS FROM CACHING TO MORE OF A CRAWLING PROBLEM, WHICH MAKES THE MULTI-CITY PLANNING OPTION THE SHORTEST PATH CHALLENGE. ONE OF THE THINGS THAT TOOK SKYSCANNER A WHILE TO DEVELOP WAS MULTI-CITY, THOUGH TO BE FAIR, THE CHALLENGE LAY MORE WITH THE PRODUCT THAN ANYTHING ELSE. IN ORDER TO FIND THE BEST MULTI-CITY OFFERS, SHORTEST PATH ALGORITHMS LIKE DIJKSTRA OR A* ARE USED. EACH EDGE OF THE DIRECTED GRAPH USED TO REPRESENT FLIGHT ROUTES HAS A WEIGHT EQUAL TO THE TICKET PRICE. THE IMPLEMENTATION OF A MODIFIED A* SEARCH ALGORITHM WAS DONE PER ROUTE IN ORDER TO DETERMINE THE MOST AFFORDABLE TRAVEL ALTERNATIVE BETWEEN TWO CITIES. THE PAPER BY SACHIN MALHOTRA ON UTILIZING BFS TO ACHIEVE THE SHORTEST FLIGHT SEARCH PATH IS WORTH READING IF YOU ARE INTERESTED IN FLIGHTS AND SHORTEST ROUTES. THE ACTUAL ALGORITHM WAS, HOWEVER, MUCH LESS SIGNIFICANT WITH SKYSCANNER. MUCH MORE CHALLENGING PROBLEMS TO SOLVE WERE CACHING, CRAWLING, AND MANAGING THE FLUCTUATING WEBSITE LOAD. HOWEVER, A VARIANT OF THE SHORTEST PATHWAYS PROBLEM ARISES WITH NUMEROUS TRAVEL AGENCIES THAT BASE THEIR PRICING OPTIMIZATION ON COMBINATIONS

BY RUDRASOM SHEE (2ND YEAR,CSE)

DATA PRIVACY

Data privacy, sometimes also referred to as information privacy, is an area of data protection that concerns the proper handling of sensitive data such as certain financial data and intellectual property data, to meet regulatory requirements as well as protecting the confidentiality and immutability of the data. Roughly speaking, data protection spans three broad categories, namely, traditional data protection (such as backup and restore copies), data security, and data privacy . Some of the most important technologies for data privacy:- Encryption is a way to conceal information by scrambling it so that it appears to be random data. Only parties with the encryption key can unscramble the information. Parents have an important role to play in monitoring their child's behaviour and activity on the internet. It is also important for Access control ensures that only authorized parties access systems and data. Access control can be combined with data loss prevention (DLP) to stop sensitive data from leaving the network. Two- factor authentication is one of the most important technologies for regular users, as it makes it far harder for attackers to gain unauthorized access to personal accounts. These are just some of the technologies available today that can protect user privacy and keep data more secure. However, technology alone is not sufficient to protect data privacy.

Data Privacy importance:-In many jurisdictions, privacy is considered a fundamental human right, and data protection laws exist to guard that right. Data privacy is also important because in order for individuals to be willing to engage online, they have to trust that their personal data will be handled with care. Organizations use data protection practices to demonstrate to their customers and users that they can be trusted with their personal data. Business Asset Management: Data is perhaps the most important asset a business owns. We live in a data economy where companies find enormous value in collecting, sharing and using data about customers or users, especially from social media Regulatory Compliance: Managing data to ensure regulatory compliance is arguably even more important. A business may have to meet legal responsibilities about how they collect, store, and process personal data, and non-compliance could lead to a huge fine. If the business becomes the victim to a hack or ransomware, the consequences in terms of lost revenue and lost customer trust could be even worse. Personal data can be misused in a number of ways if it is not kept private or if people don't have the ability to control how their information is used. Entities may sell personal data to advertisers or other outside parties without user consent, which can result in users receiving unwanted marketing or advertising.. For individuals, any of these outcomes can be harmful. For a business, these outcomes can irreparably harm their reputation, as well as resulting in fines, sanctions, and other legal consequences.In addition to the real-world implications of privacy infringements, many people and countries hold that privacy has intrinsic value: that privacy is a human right fundamental to a free society, like the right to free speech.

