

AUGUST 2022 - DECEMBER 2022

VOLUME 1 | ISSUE 2

THE ML TRAIL

COVER BY HARSH MANALEL

3RD SEM CSE AI-ML

A Newsletter of Artificial Intelligence and Machine
learning Program, Department of Computer Science
and Engineering, SOE, DSU, Bangalore

DAYANANDA SAGAR UNIVERSITY **NEWSLETTER**



VISION:

TO BE A CENTRE OF EXCELLENCE IN EDUCATION, RESEARCH & TRAINING, INNOVATION & ENTREPRENEURSHIP AND TO PRODUCE CITIZENS WITH EXCEPTIONAL LEADERSHIP QUALITIES TO SERVE NATIONAL AND GLOBAL NEEDS.

MISSION:

TO ACHIEVE OUR OBJECTIVES IN AN ENVIRONMENT THAT ENHANCES CREATIVITY, INNOVATION AND SCHOLARLY PURSUITS WHILE ADHERING TO OUR VISION.

AI/ML:

VISION:

DEVELOP HIGHLY COMPETENT ENGINEERS IN THE FIELD OF AI & ML CONTRIBUTING GLOBALLY TO THE BENEFIT OF INDUSTRY AND SOCIETY

MISSION:

TO DEVELOP STATE-OF-THE-ART ACADEMIC AND INFRASTRUCTURAL FACILITIES WITH THE LATEST TOOLS AND OTHER LEARNING RESOURCES SUPPORTED BY CURRICULUM THAT CAN PRODUCE SELF-SUSTAINABLE PROFESSIONALS.

TO EMERGE AS A RESEARCH CENTRE THAT INTERACTS WITH INDUSTRY ON A REGULAR BASIS FOR IMPARTING WHOLISTIC CURRICULUM TO THE STUDENTS.

TO IMPART EMERGING SKILL SETS THAT THE INDUSTRY REQUIRE, APART FROM ENSURING THAT THE SOFT SKILLS OF THE LEARNERS ARE GIVEN ADEQUATE THRUST.

DEAN'S MESSAGE

I am delighted that the Artificial Intelligence and Machine learning Program, Department of Computer Science and Engineering is bringing out a newsletter that can provide beautiful insights for students and faculty fraternity.

A lot has been happening in the school of computing sciences over the years, and one of the significant changes involves this newsletter.

Our graduate students are doing amazing things in many different areas. In the current issue, you'll meet some remarkable students and faculty who are making a difference in the technical aspects and otherwise. We hope to build this endowment with your support, to afford even more opportunities for students to participate in this important component of their graduate education.

I hope this magazine provides the reader with wonderful insight and I thank the editorial team for their wonderful effort in bringing out this newsletter.

Wish you all the best.



-Dr. Udaya Kumar Reddy K R
Dean – School of Engineering Professor,
Dept. of Computer Science and
Engineering Dayananda Sagar University

CHAIRPERSON'S MESSAGE

My Dear Students,

Seasons' Greetings!

It is with a great pleasure that I am writing this message for the Second Issue of the bi-annual Artificial Intelligence and Machine Learning Program Newsletter for the academic year 2021-22 odd semester. Apart from supporting in the dissemination of the Departmental initiatives, the newsletters encourage the students to actively contribute and also support in dissemination of their ideas and activities. The contemporary academic world offers tremendous opportunities for exploration, experimentation and collaboration through the joint initiatives of faculties and students. The forums like newsletters provides a visible platform to reach out the on-going activities to wider audiences, especially students. The newsletter also provides a platform to disseminate emerging focus areas and functions as a medium to display expressions. I am sure that the activities organised by the student clubs, competitive forums, students' extra-curricular and co-curricular initiatives will now receive an added impetus with the introduction of this newsletter.

The CSE(AIML) as hitherto, has been offering a dynamic activity-oriented learning environment to the students backed by our highly qualified and experienced faculties. I am sure that, these activities will be disseminated through such newsletters.

Best wishes.



-Dr Jayavrinda Vrindavanam.
Professor & Chairperson. AI and ML

THE POTENTIAL OF ARTIFICIAL INTELLIGENCE TO IMPROVE ENERGY EFFICIENCY AND REDUCE ENVIRONMENTAL IMPACT

Artificial Intelligence (AI) has the potential to revolutionize the way we produce and consume energy. With its ability to process large amounts of data and identify patterns, AI can help optimize energy usage, reduce waste, and make energy production more efficient. In this article, we will explore how AI can be used to improve energy efficiency and reduce the environmental impact of human activity.

One of the most promising areas for AI in energy is building energy management. Buildings are responsible for a significant portion of global energy consumption, and AI-powered systems can help monitor and control heating, lighting, and air conditioning in buildings to reduce energy consumption. For example, a study by the Rocky Mountain Institute found that AI-powered building energy management systems can reduce energy consumption by 30%.

Another area where AI has the potential to make a significant impact is in the field of renewable energy.

AI-powered systems can be used to optimize the operation of solar and wind power plants, leading to increased energy generation and reduced costs. For example, a study by the National Renewable Energy Laboratory found that AI-powered control systems can increase the power output of wind turbines by up to 20%.

AI can also be used to improve the efficiency of the electric grid. With its ability to predict and manage energy demand, AI can help reduce the need for peaker power plants that are only used during times of high demand. This can lead to significant reductions in carbon emissions and other pollutants.

Another area where AI can help improve energy efficiency is in the field of transportation. AI-powered systems can be used to optimize the routing and scheduling of vehicles, leading to reduced fuel consumption and emissions. Moreover, the use of AI-powered self-driving cars and trucks can also significantly reduce the environmental impact of transportation by reducing the need for human drivers and the number of cars on the road.

Overall, the potential of AI to improve energy efficiency and reduce the environmental impact of human activity is significant. With continued research and development, AI has the potential to help us create a more sustainable energy future. To fully realize the potential of AI, it is important to invest in research and development, and to develop policies that support the deployment of AI-powered energy systems.



Anuj Dwivedi
student 3rd ,CSE-AI & ML

INFORMATION GENERATION USING AI TECHNOLOGY



Recently in new we are hearing a lot about chatgpt and what its capable of doing which on what ever information its asked to generate up on. This technology is made by Openai where its a research company that develops and promotes friendly AI with the goal of ensuring AI benefits all of humanity. It is known for developing advanced language models like GPT-3 and ChatGPT.

ChatGPT is a large language model developed by OpenAI. It is based on the GPT-3 architecture and is trained on a massive dataset of conversational text. The model can generate human-like text, making it useful for a wide range of applications such as chatbots, language translation, and text completion. One of the key strengths of ChatGPT is its ability to understand context and generate appropriate responses. The model is pre-trained and can be fine-tuned for specific tasks. It is available through OpenAI's API, which allows developers to easily integrate the model into their projects. With its impressive performance, ChatGPT has received a lot of attention and is considered a major advancement in the field of natural language processing.

