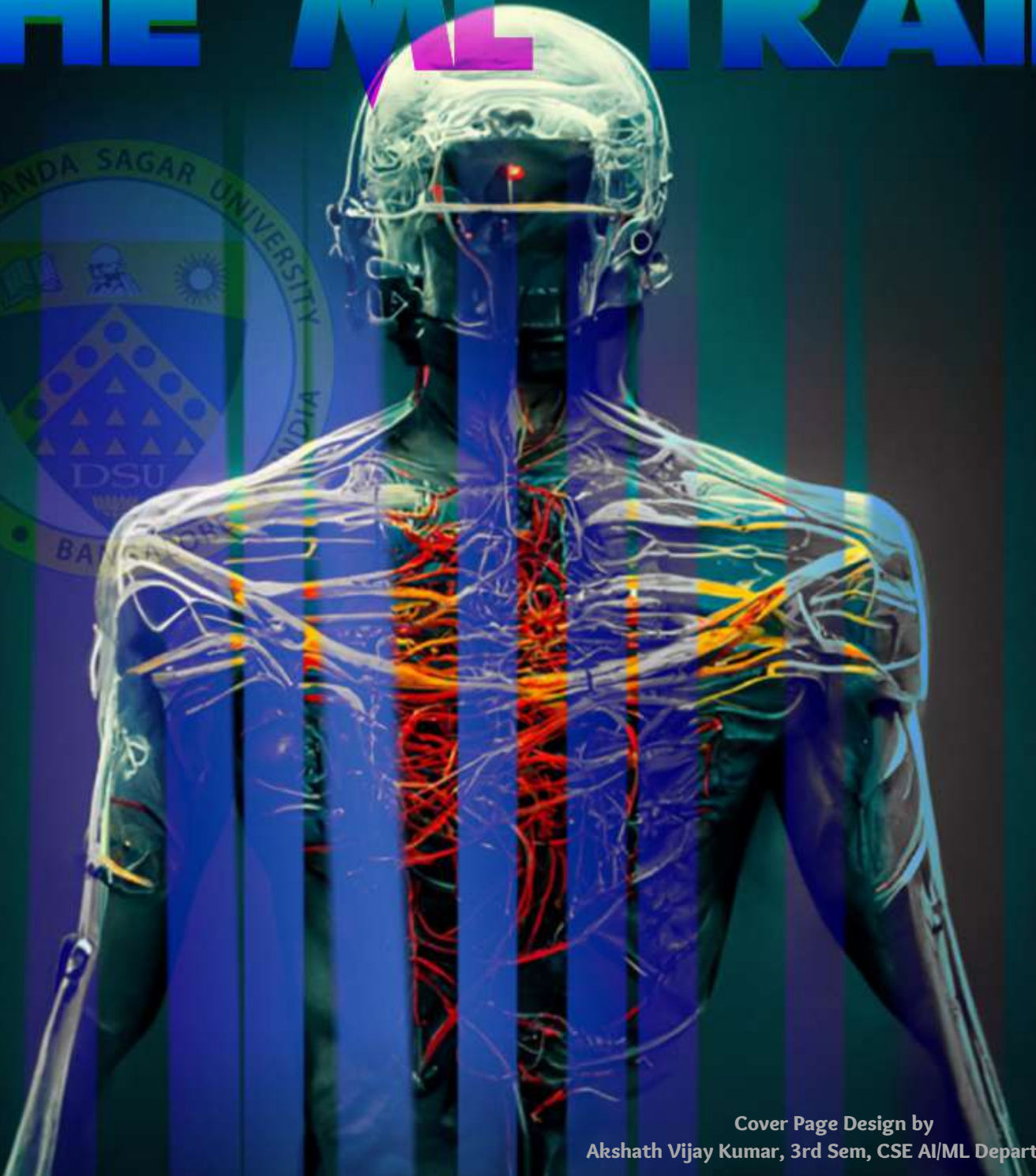


THE ML TRAIL



Cover Page Design by
Akshath Vijay Kumar, 3rd Sem, CSE AI/ML Department

A Newsletter of Artificial Intelligence and Machine learning Program,
Department of Computer Science and Engineering,
School Of Engineering ,
Dayananda Sagar University,
Bangalore

NewsLetter

January - August 2022

DSU

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

To develop pool of high calibre professionals, researchers and entrepreneurs in the areas of Computer Science & Engineering and Information Technology with exceptional technical expertise, skills and ethical values, capable of providing innovative solutions to the national and global needs.

Mission

To create a robust ecosystem where academicians, concept developers, product designers, business incubators, product developers, entrepreneurs, mentors and financial institutions are brought together under one platform of the department. To establish Project Environment in the Department with open source tools, provide hands-on experience to students by establishing a process to channelize their effort towards acquiring relevant competencies and skills in their chosen technology areas and domains. To create continuous learning environment for faculty and establish Research Centres in collaboration with Industries and Institutions of National/International repute and conduct research in emerging areas as well as socially relevant technical and domain areas through funded research projects.

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 great pleasure that I am writing this message for the First Issue of the bi-annual Artificial Intelligence and Machine Learning Program Newsletter for the academic year 2021-22 even semester. Apart from supporting the dissemination of the Departmental initiatives, the newsletters encourage the students to contribute actively and also help the 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 provide a visible platform to reach out the ongoing 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, and 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 WORLD OF MIXED REALITY: METAVERSE INTEGRATION WITH AI AND ML

Yes, we are progressing towards a world of mixed reality – a combination of virtual and physical realities. Ever-expanding computational capabilities and high-speed wireless communication systems and algorithms are gearing up to introduce the world of virtual reality. One of the most commonly used terms in this regard has been Metaverse. Metaverse is a virtual reality environment that interacts with or uses social connections, where the users can build things just as one would do in the real world through 3D digital objects. More specifically, the Metaverse uses augmented reality and virtual reality along with AI, ML and blockchains. While the area of Metaverse as such is a much wider topic to discuss, this piece of writing aims at providing a brief outline of how AI and ML facilitate Metaverse. In case the Metaverse is intended to perform functions like humans or other living beings, the AI tools such as content analysis, speech processing, computer vision, deep learning etc are to be used. Accordingly, AI and ML have been occupying the centre stage of virtual reality systems. In the multitude of domains, metaverse systems can emerge in the coming days.

