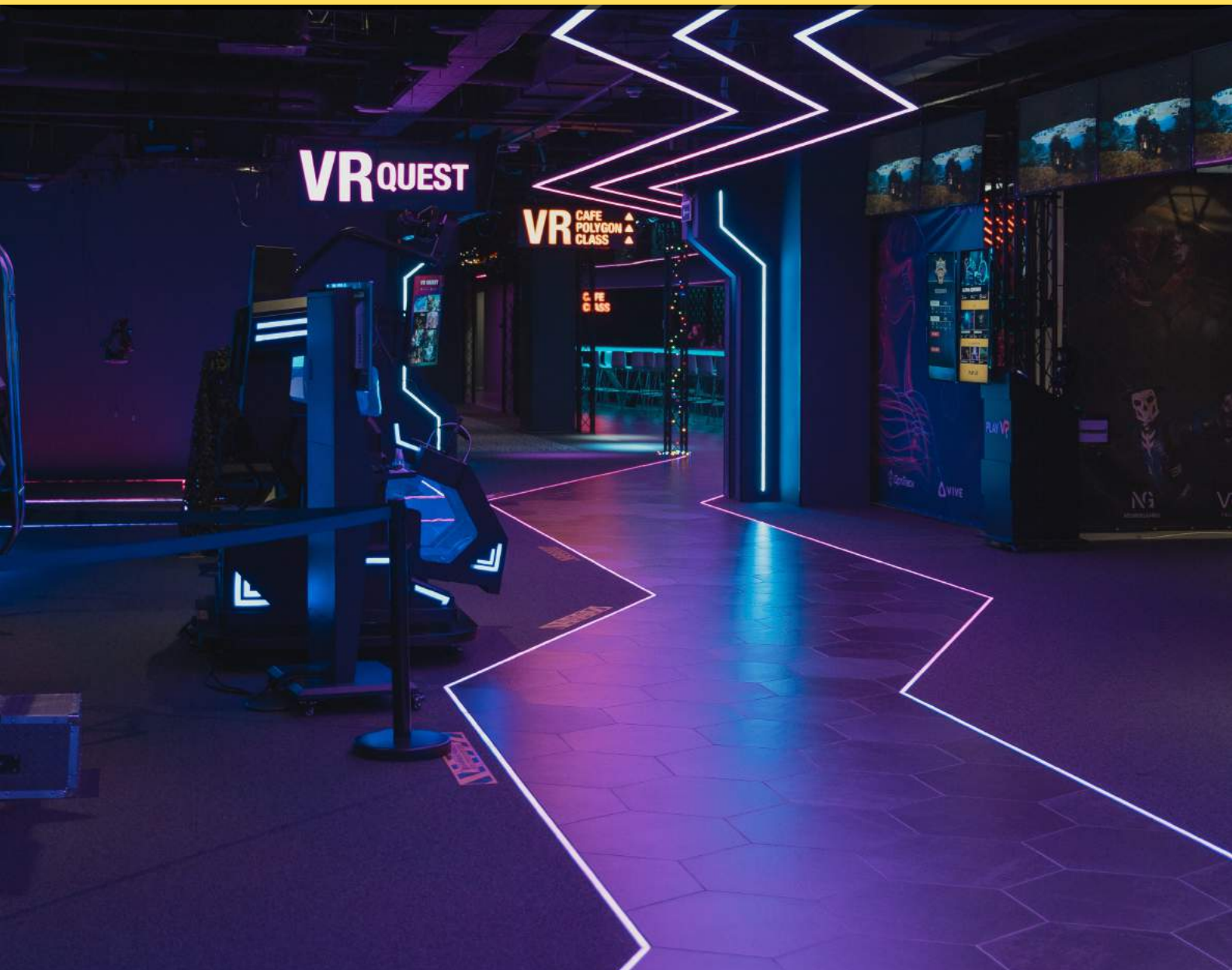




DAYANANDA SAGAR UNIVERSITY
SCHOOL OF ENGINEERING
DEPARTMENT OF CSE (AI & ML)



ML - INSIDER



OFFICIAL NEWSLETTER OF CSE (AI & ML) DEPT.



**DAYANANDA SAGAR UNIVERSITY
SCHOOL OF ENGINEERING
DEPARTMENT OF CSE (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.



**DAYANANDA SAGAR UNIVERSITY
SCHOOL OF ENGINEERING
DEPARTMENT OF CSE (AI & ML)**



DEAN'S MESSAGE



Dr. Udaya Kumar Reddy K R
Dean, School of Engineering, DSU

**BE YOU
BE THE DIFFERENCE!!!**

Welcome to the new way of learning at School of Engineering (SoE) of Dayananda Sagar University (DSU). At SoE, we are committed to helping you to make a positive difference in the world.

We at SoE are immensely proud to provide all of our students with an outstanding education that equips them with the skills, experience, and confidence required to stand out from the crowd. The School promotes Culture of Excellence including the culture of Interdisciplinary, Research, Creativity, Innovations, and Entrepreneurship on various Cutting-Edge Technologies. We at SoE, provide the World-Class Education that is Student-centric, Research-centric, and Educational space where all of our students will have a transformative education, learn to be independent critical thinkers, be societally and ethically responsible, and to have a broad understanding of the world.

We value ability, not background, and we support all of our students to achieve their potential. We want you to enjoy your time here, confident that, upon completion of Engineering degree program under SoE, you will have the knowledge, expertise, and employability skills to set you on your chosen career path.

The decision you make about where to study is an extremely important one. I am pleased you are considering the School of Engineering at DSU, and hope that you choose to continue your education with us.

BEST WISHES !

Dr. Udaya Kumar Reddy K R
Dean, School of Engineering



**DAYANANDA SAGAR UNIVERSITY
SCHOOL OF ENGINEERING
DEPARTMENT OF CSE (AI & ML)**



CHAIRPERSONS'S MESSAGE



Dr. JayaVrindaVanam V
Dean, School of Engineering, DSU

Department of Computer Science & Engineering(Artificial Intelligence and Machine Learning)
Welcome to the Department of Computer Science & Engineering(Artificial Intelligence and Machine Learning), School of Engineering at Dayananda Sagar University!

Machines that can think, act and develop data stories – this statement could have been a fiction or a fantasy a few years back. Thanks to the recent advances and developments in store, AI and ML, the world of old fiction has been profoundly altered and dynamically modeled to make the machines to think and act. This is the context in which we are announcing with pleasure the introduction of a dedicated program for Artificial Intelligence and Machine Learning at Dayananda Sagar University, School of Engineering. To cater the aspirations of the students as well as industry, the CSE Department is offering a UG program in Artificial Intelligence and Machine Learning. Our aim is to provide a high-quality, industry ready engineering education to our students with adequate hands-on experience.

Faculty members have expertise in the areas of Machine Learning, Artificial intelligence, Robotics, Cognitive Robotics, Image processing, Pattern recognition, Computer Vision, Deep Learning and Natural language processing and are involved in active research. This program looks forward to contributing in solving technological challenges of the society with active participation from all sections of the society. Thank you for visiting us.

Jan - Apr 2023

Volume 01 Issue 03



DAYANANDA SAGAR UNIVERSITY
SCHOOL OF ENGINEERING
DEPARTMENT OF CSE (AI & ML)



DEPARTMENT

ARTICLES

Flask in Dev-Ops ~ The future of webapps lie in Python frameworks



Throughout my journey in Artificial Intelligence with Python , once i stumbleed on flask and I never stopped utilizing it in my projects, I have till date built 22 original and well-built webapps with Flask . Flask is a powerful web development framework that is gaining popularity for its ease of use and scalability. With its modular architecture and extensive library of extensions, One of the key advantages of Flask is its ability to scale to meet the demands of even the most complex web-based applications. With features such as lightweight routing, request and response object handling, and flexible template rendering,

Flask can be used to build high-performance web applications that are responsive and scalable. In addition to its scalability, Flask is also fast becoming one of the most popular web development frameworks on the market. Thanks to its ease of use and growing community of developers, Flask has quickly become a go-to choice for many developers looking to build web-based applications in Python. Python, in turn, is widely regarded as one of the best programming languages for web development due to its simplicity, flexibility, and extensive library of packages. By combining the power of Python with the speed and scalability of Flask, developers can quickly build and deploy web-based applications that meet the needs of even the most demanding users.