By Moinak Chatterjee
2nd year,cse

HOW CAN AI HELP TO TACKLE GLOBAL WARMING.

Global warming and climate change are some of the biggest challenges facing humanity today. The impact of these issues is far-reaching, with consequences ranging from the destruction of ecosystems to the displacement of millions of people. Artificial intelligence (AI) has the potential to play a significant role in tackling global warming. In this article, we will exploresome of the ways AI can help reduce greenhouse gas emissionsand promote a sustainable future.

1. Energy optimization

One of the most significant contributors to global warming is the use of fossil fuels for energy. AI can help optimize energy use by identifying inefficiencies and suggesting ways to reduce energy consumption. For example, AI-powered building management systems can automatically adjust lightingand temperature settingsbased on occupancy and weather conditions, reducing energy waste.

1. Renewable energy

Renewable energy sources such as solar and wind power have the potential to reduce greenhouse gas emissions significantly. However, these sources can be intermittent, making it challenging to integrate them into the grid. AI can help improve the efficiency and effectiveness of renewable energy sources by predicting energy output based on weather patterns. This can enable better integration into the grid, reducing reliance on fossil fuels.

1. Carbon capture and storage

Carbon capture and storage (CCS) involves capturing carbon dioxide emissions from industrial processes and storing them underground. AI can help identify and optimize CCS solutions, including the most effective locations for storage and optimizing the injection of carbon dioxide into underground reservoirs.

4. Climate modelling

AI can help improve climate modelling by analysing large amounts of data and predicting the effects of climate change on different regions of the world. This can help policymakers make more informed decisions about how to mitigate the effects of climate change. For example, AI can be used to predict the impact of rising sea levels on coastal cities, allowing policymakers to take appropriate measures to protect their citizens.

5. Agriculture

Agriculture is another area where AI can help promote a sustainable future. AI-powered sensors can detect soil moisture levels and nutrient levels, allowing farmers to optimize irrigation and fertilizer use. This can reduce waste and improve crop yields, ensuring food security while reducing greenhouse gas emissions from agriculture.

6. Transportation

Transportation is responsible for a significant portion of greenhouse gas emissions, especially in urban areas. AI can help reduce emissions by optimizing transportation systems. For example, AI can be used to optimize traffic flow, reducing idling times and congestion. AI can also be used to optimize public transportation routes, reducing the need for individual cars.

7. Smart grid

The energy grid is another area where AI can make a significant impact. A smart grid powered by AI can manage energy production and distribution more efficiently, reducing waste and promoting renewable energy sources. AI can help predict energy demand, allowing energy companies to adjust production accordingly and avoid overproduction.

8. Waste management

Waste management is another area where AI can help reduce greenhouse gas emissions. AI can be used to optimize waste collection routes, reducing the amount of time and energy spent on collection. AI canalso be used to identify and sort recyclable materials more efficiently, reducing waste and promoting a circular economy.

9. Forest conservation

Forests are critical for carbon sequestration, which helps reduce greenhouse gas emissions. AI can help monitor and manage forests more effectively, identifying areas of deforestation and providing early warning of forest fires. AI can also be used to optimize reforestation efforts, ensuring that new forestsare planted in the most effective locations.

10. Climate adaptation

Finally, AI can help promote climate adaptation by predicting the impact of climate change on different regions and identifying the most effective adaptation strategies. For example, AI canbe used to predictthe impact of rising temperatures on agriculture, allowing farmers to adjust their practicesaccordingly.

In **conclusion, AI has the potential to make a significant impactin tackling global warming. By optimizing transportation systems, promoting renewable energy sources, managing waste more efficiently, conserving forests, and promoting climate adaptation, AI can help reduce greenhouse gas emissions and promote a sustainable future. However, it is essential to continue investing in research and development of AI**
solutions to ensure that we are using this powerfultechnology to its fullestpotential.