In such a context, the most interesting aspect has been the inevitable changes taking place in the domain of AI and ML itself- both in the field of IT and other domains. A few of the changes have been the introduction of Avatars, or in other words, people creating a virtual design of themselves; Digital humans that can create humans-like conversations and actions; language processing through which the language barriers will be removed in the metaverse; automation of machine learning through the process of learning data and in the process the machine will be in a position to suggest better outputs eventually the digital human being will be enhancing the capabilities over a period of time.

All these developments in addition to creating opportunities for AI and ML will also open up challenges to be tackled. The most critical challenge will be in dealing with identities and the other will be the issue of privacy. These technological advancements show that the AI and ML systems will continue to be at the centre stage of technological changes and would be closely working with hardware systems in the days to come. Let us learn to be part of this virtual revolution.



Dr. Jayavrinda Vrindavanam
Professor & Chairperson
AI and ML Program
Department of CSE
SOE, DSU

PROGRAMMING PEDAGOGY AND ASSESSMENT IN THE ERA OF AI/ML

Over the history of programming, there is an unmistakable trend towards democratising the profession by providing individuals with ever more sophisticated tools for writing software. This trend began with the advent of assembly languages, which gave programmers easier-to-memorise alternatives to raw machine code and freed them from certain tedious hand-calculations. Thereafter, a slew of programming languages were developed, allowing individuals to express themselves at higher levels of abstraction while leveraging the greater computing power of machines to translate these high-level languages into machine code. This trend is being rapidly accelerated by advances in computing, particularly in Artificial Intelligence (AI) and Machine Learning (ML).

AI/ML-based tools for Automated/Assisted Code Generation are primarily based on natural language processing. Amongst the plethora of developments, philosophers and cognitive scientists are terming the Generative Pre-trained Transformer 3 (GPT-3) language model developed by scientists at OpenAI as one of the most interesting and important AI systems ever produced. The GPT-3 model uses deep learning to produce human-like text whose capabilities to write original prose has been termed equivalent to that generated by a human. The immense language processing capabilities of GPT-3 model when fine-tuned for use in programming applications resulted in its descendent: OpenAI Codex. Codex, among other things, can perform tasks like translating natural language to a computer code (and vice-versa), fix bugs in the code and translate code from one programming language to another. Recent research has already bench-marked the current capabilities of Codex vis-a-vis first year CS undergraduate students and found that it performs better than most students on code writing questions in typical first year programming exams.

The more recently developed AlphaCode by DeepMind takes AI/ML-based methods a notch higher by targeting Competition-Level Code Generation. Competition-level programming has a more complex natural language description spanning multiple paragraphs that contains: narrative background typically unrelated to the problem, a description of the desired solution, ! specification of the input and output format, and one or more example input/output pairs. In addition, the tool is not just looking for a solution but for an efficient solution that executes within the time limits and for the input sizes specified by the problem. AlphaCode achieved on average a ranking of top 54.3% in competitions with more than 5,000 participants.

Today, over 2.6 million Indian undergraduates are enrolled in Computer Science (CS) or related programmes where developing the skill of writing code in high-level programming languages is a key part of their curriculum. According to India's National Association of Software and Service Companies (NASSCOM), unfortunately, about 65% of graduates from these programmes "do not possess adequate skills to be employable in tech roles". Further, the remaining 35% of graduates face a growing threat from the trend towards democratising the programming profession. Indeed, another NASSCOM report estimates that "80% of [software] technology products and services will be built by those who are not technology professionals by 2024". The tools discussed above are possible avenues through which this might become a reality. The development of automated/assisted code generation tools now requires educators to rethink the present approach toward CS education. Towards this end, there are several research problems: 1) If there are tools which can write code, then how should programming education change?, 2) How can such a change be attested to be in the right direction?, 3) What consequence will such a change have on advanced courses such as Data Structures and Algorithms?, 4) Will reducing the emphasis on code-writing skills improve students' interest in programming (where we interpret programming in a general sense)?, and 5) How can the changes be implemented at ground level in a country like India where there is a large variation in the resources available to the institutes?

The development of automated/assisted code generation tools now requires educators to rethink the present approach toward CS education. Towards this end, there are several research problems: 1) If there are tools which can write code, then how should programming education change?, 2) How can such a change be attested to be in the right direction?, 3) What consequence will such a change have on advanced courses such as Data Structures and Algorithms?, 4) Will reducing the emphasis on code-writing skills improve students' interest in programming (where we interpret programming in a general sense)?, and 5) How can the changes be implemented at ground level in a country like India where there is a large variation in the resources available to the institutes?

Traditionally, pedagogical research is not well-appreciated in India leave alone the funding aspect. Perhaps because it is not as flashy as researching something like self-driving cars. But it is for the individual to ponder about what our country needs more at this point.



Dr. Arun Raman
Associate Professor
AI ML program
Department of CSE
SOE, DSU

BEGINNING OF NEW ERA

Artificial intelligence(AI) has had several false starts and stops over the years partly because people don't really understand what ai is all about on even what it should accomplish. A major part of the problem is that movies, television shows, and books have all conspired to give false hopes as to what AI will accomplish. In addition, the human tendency to anthropomorphize technology makes it seem as if AI must do more than it can hope to accomplish. So, the best way to start dealing with AI is that first to understand why AI is important.