Flask is rapidly becoming the go-to choice for developers looking to build high-performance web applications in Python. Despite its many advantages, however, Flask is not without its challenges. Overall, Flask is an excellent choice for developers looking to build fast, scalable, and highly customizable web-based applications in Python. Flask is sure to remain a top choice for web developers for years to come.



Anuj Dwivedi
Student - AI & ML

Check out my Flask projects here :

[Click to know more](#)



How Artificial Intelligence is Revolutionizing the Way We Communicate: A Look at GPT Chat

Artificial Intelligence (AI) has come a long way since its inception. Today, it is one of the most rapidly growing fields in the world, with limitless potential for innovation and development. One of the most promising applications of AI is in the field of natural language processing (NLP), which has given rise to the development of GPT chat.

What is GPT Chat?

GPT stands for "Generative Pre-trained Transformer," which is a type of AI language model developed by OpenAI. The primary purpose of GPT models is to generate human-like text, which can be used for a variety of applications, including chatbots.

GPT chat is essentially a chatbot that uses a GPT model to generate responses to user input. The chatbot is pre-trained on a vast corpus of text, which allows it to generate responses that are both coherent and contextually relevant.

Advantages of GPT Chat

One of the most significant advantages of GPT chat is its ability to understand and respond to natural language input. This means that users can communicate with the chatbot in the same way they would communicate with another person, without having to use specific commands or keywords.

Another advantage of GPT chat is its ability to learn and adapt to user input over time. As users interact with the chatbot, it can learn from their responses and improve the quality of its own responses, making it an incredibly powerful tool for customer service and support.

The Future of GPT Chat

The potential applications of GPT chat are vast and varied, from customer service and support to virtual assistants and even psychotherapy. As the technology continues to evolve, we can expect to see more and more businesses and organizations adopting GPT chat as a way to improve their communication with customers and clients.

Conclusion

AI and GPT chat are revolutionizing the way we communicate, making it easier and more natural than ever before. With the ability to understand and respond to natural language input, GPT chat is a powerful tool for businesses and organizations looking to improve their customer service and support. And as the technology continues to evolve, the possibilities for its use are endless.



Darshan Anand
Student - AI & ML



Automated Video Editing Unleashed by Artificial Intelligence



Once upon a time, in the bustling world of video editing, I found myself tirelessly sifting through hours of footage, meticulously piecing together each frame to create a captivating story. As a passionate filmmaker, I loved the artistry of the editing process but yearned for a way to make it more efficient. Little did I know that my quest for a breakthrough would lead me to the realm of Artificial Intelligence (AI) and automated video editing. With the rise of deep learning algorithms and computer vision techniques, AI had infiltrated the realm of video editing. Algorithms were trained to understand the structure, composition, and narrative flow of videos, enabling them to automate various editing tasks. This newfound technology had the potential to transform the way videos were crafted, opening doors to unimaginable possibilities. Eager to witness this technological marvel in action, I embarked on a journey to explore the cutting-edge AI-powered video editing tools. I discovered a revolutionary software that harnessed the power of AI to analyse and understand video content, selecting the most impactful moments, and seamlessly stitching them together. The software could intelligently detect scene transitions, adjust video speed, and even suggest suitable music and sound effects. As I experimented with the software, I was astounded by its capabilities. It seemed to possess an innate understanding of storytelling, able to identify key emotional beats and create a visually stunning narrative flow. With a few clicks, it effortlessly transformed hours of raw footage into a polished masterpiece.

The implications of automated video editing were awe-inspiring. Filmmakers and content creators could now focus more on their creative vision, spending less time on repetitive editing tasks. This breakthrough would democratize the art of video editing, allowing aspiring filmmakers with limited resources to produce high-quality content. But what does the future hold for automated video editing? As technology advances, we can expect AI to become even more sophisticated in understanding context, emotion, and audience preferences. Imagine a world where AI algorithms can analyse viewer reactions in real-time, adjusting the video dynamically to maximize engagement. Personalized video editing experiences tailored to individual preferences may soon become a reality. Furthermore, the collaboration between human creativity and AI-powered automation could lead to unparalleled results. Filmmakers will have the opportunity to leverage AI as a creative partner, suggesting novel approaches, experimenting with unique visual styles, and pushing the boundaries of storytelling. As I reflect on my journey from traditional video editing to the realm of AI-driven automation, I can't help but be filled with excitement and anticipation. Automated video editing using artificial intelligence is poised to revolutionize the industry, forever changing the way we create and consume visual content. It is a testament to human ingenuity and the incredible potential of technological advancements. So, prepare to embrace the future. Automated video editing, guided by the brilliance of AI, will unlock new realms of creativity, empowering us to tell stories that captivate, inspire, and resonate with audiences around the world. In this era of automation and artificial intelligence, the future of video editing has never been brighter. Let us embrace this transformative technology and usher in a new golden age of visual storytelling.



Harsh Manalel
Student - AI & ML



Artificial Intelligence In Space

AI is used during the take-off and landing of spacecraft to automate engine operations and manage functions such as deploying landing gear. This helps to optimize the use of fuel



SpaceX uses an AI autopilot system to enable its Falcon 9 craft to carry out autonomous operations, such as docking with the International Space Station (ISS), where it is contracted to carry out cargo deliveries for NASA. The system

calculates the trajectory of the rocket through space, taking into account fuel usage, atmospheric interference, and "sloshing" from liquids within the engine. SpaceX uses AI algorithms to ensure that its satellites don't collide with other orbital or transitional objects in space. Their autonomous navigation systems enable them to detect nearby hazards in real-time and take evasive action by adjusting the speed and trajectory of the satellite.

CIMON 2 is a robot designed by Airbus and can be thought of as a mobile, Amazon Alexa-style virtual assistant for astronauts in space. Built using IBM's Watson AI system, it navigates using fans to propel itself within spacecraft

interiors and acts as a hands-free information database, computer, and camera. It can even assess astronauts' emotional states by analyzing stress levels in voices.

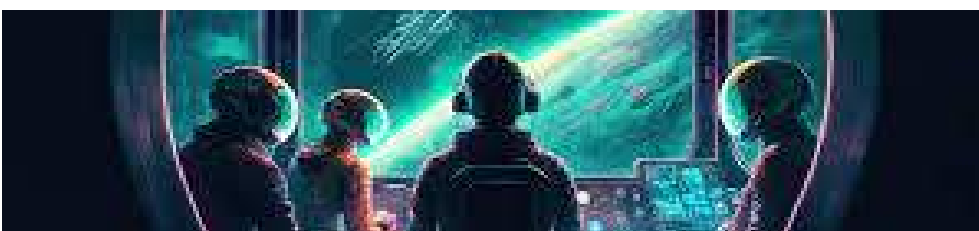
Charting the Cosmos

- Astronomers use AI to map the universe by recognizing patterns in star clusters that form distant nebulae and classifying other features that are detected in deep space.
- AI is also used to predict the behavior of stars and galaxies, helping to understand where cosmic events such as supernovae are likely to occur.
- Dozens of black holes have been detected using time series analysis of ripples in gravitational waves that are caused when these mysterious objects collide with neutron stars.

The SETI@Home project, run by the **University of California, Berkley**, is using AI algorithms to search for signs of extraterrestrial intelligence among the huge volumes of radio telescope data collected from space.