GPT-3 (Generative Pre-trained Transformer 3) is a state-of-the-art language generation model developed by OpenAI. It is trained on a massive dataset of internet text, which allows it to generate human-like text with a high degree of fluency and coherence. GPT-3 is based on the transformer architecture, which has proven to be highly effective in natural language processing tasks such as machine translation and text summarization. One of the key strengths of GPT-3 is its ability to understand and generate text on a wide range of topics without the need for fine-tuning. It can also perform a variety of language tasks such as question answering, translation, and text completion with high accuracy.

This is made possible by its large model size and the vast amount of data it has been trained on. GPT-3 has received a lot of attention in the field of natural language processing due to its impressive performance and ability to generate human-like text.

It has been used in a wide range of applications such as chatbots, language translation, and text summarization. It has also been used to generate computer programs and even poetry and short stories. However, GPT-3 also raises concerns about the ethical implications of its capabilities, as it is able to generate highly convincing text that is indistinguishable from human-written text. This has led to discussions about the potential misuse of the model in spreading disinformation and impersonation. The OpenAI team is actively addressing these concerns by developing methods to detect and combat such misuse.



Chandrashekar
5th sem *student*
CSE-AI & ML

The use of AI in creating realistic digital avatars and virtual humans



As a technology enthusiast, I have always been fascinated by the potential of artificial intelligence (AI) to revolutionize various industries. But it wasn't until I stumbled upon a video of a digital avatar giving a TED talk that I truly understood the incredible capabilities of AI in creating realistic digital avatars and virtual humans.

I was immediately struck by the lifelike appearance and movements of the avatar, as well as its ability to convey emotion and interact with the audience. It was hard to believe that this was not a real person, but rather a computer-generated creation. I was hooked, and I knew I had to learn more about this cutting-edge technology.

After some research, I discovered that the creation of realistic digital avatars and virtual humans is made possible by a combination of AI techniques such as machine learning, computer vision, and natural language processing. These technologies enable the digital avatars to analyse and respond to their environment in realtime, making them incredibly lifelike and interactive.

Another area where digital avatars are making a big impact is in the entertainment industry. With the help of AI, movie studios can now create lifelike digital versions of actors, allowing them to star in films even after they're gone. This technology also has the potential to create new forms of entertainment, such as virtual concerts and live performances by digital avatars.

But the potential applications of digital avatars and virtual humans go far beyond entertainment and VR. They can also be used in customer service, marketing, and even therapy. Companies can use digital avatars to interact with customers and provide personalized assistance, while therapists can use virtual humans to help patients with conditions such as social anxiety.

As I continued to delve deeper into the world of digital avatars and virtual humans, I realized that this technology has the potential to change our lives in ways we can't yet imagine. The future of AI-powered digital avatars and virtual humans is truly exciting, and I can't wait to see what it holds.

In conclusion, digital avatars and virtual humans are a new frontier in the field of artificial intelligence, with the potential to revolutionize the way we interact with technology and with each other. From entertainment to education, customer service to therapy, the use cases for these lifelike computer-generated characters are endless, and the future is looking bright for this cutting-edge technology.



Harsh Manalel
Student from
3rd sem CSE (AI and ML)

THE FUTURE OF NATURAL LANGUAGE PROCESSING AND CONTENT GENERATION

ChatGPT

On my quest to understand the world of Artificial Intelligence, I stumbled upon ChatGPT. I was immediately intrigued by its capabilities and set out to learn more about this powerful language model.

I discovered that ChatGPT was developed by OpenAI, a renowned research organization in the field of AI. The model was trained on a vast amount of text data and was designed to generate human-like text in a wide variety of contexts.

As I delved deeper into ChatGPT, I was struck by its ability to understand and respond to natural language input. The model was trained on a large dataset of conversational text, which allowed it to understand the nuances of human language and generate appropriate responses. This made ChatGPT the perfect tool for a wide range of applications, such as chatbots, virtual assistants, and content generation.

But that's not all, ChatGPT was also highly scalable. The model was trained on a massive amount of data, which allowed it to generate text that was highly coherent and contextually appropriate. This was a significant improvement over earlier language models, which were often limited in their ability to generate coherent and contextually appropriate text.

As I continued to explore the potential of ChatGPT, I couldn't help but imagine the possibilities for the future. I could see ChatGPT being used in a variety of applications, including generating human-like text for chatbots, virtual assistants, and content generation. I could also see it being used to improve natural language processing, which would have a wide range of benefits such as improved machine translation, speech recognition, and sentiment analysis.

In the end, my discovery of ChatGPT was a turning point in my understanding of the world of Artificial Intelligence. Its capabilities, scalability, and potential for future development make it a valuable tool for businesses, researchers, and developers alike. I couldn't wait to see what the future held for this powerful language model.



Anuj Dwivedi
student – 3rd sem
CSE-AI & ML

Stable Diffusion



Stable Diffusion is a deep learning, text-to-image model released in 2022. It is primarily used to generate detailed images conditioned on text descriptions, though it can also be applied to other tasks such as, outpainting, and generating image-to-image translations guided by a text prompt.

Stable Diffusion is a latent inpainting, a variety of deep generative neural network developed by the CompVis group. Stable Diffusion uses a variant of diffusion model (DM), called latent diffusion model (LDM). Diffusion models are trained with the objective of removing successive applications of Gaussian noise on training images which can be thought of as a sequence of denoising autoencoders. Stable Diffusion consists of 3 parts: the variational autoencoder (VAE), U-Net, and an optional text encoder. The VAE encoder compresses the image from pixel space to a smaller dimensional latent space, capturing a more fundamental semantic meaning of the image. Gaussian noise is iteratively applied to the compressed latent representation during forward diffusion. The U-Net block, composed of a ResNet backbone, denoises the output from forward diffusion backwards to obtain latent representation.

The Stable Diffusion model supports the ability to generate new images from scratch through the use of a text prompt describing elements to be included or omitted from the output. Existing images can be re-drawn by the model to incorporate new elements described by a text prompt (a process known as "guided image synthesis") through its diffusion-denoising mechanism. In addition, the model also allows the use of prompts to partially alter existing images via inpainting and outpainting, when used with an appropriate user interface that supports such features, of which numerous different open source implementations exist. Stable Diffusion is recommended to be run with 10 GB or more VRAM, however users with less VRAM may opt to load the weights in float16 precision instead of the default float32 to tradeoff model performance with lower VRAM usage.



Harika Gandiboina
student of *5th sem, AI/ML*
CSE (AI-ML)

NATURAL LANGUAGE PROCESSING FOR MENTAL HEALTH



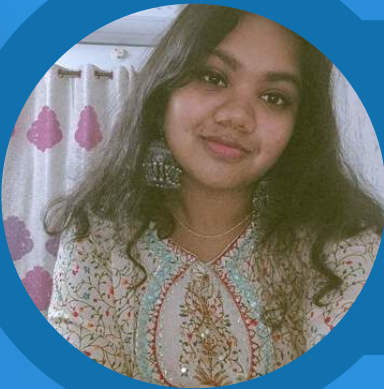
Natural language processing (NLP) is a branch of AI that helps computers understand, interpret and manipulate human language. NLP draws from many disciplines, including computer science and computational linguistics, in its pursuit to fill the gap between human communication and computer understanding.

