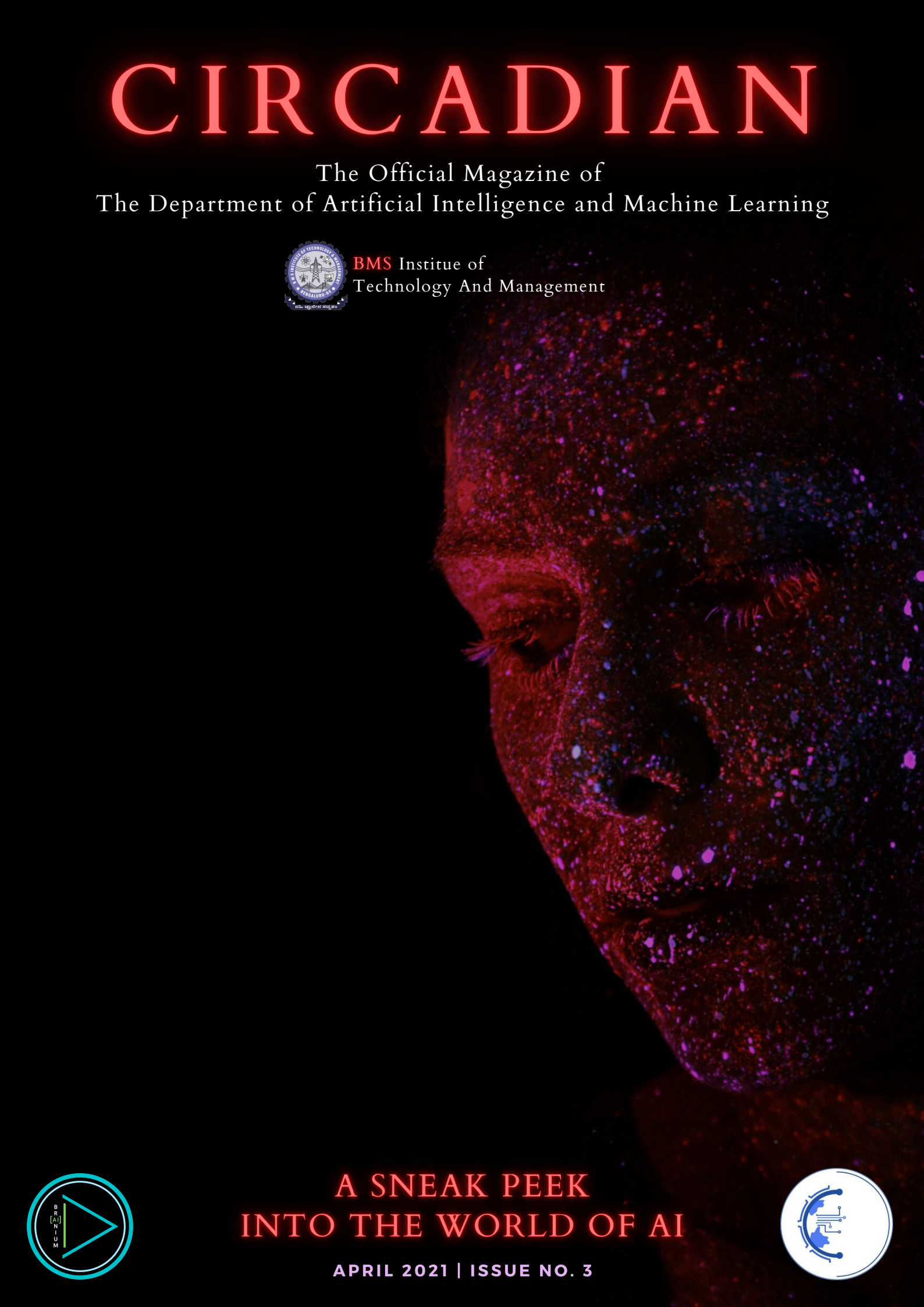
CIRCADIAN

The Official Magazine of
The Department of Artificial Intelligence and Machine Learning

BMS Institue of
Technology And Management



A SNEAK PEEK INTO THE WORLD OF AI

APRIL 2021 | ISSUE NO. 3

FOUNDERS

Shri B. M Sreenivasaiah
Founder, BMS Institutions

Shri B. S. Narayan
Founder & Donor trustee

The history of BMS institutions rewinds back to the year 1946 with the establishment of the first private engineering college in the country, BMS College of Engineering (BMSCE), by late Sri B.M Sreenivasaiah. He was a philanthropist and a great visionary who realised the necessity of technical education even before the country got independence. He was honoured by the Maharaja of Mysore with the title "Dharma Prakasha Raja Karya Prasaktha" for his extraordinary service in the field of education.