AI was used to construct the **most accurate images so far of a black hole**. Roger Penrose, Reinhard Genzel, and Andrea Ghez received a Nobel Prize in 2020 for their work constructing realistic images of the supermassive black hole at the center of galaxy M 87.

It's even hoped that AI will help with measuring the universe and gaining a better understanding of its size and shape. Research carried out on astronomical data in Japan using AI supercomputers has successfully created simulated maps that match the universe that we already know to exist. This means we can predict features of the universe beyond the limitations of what we can currently see due to the speed of light (observable universe).



Harika Gandiboina
Student - AI & ML

BREAKING BOUNDARIES: AI IN ACTION FOR CONTENT CREATION

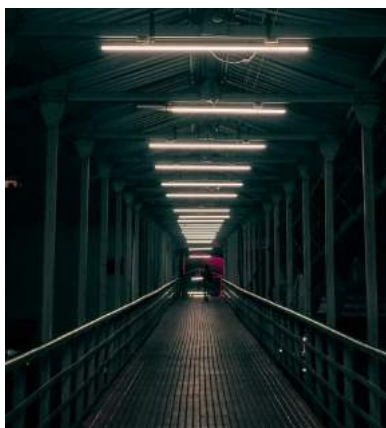


In today's fast-paced digital world, content creation has become essential. As a photographer, videographer, and video editor, I understand the challenges of producing unique content daily. However, with the help of Artificial Intelligence (AI), I have discovered a game-changing solution that saves time and boosts productivity.

AI revolutionizes content creation by automating image and video analysis. Its algorithms identify crucial elements like objects and composition, empowering creators to make informed decisions that enhance the quality of their work. With AI as my guide, I can efficiently capture the best shots and angles, resulting in visually appealing content. The editing process is no longer a tedious task, thanks to AI. It swiftly analyzes and categorizes content, making it easier to select captivating shots and sequences. Additionally,

AI algorithms suggest suitable editing styles, saving creators hours of experimentation. This newfound efficiency allows me to focus on my creative vision and deliver content that resonates with my audience. AI's impact extends to social media content creation. By analyzing user preferences and trends, AI algorithms provide valuable insights that help tailor content to the audience's tastes. Harnessing the power of AI enables me to identify emerging trends and create engaging content with maximum reach.

As content creators, we must embrace AI's potential while acknowledging that it complements human creativity rather than replacing it. The symbiotic relationship between human creativity and AI technology opens up endless possibilities for the future. In conclusion, integrating AI into content creation offers immense benefits. AI streamlines the creative process by providing insights, automating tasks, and improving audience engagement. By embracing AI, content creators can unlock their full potential and shape the future of content creation



Ayush Agarwal
Student - AI & ML

The Intelligent Oasis: Enhancing Farming Efficiency with IoT-Enabled Soil Moisture Sensor-Controlled Irrigation System

In the pursuit of sustainable and efficient agriculture, the project "The Intelligent Oasis" by 6th-semester students Gaurav Kamath, Shakya Pulkit Singh, and Yash Mahesh Narule from Computer Science and Engineering (Artificial Intelligence and Machine Learning) Department, Dayananda Sagar University aims to optimize irrigation practices using an IoT-enabled soil moisture sensor-controlled system. By continuously monitoring soil moisture levels, this innovative solution empowers farmers to conserve water, improve crop yield, and reduce manual effort. The system deploys sensors strategically across the farming area to measure moisture levels in real-time. This data enables informed decision-making regarding irrigation scheduling, ensuring crops receive the necessary amount of water. When soil moisture drops below a threshold, the system triggers an automated response, activating a water pump to irrigate the field until optimal moisture levels are reached.

This intelligent automation eliminates guesswork, saving time and resources while promoting efficient water usage. To enhance convenience, the Intelligent Oasis system incorporates notifications that provide timely alerts to farmers' smartphones or devices. These notifications keep farmers informed about irrigation status and soil moisture conditions, enabling them to take prompt action, even remotely. Real-time information and proactive decision-making empower farmers to effectively manage their crops. Implemented by talented students at Dayananda Sagar University, the Intelligent Oasis project showcases the potential of young minds to revolutionize agriculture with technology.

This integration of IoT, soil moisture sensors, and automated irrigation control demonstrates the practicality and effectiveness of the solution. The project serves as a proof-of-concept for further development, including features such as weather forecasting integration, crop-specific irrigation recommendations, and remote monitoring capabilities in future iterations.



Figure 1: Images of the prototype

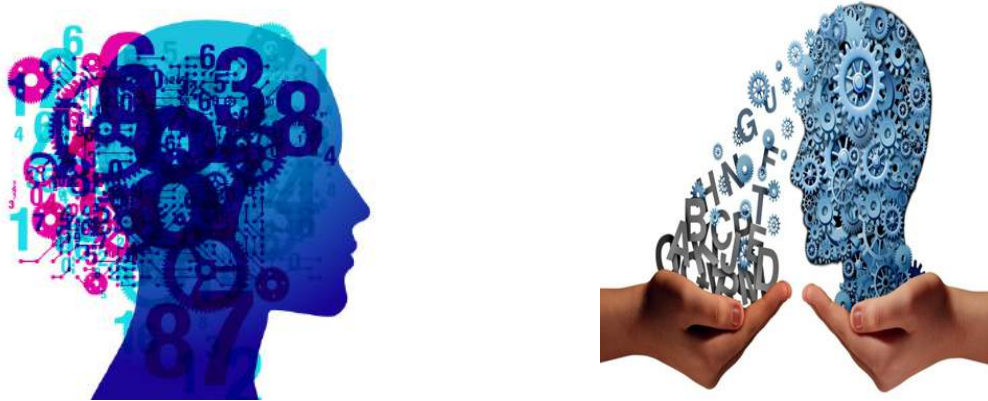
Gaurav Kamnath
Student - AI & ML



Generative AI

Generative AI refers to deep-learning models that can generate high-quality text, images, and other content based on the data they were trained on.

Artificial intelligence has gone through many cycles of hype, but even to skeptics, the release of ChatGPT seems to mark a turning point. OpenAI's chatbot, powered by its latest large language model, can write poems, tell jokes, and churn out essays that look like a human created them. Prompt ChatGPT with a few words, and out comes love poems in the form of Yelp reviews, or song lyrics in the style of Nick Cave.



Generative AI refers to deep-learning models that can take raw data – say, all of Wikipedia or the collected works of Rembrandt – and “learn” to generate statistically probable outputs when prompted. At a high level, generative models encode a simplified representation of their training data and draw from it to create a new work that’s similar, but not identical, to the original data.

Generative models have been used for years in statistics to analyze numerical data. The rise of deep learning, however, made it possible to extend them to images, speech, and other complex data types. Among the first class of models to achieve this cross-over feat were variational autoencoders, or VAEs, introduced in 2013. VAEs were the first deep-learning models to be widely used for generating realistic images and speech.

Until recently, a dominant trend in generative AI has been scale, with larger models trained on ever-growing datasets achieving better and better results. We can now, estimate how powerful a new, larger model will be based on how previous models, whether larger in size or trained on more data, have scaled. Scaling laws allow AI researchers to make reasoned guesses about how large models will perform before investing in the massive computing resources it takes to train them.

Generative AI holds enormous potential to create new capabilities and value for enterprise. However, it also can introduce new risks, be they legal, financial or reputational. Many generative models, including those powering ChatGPT, can spout information that sounds authoritative but isn’t true (sometimes called “hallucinations”) or is objectionable and biased. Generative models can also inadvertently ingest information that’s personal or copyrighted in their training data and output it later, creating unique challenges for privacy and intellectual property laws.