In this modern world, technology is growing at its pace. people define intelligence in many different ways. However, we can say that intelligence involves certain mental activities composed of learning, reasoning, understanding etc.

AI doesn't really have anything to do with human intelligence. Yes, some AI is modeled to simulate human intelligence, but that's what it is: A simulation. AI relies on algorithms to achieve a result that may or may not have anything to do with human goals or methods of achieving these goals.

AI Uses

Ai is used in fraud detection. we all know that fraud and corruption are the most happening things nowadays. For example, we get a call from a credit card company asking whether we made a particular purchase. the credit card company isn't being nosy; it's just alerting us fast that someone else could have made a purchase using our card. The AI embedded within the credit card company's code detected an unfamiliar spending pattern and gave out an alert to the user. Not only this, ai is used in resource scheduling, complex analysis, automation, customer service, safety systems etc.

I would like to conclude to the world that yes ai is necessary but at the same time, it is very important to understand why actually AI is needed in society and why it is brought as a subject. Once we understand this concept then AI can be definitely used for good social cause.



Poornima M Nerale
Student
3rd semester
AI ML

ALEXA!, TELL ME ABOUT AI!!

Starting with, The development of artificial intelligence has been around for a long time. In 1943, Alan Turing published a paper on “The Imitation Game” which is considered the first work on artificial intelligence. In this paper, he proposed a test to determine whether a computer was intelligent or not. The test was to see if the computer could fool a human into thinking it is also human. In 1956, John McCarthy coined the term “artificial intelligence” at Dartmouth College in New Hampshire and organized what many consider to be the first conference on AI. It was here that he and Marvin Minsky co-founded MIT’s AI laboratory which would become one of the most important centres of research in AI history. The first person to actually implement a system that we would now recognize as AI was a mathematician and engineer named Alan Turing. He created a machine called the "Turing Machine" which could solve any problem that could be solved by an algorithm. The best use of AI is to make life easier for humans. It does not replace humans instead, it helps them do their jobs better. AI will be used to automate tasks that are repetitive and tedious. It will help us get rid of the monotony in our lives and make things more exciting by taking over these tasks. AI can be used to automate the process of content generation. The AI can be used to generate articles, blog posts, social media content and even press releases. In the near future, AI will also be able to generate video scripts and visual content.

WHAT’S AI?

AI is a broad term that encompasses many different types of technologies. And, as a result, there are many different ways in which AI can be applied to the world. But for the purposes of this article, we will focus on AI’s role in marketing and content generation. In this article, we will examine what current scope of AI and how it affects marketing and content generation processes. We will also explore some use cases that show how AI is being used to generate content quickly and with high quality. Finally, we will discuss the future of AI in marketing and content creation.

CAREER POV

Jobs in AI are varied. There is a range of skill sets and backgrounds that one must have to get into AI. Some jobs require more technical skills, such as machine learning engineers, data scientists, and software developers. Other jobs are more focused on the business side of things, such as marketing managers and product managers.

HOW HARD IS AI?

AI is not hard to use. In fact, it's easier than ever before. The tools have been designed to be very user-friendly and intuitive. All you need is a computer, an internet connection, and a basic understanding of how the program works.

CONCLUSION

AI is not a replacement for humans. AI will always be limited by the data it has access to and the way it is programmed. It doesn't have emotional intelligence and cannot understand nuance. AI can only do what we tell it to do, which means that even if we train it to write well, it cannot generate its own content ideas or emotions.

I'm increasingly inclined to think that there should be some regulatory oversight, maybe at the national and international level, just to make sure that we don't do something very foolish. I mean with artificial intelligence we're summoning the demon.



Pannati S
Student
3rd semester
AI ML

HOW AI IS USED TO PREDICT EARTHQUAKES

An earthquake warning system uses AI to predict how the ground will move during a temblor and can give several seconds of advance notice that the shaking is coming.

It's called a shaking alert and it works by detecting the first wave of earthquake motion.

The new system in development is called deep shake. It is also intended to provide a few seconds' warning of imminent shaking once an earthquake has started.

The deep shake was a deep neural network, a type of AI learning, to identify patterns from past earthquakes in order to predict how the shaking from a new earthquake will travel. This could lead to faster processing and easier generalisability across different earthquake regions.



Harika Gandiboina
Student
5th Semester
AI ML

OPEN AI TECHNOLOGY

OpenAI is an artificial intelligence research lab which is a sub-company of OpenAI LP which is the parent company. This organization is founded by Elon Musk, Sam Altman and others in 2015 where Elon Musk resigned from the board of the company but still remains a donor. OpenAI is a non-profit company. This company is a direct rival of Deep Mind which is a sub-company of Google. Companies like Microsoft and Infosys as the participants and other members of the OpenAI. Where Microsoft invested 1 billion USD.

1) Dall-E and Dall-E 2

This technology is a machine learning model which is developed by OpenAI where they will generate digital images using the description given by the user by using a natural language technology was revealed in a blog post by OpenAI in January 2021, which uses a version of GPT-3 which is modified to generate images. In April 2022 OpenAI announced the successor of Dall-E which is Dall-E 2 which is designed to generate more realistic images at the highest possible resolution as possible that can combine concepts attributes and styles. While this technology is not released its source code but is in the beta testing phase. This technology uses PyTorch for making a deep learning model to generate in the new generation of this technology which takes the advantage of CLIP (Contrastive Language-Image Pre-Training is a neural network that's trained on a variety of images, text pairs.) and diffusion model (this is a generative model which means that they are used to make data that looks like the data they were trained on.), which are the two advanced deep learning techniques which was created in the past few years.