The legacy he once began is being upheld with the same zeal by his inheritors and they continue to cherish his vision and ideals.

After the sad demise of Sri B.M Sreenivasaiah, his renowned son, Sri B.S Narayan, a vibrant and ingenious personality, moulded BMS College of Engineering into one of the finest engineering colleges. Apart from BMS College of Engineering, he had also established other institutions that promoted higher education which includes BMS College of Law, BMS College of Women and BMS Evening College of Engineering. He was extremely supportive in the initiation of several collaborative programs such as training foreign students under International Co-operative Division, cross cultural program with Melton Foundation U.S.A etc.

BMS Institute of Technology (BMSIT), established in the year 2002 is one of the six institutions under BMS Educational Trust, being managed by a council of trustees appointed by Dr. B.S. Ragini Narayan, the successor of Late Sri B.S Narayan and the donor trustee and Member Secretary of BMS Educational Trust and it is one of the best engineering college in bangalore. BMS School of Architecture is the latest addition to the BMS group of institutions.

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Vision & Mission

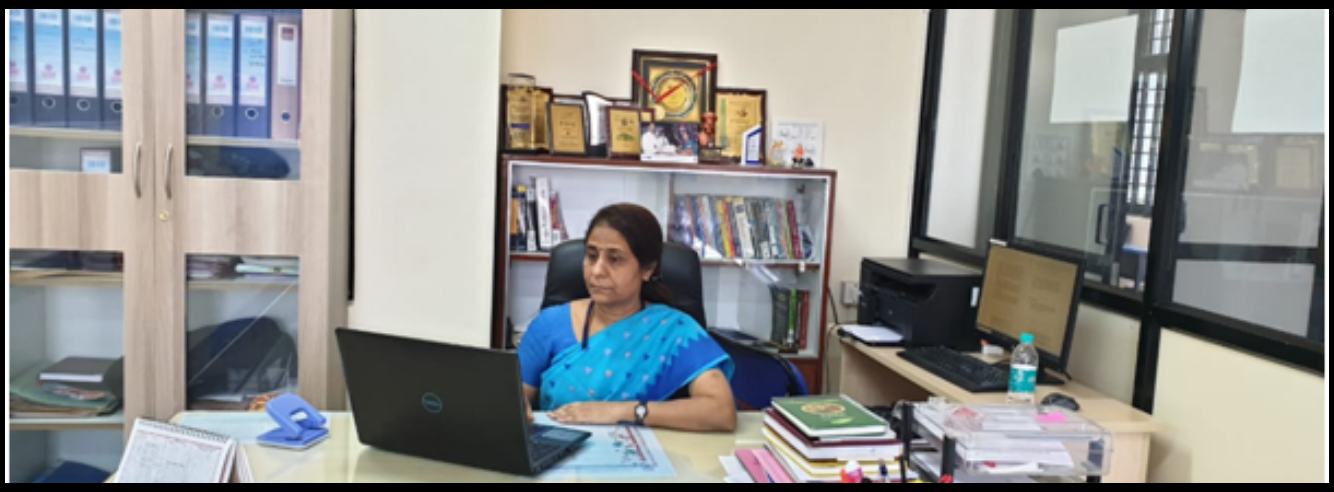
VISION :

To develop professionals equipped to build sustainable and intelligent solutions that effectively interact with the natural intelligence towards creating a digitally empowered environment for future generations, safeguarding social ethics.

MISSION :

- To enable students with the spirit and power of interdisciplinary acumen by integrating a world of knowledge into a world of intelligent systems and subsystems.
- Boost academic outcome through place-based education and collaborations with established research labs and industries.
- Encourage entrepreneurship efforts among students and develop them into great leaders.