Prof. Pradeep Kumar K
Assistant Professor



Dr. Monika Goyal
Assistant Professor

Why the Big Future of Machine Learning Is Tiny

Why Tiny ML is a cutting-edge field that applies machine learning (ML transformative)'s power to the performance- and power-constrained domain of tiny devices and embedded systems. Tiny ML appears to have a bright future, and the versatility and cost-effectiveness of Tiny ML systems suggest that machine learning's biggest footprint in the future may be through Tiny ML.

TinyML or Tiny Machine Learning is one of the fastest-growing fields of machine learning. It sits right at the intersection of embedded systems, algorithms, and computing hardware. Tiny ML is all about on-device machine learning right at the endpoint where the data resides, and it is fundamentally different from running machine learning in big data centers or in the cloud.

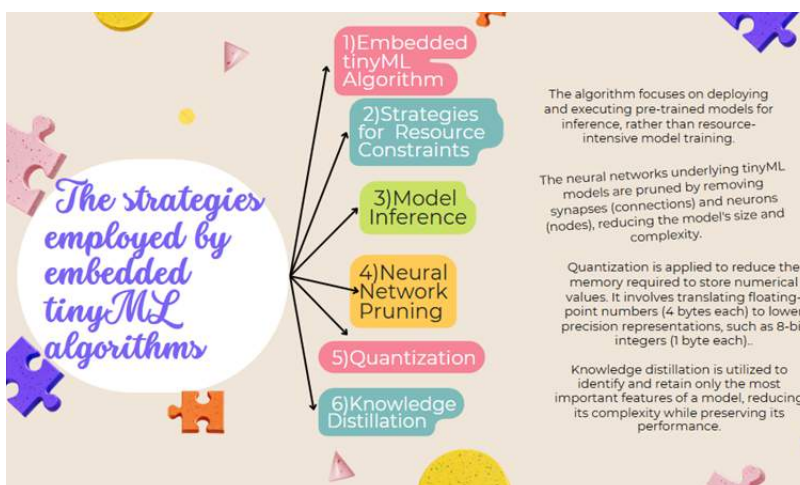
Do you know what happens when you say, OK Google? You already know and take for granted some existing applications with Tiny ML. For instance, when you say, hey Siri, OK Google, or hey Alexa, you're seeing Tiny ML in action. But those applications are just the tip of the iceberg. Tiny ML has many different use cases ranging from smart home appliances to medical devices, and it has applications even in wildlife conservation. We're just beginning to explore the full capabilities of Tiny ML. Imagine what we could do if there were smart, ideally biodegradable machine learning sensors everywhere.

What is the significance of Tiny ML? Tiny ML is essential in bridging the gap between IoT devices and the machine learning community. The technology has the potential to alter how IoT devices interact and process data. Traditionally, IoT devices supplied data to the cloud, where machine learning models were hosted and inferences and insights were provided. Tiny ML allows machine learning models to be deployed on IoT devices for inference and insight without transferring data to the cloud.

How tinyML works? In order to work within the significant resource constraints imposed by tinyML, embedded tinyML algorithms adopt the following strategies:

In summary

- TinyML is an emerging area of machine learning which features low cost, latency, power, memory and connectivity requirements, and is adding value in a range of applications
- Given its resource constraints and in-the-field deployment, tinyML systems are typically used for inference of pre-trained machine learning models
- Machine learning algorithms are embedded into tinyML systems, and they adapt to the resource constraints through pruning, quantization and knowledge distillation of conventional algorithms
- TinyML applications range from industrial predictive maintenance, agriculture, healthcare and conservation efforts, with many more potential applications possible in future
- The future of tinyML appears bright, and the versatility and cost-effectiveness of tinyML systems suggest that machine learning's biggest footprint may be through tinyML in the years to come.



By Ayain John,
Assistant professor
Department of AIML
Dayananda Sagar University



Streamlining Machine Learning with RapidMiner

Machine learning is crucial for data-driven decision-making, and RapidMiner simplifies the process. RapidMiner is a user-friendly platform with an intuitive GUI for creating complex data processing and modeling workflows. It accommodates users of all expertise levels. Auto Model automates model development, Turbo Prep simplifies data preprocessing, and the Stimulator evaluates model performance. RapidMiner's tools and features streamline data analysis, preprocessing, and model development, empowering organizations to extract insights and drive innovation.

Auto Model: Automating Model Development

One of the standout features of RapidMiner is Auto Model. This functionality automates the arduous process of model building, eliminating the need for manual parameter tuning and extensive coding knowledge. With Auto Model, users can easily generate and compare multiple machine learning models based on their specified target variable and evaluation metric. This streamlines the modeling process and allows users to identify the best-performing model swiftly, saving time and effort.

Turbo Prep: Simplifying Data Preprocessing

Turbo Prep, another essential component of RapidMiner, simplifies data preprocessing and cleansing tasks. This feature provides a visually interactive interface that empowers users to explore and transform their data effortlessly. Turbo Prep facilitates tasks such as handling missing values, detecting outliers, converting data types, and performing feature engineering. Its intuitive drag-and-drop functionality enables users to manipulate and transform their data without the need for intricate coding. By enhancing data quality and format, Turbo Prep ensures that the input for machine learning models is accurate and reliable.

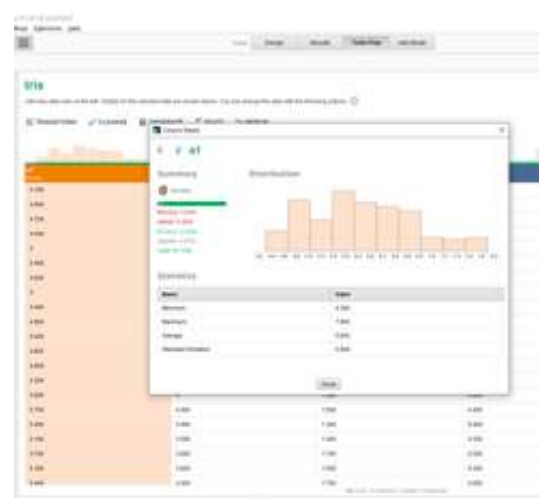
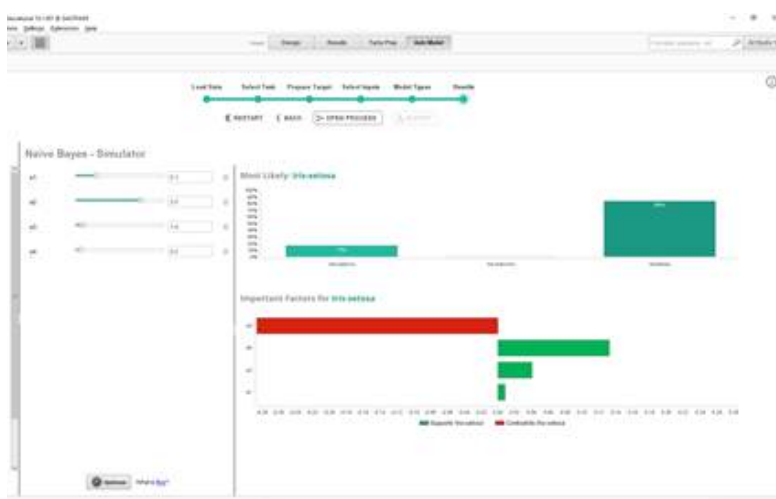
Simulator: Accelerating Model Performance Evaluation

RapidMiner's Simulator feature enhances model development by accelerating performance evaluation. It enables users to simulate different scenarios and assess the impact on model outcomes. By altering various parameters, users can gauge the sensitivity of their models to different inputs and evaluate their robustness. The Stimulator empowers users to make informed decisions regarding model selection and optimization, providing valuable insights into the behavior and performance of machine learning models.