By   Yeash
Jain   2nd
year, cse

Virtual Reality

VIRTUAL REALITY (VR) SYSTEM: The Virtual Reality Modelling Language (VRML), first introduced in 1994, was intended for the development of "virtual worlds" without dependency on headsets. The Web3D consortium was subsequently founded in 1997 for the development of industry standards for web-based 3D graphics. WebVR is an experimental JavaScript application programming interface (API) that provides support for various virtual reality devices, such as the HTC Vive, Oculus Rift, Google Cardboard. One method by which virtual reality can be realized is simulation-based virtual reality. With avatar image-based VR, people can join the virtual environment in the form of real video as well as an avatar. In projector-based VR, modeling of the real environment plays a vital role in various virtual reality applications, such as robot navigation, construction modeling, and airplane simulation. Many modern first-person video games can be used as an example, using various triggers, responsive characters, and other such interactive devices to make the user feel as though they are in a virtual world using desktop-based VR. A head-mounted display (HMD) more fully immerses the user in a virtual world. It includes two small high-resolution OLED or LCD monitors which provide separate images for each eye for stereoscopic graphics rendering a 3D virtual world, a binaural audio system, positional and rotational real-time head tracking for six degrees of movement.

Virtual reality (VR) is an immersive feel of a virtual world which explores the unfolded and unrevealed aspects of science. From the sci-fi books and documentaries, we have long known about this world which appears to be real but is completely different from reality. Day-by-day science is improving in a way of replenishing every impossible thing possible and VIRTUAL REALITY is going to be a highrising era. From today's point of view, it has a very long way to be a 'FUTURE WORLD' but it has a long run too. With the help of computer science and technology, creating a 3Dimensional environment is not a big deal.

Augmented reality (AR), Mixed reality (MR), Cyberspace, Simulated reality – these are some of VR s which are emerging technology that blends what the user sees in their real surroundings with digital content generated by computer software. It's a great effort to merge the real world and virtual worlds to produce new environments and visualizations where

By Koyana Datta

From 1st year, CSE

VR : IT'S FUTURE AND USE: Most of us have this wrong idea that VR is just a recent advancement of science whereas it actually was first observed during European Renaissance. So, it is evident that modern technology can have a bright future with Virtual Reality. Applications of virtual reality include entertainment (particularly video games), education (such as medical or military training) and business (such as virtual meetings). A virtual environment can develop their skills without the real-world consequences of failing. It has been used and studied in primary education, anatomy teaching, military, astronaut training, flight simulators, miner training, medical education, geography education, architectural design driver training and bridge inspection. Immersive VR engineering systems enable engineers to see virtual prototypes prior to the availability of any physical prototypes.] In social sciences and psychology, virtual reality offers a cost-effective tool to study and replicate interactions in a controlled environment. It can be used as a form of therapeutic intervention. For instance, there is the case of the virtual reality exposure therapy (VRET), a form of exposure therapy for treating anxiety disorders such as post- traumatic stress disorder (PTSD) and phobias. Virtual reality programs are being used in the rehabilitation processes with elderly individuals that have been diagnosed with Alzheimer's disease.

THE PANDEMIC (2020-2022):

What shall we call it? A blessing or a curse!! God really fulfilled many a wishes... be it for students, workers, animals and even our mother nature. That was really a massive break from all our hectic schedules. The race which we have started since our birth, seemed really came to an end at the beginning period of the lockdown. Even our nature really a relief from pollutions, noise and torchers.

Speaking honestly, do we really needed this break? Within a span of 2 years such a massive change in system, ourselves and surroundings and world. We are working beings, we stay happy being busy. The boredom got over our nerves. It turned out to be handcuffed and jailed. The zombie world became the reality. We lost many precious souls, a great affect in economy and even our minds.

We wish to never get this break again as we are happy staying busy. We pray for a better future and no more being jailed further in our homes.