HOD'S MESSAGE



As we enter the new beginning, we have our hopes rekindled. The new challenges we face lack precedence. The times are so demanding, that we shall stand united, sans geographical separation, and work as a team. Stepping into the third year in a couple of months, we have a well defined strategic plan charted for the growth of our department.

Students remain the pillar of strength of our team, and Circadian serves to be students' voice. Let's shout out to the world, what we think, feel and act upon. With another issue in offering, rich in content, colour, substance and intellect, I invite our readers to be part of an exciting reading rendezvous.

New learnings give new experiences, and experiences build character and personality. As a team, we at Department of AI & ML, strive for excellence and success in every step. We look forward to new learnings to shape our brightest future moments!

With Best wishes,

Dr. Bharathi Malakreddy A

Professor and HoD

Department of

Artificial Intelligence and Machine Learning

BMSIT &M

Committee Introduction & their Message

Mohammed Sinan Khan
Student Coordinator

Hope you all have a great time going through this issue, just as we had immense fun compiling it, while it also helped foster a better understanding and we hope to add more value in the future.

Mirza Fardeen Baig
Content Strategist

Been a blissful experience piling up resources and curating content for Circadian, really helped in enhancing vision, I hope it broadens your view just as much as it did to me. Hope y'all enjoy mingling with this issue.

Rishika Manavi
Content Strategist

It's been a great experience working with everyone to make Circadian a success. I hope everyone thoroughly enjoys reading it as much as we enjoyed putting it together.

Aditi N
Editor

My personal journey with Circadian has been very gratifying. I've had the opportunity to dabble with two roles and it just brings joy to put together the magazine every semester. Hope all of you enjoy this issue. Until next time ;)

Committee Introduction & their Message

Shreyas Sreenivas
Editor

My time as a part of “The Circadian” hasn’t been short, and I’m proud of what we’ve accomplished together. Kudos to the team. I hope what you see is what you like!

Rohan Unnikrishnan
Editor

Being able to procure and edit content for all of you has been an absolute pleasure. Being part of team Circadian has brought out the best of us and the comradery shared among us has made the experience more gratifying.
Our work has come to fruition in the form of the magazine that's in front of you. Hope you enjoy reading it as much as we enjoyed making it!

Aditi P
Editor

My journey working with the Circadian team has been wonderful and eye opening, being able to reach out to many people and discovering many talents has been the best part of the whole experience

Satvika T S
Editor

In the short while I’ve spent as an editor in Circadian, I can say I’ve learnt a lot. I hope you enjoy this issue as much as we did putting this together!

Committee Introduction & their Message

Ananya S Malagi
Designer

Milton Glaser once said, “There are three responses to a piece of design – yes, no, and WOW! Wow is the one to aim for.” As a part of the design team of CIRCADIAN, I strive towards producing great designs for our readers. I hope you experience much more than just flipping through the pages.

Meghana Raju K
Designer

My experience working with the team of Circadian has been short and interesting. I've learnt a lot through the process and completely enjoyed putting forward what design means to me. Hope you enjoy reading it!

Jonathan Clyde D'Silva
Designer

Designing is like life, it's quite simple but we make it complicated by overthinking.

Shashank Ramesh
Designer

It's been a great experience indeed working with the circadian designing team. I worked on the magazine's cover design. My seniors provided some great mentoring regarding the design, the colour palette and other inputs. Did a report on ‘Agile Mobile Robots’ from Boston Dynamics too. I'm glad I got this opportunity.

Introduction to BRAINIUM

BRAINIUM - The technical forum of the department of Artificial intellingence and machine learning has evolved over the last one year. The main aim of this forum is to help students develop skills and knowledge, which can be applied into their projects and future careers. The forum hosts a plethora of events such as workshops, webinars, clutural and technical fests, and expert talks, helping the students connect with the best of the industry.

AAAI

It brings us immense exuberance to share that Brainium is now a member of the AAAI **(ASSOCIATION FOR THE ADVANCEMENT OF ARTIFICIAL INTELLIGENCE)** organization, a rightful place for the students of our institution to be exposed to the plethora of opportunities that lie ahead.