Conclusion:

RapidMiner is a valuable platform that simplifies and accelerates the data analysis and modeling process for organizations. With its features like Auto Model, Turbo Prep, and Stimulator, RapidMiner automates model development, streamlines data preprocessing, and allows for scenario simulation. This empowers users to extract valuable insights and make data-driven decisions confidently. RapidMiner remains at the forefront of machine learning advancements, providing an intuitive and powerful solution for users of all levels of expertise. By leveraging the capabilities of Auto Model, Turbo Prep, and Stimulator, organizations can unlock their data's full potential and drive their business forward in the age of data-driven decision-making.

Gautham Raj S,
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Ambient Computing: The Future of Seamless Connectivity



In today's digital era, technology continues

to evolve rapidly, transforming the way we live, work, and learn. One such groundbreaking advancement is ambient computing, which aims to create a seamless and intelligent network of interconnected devices that anticipate and respond to our needs. In this article, we delve into the world of ambient computing, exploring its potential applications, benefits, and the impact it may have on college campuses.

Ambient computing, also known as ubiquitous or pervasive computing, revolves around the idea of integrating technology seamlessly into our surroundings. It involves an interconnected ecosystem of smart devices, sensors, and intelligent software that collaboratively work to enhance our daily experiences. Rather than relying on individual devices or applications, ambient computing envisions an environment where technology fades into the background, seamlessly assisting us in our day-to-day activities.

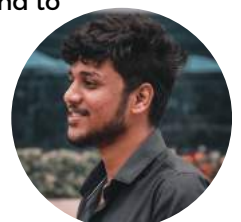
Benefits of Ambient Computing in Education:

- **Seamless Connectivity:** Ambient computing creates a connected ecosystem where devices and applications seamlessly communicate with each other. This ensures a smooth and efficient flow of information, enabling students and educators to access resources, collaborate, and share knowledge effortlessly.
- **Enhanced Productivity and Efficiency:** By automating routine tasks and providing intelligent recommendations, ambient computing frees up time and mental energy, allowing students and faculty to focus on more meaningful and creative endeavors.
- **Personalization and Adaptive Learning:** Ambient computing can provide personalized learning experiences, catering to individual preferences, strengths, and weaknesses. This promotes student engagement, motivation, and better learning outcomes.
- **Improved Campus Experience:** Ambient computing technologies can enhance the overall campus experience, making it more convenient, secure, and engaging. From smart navigation systems and automated administrative processes to intelligent campus services, students can enjoy a more seamless and enjoyable college life.

While ambient computing offers exciting possibilities, it also presents challenges that need to be addressed. These include privacy concerns, data security, interoperability, and the potential for technology dependency. It is essential for colleges and universities to establish robust security protocols, prioritize data protection, and ensure transparent usage policies to mitigate these challenges effectively.

Ambient computing holds immense potential to revolutionize the educational landscape, enabling a seamless integration of technology into our everyday lives. As colleges and universities embrace this paradigm shift, they have the opportunity to create innovative and immersive learning environments, optimize campus infrastructure, and enhance the overall student experience. By carefully navigating the challenges and leveraging the benefits, the higher education sector can harness the power of ambient computing to foster a future where connectivity and intelligence seamlessly blend to support learning, collaboration, and growth.

Bharat Karegoudar
Student - AI & ML



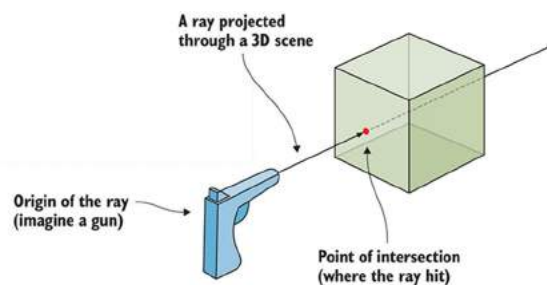
Simulation of ultrasound images from CT-SCAN

Simulation of ultrasound images is the process of artificially generating realistic ultrasound images. It is possible because of computer algorithms and generative artificial intelligence models.

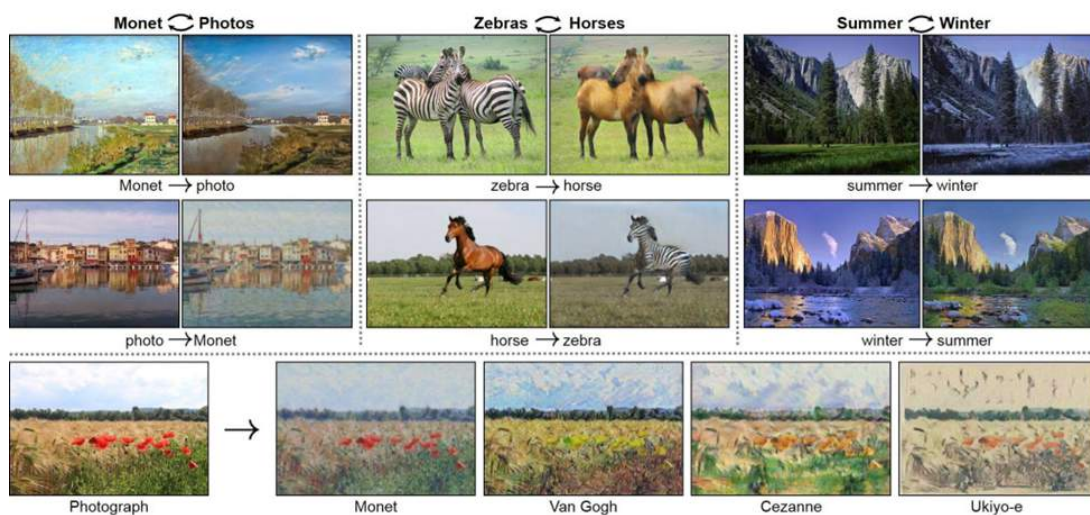
This is a very big advantage for training medical students and healthcare professionals in using ultrasound machines as there are no human test subjects required. It helps them develop and refine diagnostic skills in a controlled environment without any risk to patients. The problem of the shortage of medical image data to train AI models for medical applications is also solved. There are also ethical concerns when using real patient data for research and educational purposes which is also solved by generating synthetic images which mimic real data.

Previously, it was not possible to generate realistic ultrasound images but with the rise of image translation techniques like Cycle GAN, it is now possible to generate realistic-looking ultrasound images.

Ray casting algorithm is a fundamental technique in computer graphics. The process starts by shooting primary rays from a virtual camera then the collision point or intersection point of the ray with the object is detected and the properties of the object at the point of intersection are used to generate details about that point on the image. Secondary rays can be spawned at the point of intersection to simulate the reflection and refraction properties of light waves.



Cycle GAN is a deep learning generative adversarial network that is used for image-to-image translations. Finding a large number of paired image data in medical applications is almost impossible. The specialty of Cycle GAN is that we can use unpaired image data for training. Cycle GANs learn to map the probability distribution(style) of the source domain to the target domain while preserving the structure or shapes in the source domain.



Then convert the CT scan of the abdomen into a 3d model then use this 3d model in ray casting algorithm to generate an intermediate representation of the ultrasound image then train the cycle GAN model to generate realistic ultrasound images.



Dr. Monika Goyal
Assistant Professor



Prof. Pradeep Kumar K
Assistant Professor

Jan - Apr 2023

Volume 01 Issue 03



DAYANANDA SAGAR UNIVERSITY
SCHOOL OF ENGINEERING
DEPARTMENT OF CSE (AI & ML)



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ACTIVITIES



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E-COMMERCE STORE, EBOOKZZ.

Students from 3rd sem B.Tech AIML have launched an e-commerce platform “ebookzz”. Response to access this e commerce has been overwhelming.

This website offered a wide variety of ebooks and other products related to the current trend. The website is user-friendly and easy to navigate, making it easy for customers to find what they are looking for.