Falguni Mondal,1st Year , CSE

Academic Topper

Academic Topper's

1st Year

Falguni Mondal

sgpa-8.86

Bhaskar Sau
sgpa-8.0

Koyana Dutta

sgpa-7.94

Academic Topper's
2nd -Year

Mainak Chatterjee

sgpa-8.73

Ritik Kumar Singh

sgpa-8.73

Ajit Kharwar

sgpa-8.45

Prashant Raj

sgpa-8.32

Academic Topper's

3rd Year

Snehasish Karnar

sgpa-9.25

Hrithik Das

sgpa-9.0

Bandana Nanda

sgpa-8.88

Academic Topper's

4th Year

Sagar Singh

sgpa-9.25

Payal Sharma

sgpa-9.0

Aniket Ghosh

sgpa-8.6

Rabia Sultana

sgpa-8.6

ACHIEVEMENT

ACHIEVEMENT

I was awarded the championship of ABTA Singing Competition which was actually an inter district competition of all over West Bengal . There had many round in that competition. The first was School level,Second Was Block level ,Third was Sub Division level , Fourth was District level & The last & the more exciting final round was State Level .

I had to clear all those round very creatively as well as won the first prizes in every round.It was not very easy to get the championship without the support of my Guruji & my parents also.

I was just speechless for some time when I hear my name as the winner of that Competition. It was a great day & a great moment in my whole life .

I think only study can't bring the key of our success ,sometime our extracurricular activity can do this & in our country there are many examples of that also.Actually we all have some hidden talents just we have to bloom that talents spontaneously.
.

Sneha Roy 2nd Year,C.S.E.

Souvik Debnath 1 st year ,C.S.E.

ACHIEVEMENT

On 2nd October Gandhi jayanti TATA building India organised a interschool quiz and essay competition and there are total 50 contestants and I'm won the 3rd place in the competition

Aditya Khan 4th Year, CSE

"Sports teach you character, it teaches you
to play by the rules, it teaches you to know
what it feels like to win and lose - it teaches
you about life."

ACHIEVEMENT

2 gold medals
2 silver medals in
All bengal Karate champioship

Swastika Dhole 1st Year, CSE

ACHIEVEMENT'S

Neheru Yuva Kendra -Baruipur , District level competition -3rd position

Block level competition - 1st position

State level competition - 2nd position

Sub division competition - 3rd position

YOGA AND MEDITATION

Yoga awakens the Mind

Swastika Dhole 1st Year, CSE

Yoga is essential for achieving and maintaining good health and leading a healthy life ,Good health and Yoga are like a flip sides of the same coin