Founded in 1979, the Association for the Advancement of Artificial Intelligence (AAAI) is a nonprofit scientific society devoted to advancing the scientific understanding of the mechanisms underlying thought and intelligent behavior and their embodiment in machines. AAAI aims to promote research in, and responsible use of, artificial intelligence. AAAI also aims to increase public understanding of artificial intelligence, improve the teaching and training of AI practitioners, and provide guidance for research planners and funders concerning the importance and potential of current AI developments and future directions.

Members throughout the world benefit from AAAI's efforts in research. Major AAAI activities include organizing and sponsoring conferences, symposia and workshops; publishing a quarterly magazine for all members; publishing a series of books, proceedings, and technical reports; compiling a host of online resources and publications; and awarding grants and scholarships. AAAI is committed to fostering student interest and development in the field of artificial intelligence. Student members are eligible for conference grants and fellowships, and receive publishing opportunities through AAAI conferences, workshops, and symposia.

Special networking and mentoring events are offered at the annual AAAI conference, as well as other AAAI meetings. AAAI promotes student career advancement through its annual job fair program and through recognition of exceptional work with special student research awards.

Student Chapter

We have a student body appointed that would oversee activities under Brainium throughout the year. The members of the student body include:

- **Sadanand Venkataraman** – President
- **Sanjeevini Raghavendra** - Vice President
- **Pranavi** - Secretary
- **Sai Darshan** –Data Master
- **Gowtham** – Public relations and outreach
- **Sangeetha** - Member, First year
- **Meghana** - Member, First year
- **Tilak** - Member, First year

It is very exciting to be a part of this organization and we are optimistic of the fact that this will help us in emboldening ourselves and reach the pinnacle of our potential.

AI In Finance

Finance is always of great importance, be it in a business or in one's everyday life. People confront financial crises and tackle financial risks on a daily basis. It is important to manage risks in business.

Artificial intelligence in finance is transforming the way we interact with money. AI is helping the financial industry to streamline and optimize processes ranging from credit decisions to quantitative trading and financial risk management.

The benefits of implementing AI in finance—for task automation, fraud detection, and delivering personalized recommendations—are monumental.

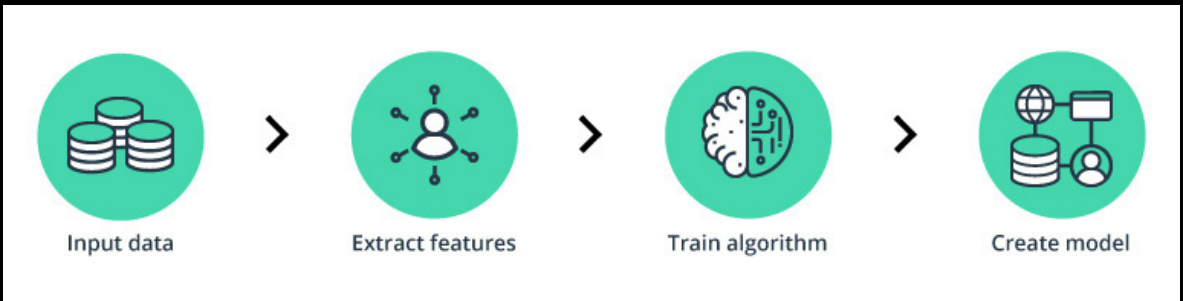
We've put together a couple of domains in which AI is being used:

Fraud Detection and Management:

Every business aims to reduce the risk conditions that surround it. This is even true for a financial institution. AI is on top when it comes to security and fraud identification. An excellent feature of fraud detection using AI is that the system has no qualms about learning. If it raises a red flag for a regular transaction and a human being corrects that, the system can learn from the experience and make even more sophisticated decisions about what can be considered fraud and what cannot.

AI In Finance

How does machine learning in fraud detection work?