NLP can be used in various industries . One being the health care . It assists in various stages of clinical diagnosis and documentation . As of now NLP is not widely used in healthcare but research shows its wide potential can make a lot of work easier.

Researchers tested how NLP and machine learning could help predict psychosis onset in a group of teenagers and young adults . Each participant in the study had an interview and was evaluated quarterly for up to two and a half years. Researchers fed the transcript of the interviews into an algorithm and discovered that features like semantic coherence and speech complexity had a significant correlation with eventual psychosis development—predicting psychosis onset with **100% accuracy**.

One area where NLP can assist is with identifying speech alterations that signify cognitive decline (e.g., Alzheimer's disease), as impaired speech is often an early symptom of preclinical stages of dementia.

In conclusion , People express their mood through various text types, such as social media messages on social media platforms, transcripts of interviews, and clinical notes that include descriptions of patients' mental states. Natural language processing (NLP), a subset of artificial intelligence (AI), has become increasingly important in assisting with the analysis and management of large amounts of textual data, as well as facilitating tasks such as information extraction, sentiment analysis, emotion detection, and mental health surveillance. Detecting mental illness from text can be thought of as a text classification or sentiment analysis task, in which we can use NLP techniques to automatically identify early indicators of mental illness to aid in early detection, prevention, and treatment.



Sounthariyaa J
student 5th sem, CSE(AI-ML)

AN OVERVIEW OF WHAT CHATGPT IS AND HOW IT WORKS

ChatGPT, also known as the "Conversational GPT," is a large language model developed by OpenAI. It is a variant of the GPT (Generative Pre-training Transformer) model, which was trained on a massive dataset of text from the internet. The model is trained using a technique called unsupervised learning, which means it learns patterns and relationships in the data without any explicit labels or supervision. This allows it to generate human-like text that can be used for a wide range of natural language processing tasks, such as language translation, dialogue generation, and text summarization.



ChatGPT's architecture is based on the transformer architecture, which was introduced in the 2017 paper "Attention Is All You Need." The transformer architecture allows the model to effectively process sequential data, such as text, by using self-attention mechanisms. Self-attention mechanisms enable the model to weigh the importance of different words in a sentence, allowing it to understand the context and meaning of the text.

Once trained, ChatGPT can generate text by sampling from the probability distribution of the training data. It can be fine-tuned on specific tasks by training it on a smaller dataset of labeled examples.

In summary, ChatGPT is a large unsupervised language model that uses the transformer architecture and self-attention mechanisms to generate human-like text for natural language processing tasks.

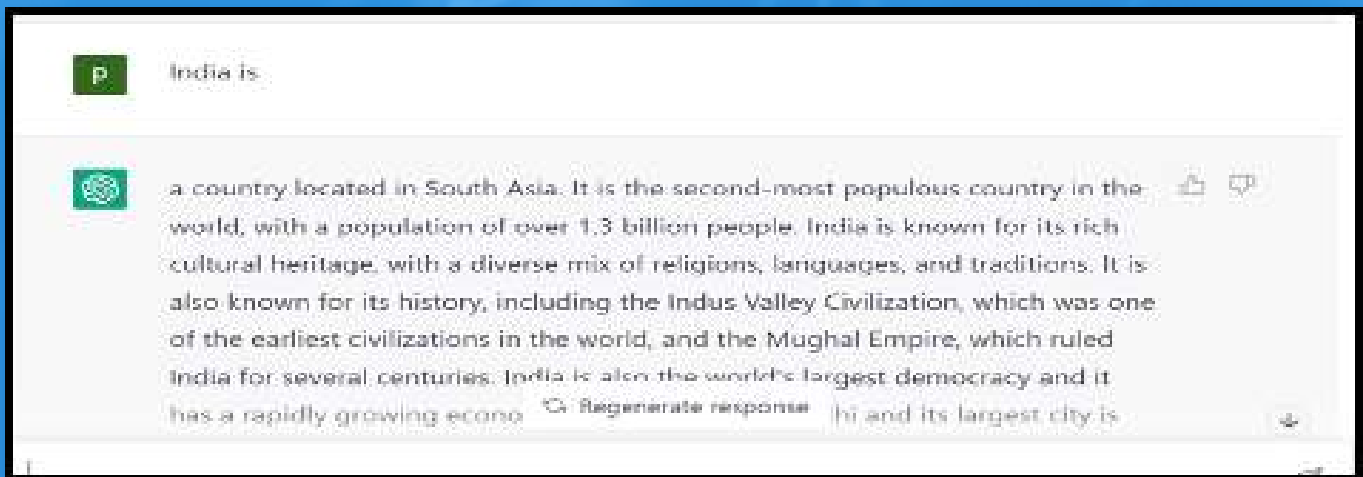
What ChatGPT can do-

1. Generate lists of bibliographical references.
2. Tutor students by defining terms and explaining difficult concepts.
3. Solve math problems and debug programs step by step.
4. Provide first drafts of course syllabi.
5. Identify scholarly debates on a particular topic and explore subjects through differing theoretical lenses.
6. Model clearly organized descriptive and argumentative writing on particular topics.

A simple example of ChatGPT work:

"India is"

And the ChatGpt will predict as-



Benefits of ChatGPT

As a machine learning model, ChatGPT has the capability to assist with a wide range of tasks involving NLP. Due to its training based on a large dataset of text, it can understand and produce human-like responses to a wide range of questions and requests. Some of its potential benefits include:

- Improved efficiency and accuracy in NLP-related tasks
- Quickly and accurate responses to a wide range of questions
- Assistance with a wide range of tasks that require the understanding and generation of natural language

Limitations of ChatGPT:

- Plausible-sounding but incorrect information
- Sensitive to slight tweaks in the input
- Bias issue
- Does not ask clarifying questions
- Response to inappropriate or harmful requests

References:

1. <https://chat.openai.com/chat/7b568abf-90b6-40d0-85d8-887c72f29ff5>
2. <https://www.assemblyai.com/blog/how-chatgpt-actually-works/>
3. Hello, ChatGPT—Please Explain Yourself! An interview with the celebrated but controversial AI language model EDD GENT09 DEC 2022



Prof. Pradeep Kumar K
*Assistant Professor,
Department of Artificial Intelligence &
Machine Learning
Dayananda Sagar University*