Yoga takes you into the present moment .The only place where life exists
"Yoga is not a work-out it is a work-in, and this is the point of spiritual practice to make us teach-able to open up our hearts and focus our awareness so that we can know what we already know and be who we already are."
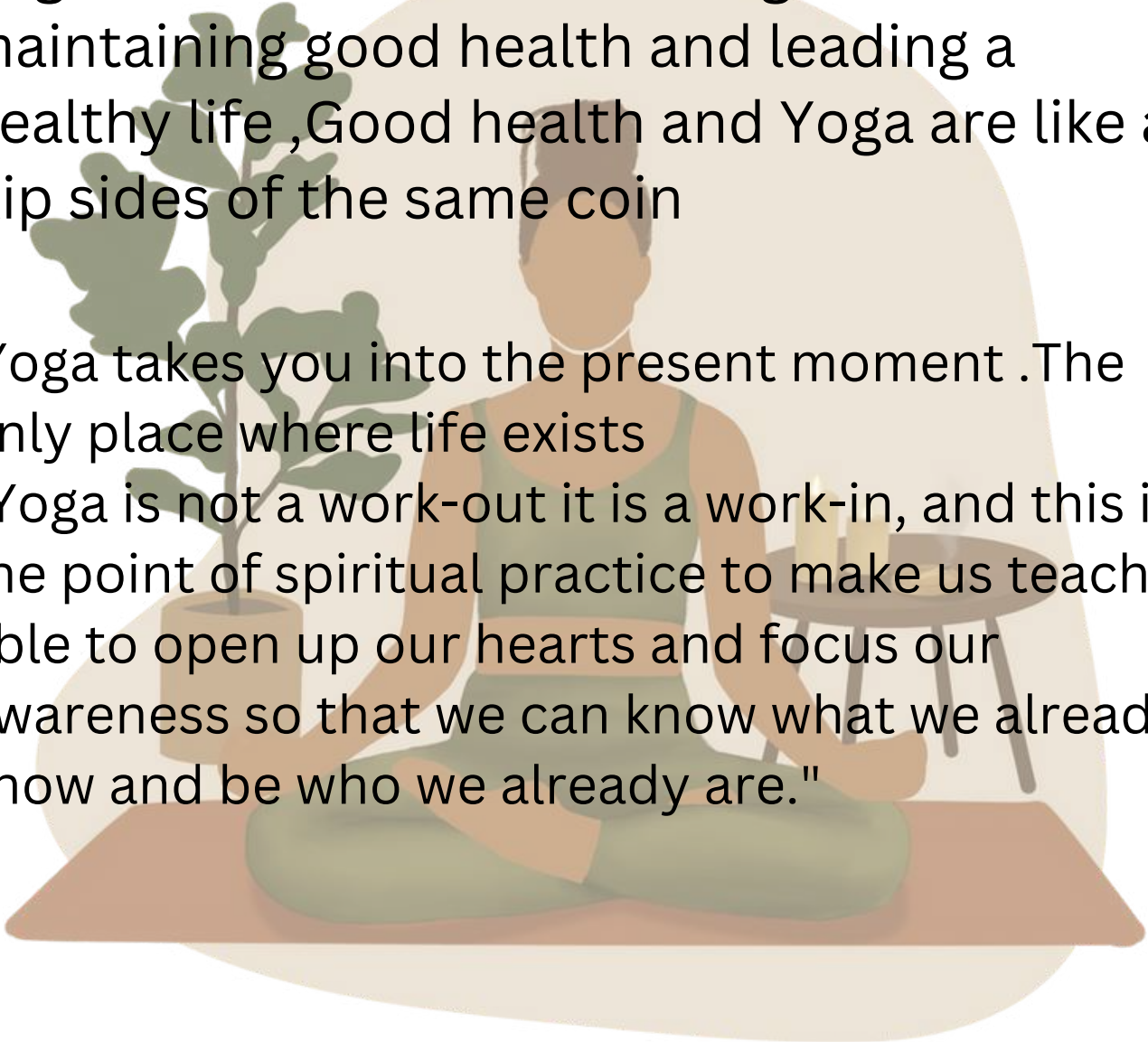
POEM

" Chand Saath Chalta Tha"

Jab vo chand saath chalta tha
Sab kitna accha lagta tha
Rehta tha mann mein sukoon
Aur Gum ka sooraj dhalta tha.

Rehte the hum masti mein
Aur chain ki neend aati thi
Dost the sheher aur basti mein
Sabse khushiya baati thi.

Na bhavishya ki fikar rehti
Na bhoot ka afsos dasta tha
Jab vo chand saath chalta tha Sab
kitna accha lagta tha

Na rehti thi koi chinta
Dosto mein bass yaari thi
Lagan ho jaye bass ab kisi se Lagti
har ladki pyari thi

Ab to bass mann mein
Ek hi manzar rehta hai
"Kya kar rahe ho zindagi mein" Jo
milta hai yeh kehta hai

Chand bhi shayad tham gaya ab
Isliye andhera lagta hai
Hum to rehte shant humesha Darr
andar se chubhta hai

Kaash laut aaye vo din wapas Jab
jaadu bhi saccha lagta tha Jab vo
chand saath chalta tha Sab kitna
accha lagta tha.

-Iqbal Alam ,CSE 4th year

" Rain in the corner of my heart"

The sky is falling apart
The mind wanders ,
The word 'rain' therefore becomes tears ...
A dark cloud continues to
accumulate in the mind ;
The sky shakes with roar and sorrow is
hundreds ,
However I will get wet in the rain today
alone ...
I am desperate to win you over ,
One or two drops touch my heart -
But the touch was like the fire .. heart is
burning through

-Swastika Dhole,1st year, CSE

" IT WILL NEVER FADE "

Your life is the most precious treasure Filled with shining stones of purpose, passion and pertinacity Beatified with portraits of happiness, memories and mistakes, You experience it, enjoy it, and amass it somewhere in your heart.