Original: Girl with a Pearl Earring by Johannes Vermeer Outpainting: August Kamp
Source: - <https://openai.com/blog/dall-e-introducing-outpainting/>

In Dall-E's edit features are already released enabled which allows the changes within generated or uploaded images this capability known as Inpainting. Now with Outpainting users can extend the original images, creating large-scale images in any aspect ratio. More than 1 million people are using Dall-E AI system. Outpainting is now available to all Dall-E users in desktop.



Chandrashekar N
Student
5th semester
AI ML

AI ETHICS

How many of you have watched Enthiran, a Tamil movie where a robot named Chitti falls in love with his own creators girlfriend and becomes homicidal? A robot which was created to serve and help humanity inturn rises against humanity because of crazy Robot love.

These are one of the many aspects related to ethicality which have come up when AI was introduced. When sentimental analysis is being spoken of as a hot topic multiple concerns arise as to what takes the lead when something wrong happens. Questions have also been raised as to who governs the moral principles and techniques intended to inform the development and responsible use of artificial intelligence technology.

Asilomar AI Principles are one of the first guidelines which have been floated to protect humans from the risk of AI. It states as to how technology must be deployed and continuously monitored. Measures have been mandated to guard against unintended bias in machine-learning algorithms, continuously detect drift in data and algorithms, and track both the provenance of data and identity those who train algorithms.

Ethical challenges include:

- **Explainability.** When AI systems go awry, teams need to be able to trace through a complex chain of algorithmic systems and data processes to find out why. Organizations using AI should be able to explain the source data, resulting data, what their algorithms do and why they are doing that.
- **Responsibility.** Society is still sorting out responsibility when decisions made by AI systems have catastrophic consequences, including loss of capital, health or life. Responsibility for the consequences of AI-based decisions needs to be sorted out in a process that includes lawyers, regulators and citizens. One challenge is finding the appropriate balance in cases where an AI system may be safer than the human activity it is duplicating but still causes problems, such as weighing the merits of autonomous driving systems that cause fatalities but far fewer than people do.
- **Fairness.** In data sets involving personally identifiable information, it is extremely important to ensure t:at there are no biases in terms of race, gender or ethnicity.
- **Misuse:** Just like how Chitti the robot was used by a rival scientist to create havoc, AI algorithms may be used for purposes other than those for which they were created. Wisniewski said these scenarios should be analyzed at the design stage to minimize the risks and introduce safety measures to reduce the adverse effects in such cases.



Karthik Pai
Student
5th semester
AI ML

DEPARTMENT EVENTS

CONTENTS

- Start AI 101
- Use of AI
- Ideathon
- Demystifying AI
- AI Electricity of the Future
- PYQuiz
- Deciphering AI and ML

START AI 101 A PRACTICAL GUIDE

By Gaurav Kamath

Date And Time: 22-August 2022, 2 PM

Subject: Road Map to a Successful Machine Learning Engineer.

The Seminar was organized by the AI Works club and the Department of Computer Science and Engineering (Artificial Intelligence and Machine Learning) of DSU on 22nd August at 2 PM in Online Mode.

The purpose of this seminar was to provide a roadmap to students aspiring for different roles in AI and ML industry and bring awareness about the industry requirements.

Mr Supreeth S starts by introducing himself, a Student of the 2020 ECE Batch of NMIT, and talks about the research papers he has co-authored. He then goes on to talk about the different roles in the industry such as Research roles, data analyst, data engineer, ML Ops, Applied ML Engineering and Data Science followed by advice on how to prepare and be industry ready to get these jobs.

He emphasises the importance of maths in machine learning and how a strong mathematical and statistical background eases the learning curve of machine learning. He recommends students implement the algorithms in the python programming language which will help students with interview preparation. He then talks about how to build and structure your machine learning portfolio, recommending starting with simple datasets from Kaggle such as the MNIST and advice to gradually step up to solve real-world problems by collecting real-time data.

He advises students to constantly read blogs and articles on machine learning to stay up to date with the current trends in the industry. He concludes by talking about his experiences in the industry, maths and statistics being preferred to solve problems over neural networks and the importance of accuracy of models, especially in the healthcare and finance sectors in which models with 99% accuracy are also rejected most of the time.

ML INSIDE A PRODUCT

The participants of this event included students of CSE department and more than 15 faculty members.



The session started with a welcome speech given by Dr. Tina Babu, Assistant Professor, CSE Department, DSU. Then Dr. Jayavinda Vrindavanam, Professor & Chairperson, Department of AI & ML, DSU, introduced the speaker to the audience. The speaker Prof Sankar Dasiga delivered his speech for one hour 30 minutes and a QA session held for 30 minutes. Finally, the vote of thanks is delivered by Dr. Meenaskshi Malhotra, CSE department.

The speech covered the following things: The preamble included the various tools and platforms used in ML. The design roadmap includes the edge computing implementation employing AI and sensor fusion. The overview of the product / approach was given of how and where the ML is deployed. Architecture and Technologies overview of how the smart mat has been implemented. The ESys board was also discussed giving out the details of electronic configuration.

Further, the used AI / ML modelling and algorithms were analysed and their interpretations were discussed.

When to tune the model based on the confidence level comparison. Heatmap modelling for detection and correction was discussed for the SCD model. Template matching and Contour matching were used for the same. CV modelling with Keypoint mapping for posture detection and correction was discussed. How the online and offline model based analytics.

IDEATHON 2022



Conducted by : DSU X TEMPETE an AI&ML Department Club

Date : 21ST JULY 2022

Time : 9:00 AM TO 2:00 PM

The program started with an introductory speech about the club DSU x Tempete and about Ideathon by Dr. Jayavrinda V, Chairperson, Department of AI & ML. The problem statement was given by Dr. Arun Raman, Associate Professor, Department of AI & ML, who came forth to clearly explain the problem statements to the participants.