Vulnerabilities in Cyberspace and Meta-learning: the way of Learning-to-Learn

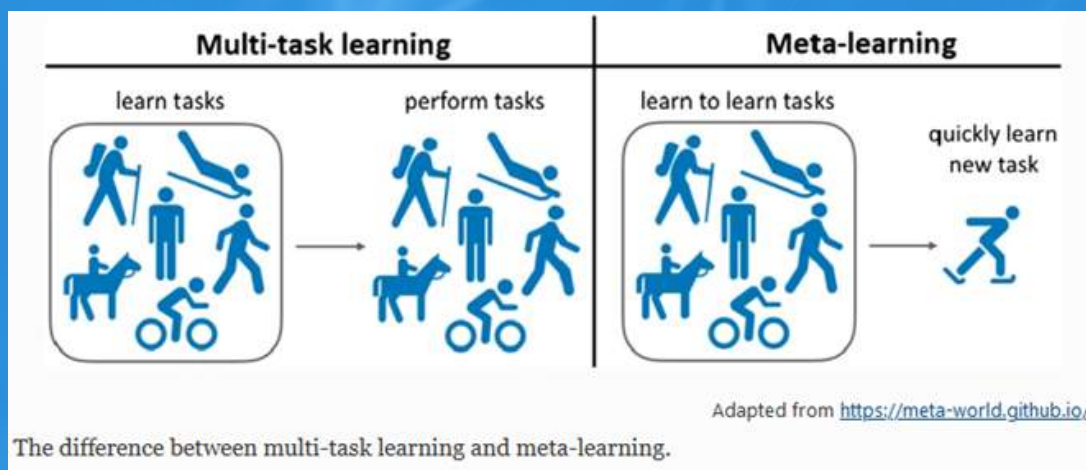
Cyberspace is called the fifth-largest space besides land, sea, air, and space. This not only comprises hardware and software, i.e. the Internet, communication networks, several computing systems, embedded processors and controllers, but also numerous data or information spawned, processed, conducted, and warehoused by these hardware and software, as well as the impression of human activities in it. Frequent occurrences of various security vulnerabilities and cyber-attacks in cyberspace are very common. Cyber-attacks has increased substantially due to the rapid progress of internet services. In addition, cyber threats are becoming more and more multifaceted while the degree of automation is getting higher leading many protective measures towards futility.



Machine learning has attained remarkable successes in dealing with various cyberspace security issues that includes intrusion detection, malware detection and analysis, spam detection, etc. However, the traditional machine learning algorithms generally entail a lot of data for learning and have a low recognition rate for unknown attacks.

They face challenges in “one-shot learning”, “few-shot learning”, and “zero-shot learning”. The additional intractable problem in cyberspace security is the irregular attack mode; when there a new attack mode appears, few or even zero samples are available for learning. The super generalization skill of humans to tackle problems is still an unsolved problem for artificial intelligence, and meta-learning is deliberated as a strategy to overcome this challenges.

Meta-learning is designated as learning-to-learn. It was first offered in the educational science community, which came even earlier than machine learning. The concept of “meta-learning” was first proposed by Maudsley in 1979, and was introduced into the field of machine learning later. Since humans can promptly learn unknown things based on their existing knowledge, Meta-learning comes from the idea of imitating human problem-solving aptitudes. Its objective is to rapidly obtain a model with high accuracy and strong generalization through less data training. The key idea is that the main body of meta-learning improves its learning ability over time, namely, the ability of learning to learn.



There are several learning methods in Meta-learning, like Optimization-based method, Model-based method, Metric-based, Online-learning based, and stack ensemble based. The learning process is mainly related to task sets and occurs at two different levels: internal and external. At the internal level, a new task is proposed to try to quickly learn the related concepts from training observations. This rapid adaptation benefits from the knowledge accrued in early external tasks. Therefore, the inner layer focuses on a single task, while the outer layer focuses on multiple tasks and learns through external or meta-learning algorithms for external targets, so that meta-learners identify how to adjust internal learning algorithms when new tasks appear.

Based on the twofold learning architecture of its inner and outer layers and the unified collection of metadata, meta-learning can be used for zero-shot learning, one-shot learning, and few-shot learning, which can be used to address the contemporary technical challenges in cyberspace security related issues.

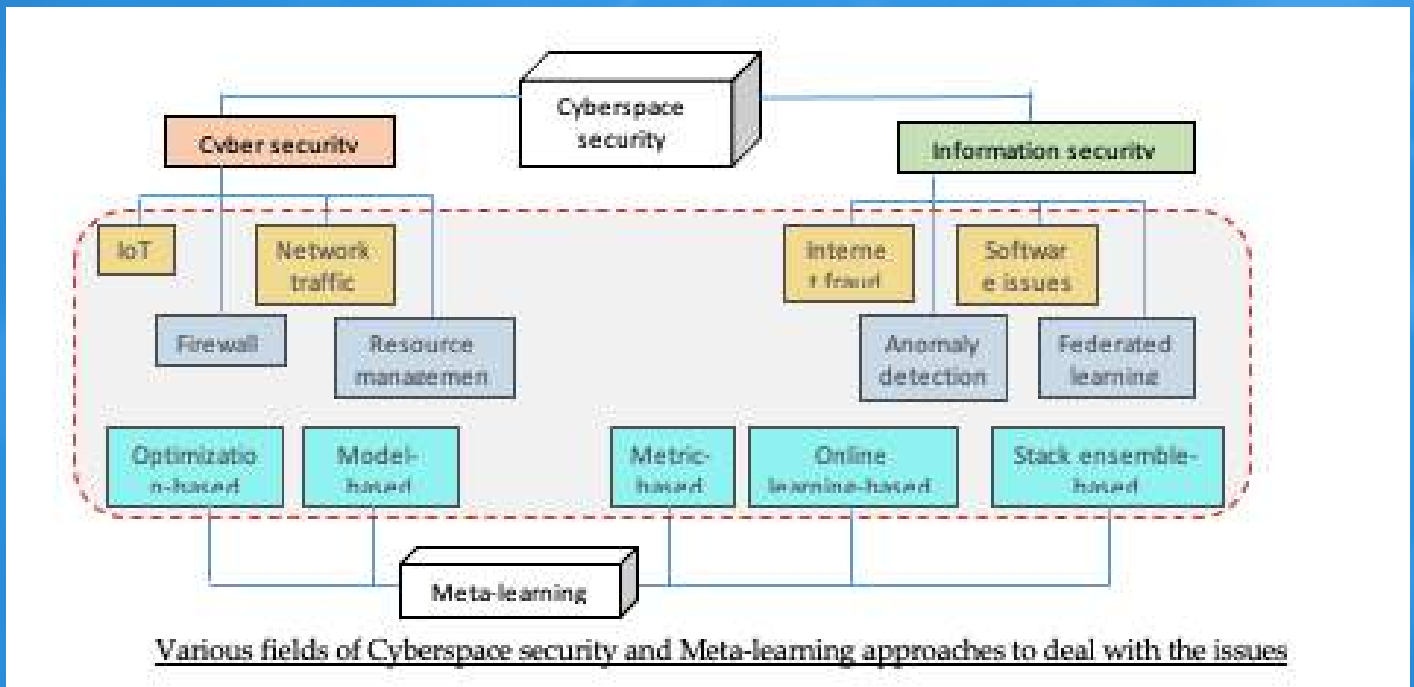


Image Courtesy

1. <https://medium.com/@xqcyber/the-limitations-of-machine-learning-in-cybersecurity-31a42414091>
2. <https://www.https.com/en/cyber-security-machine-learning>
3. Huisman, M., van Rijn, J.N. & Plaat, A. A survey of deep meta-learning. Artif Intell Rev 54, 4483–4541 (2021). <https://doi.org/10.1007/s10462-021-10004-4>