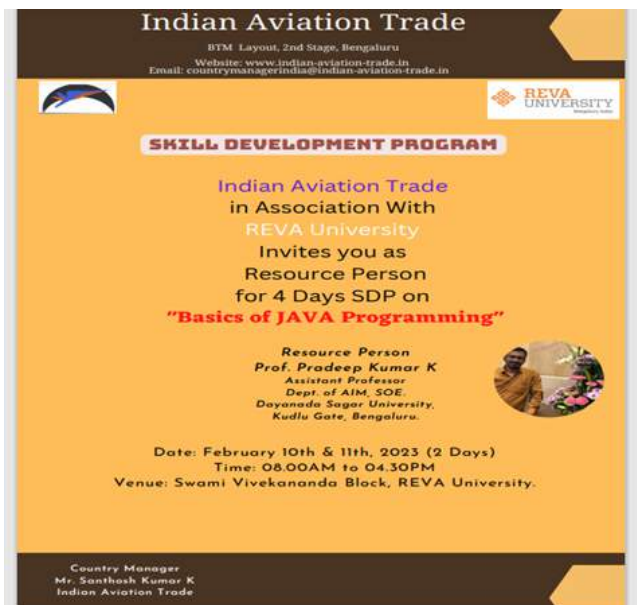
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- **Divith BS** - 4th sem - ENG21AM0035
- **Harsh Manalel** - 4th sem - ENG21AM0046

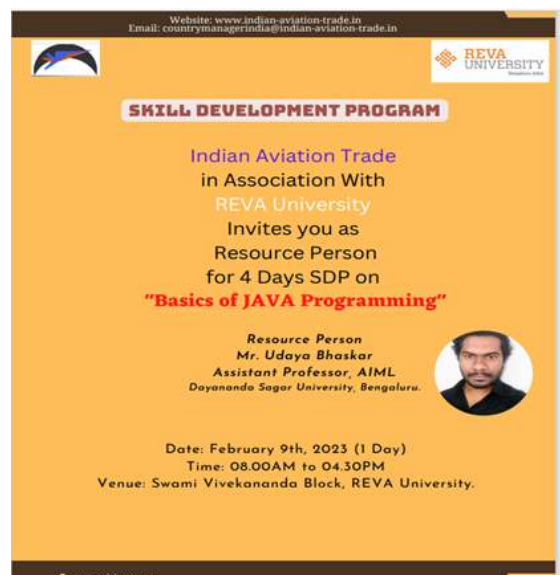
• **Prof. Pradeep Kumar Attended a offline talk on AI/ML-NextGen Solutions**

Interactive Session at XIME, E-City. Prakash “Krish” Krishnaswamy (CEO Xitadel Group) has highlighted points on The Mobility industry having huge evolving opportunity for India, as the future vehicles are “Computers on Wheels” and are essentially Software Defined Vehicles (SDVs). This talk also continued with an example of leapfrogging opportunity for India to establish a position of leadership!





- **Prof. Pradeep Kumar & Prof. Udaya Bhaskar has been invited as Resource Persons** for Skill Development Program organized by Indian Aviation trade to deliver talk & hands on session "Basic JAVA Programming" in REVA University from 8th Feb 2023 to 11th Feb 2023.





- **Altair RapidMiner:** A well-established desktop, new-gen SaaS Cloud based platform, and new-to-market cloud platform (multi-tenant and SaaS ready) strengthens Altair's current end-to-end data analytics (DA) portfolio, which offers customers the power to understand, transform, act on, and automate their data.
- **Descriptive Data Analysis** (Business Intelligence) : Visualization and Statistics
- **Data Preprocessing for Analytics:** Data Cleansing, Merging data from Different sources, Changing the shape of the data , grouping, Aggregating
- **Modelling & Deployment**
- **Rapidminer** - Overview: <https://lnkd.in/g8-Ti-8K> - Academic Version: <https://lnkd.in/gJWMkN9q>
- **Altair Compose:** An environment for doing math calculations, manipulating, and visualizing data, programming, and debugging scripts useful for repeated computations and process automation. Supports Python / R / OML
- **Altair Monarch:** A market leading desktop-based self-service data preparation solution. Monarch connects to multiple data sources including structured and unstructured data, cloud-based data, and big data. Connecting to data, cleansing and manipulating data requires no coding. Monarch can quickly convert disparate data formats into rows and columns for use in data analytics. Over 80 pre-built data preparation functions mean data preparation tasks can be completed quickly and error free. More time is spent on generating value from data as opposed to making data usable to begin with.
- **Altair Knowledge Studio:** A market-leading easy to use machine learning and predictive analytics solution that rapidly visualizes data as it quickly generates explainable results - without requiring a single line of code.
- **Web Ref:** <https://www.altair.com/data-analytics/>
<https://www.altair.com/machine-learning/>
- <https://www.youtube.com/watch?v=IMtIWiazhB0&list=PL82677A29B479D7D2&index=2>



RAPIDMINER

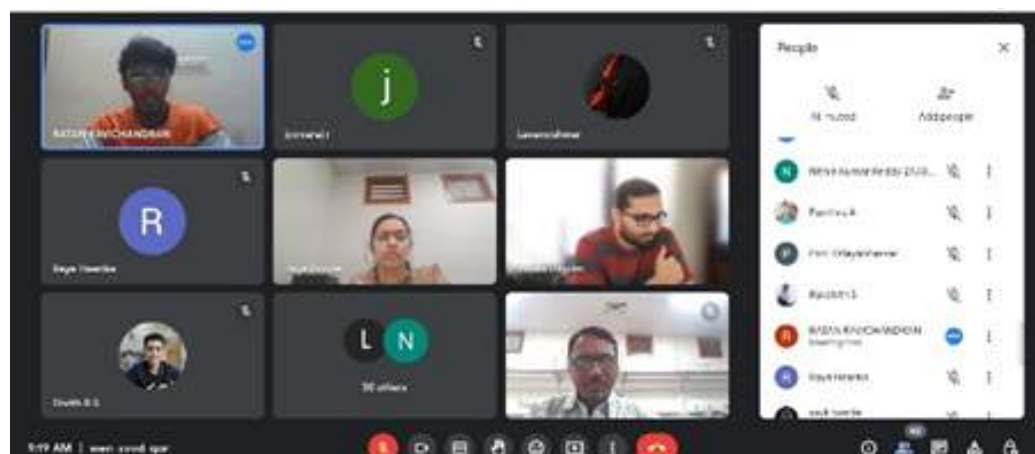


- **Talk on ChatGPT-the future of conversational internet on 17/02/2023 from 10.00AM to 11.30AM (online) for 6th sem AIML students by Mr. Harsh Singhal, Head of Machine Learning, Koo.**



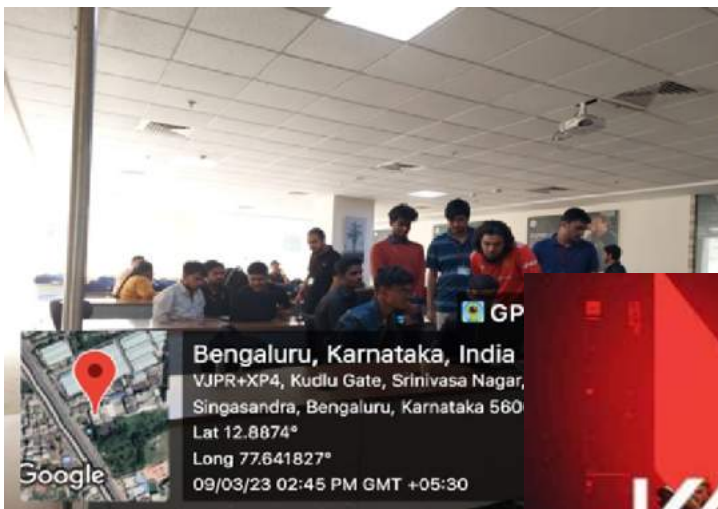


- **Talk on Contemporary Data Science and Introduction to Big Data with Spark**
- **Talk on Contemporary Data Science and Introduction to Big Data with Spark: Dr. Vijay Krishna Menon, Principal Data Scientist, KeepFlying™. has given a talk about Contemporary Data Science and Introduction to Big Data with Spark on 11th March 2023 students of 4th sem and 6th sem AIML students took the benefits of this talk**



- **“EA SPORTS FIFA2023 TOURNAMENT” Conducted by Kalakshetra@SOE On the Occasion of DSU Cultural Day Celebration.**

Department of Artificial Intelligence and Machine learning has organized “The FIFA 23 gaming event” which was a successful event that took place on 09/03/2023 at GE healthcare lab in A block first floor. The event aimed to provide a platform for gamers to showcase their skills and enjoy the FIFA 23 game.