The students had already registered and were allotted team numbers and specific rooms to solve the given problem. They were given 2 hours of time to come up with creative solutions and present it in an innovative way.

Out of 30 teams, Five shortlisted teams had to present their ideas to the audience.

Here are the winner -

First prize winners

Harshayara. B
Deepa. S
Bhumika Mallapur
Bhagyalakshmi R A

Second prize winners

Sohan Nath
Sathwin S
Ritika DC
Sri Devi CR

Third prize winners

Aditya Pandey
Chirag Aswal
Akila A

Here is a glimpse of the ideas presented by the winning teams.



IDEATHON 2022

ADMINISTERING AI IN THE ELECTORAL PROCESS

The problem statement was to analyze the role of Artificial Intelligence and machine learning for elections in India and ways to administer AI in electoral process.

This was our first Ideathon together it was an unforgettable experience, it was an intensive brainstorming event for us, where everyone worked as a team to identify predefined problems and ideate the most viable solution, in this event students from different departments and skills collaborated to identify and solve issues. The main aim was to enhance innovation and originate new unique ideas among individuals.

We were a group of four, we had a time frame of two hours at most, so first we divided the electoral process to three parts i.e., pre-election, while election and post-election. In the first twenty minutes we decided to figure out the problems faced during each stage, we did our research separately and came up with a set of problems and discussed them, then we did research on how we can solve the configured problems. Everyone came up with lot of ideas and some ideas also included use of cyber security and data science.

Then we finally put the ideas together to form a set of solutions, we found it fascinating how AI had many functionalities, In the process of research we learnt many new terminologies as well.

Deepa. S gave many ideas related to pre-election phase, she did research on the current voting scenario and came up with an idea of using online voting portal which is linked to Identification documents. Bhagya Rajkumar came up with ideas related to post-election phase such enforcing of legal terms, prevention of voting fraud, campaigns and tokens to encourage citizens for voting.

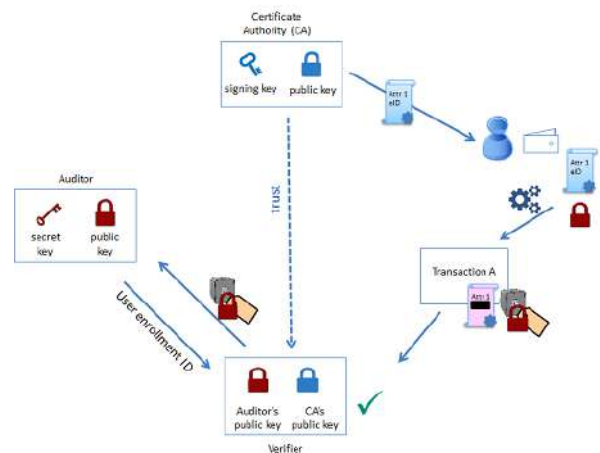
Bhumika. M came up with an idea of using Metaverse of AI, which is a trending and popular topic in technology and socioeconomics. It included use of VR, 3D animation, Block chain and many more. One of the keys to the potential success of the metaverse is the promise of highly immersive experiences. The VR will provide with the insights on how elections run and inspire them to actually go and vote during real elections.

Harshyara. B (myself) came up with the idea of ZKP's i.e., Zero Proof Knowledge, it is a part of cryptography which makes use of encryption and digital signatures, in a simple way it's a way to verify authenticity of the secret without actually revealing the secret. It also makes sure of all the legal frame works. In a way it verifies the identity and also breaks ties with it.

This was to ensure Trust and transparency. Our main motto was to make the voter knowledgeable about candidacy.

This event was a needed platform for us to begin our major's learning journey. We had an innovative challenging time solving the given problem. Through this event we also learnt about the importance, necessity and role of voting in elections.

We would like to thank the organizers for giving us the opportunity to take part in this novel event and enhance our brainstorming abilities.



Team18(CSE-B4)
First prize winners
Harshayara. B
Deepa. S
Bhumika Mallapur
Bhagyalakshmi R A

IDEATHON 2022

ELECTORAL PROCESS USING AI AND ML

Voting is a basic human right and it should be a fraud-free process where voters vote with their own will. Various AI and ML implementations are being made to make the voting process a better experience for everyone.

Many queries arise in new and young voters. Voting turns from a right to a conundrum. The long list of choices sets them into confusion - whether the various political parties practice honest work and adhere to their promises. The various processions and riots make them question - is it safe to go out and vote? In 2019 only 67% of the 912 million eligible citizens voted. One of the reasons why the rest of them didn't vote is because they don't prefer standing in long lines and waiting for hours just to cast their vote.

Another major issue that we found is the improper utilization of resources in the election process therefore we devised a plan.

So what are the solutions that were brought to the table?

To voice the importance of voting, Sohan, came up with the ingenious idea of personalized ads - it researched people's social media preferences and collected information about their likings. The AI system then gives the party suggestions based on their preferences. These ads help the user with their voting decisions. Such data is collected temporarily and is encrypted.

Ritika, a very confused voter herself, framed a solution to end the endless questions about the endless list of choices - A Recommendation System! Here, the user answers a few simple questions about what changes they wish to see around them. The system compares the user's wishes to the promises delivered by different political parties. It also checks the authenticity of previous promises and how it was carried out. In the end, a detailed list of parties with a percentage of compatibility between voter and party is displayed. This of course isn't what the voter will choose for sure but it helps them grasp an idea about the choices they have and make their vote a more confident one!

Sri Devi, who wanted to contribute to the long-line problem, came up with an idea of implementing the mathematical topic of analyzing long queues; The Queueing Theory. This theory mainly involves the study of the movement of objects in a queue. Hence feeding such a theory into an AI system, would help reduce problems regarding long lines.