Dr. Piyali Datta

*Assistant Professor
AI and ML Program
Department of CSE
SOE, DSU*

COLLABORATIONS-UNIVERSITIES AND INDUSTRIES

CONTINENTAL
AUTOMOTIVES-
ELECTRONICS CITY -
BANGALORE



IIT TIRUPATI

MAHATMA GANDHI
INSTITUTE OF
MEDICAL SCIENCE,
WARDHA,
MAHARASHTRA.



**ANWAY CANCER
CARE-APP FOR
CANCER
PATIENTS**



**PAST SELECTED R & D COLLABRATORS /
ASSOCIATIONS**



**ÉCOLE NORMALE
SUPÉRIEURE DE
LYON , FRANCE**

**LUND UNIVERSITY ,
SWEDEN**



**WELLCOME TRUST SANGER
INSTITUTE IS A GROUP
WORKING WITH GENOME
SEQUENCES TO LEARN
MORE ABOUT HUMAN
BIOLOGY AND WAYS TO
TREAT ILLNESSES.**



Universitätsmedizin Essen
Universitätsklinikum

**INSTITUT FÜR
ZELLBIOLOGIE
UNIVERSITÄTSKLINIKUM
ESSEN, GERMANY.**

IIIM (CSMR) JAMMU



Indian Institute of
Integrative Medicine
Recruitment



राष्ट्रीय प्रतिरक्षाविज्ञान संस्थान
National Institute of Immunology

NII DELHI



JNACASR, BANGALORE



ACTREC, MUMBAI

DEPARTMENT ACTIVITIES



INDUSTRIAL VISIT TO CONTINENTAL AUTOMOTIVE

-18TH OCTOBER-2022

The students of Semester 5 AIML visited Continental AG, a German multinational company automotive parts manufacturing company specializing in brake systems, interior electronics, automotive safety, powertrain and chassis components, tachographs, tires and other parts for the automotive and transportation industries.

The students of Semester 5 AIML visited Continental AG, a German multinational company automotive parts manufacturing company specializing in brake systems, interior electronics, automotive safety, powertrain and chassis components, tachographs, tires and other parts for the automotive and transportation industries.



He also explained how they are using artificial intelligence in projects like self-driving cars. There was also a brief discussion on the various object detection algorithms used in the industry. The visit was concluded with a presentation on machine learning and their applications in the automotive industry. The team members demonstrated how they use machine learning to detect anomalies in the braking system, and how they use machine learning to detect the quality of the brake pads.

AI- DRIVE



The students of Semester 3 along with Prof Roshni conducted an AI Drive which focused on creating an awareness in the budding youth about the pros and cons of AI and ML.

The drive was held in two sessions in **St Francis School** focusing 10,11th and 12th students on 10th of October 2022 and other session in **Dayananda Sagar ICSE School** focusing 10th students on 22nd of October 2022.

The sessions were handled by the students of 3rd Semester AIML. The session was interactive and our students got very good feedback from both the schools

IDEATHON-II- 25TH NOVEMBER 2022



25TH NOVEMBER 2022

DSU X TEMPETE an AI&ML DepartmentClub coordinated by **Dr. Monika Goyal Assistant Professor, CSE AIML** and **Mr. Anuj Dwivedi Student Semester 3 CSE AIML** has conducted Ideathon II targeted for the current first semester students on 25/11/2022.

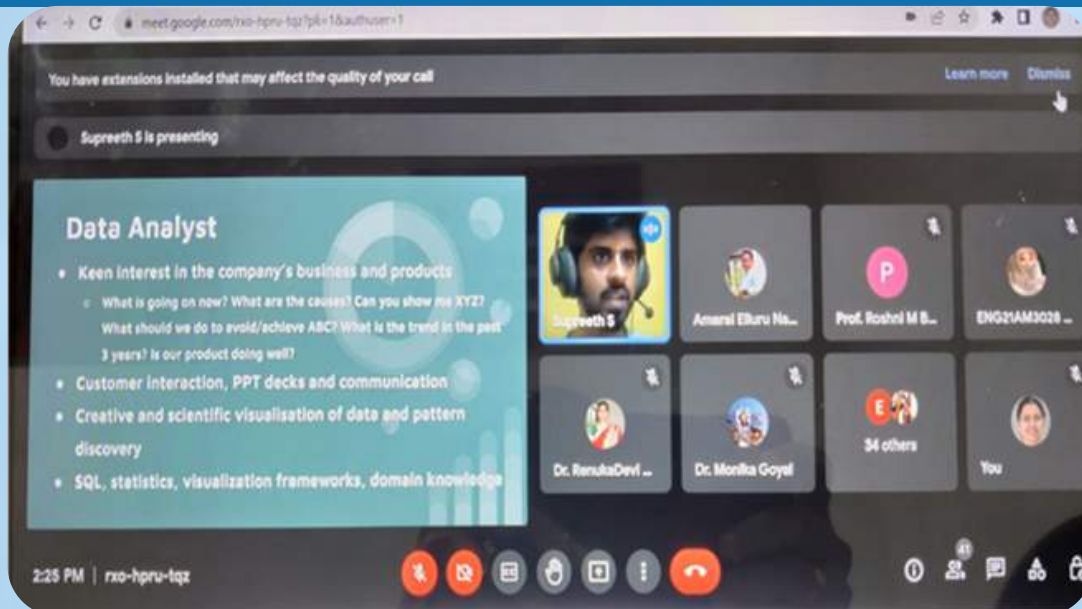




The program started with an introductory speech about the club and about the **Ideathon** by **Dr. Jayavrinda V**, Chairperson, Department of AI & ML. There was an inaugural song proceeding it. The problem statement was given by Prof. Sanjeev Kumar, Department of AI & ML. The students had already registered, and were allotted the team numbers. They assembled in the Canopy where they could sit and solve. 1 hour of time was given to the participants, to come out with creative solutions and present it in an innovative way. All the teams presented the solutions to the panel.