- **“VALORANT TOURNAMENT” Conducted by Kalakshetra@SOE On the Occasion of DSU Cultural Day Celebration**

Department of Artificial Intelligence and Machine learning has organized “The Valorant gaming event” Which was a successful event that took place on 03/03/2023 . The event aimed to provide a platform for gamers to showcase their skills and enjoy the Valorant game. It featured 80 participants (16 teams), who were organized into brackets and played multiple matches using gaming Laptops . The event concluded with CarryFTW emerging as the champions with Raj Utso leading the team, with the final scores of each match and other statistics recorded

- **Code Crunch : 27/03/2023**

Department of Artificial Intelligence & Machine Learning has formulated an event “Coding- Crunch!!”. The event is exclusive planned to enhance the skills of AI Algorithm which is the core requirement for further endeavors to excel.

Presenting the most proficient technical event Coding-crunch ! This exclusive event is specially designed for students to showcase their coding and algorithm skills, and win exciting prizes.



Scan to know more

- **Career Guidance on NeoPAT Platform Demonstration**

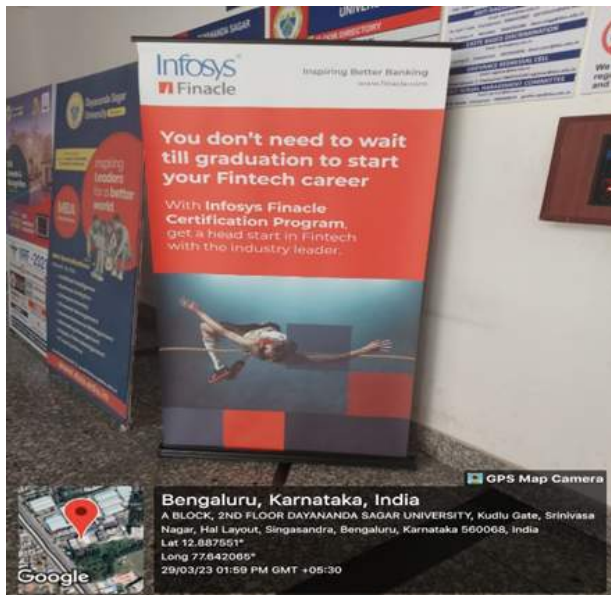
- In order to succeed in academic and professional endeavors, it is crucial to stay focused and up-to-date with the latest information in your field of study. To facilitate this, Dayananda Sagar University has created an exclusive group for the 2024 batch students, which will provide you with access to a wealth of valuable resources, including course details, new programs, toppers list, industry happenings, EdTech news, and most importantly, placement tips. 28th March 2023 Department of AIML Students took the advantage of this career guidance organized by NeoPAT.



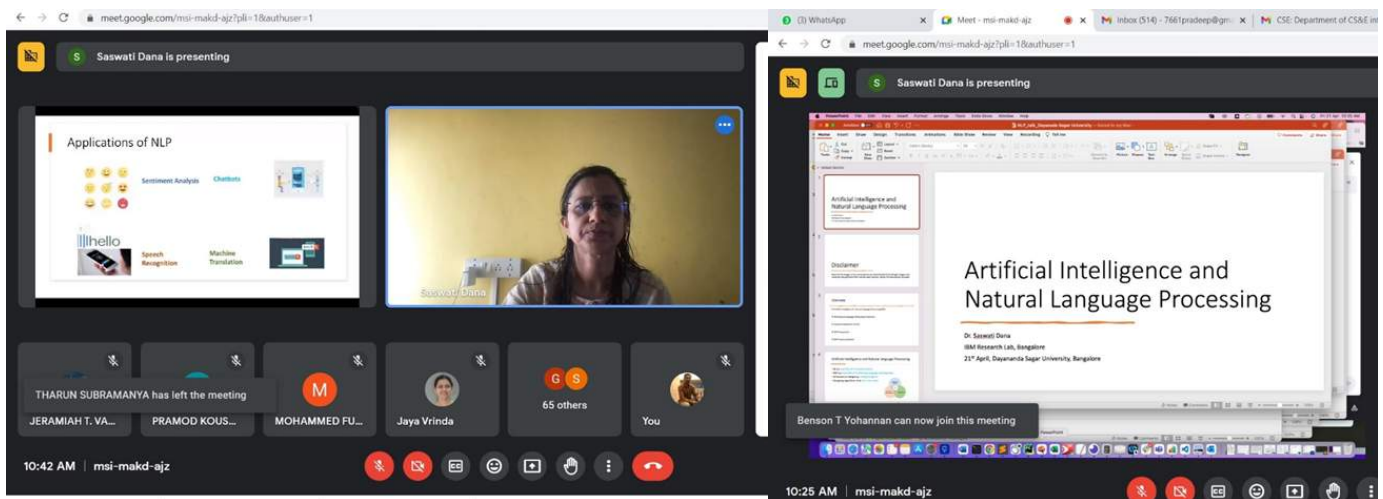
- **Career Guidance on EdgeVerve - Finacle Certification program session on 29th march 2023.**

Program Highlights,

- EdgeVerve will guide & train the students to clear the online test.
- Those who clear the online test and get selected, we undergo free training on the Full Stock Development / Finacle certification programme during the 6th & 7th Semester
- 3. Stipend paid is Rs. 15000 to 20000/- and CTC is 4 to 8 LPA (depending on job role)



- **Talk on Artificial Intelligence and Natural Language Processing**
- Talk on Artificial Intelligence and Natural Language Processing: Dr.Saswati Dana, Advisory Research Engineer,IBM. has given a talk about Artificial Intelligence and Natural Language Processing on 21th April 2023 students of 6th sem AIML students took the benefits of this talk



- **“Detection of Neurodegenerative Disorders- Techniques and Tools”
Talk by Dr. Vinutha N At Vivekananda college of Engineering Puttur
on 15/04/2023**
- Molecular diagnostics provide a powerful method to detect and diagnose various neurological diseases such as Alzheimer's and Parkinson's disease. The confirmation of such diagnosis allows early detection and subsequent medical counseling that help specific patients to undergo clinically important drug trials.

Jan - Apr 2023

Volume 01 Issue 03



DAYANANDA SAGAR UNIVERSITY
SCHOOL OF ENGINEERING
DEPARTMENT OF CSE (AI & ML)



STUDENTS

ACHIEVEMENTS

Student Achievements

Sindhu MG

Internship at IBM

- Duration : 3 months
- Skills acquired : Machine Learning with Python



Sindhu MG - 6 th Semester

Karthik Pai

Internship at Harting Pvt Ltd, Innovation Lab, IISc



Karthik Pai- 6 th Semester

Gaurav Kamath

Internship at Harting Pvt Ltd, Innovation Lab, IISc



Gaurav Kamath- 6 th Semester

Student Achievements

Raye Haarika

Internship at Harting Pvt Ltd, Innovation Lab, IISc



Raye Haarika- 6 th Semester

Gopika Jayadev

Internship at Harting Pvt Ltd, Innovation Lab, IISc



Gopika Jayadev- 6 th Semester

Baidik Ghosh

Internship at Microsoft.