- To detect fraud, a machine learning model first needs to collect data. The model analyses all the data gathered, segments, and extracts the required features from it. Next, the machine learning model receives training sets that teach it to predict the probability of fraud. Finally, it creates fraud detection machine learning models.
- The first step, data input, differs for ML and humans. The more data an ML model receives, the better it can learn and polish its fraud detection skills.
- Feature extraction is the next step. At this point, features describing good customer behaviour and fraudulent behaviour are added. These features usually include (but are not limited to) the customer's location, identity, orders, network, and chosen payment method. Based on the complexity of the fraud detection system, the list of investigated features can differ.
- Next, a training algorithm is launched. In a nutshell, this algorithm is a set of rules that an ML model has to follow when deciding whether an operation is legitimate or fraudulent. The more data a business can provide for a training set, the better the ML model will be.
- Finally, when the training is over, the company receives a fraud detection machine learning model suitable for their business. This model can detect fraud in next to no time with high accuracy. To be effective in credit card fraud detection, a machine learning model needs to be constantly improved and updated

Modern fraud detection systems solve a wide range of analytical problems to uncover all scams in the payments streams.

AI In Finance

Monitoring Metrics for Behavior-based Fraud Detection Solutions

Login	Non- Transactional Activities		Transaction
• Challenges • Device • Cookie • IP Address • Time of day • Network	• View balance • View history • Updated address • Update email • Update password	• Add new user • Change limits • Set up batch • Set up template • Add payees	• ACH • Wire • Bill Pay • Loan Draw

- Data credibility assessment. Gap analytics help identify missing values in sequences of transactions. Machine learning algorithms can reconcile paper documents and system data eliminating the human factor. This ensures data credibility by finding gaps in it and verifying personal details via public sources and transactions history.

- Duplicate transactions. A common scam method is creating transactions close to original or making a copy of a transaction. For instance, a company tries to charge a counterpart twice with the same invoice by sending it to different branches.

- While duplicate testing can be implemented by conventional methods, machine learning approaches will increase accuracy in distinguishing erroneous duplicates from fraud attempts.

- Account theft and unusual transactions. Much of fraud detection in payments is focused on user behaviour analysis during transactions.

- For example, a client visits a specific supermarket at 9-10 pm every night. It's located near the client's house. The payment sum varies from $10 to $40. Every two days the client also drives to a gas station. Once a transaction occurs in a different part of town in a bar and the sum is over $40, the algorithm will consider this activity suspicious and assign a higher level of fraud likelihood. To check this transaction, the system will send a verification request to a card owner.

- Descriptive stats like averages, standard deviations, and high/low values are very useful for analysing behaviour.

AI In Finance

As of today, antifraud systems should meet the following standards:

1.Detect fraud in real-time
2. Improve data credibility
3. Analyse user behaviour
4. Uncover hidden correlations

While these qualities can be offered by machine learning algorithms, they have two serious drawbacks to be aware of. They still require large and carefully prepared datasets for training and still need some features of rule-based engines, like checking legal limitations for cash transactions. Also, machine learning solutions usually require substantial data science skills to build complex and robust ensemble algorithms. This sets a high barrier for small and medium companies to use the technique leveraging internal talent. The task requires deep technological and domain expertise. The common practice is to engage third-party data science experts. Data consultancy and engineering services accelerate development, requiring less expenses than building an in-house data science team from the ground up.

Trading:

“Artificial intelligence is to trading what fire was to the cavemen.” That’s how one industry player described the impact of a disruptive technology on a staid industry. Investment companies have been relying on computers and data scientists to determine future patterns in the market. As a domain, trading and investments depend on the ability to predict the future accurately. Machines are great at this because they can crunch a huge amount of data in a short while.

Artificial intelligence is leading the front of the digital transformation strategy in finance today and is improving core banking operations and tailor services which will deliver over $250 billion in value across the industry.

Use Case of AI IN TRADING:

High-frequency Trading

High-Frequency Trading refers to complicated algorithmic trading which involves the execution of a large order within a fraction of a second. To execute numerous orders in this short time- period is beyond the capacity of humans. In high-frequency trading many machine learning algorithms and feature creation methodologies are applied. The most common example is the application of SVMs. SVM works by creating a line of separation in the data. It involves training the models so that they can identify features that reflect an approaching increase or decrease in the bid and market pricing.