The first time when you stepped outside The excitement, fear and joy of meeting new faces, For the first time when someone you liked, talked to you That Shivering of body, the loud beating of the heart When you get something suddenly you've always been craving for Those few seconds are costly more than anything in the world.

It happens only once But it glistens you and never lets you fade away till the end. Don't live with the shadow of yours There is always time to be sleepless and mad for the passion, If you don't show bravery now, you'll miss yourself in the future And 'Yourself' is the treasure you are hunting for since you grew up.

Don't run on the shore, jump into the Journey Don't sit for a single cake, billions are waiting for you The worth of your life depends on where you place yourself, And how much you live after your life goes away.

-Rudrasom Shee ,2nd year,CSE

IN CIRCUIT, CODE & NETWORK, WE ENGINEER
A WORLD FULL OF TECHNOLOGY WITHOUT FEAR ;
FROM ALGORITHMS TO SOFTWARE DESIGN
OUR MACHINES AND SYSTEMS, WE REFINE.

FROM PROGRAMMING LANGUAGE TO MACHINE LEARNING,
WE ENGINEERS EXPLORE THE DEPTH OF COMPUTING ;
WE CONNECT THE WORLD WITH LINES OF CODE
WHERE OUR NETWORKS SPREAD LIKE A DIGITAL ROAD.

FROM DATA STRUCTURE TO AI,
WE STRIVE FOR KNOWLEDGE THAT WILL NEVER DIE!
FEELING PROUD FOR THE THINGS WE HAVE ACHIEVED
AND WORLD FULL OF TECHNOLOGY WE HAVE TRULY
BELIEVED.

SO LET US PROGRAM, CODE AND BUILD,
A WORLD WHERE OUR DREAMS CAN BE FULFILLED,
WHERE OUR TECHNOLOGY LEAVES NO ONE BEHIND,
AND A BETTER WORLD WE CAN FIND.

-Diyasini Manna ,4th Year ,CSE

Photography
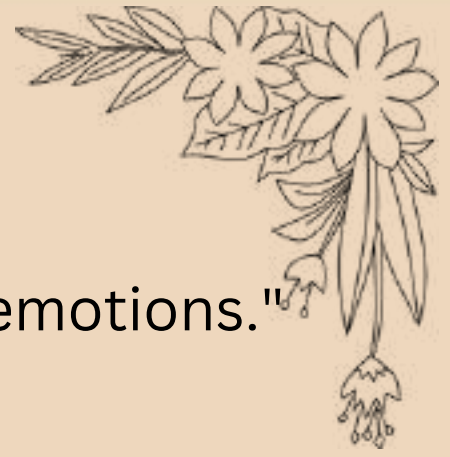
"Capturing moments, revealing emotions."

PATH FINDER

Life presentsus with beautiful moments. But it also brings some challenges. It may be personal setbacks, professionals' roadblocks or unwanted twists.

Sometimes we feel empty, we become lost inside. When you lose your path, when you think you are lost, not knowing what to do, which direction to go, don't get upset. Take a deep breath, pray, try to find the inner strength of yourself, think positive & keep going, no matter what happens. Surprisingly, the right path will appear in front of you, in your time at your place. If it works and once you are able to learn how to find your path, then getting lost will never challenge you again.

BY MRS. HOSSAINARA BEGUM
ASSISTANT PROFESSOR, CSE DEPARTMENT

"IF WE COULD SEE THE MIRACLE
OF A SINGLE FLOWER CLEARLY
OUR WHOLE LIFE WOULD
CHANGE"

CHAMPAK RAY CSE 2ND YEAR,CSE

"The moon can never breathe, but it can take our breath away with the beauty of it's cold ,arid orb"

SOUVIK DEBNATH, 1ST YEAR,CSE

Drawing

NATURAL LENS CAPTURING THE COMPLEX DIVERSITY OF MOTHER NATURE.