TECHNICAL-TALK

START AI 101

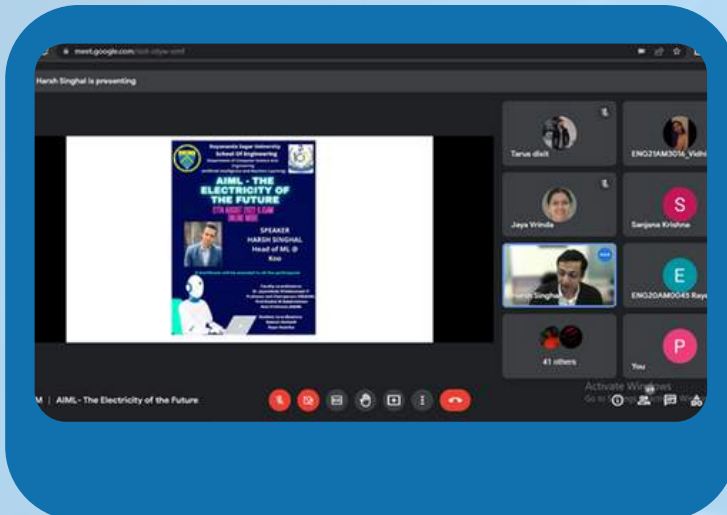


23RD AUGUST 2022

A **technical talk** was conducted by AI Works@DSU which was coordinated by **Dr. Jayavrinda Vrindavanam, Professor and Chairperson, Department of CSE(AI&ML), Prof. Roshni M Balakrishnan, Assistant Professor, Department of AI & ML, and two students Rohan R and Baidik Gosh.** The program started with an introductory speech about the club AI works @ DSU by Dr. Jayavrinda V, Chairperson for the Department of AI & ML. Nearly 30 students took part in the webinar in which there were 5th and 7th-semester students as well.

Mr. Supreeth S was the industry expert who gave us the webinar. The entire session contains so many topics such as Data Analytics, Required python libraries for machine learning, How to prepare a Resume, Placement guidelines, and Qualifications for ML students, and Coding interview round tips and tricks. His experiences in career and software development ideas etc.

AIML THE ELECTRICITY OF THE FUTURE SEMINAR

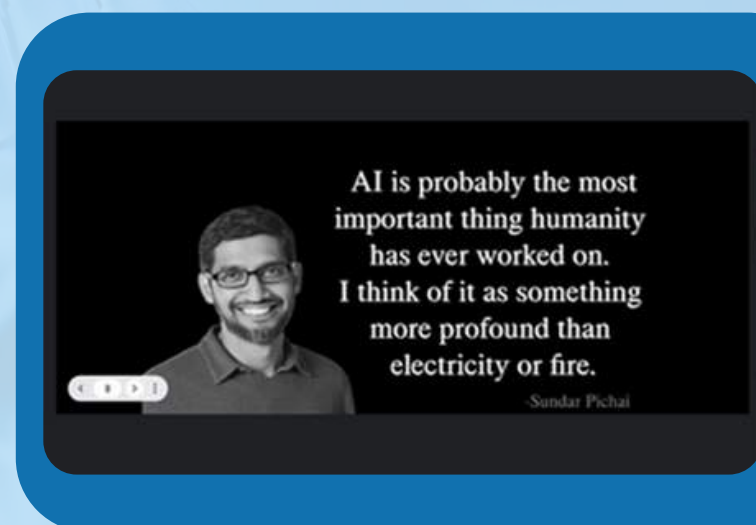


27TH AUGUST 2022

At the starting he talked about his **experience of AI and ML in the industry** and how **AI and ML is changing the world**. The speaker brought few quotes by famous personalities in the AI ML space and what they think about AI and ML. The speaker talked about Koo, an Indian microblogging and social networking service.

The speaker finally concluded with how students can join the AIML space by suggesting resources to follow. The talk was followed by a question-and-answer section where the speaker took the questions of the students.

A seminar was organized by AI Works@DSU for the 2nd, 3rd and 4th year students which was coordinated by Dr. Jayavrinda Vrindavanam, Professor and Chairperson, Department of CSE(AI&ML), Prof. Roshni M Balakrishnan, Assistant Professor, Department of AI & ML, and Gaurav Kamath, Student, Department of AI & ML. The Speaker was **Mr. Harsh Singhal**.



MACHINE LEARNING – CHALLENGES AND INDUSTRY PERSPECTIVE

23RD SEPTEMBER 2022

A technical talk was conducted by AI Works @ DSU at the Gallery Hall 2, A Block DSU for the 3rd year CSE students. The speaker was **Mr. Rupesh W Kumbhare from Wipro**. The seminar began with an interactive session where the speaker asked the students to mention areas and what they knew about Artificial Intelligence. He gave a very detailed explanation on Artificial Intelligence, Machine Learning and Deep Learning.

The Speaker talks about his experience of AI and ML in the industry and how AI and ML is changing the world. He explained the major challenges that AI faces and also different domains where AI is applied. **He also talked about his work on detecting Pipeline Anomalies.**



The speaker finally concludes with how students can join the AIML space by suggesting resources to follow and the major areas student should excel to be in a reputed position. The talk was followed by a question-and-answer section where the speaker took the questions of the students. Feedback was collected at the end of the meeting. Students asked their doubts after the session. The talk was winded up with a vote of thanks by **Ms. Harika, student of CSE(AIML).**

CODING COMPETITION- CODEFAI-22ND NOV 2022



18TH OCTOBER 2022

AI Works @ DSU – the students' technical club of AIML DSU conducted a Machine Learning Competition on November 22nd, 2022. The competition was open to all 3rd Year students of the University. A total of 7 teams participated in the competition.



The competition was conducted in one phase. The first phase was a **preliminary round, where the participants were given a spam filter dataset** and asked to perform dimensionality reduction with any algorithm that they seem fit. The participants were allowed to use any model they wished to, and were requested to evaluate the results using sklearn's classification report, and then they were judged based on the accuracy of their model(s). Year students of the University. A total of 7 teams participated in the competition.

CODING COMPETITION- CODEFAI-22ND NOV 2022



18TH OCTOBER 2022

AI Works @ DSU – the students' technical club of AIML DSU conducted a Machine Learning Competition on November 22nd, 2022. The competition was open to all 3rd Year students of the University. A total of 7 teams participated in the competition.



The competition was conducted in one phase. The first phase was a **preliminary round, where the participants were given a spam filter dataset** and asked to perform dimensionality reduction with any algorithm that they seem fit. The participants were allowed to use any model they wished to, and were requested to evaluate the results using sklearn's classification report, and then they were judged based on the accuracy of their model(s). Year students of the University. A total of 7 teams participated in the competition.

TRIVIA 22



DATE: 15TH DECEMBER 2022

The students of Semester 3 AIML on behalf of the DSU X Tempete Club – Department club conducted a quiz competition “TRIVIA 22” for First year students. 18 teams with a total of 54 students participated in the competition. “Trivia-22” quiz competition was a huge success, with participants and spectators alike enjoying a fun and exciting evening of trivia.