Is it safe to go outside and vote? The AI system analyses top social media sites like Twitter and searches for threats, protests, riots, attacks, breaching booths, etc. Government officials and local bodies are notified of any sus activities. People can be notified so that they can protect themselves.

The proper utilization of resources is a must as, if not, there could be many problems that could arise from it like fabricating extra voting booths, improper distribution of the voting booths, etc. So Sathvik came up with an intuitive solution where we could use AI and ML to solve this. Using the previous data of the elections that were held we could almost precisely calculate the number of voting booths required, the distribution of the voting booths can be done almost flawlessly, and many more problems regarding improper utilization of resources can be solved using AI and ML.

This event taught us about the wide view of applications of AI and ML and how it can be moulded to fit various problems. Voting is a process that determines the future of not only a country but the world. And technology like AI and ML can play a vital role in making it more efficient.

Team 7(CSE-B3)
Second prize winners
Sohan Nath
Sathwin S
Ritika DC
Sri Devi CR

DEMYSTIFYING AI

Conducted by: AI&ML Department

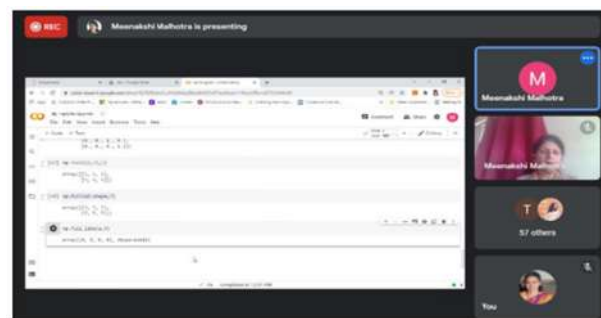
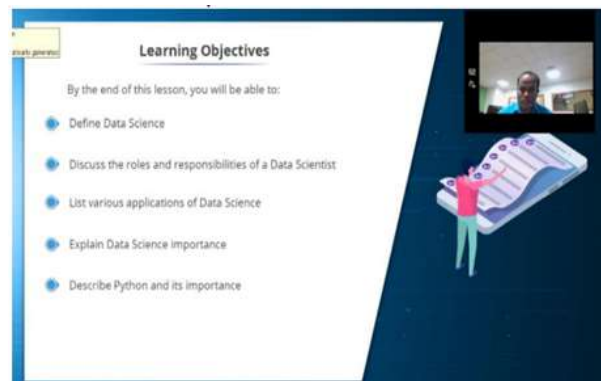
Date: :04-July 2022 to 08-July 2022

Time : 9:30 AM TO 4:40 PM

Target audience:4th Sem CSE Students and CSE(AI&ML) Students

It was a 5-day Five Days Value Added Course for the students of computer science and engineering students which happened in the month of July. The intended outcome of the workshop was to make the Students well-versed with

- Understand the mathematics and statistics for ML
 - Understand Python Libraries for AI and ML
 - Understand the Machine Learning Models
 - Demonstrate the Working of Machine Learning Techniques.
 - Understand the Recent trends and Advances in AI and ML
 - Explain the applications of Machine learning in different functional areas like Cyber Security, Cloud computing and cognitive computing
- Resource Persons were Dr Jayavrinda Vrindavanam, Dr Meenakshi Malhotra and Dr Debanjali Bhattacharya, Dr Pramod Kumar Naik, Dr Revathi, Dr Jayita Saha, Dr Savitha Hiremath, Dr Tina Babu, Dr Arun Raman, Dr Sindhu Menon, Dr Monika Goyal, Prof. Arjun Krishnamurthy.

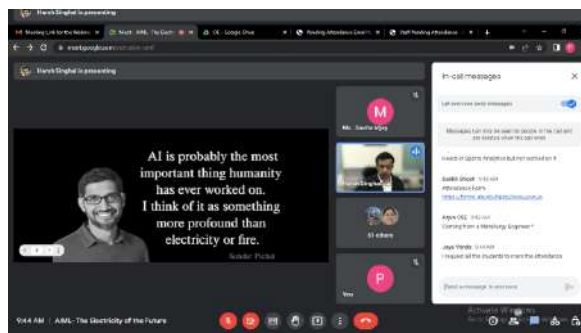
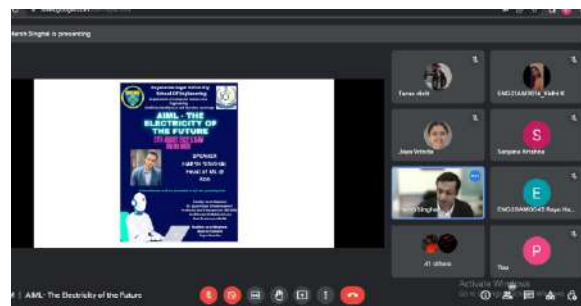


AI ELECTRICITY OF THE FUTURE

Date: 27-August 2022

Time: 9:15 am to 10:45 am

The program started with an introductory speech about the speaker Mr. Harsh Singhal by Dr. Jayavrinda V, Chairperson, Department of AI & ML and Prof. Roshni M Balakrishnan, Assistant Professor, Department of AI & ML. The seminar began with an interactive session where the speaker asked the students to mention the areas where they have seen AI and ML used. The Speaker talks about his experience of AI and ML in the industry and how AI and ML is changing the world. The speaker brings few quotes by famous personalities in the AI ML space and what they think about AI and ML. The speaker talks about Koo, an Indian microblogging and social networking service, The speaker finally concludes 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. Feedback was collected at the end of the meeting and participants were given their participation certificates.