Baidik Ghosh 6 th Semester

Student Achievements

Divith B S

- Successfully launched an e-store with thousand plus views and 50 + orders in one day.
- Co-founded Turing thoughts - a social media company which created over 70 pieces of content across various social media platforms
- Co-ordinated events like Enigma Quest and Code Crunch, a remarkable tech event engaging 26 teams from diverse fields and an algorithm Challenge



Co- Founder: Ebookz

Co- Founder: Turing Thoughts

DIVITH B S - 4 th Semester - ENG21AM0035

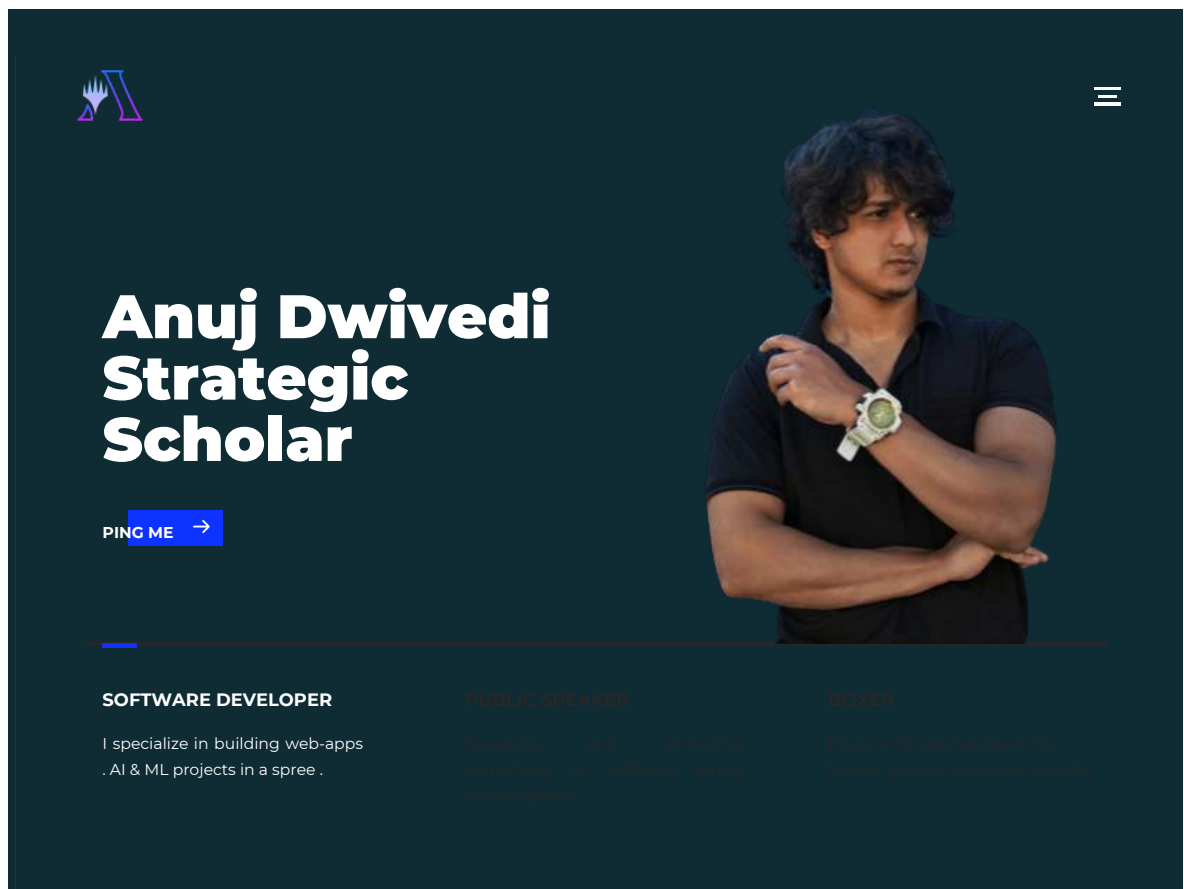
Reya Haarika

has published two papers in IEEE Xplore

- Diabetes Prediction in Teenagers using Machine Learning Algorithms. Link : [Reasarch paper](#)
- 2.Breast Cancer Prediction using Feature Selection and Classification with XGBoost. Link : [Reasarch paper](#)



Raye Haarika - 6 th Semester



ANUJ DWIVEDI - 4 th Semester - ENG21A

- **Built 22 Original Git Repositories - Mega Projects**
- **Lead a Social Media Company -tuingthoughts**
- **Organized fully fledged software to 80+ hosts , in a live event through cloud hosting.**



[Click to know more](#)



Turingthoughts - A Fusion of AI x Philosophy ..

- **Giving out value in the field of AI through connecting all top notch experts across the software realm .**
- **Collaborated to give software for event : Enigma Quest - holding 80 + students .**

Scan to know more

Student Achievements



- Harsh Manalel and team CineSquad won 2nd place in Documentary Competition Titled "Sericulture around Harohalli" at Tantra - 23 cultural fest organized by Dayananda Sagar University.



Scan to know more

Link to Video :

check out

Jan - Apr 2023

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DAYANANDA SAGAR UNIVERSITY
SCHOOL OF ENGINEERING
DEPARTMENT OF CSE (AI & ML)



FACULTY

ACHIEVEMENTS

Faculty Achievements



Dr. Jayavrinda Vrindavanam
Professor & Chairperson, AI and ML

Delivered a **technical talk** on “**Machine Learning current trends and Prospects**” to the students of Information Technology Department, Finolex Academy of Management and Technology, Ratnagiri, Maharashtra on 29th March 2023.

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

Paper Publications:

- Title of the paper: “Diabetes prediction in Teenagers using Machine Learning Algorithms”, published in IEEE Xplore-4th may 2023.
- Title of the paper :“Blind Assistant tool using Deep Learning”,Published in International Journal of Scientific Development and Research (IJSDR) (Impact factor-5.47)

Active research collaboration :

- Image Description for the Visually Challenged.
- Study on the Prediction of non-communicable diseases in collaboration with Mahatma Gandhi Institute of Medical Sciences, Sevagram, Wardha (An autonomous government medical college in, Maharashtra)
- Quantum computing and Machine learning.

Faculty Achievements

Dr. Monika Goyal

Assistant Professor

AI and ML Program

Department of CSE (AI & ML)

SOE, DSU.



- **Published research paper in SCI Indexed Journal** Imaging System and Technology (IMA), Wiley, IMA Journal, Wiley Publisher.
- **Two research papers were accepted in the International Conference on Advances in Modern Science and Technology (ICAMSnT-2023)** organized by T. John Institute of Technology Bangalore, Karnataka.
- 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:

- 1.Sawai Man Singh Medical College and Hospital, Jaipur.
- 2.Doing work on real-time Ultrasound data for the detection of Kidney related diseases.

Faculty Achievements



Mrs. Mary Jasmine E

Assistant Professor

AI and ML Program

Department of CSE

SOE, DSU

·Published a book titled “**Algorithm and Design Complexity**”, CRC Press, Taylor & Francis, May 2023.

·**Active Research Areas:**

- o Data Analytics
- o Machine Learning
- o Deep Learning



Ayain John

Assistant Professor, AI and ML



Paper Publications:

·Title of the paper: “MOD-DHGN for Autism Segmentation”, published in Procedia Computer Science (Elsevier) - Feb 2023.

Awards:

·Secured Selfless Service Award from Christ Academy School, Bangalore-Feb 2023.

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CSE (AI & ML)



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CSE (AI & ML)



Mr. Pradeep Kumar K
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CSE (AI & ML)

STUDENT CO-ORDINATORS