RESOURCE PERSONS-DSU- AI & ML STUDENTS



- **YOLO -A CUTTING EDGE DEEP LEARNING MODEL**
- **QUANTUM COMPUTING: INTO A NEW REALM OF MACHINE LEARNING AND CRYPTOGRAPHY**

STUDENTS ACHEIVEMENTS



KARTHIK PAI HAS CONDUCTED A WORKSHOP ON THE TOPIC "YOLO A CUTTING EDGE DEEP LEARNING MODEL"

HARSH VARDHAN WON THIRD PRIZE IN TECHNICAL QUIZ ORGANISED BY ECE DEPT.-DSU



IVAN ,KARTHIK, AND KUNJAN KUMAR AND TEAM WON THE FIRST, SECOND AND THIRD PRIZES OF DEBATE COMPETITION ORGANISED BY THE GREEN WARRIORS COMMITTEE OF DSU

-STUDENT ACHIEVEMENTS-

**HARSH VARDHAN ALSO
WON PRIZE FOR CRISIS
COMBAT HELD IN PESIT**



**KARTHIK PAI - SELECTED FOR THE
FINAL ROUND OF MASTERPLAN 2022
HOSTED BY ENTREPRENEURSHIP AND
VENTURE CAPITAL WING OF IIM
AHMEDABAD.
TOPIC-MACHINE LEARNING FOR
AGRICULTURE**

**ROHAN JOHN VARGHEES-WON
SECOND PRIZE FOR MUSIC
COMPETITION ORGANISED BY
PES UNIVERSITY-NOV 2022**

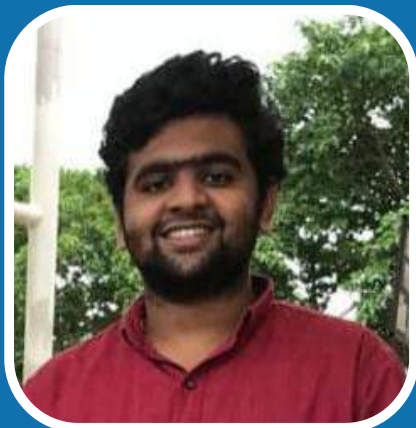


-STUDENT ACHIEVEMENTS-



SUBHA PRAKASH PATTNAIK OF SEMESTER 5 AIML SECURED SECOND PRIZE IN COLLEGE LEVEL ML COMPETITION (CODEFAI) CONDUCTED BY AI WORKS @ DSU

M AMRIN BUSHRA TAJ OF SEMESTER 5 AIML SECURED SECOND PRIZE IN COLLEGE LEVEL ML COMPETITION (CODEFAI) CONDUCTED BY AI WORKS @ DSU



CHALLA PRIYANKAR AND VISHWAMBER PRASAD OF SEMESTER 5 AIML SECURED THIRD PRIZE IN COLLEGE LEVEL ML COMPETITION (CODEFAI) CONDUCTED BY AI WORKS @ DSU



-STUDENT ACHIEVEMENTS-

CHANDRASHEKAR N OF SEMESTER 5 AIML SECURED THIRD PRIZE IN COLLEGE LEVEL ML COMPETITION (CODEFAI) CONDUCTED BY AI WORKS @ DSU



S NIVEDHA UNDER THE GUIDANCE OF DR RAJESH GOT HER PAPER TITLED “SECURE REMOTE HEALTH MONITORING SYSTEM AND ASSESSMENT USING IOT” ACCEPTED IN IEEE INTERNATIONAL CONFERENCE ON ARTIFICIAL INTELLIGENCE AND DATA ENGINEERING.



5TH-SEMESTER AI&ML STUDENTS HARSHA AND HAARIKA HAVE PRESENTED THE PAPER TITLED “MERGING THE MERITS OF QUANTUM MECHANICS AND MACHINE LEARNING” AT THE NATIONAL STUDENT SYMPOSIUM ON PHYSICS(NSSP-2022,DECEMBER-21 ST 2022) UNDER THE GUIDANCE OF PROF. DESHMUKH AND DR.JAYAVRINDA VRINDAVANAM.

-STUDENT ACHIEVEMENTS-



ANUJ DWIVEDI, HARSH MANALEL , DIVITH B.S , ABHIRAM AS A TEAM CREATED A FULLY FUNCTIONAL E-COMMERCE WEBSITE WITHIN A SHORT TIMEFRAME OF 2 DAYS.WE OFFICIALLY LAUNCHED EBOOKZZ ON 26TH JANUARY 2023 AND THE RESPONSE HAS BEEN OVERWHELMING.

THE WEBSITE IS USER-FRIENDLY AND EASY TO NAVIGATE, MAKING IT EASY FOR CUSTOMERS TO FIND WHAT THEY ARE LOOKING FOR.

LINK :[HTTPS://E-BOOKZZZ.MYSHOPIFY.COM](https://e-bookzzz.myshopify.com)



scan the above QR code to enjoy the website

-STUDENT ACHIEVEMENTS-



RAYE HAARIKA HAS PUBLISHED THREE RESEARCH PAPERS-TITLE OF THE PAPERS.

1.INSECT CLASSIFICATION FRAMEWORK BASED ON A NOVEL FUSION OF HIGH-LEVEL AND SHALLOW FEATURES.

2. DIABETES PREDICTION IN TEENAGERS USING MACHINE LEARNING ALGORITHMS

3.BREAST CANCER PREDICTION USING FEATURE SELECTION AND CLASSIFICATION WITH XGBOOST



GOPIKA AND HAARIKA -PUBLISHED A RESEARCH PAPER –TITLE OF THE PAPER

1A COMPARATIVE ANALYSIS OF MACHINE LEARNING ALGORITHMS FOR AGRICULTURAL DROUGHT FORECASTING

-STUDENT ACHIEVEMENTS-



**GOPIKA JAYADEV, HARIKA GANDIBOINA, KAPARTHI GAYATHRI
AND KAVYA SUDHA-PUBLISHED A RESEARCH PAPER –TITLE OF
THE PAPER:**

**2.EFFECT OF PROGRAMMING LANGUAGE IN SOFTWARE BUG
PREDICTION**



FACULTY ACHIVEMENTS



Dr. Jayavrinda Vrindavanam
Professor & Chairperson
AI and ML
SoE, DSU

· Editorial Board Member of Medicon open access Journal, MC engineering. Reviewer IEEE Access and IEEE Conference section Bangalore and Mumbai

Paper Publications:

"A Comparative Analysis of Machine Learning Algorithms for Agricultural Drought Forecasting", IEEE International Conference on Issues and Challenges in Intelligent Computing Techniques, 11-12 th November 2022 (Accepted for publication in IEEE Xplore).

"Merging the merits of Quantum Mechanics and Machine learning " at the National Symposium on physics December 2022

Active Research Collaboration:

1. App for Breast Cancer Patients in collaboration with Cytecancer Hospital Bangalore.
2. Audio Book for the Visually Challenged.
3. Study on the Prediction of non-communicable diseases in collaboration with Mahatma Gandhi Institute of Medical Sciences Wardha (A government medical college in, Maharashtra)
4. Quantum computing and Machine learning



Dr. Monika Goyal
Assistance professor
AI and ML program
Department of CSE
SOE , DSU

Publications:

Published paper in SCI Indexed Journal Imaging System and Technology (IMA), Wiley, IMA Journal, Wiley Publisher.