PYQUIZ

Date: 16- March 2022

Time: 2:45 pm to 4:45 pm

The program started with an introductory speech about the club AI works @ DSU by Dr Jayavrinda V, Chairperson, Department of AI & ML. The students were allowed to form into groups of 2 to take part in the quiz. 24 students (12 groups) took part in the quiz. The quiz had 2 rounds. The first round was purely a quiz in which 25 questions were displayed on the screen one after the other and students could write down their answers. After round 1, the top 5 groups were shortlisted for round 2. Round 2 was coding in which the students were asked to write 3 python programs.

Out of the 5 teams the best 2 teams were selected for positions 1 and 2.

Armin Bushra Taj and R D Lohith of Semester 4 H Section secured the first prize and Yashna Karkera and Pranav S S of Semester 4 H section secured the second prize. Certificates were issued to the winners.

DECIPHERING AI AND ML

Date: 04/07/2022 to 08/07/2022

Time: 9:30 am to 04:40 pm

This was a 5-day value-added course where students were given an overview of What AI and ML is, different types of ML algorithm and the technical and mathematical toolkit required to implement them.

The morning session began with the session on various introductory topics such as 'Introduction to AI and ML, ML types and systems and Python Libraries for ML'. The objective of these three sessions conducted on the day-1 was to make the participants understand the basics of Artificial intelligence and Machine Learning. The students were taught about various python libraries used in machine learning which would help them in the subsequent days during the hands-on session. The Afternoon session on the same day covered the importance of Mathematics in this field.

On day 2 of the course, Dr Pramod Kumar Naik gave a brief introductory and hands-on session "Statistics for AI and ML" where Python libraries like Numpy, Pandas, Seaborn, Matplotlib and Scikit Learn were explored. Dr Revathi explained the process flow diagram and feature extraction of Machine Learning and Dr Jayita Saha explained pre-processing and feature extraction with some examples.

Day 3 and Day 4, students were given an insight on how to implement the machine learning models to execute projects. They were also briefed on Recent trends and Advances in AI and ML and the Fundamentals of Sequential Decision making.

Introduction to Neural Networks was given by Dr. Sindhu Menon. and later Dr. Tina Babu, gave an Introduction to the Convolutional Neural Network.

Reinforcement Learning Introduction and Applications was given by Dr. Arun Raman. Regarding the applications of deep learning in healthcare was taken by Dr. Monika Goyal. In the afternoon session, Prof. Arjun explained some unique featured implementations of ML and DL in the real world. He introduced several ML and DL tools and project implementations.



How does ML work - Image Description for the Visually Impaired

Image	Predicted Captions	Reference Captions
	1. Two red flowers in a large leafy stem and some leaves.	Red flower with large stem and leaves.
	2. A large, modern building and a house.	A large building of house.
	3. A mixture of fruits and vegetables on top.	A basket of fruits and vegetables.
	4. A garden with trees and flowers.	A garden with trees and flowers.
	5. A soccer ball on a green field.	There is a soccer ball on the ground.
	6. There is a computer desk with keyboard.	There is a computer desk with keyboard.

Source: Jayavrinda Vindavaram, Raghurandan Srinath, Anisa Fathima, S. Arpithe, Chaitanya S Rao, J. Kavya. "Machine Learning Based approach to Image Description for the Visually Impaired", 04 October 2021 IEEE Xplore.

READING WITHOUT SEEING - ANTARCHAKSHU

Conducted by: AI&ML Department

Date::04-July 2022 to 08-July 2022

Time: 9:30 AM TO 11 AM

Target audience:4th Sem CSE Students and CSE(AI&ML) Students

Antarchakshu is a Sanskrit word which means 'The Eye Within'. During the session, Mr Krishna Warriar conducted an Immersion Workshop on Disability where he simulated blindness in order to get an insight into the lives of persons with visual impairment. Reading Without Seeing (RWS) is an exhibition on access technology for blind and low-vision persons. Antarchakshu Season 4 is supported by Dhun Pestonji Parakh Discretionary Trust, Godrej Industries Ltd, Union Bank of India, SBI Mutual Fund, Lila K Jagtiani Foundation, Lawrence & Mayo, The Mendonsa Foundation, Viviana Mall, and TATA Sons Pvt Ltd. It was a very interactive session and all the participants were given certificates.



CYBER CRIMES – AN OVERVIEW



Resource Person : Prof. Sitaram Yaji, Professor/ECE NMIT, Yelahanka

Date::04-July 2022 to 08-July 2022

Time: 9:30 AM TO 11 AM

The participants of this event include Dr.MK Banga, Dean R & D, Dr.Girisha GS Professor & Chairperson of CSE, more than 10 faculty members and 59 first year B.Tech. students.

The session started with the invocation song by Dr.Renuka Devi MN, Asst. Professor, CSE Dept., DSU and welcome speech is given by Ms. Soumya Raj, First year B.Tech.- CSE student. Then Dr.Jayavrinda Vrindavanam, Professor & Chairperson, Department of AI & ML, DSU, introduced the speaker to the audience. The speaker Prof Sitaram Yaji delivered his speech for one hour and QA session held for ten minutes. The memento was given to the speaker by Honourable Dean R & D- Dr. MK Banga. Finally the vote of thanks is delivered by Mr.Abhijeet Gupta, First year B.Tech. CSE student. Mr. Shasank, first year B.Tech. CSE student acted as anchor for the full program.

The speech covered the following things: Definition of cybercrime and its impact; kind of cybercrimes such as Women / Child related crime, Online financial frauds, Online job fraud, Debit / Credit card fraud, etc.; the ways and methodologies to report the cybercrime; Laws and acts related cybercrime and cyber security; investigation process carried out in case of cybercrimes; preventive measures and significance of cyber security; motivated the students to concentrate on cyber security by explaining its scope.