SOHAM BAG
FROM CSE DEPARTMENT
1ST YEAR

TECHNOLOGY WITH NATURE

it represents the duality or tension between the natural and artificial worlds. The man's face and the rose are both symbols of human existence and experience, but one is organic and natural, while the other is mechanized and artificial. The contrast between the two sides of the man's face may suggest a struggle or conflict between these two worlds, with the machine side representing the cold, impersonal, and industrial forces of modern society, and the rose representing the warmth, emotion, and beauty of the natural world.

Subhankar Ghosh 2nd Year ,Cse

IMPACT OF TECHNOLOGY ON SOCIETY:-

In the past few decades, technology grows rapidly. And the use of technology is also increased drastically. It affects the life of people and changes the way of their learning, thinking, and communication. It plays a major role in society, and now it is very tough to imagine the life without technology. Both technology and society are co-related, co-dependent, co-influence with each other. Technology lays an impact on society, including the potential for society to progress or decline, in both good and bad manner. Our society is shaped by technology, which has both beneficial and harmful consequences.
So this drawing shows how society is developed day by day and how it affects the society and lifestyle of the human beings.

Moinak Chaterjee 2nd Year ,Cse

ALUMNI

MESSAGE

Alumni Message

Current position: Software

Engineer **Tips for current students:**

First and foremost, clear your basics. You can always learn a new language or framework quickly if your fundamentals are strong. Avoid diving into advanced concepts until you have a solid foundation.

Secondly, focus on data structures and algorithms. This is a crucial skill that you'll need throughout your entire career.

Lastly, prioritize learning software development rather than spending endless hours on competitive coding platforms. While it's fine to engage in competitive programming, it's essential to understand the concepts of development because that's what you'll be doing in companies, not just competitive programming.

That's all from my side. I hope you find these suggestions beneficial. Study hard, and best of luck for your future.

Thanks & Regards,
Santanu Mukherjee

Alumni Message

Current position: Software Engineer

In the current market trends, students tend to learn more and more new technology for better opportunities and that's a good approach unless your base is strong. I believe one should check his base first, practice more on it, and then move to advanced topics. The key is hands-on practice. Try to make small milestones like basics of any language, then go for advanced learning on the same language then go for trending frameworks that work on that perticular language. The most important and toughest part is to decide what you want to choose for your future, and stick to it. So, if you want to proceed with web devlopment, android devlopment, ML, Data Scince or anything else, then just stick on it and give it your time and dedication. If you hop from one language to another without completing the earlier one, then its a waste of your efforts. I have been their, and I have learned the hard way. Remember theory is important but hands-on practice and projects are the key to success when it comes to IT industry.

Shubham Auddy
Software Engineer
Harman Connected Services

Puzzle

Game Tech

"The Cryptic Code"

You receive an encoded message from a mysterious sender who claims to be a computer genius. The message reads as follows:
51 50 5F 52 30 31 32 33 4B 5F 53 74 75 64 65 6E 74 73

You suspect that the message is encoded using hexadecimal representation. Can you crack the code and reveal the secret message?

Hint: Each pair of characters represents a hexadecimal value, which can be converted into its corresponding ASCII character.
Good luck!

"The Binary Conundrum"
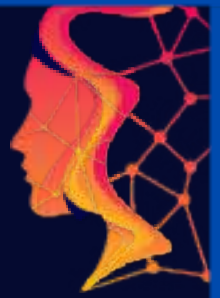
You stumble upon an ancient computer system that requires a secret binary code to unlock its hidden treasure. As you explore further, you find a sequence of 0s and 1s written on a stone tablet:

01001000 01100101 01101100 01101100 01101111 00100000 01000011 01010011 01000101 00100000 01010011 01110100 01110101 01100100 01100101 01101110 01110100

The inscription seems to be encoded in binary. Can you decipher the message and unlock the secrets of the ancient computer?

Hint: Each group of 8 bits represents a binary value, which can be converted into its corresponding ASCII character. Good luck!