A Robust Model for Optimum Medical Image Contrast Enhancement and Tumor Screening, Book chapter accepted in Scopus Indexed Deep Learning for Healthcare Services Book, Bentham Science publisher, UAE.

Role of Artificial Intelligence in 3D Bone Image Reconstruction, Book chapter accepted in Scopus Indexed Deep Learning for Healthcare Services Book, Bentham Science publisher, UAE.

Reviewed Papers in All India Council for Technical Education (AICTE) Sponsored a Scopus-indexed INTERNATIONAL CONFERENCE ON INTELLIGENT COMPUTING, COMMUNICATION AND INFORMATION SECURITY (ICCIS), November 25-26, 2022, Jaipur, India.

Reviewed Papers in IEEE "International Conference on Disruptive Technologies for Multi-Disciplinary Research & Applications" - (CENTCON-2022) hosted by 'Dayananda Sagar University, Bangalore, 22-24 December 2022.

Reviewed papers in All India Council for Technical Education (AICTE) Sponsored and Scopus indexed INTERNATIONAL CONFERENCE ICETE 2023 ORGANIZED BY SWAMI KESHVANAND INSTITUTE OF TECHNOLOGY, MANAGEMENT & GRAMOTHAN, JAIPUR, INDIA.

Reviewed papers in All India Council for Technical Education (AICTE) Sponsored and Scopus-indexed INTERNATIONAL Journal JDMSCSP22.

Reviewed papers in the 3rd International Conference on Computer Vision and Robotics (CVR 2023) Organized in In-person and Online (Hybrid Mode) by Babu Banarasi Das University Lucknow, India Technically Sponsored by Soft Computing Research Society, February 24-25, 2023.

Active Research Collaboration:

Sawai Man Singh Medical College and Hospital, Jaipur.

Research Domain:

Real-time Ultrasound data for the detection of Kidney related diseases.





Prof. Pradeep Kumar K

Assistant Professor, Department of Artificial Intelligence & Machine Learning

Dayananda Sagar University, Kudlu Gate, Bengaluru-78

Certificate of Appreciation:

Reviewer Certificate for contributing CSITSS-2022, RV College of Engineering, Bangalore. 22nd December 2022.
NAAC Appreciation Certificate for achieving A Grade at Sai Vidya Institute of Technology, 30th November 2022

Recent Paper:

“Design & Analysis of 4 Port Branch Line Coupler Network at Resonant Frequency” Tensymp 2022.

Design & Study of Quadrature hybrid 4-port network for matching isolation & Coupling around the operating frequency”, ICIMBT 2022, SRMIST

Pradeep Kumar .K., “Surveillances of the visitor at Central Level Meeting as a E-Acceptance ticket., IJARESM 2022 Pg:2286.

Pradeep Kumar K., “Stock and Cryptocurrency Price Prediction using ARIMA Model”, IJARESM 2022, Pg:980

Active Research Collaboration:

REVA University, Bangalore

Research Domain:

Software Defined Antennas / Reconfigurable Antennas



Dr. Piyali Datta
Assistant Professor
AI and ML Program
Department of CSE
SOE, DSU

Empaneled as Falcon level researcher in the National Security Database in the domain of Offensive Security.

Published a paper, titled “Attack-Detection and - Recovery: An Integrated Approach towards Attack-tolerant Cyber-physical Digital Microfluidic Biochips” in the SCI indexed journal IETE Journal of Research.

Reviewer of IEEE Access and IETE Journal of Research journals. Reviewed paper for 2023 International Conference on Intelligent Systems, Advanced Computing and Communication (ISACC 2023) to be held on 3rd and 4th February, 2023 at Assam University.

Active Research Collaboration:

Computer Science and Engineering Department,
University of Calcutta.

Research Domains and Interests:

Algorithmic Microfluidics ,Machine learning in security and reliability of CyberPhysical Systems ,Machine Learning for Healthcare





Mrs. Mary Jasmine E
Assistant Professor
AI and ML Program
Department of CSE
SOE, DSU

Publications:

Published a paper titled “The role of hyperparameters in predicting rainfall using n-hidden layered networks” in the Journal of Natural Hazards in 2022.

Published a book titled “Python with Data Analytics”, GCS Publishers, India in 2022.

Research Domains and Interests:

Data Analytics , Machine Learning, Deep Learning



DR. Rangaraj B S
Professor
AI ML Program
Department of CSE
SOE,DSU

Dr Rangaraj B S is a Visiting professor of VTU Post Graduate Studies in the area of Design optimization. Has given invited talks/seminars on Automation, data management, AI etc.Has provided innovative training methods in engineering and software for design automation, data management, optimization, simulation etc. and has implemented the same as part of projects for Fortune 500 customers.



Prof. Raghavendra K
**Assistant Professor, Department of Artificial
Intelligence & Machine Learning**
Dayananda Sagar University, Kudlu Gate

Recent papers:

EAP Based Certificateless Authentication Technique to Access Cloud Services in Openstack"

Published in International conference, Cognition and Recognition, 2023, ICCR, Mandya, India.

Patent Details:

Design of an open communication protocol platform for industrial IOT, filing date 22/12/2022, Application no 202241074493.

Research Interest:

Network security ,Cloud computing , Machine learning



Mr. Udayabhaskara N
Assistant Professor
AI and ML Program
Department of CSE
SOE, DSU

Recent papers:

Written a dissertation titled "Analyzing NLP models and the sensitivity to diverse sentiment at large scale"

Done a collaboration research work with a research scholar in Bengaluru University to study the Edge-Based Active Contour Models in Medical Image Segmentation

Active Research Areas:

- o Natural Language Processing
- o Random numbers and computation philosophy
- o Image processing



EDITORIAL

" In the wings of Technical world, it possesses a huge Domain of Technological sectors, like AI, chatGPT, BigData, cryptography, etc, Human commercial production is speeding up with help of these sectors, hence it is appreciable. What about the Human IQ ? it is Noticeable!, Domain knowledge, Remembrance, and Smartness in decision are the three fundamentals of the Human Intelligence. The people who has great strength in the above fundamental made history in the technological world ,I meant Internet is built without the help of internet!, and we are using it. So what about the people in today's world are upto ? , Technology is becoming wiser , People will become wiser along with the Technology, Good Luck.. "

–Rohan.R

EDITING COMMITTEE

FACULTY EDITORS



Mr. Pradeep Kumar K



Assistant Professor



Dr. Piyali Datta



Assistant Professor



Mrs. Mary Jasmine E



Assistant Professor

STUDENT EDITORS



SOUNTHARIYAA J



GOPIKA JAYADEV



RAYE HAARIKA



ROHAN .R



ANUJ DWIVEDI



HARSH MANALEL