STUDENTS ACHIEVEMENTS



Mr. Dhanush (4th semester AI&ML student) started a startup named Formi and is the product head of the company. built an apparel brand with a team of 3 at the age of 17. They have launched the line on online marketplaces like amazon and flipkart and it was marketed through instagram.

The logo for 'formi' is displayed in a stylized, lowercase font. The letters are in a vibrant pink color, with a blue-to-purple gradient on the 'mi' part. The background is a solid dark blue.

Mr Harshavardhan Gupta(4th-semester AI&ML) won FIRST PLACE in IT Start-up Ideas competition at the National level intercollegiate technical fest 2 , organized by St. Francis College, Koramangala.



Mr. Sayam Adesh Runwal (2nd semester AI&ML) have got 2nd prize in for coding Competition named Tech-Tonic Event Organised by Jain University

Mr. Raj Kumar (AIML 4th sem)and Team won the Basketball tournament, Under the captaincy of Elton Derick .



Akshath Vijaykumar, ENG21AM004, CSE(AIML), 2nd Semester won the Consolidation Prize for the Painting and Slogan writing competition organised by CSE(CS) department of Dayananda Sagar University.

Mr. Rohan John Varghese secured 2nd place and got a cash prize for the music event, organized by Campus League, Viral Fission, on 7 August 2022, Bangalore.



Mr. Harshavardhan Gupta (4th semester AI&ML) won first place at aviation theme fashion walk.



Mr Karthik Pai of Semester 4th Semester student of AIML Department won the first prize in the colloquium competition.

Mr. Arham Asif Syed, ALML 4th semester won the third prize in FIFA 22 tournament organized by CSE-Data Science program.



Raye Haarika has published a research paper on the topic "Insect Classification Framework based on a Novel Fusion of High-level and Shallow Features" in ELSEVIER

FACULTY ACHIVEMENTS



Dr. Jayavrinda Vrindavanam
Professor & Chairperson
AI and ML Program
Department of CSE
SOE,DSU

- Resource person for the AICTE Sponsored FDP on “Recent Trends in AI” Rajendra MANA College of Engg and Technology, Maharashtra, 14/01/2022.
- Advisory Board Member of Medicon open access Journal, MC engineering 2021 Onwards.
- Reviewer IEEE Access and IEEE Conference section Bangalore and Mumbai IJRTSP, IJCA, IEEE, 2014 onwards.
- “Machine Learning Current Trends and Prospects”-Technical Talk as part of IEEE ITS Atria Student Branch Presents, Atria Institute of Technology, Bangalore.

Active research collaborations :

1. Anway Cancer Care (App for Cancer Patients).
2. Xavier's Resource Centre for the Visually Challenged, Mumbai (Image/Text Description for Visually Impaired).
3. Mahatma Gandhi Institute of Medical Sciences Wardha (a government medical college for study on prediction of non-communicable diseases).



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

- 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.



Dr.Arun Raman
Associate Professor
AI and ML Program
Department of CSE
SOE,DSU

- Paper titled "Programming Pedagogy and Assessment in the Era of AI/ML: a Position Paper" accepted in 15th annual ACM COMPUTE conference.
- Resource person in an FDP on Emerging trends in AI and blockchain conducted by Ramaiah University of Applied Sciences.
- Resource person in pan-India Certificate program for Faculty in Computer Science Education (AICTE approved for FDP credits) for the module on Introduction to Programming (in Python).
- Research Collaborators from IISC, ETH ZURICH and IBM research ZURICH.



Dr. Monika Goyal
Assistant Professor
AI and ML Program
Department of CSE
SOE,DSU

- Published paper in SCI Indexed Journal Imaging System and Technology (IMA), Wiley, IMA Journal, Wiley Publisher.
- Two Book Chapters Titled:
 - A Robust Model for Optimum Medical Image Contrast Enhancement and Tumor screening, accepted in Scopus Indexed Bentham Science Books, UAE.
 - Role of Artificial Intelligence in 3D Bone Image Reconstruction, Deep Learning for Healthcare Services Book, accepted in Scopus Indexed Bentham Science Books, UAE.



Roshni M Balakrishnan
Assistant Professor
AI and ML Program
Department of CSE
SOE,DSU

- Started PhD from Amrita University titled "Automatic evaluation of constructed formal language scripts using Deep Learning".

LEADING THE WAY

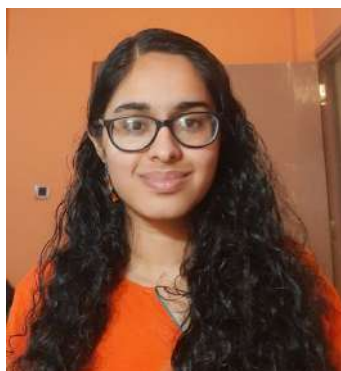
2ND SEMESTER TOPPERS

Jeevika M	9 SGPA
Juvvi Sai Akshitha	9 SGPA
Sayli Pankaj Bande	8.77 SGPA
Kunjan Kumar Singh	8.55 SGPA



4TH SEMESTER TOPPERS

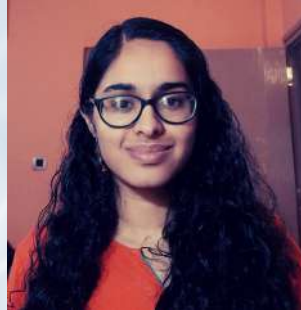
Gopika Jayadev	9.01 CGPA
Gourav Kamath	8.86 CGPA
Ivan Reni Varghese	8.84 CGPA



EDITORIAL COMMITTEE



Raye Haarika
5th semester
AI ML



Gopika Jayadev
5th semester
AI ML



Anuj Dwivedi
3rd semester
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