"The Missing Algorithm"

```python
def mystery_algorithm(n):
    result = 0
    for i in range(1, n + 1):
        if i % 2 == 0:
            # Missing line of code
        else:
            result += i
    return result
```

Your mission is to fill in the missing line of code that fits
the logic of the algorithm. The algorithm aims to
calculate the sum of all odd numbers from 1 to n,
excluding the even numbers.

Hint: The missing line of code should update the
result variable.
Good luck!

"CPP Puzzle"

```cpp
#include <iostream>

int mystery_function(int n) {
    if (n <= 1)
        return n;
    else
        return mystery_function(n - 1) + mystery_function(n - 2);
}

int main() {
    int num = 8;
    int result = mystery_function(num);
    std::cout << "The result is: " << result << std::endl;

    return 0;
}
```

Your task is to determine the output of this code snippet. The mystery_function is a recursive function that calculates the nth term of a well-known sequence. Based on the given code, try to figure out what sequence it represents and what will be the value of result when num is 8.

Hint: The sequence is commonly referred to as the Fibonacci sequence.

Good luck!

"CPP Puzzle"

```cpp
#include <iostream>

int main() {
    int array[] = {5, 12, 9, 3, 6};
    int size = sizeof(array) / sizeof(array[0]);
    int sum = 0;

    for (int i = 0; i < size; i++) {
        if (array[i] % 2 == 0) {
            // Missing line of code
        }
    }

    std::cout << "The sum is: " << sum << std::endl;

    return 0;
}
```

Your task is to fill in the missing line of code inside the for loop. The program initializes an array of integers and calculates the sum of all even numbers in the array. Your mission is to complete the missing line of code to update the sum variable correctly.

Hint: The missing line of code should add the current element to the sum variable if it is an even number. Good luck!

"The Magic Square"
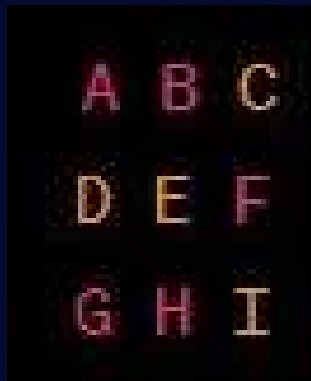
The puzzle is to find the values of the letters A to I. However, there are three conditions that must be satisfied:
  1.The sum of each row, each column, and each diagonal of the square must be the same.
  2.The numbers used in the square should be distinct (no repeated numbers).
   3.The sum of all the numbers in the square should be 30.
Can you find the values of A to I that satisfy these conditions and solve the puzzle?

Hint: Start by considering the possible values for the central number (E), which will affect the sums of rows, columns, and diagonals.
Good luck!

RIDDLE

"Minds puzzled, knowledge unraveled."

Riddle-1

I am a word of six letters, In CSE, I am a trendsetter.
I'm made of bits and bytes, Storing data, day and
night.
In binary, I'm a power of two, With ones and zeros,
it's true. I'm where programs and files reside, In a
world of technology, I preside.
What am I?
**Can you solve this CSE-themed riddle and find the
answer?**
Hint: Think about a fundamental component of
computer systems related to data storage.
Good luck!

Riddle-2

I am a language of code, With syntax and logic, I'm bestowed. From loops to functions, I command, In programming, I take a stand. What am I?

Riddle-3

I am a storage device so grand, With no moving parts, I expand. Solid-state and blazing fast, Accessing data in a vast cast. What am I?

Riddle-4

I am a problem so complex, To solve me, you must digress. Divide and conquer is the key, Efficient algorithms come to be. What am I?

Riddle-5

I am a network of connection, Sharing data with synchronization. From LAN to WAN, I span, Enabling communication's plan. What am I?

Thank You

DEPARTMENT OF COMPUTER SCIENCE AND
ENGINEERING

Created By:
Hrithik Das, 3rd Year
Subhankar Ghosh , 2nd Year

DREAM INSTITUTE OF TECHNOLOGY
www.dreaminstituteonline.com