Machine learning to find patterns in the data

One of the major tasks of machine learning algorithms is to employ massive historical data and accurately predict the future picture. Fortunately, this task of machine learning correlates with the fundamental aspect of trading. The traders usually discover time and space limited localized patterns and think about how to maneuver these patterns for greater return. Machine learning algorithms help in finding the patterns that can be combined with the intuition and experience of traders for accurate decisions.

Machine Learning for Sentiment Analysis

Numerous factors affect the stock market including sentiments of people. Sentiments play a crucial role in stock market movements because the market trends change rapidly with the sentiments of people. Hence, companies are now using machine learning and artificial intelligence to analyze the sentiments of people and predict the prices of stocks based on those sentiments.

Social media is a potent tool for sentiment analysis because people express their views about anything on social media platforms freely. The sentiment analysis is carried out by leveraging Natural Language Processing (NLP) to categorize the sentiments of people about the stock value of a company into three categories such as negative, positive, and neutral. NLP is a subfield in machine learning that enables computers to comprehend and analyse human language.

Machine learning algorithms can process social media content such as tweets, posts, and comments of people who generally have stakes in the stock market. This data is then used to train an AI model so that it can forecast the stock prices in different scenarios.

-Mohammed Sinan Khan
AI&ML, BMSIT&M

AI in Healthcare

AI is a booming topic lately and we've seen it being implemented in almost all fields out there, one of which is healthcare. Now you might wonder, how can we trust what is essentially a machine to solve something that's as precarious as healthcare. As humans, trust is important and we usually don't even have complete faith in fellow humans. So, one might say, how can I trust a machine to fix something in my body when I might not even trust an actual doctor?
This right here is a misconception. AI does not fix you. Or at least AI implemented in Healthcare tools. You are still being treated by your trusty doctor but with "guidance" from an AI-based system. There are multiple ways in which AI is implemented in this sector.

Machine learning – neural networks and deep learning

Machine learning is a statistical technique for fitting models to data and to 'learn' by training models with data. Machine learning is one of the most common forms of AI; in a 2018 Deloitte survey of 1,100 US managers whose organisations were already pursuing AI, 63% of the companies surveyed were employing machine learning in their businesses. It is a broad technology at the core of many approaches to AI and there are many versions of it.

In healthcare, the most common application of traditional machine learning is precision medicine – predicting what treatment protocols are likely to succeed on a patient based on various patient attributes and the treatment context.

AI in Healthcare

The great majority of machine learning and precision medicine applications require a training dataset for which the outcome variable (ex: onset of disease) is known; this is called supervised learning.

A more complex form of machine learning is the neural network – a technology that has been accessible since the 1960s has been well established in healthcare research for several decades, being used for categorisation applications like determining whether a patient will contract a particular disease. It looks into problems in terms of inputs, outputs and weights of variables or 'features' that associate inputs with outputs. It has been likened to the way that neurons process signals, but the analogy to the brain's function is relatively inaccurate.

Natural language processing

In healthcare, the dominant applications of NLP involve the creation, understanding and classification of clinical documentation and published research. NLP systems can analyse unstructured clinical notes on patients, prepare reports (ex: on radiology examinations), transcribe patient interactions and conduct conversational AI.

AI in Healthcare

Rule-based expert systems

Expert systems based on collections of 'if-then' rules were the dominant technology for AI in the 1980s and were widely used commercially in that and later periods. In healthcare, they were widely employed for 'clinical decision support' purposes over the last couple of decades and are still in wide use today. Many electronic health record (EHR) providers furnish a set of rules within their systems today.

Physical robots

Surgical robots, initially approved in the USA in 2000, provide 'superpowers' to surgeons, improving their ability to see, create precise and minimally invasive incisions, stitch wounds and so forth. However, significant decisions are still made by human surgeons. Common surgical procedures using robotic surgery include gynaecologic surgery, prostate surgery and head and neck surgery.

Robotic Process Automation

Robotic Process Automation (RPA) doesn't really involve robots – only computer programs on servers. It relies on a combination of workflow, business rules and 'presentation layer' integration with information systems to act like a semi-intelligent user of the systems. In healthcare, they are used for repetitive tasks like prior authorisation, updating patient records or billing. When combined with other technologies like image recognition, they can be used to extract data from, for example, faxed images in order to input it into transactional systems.

The risk involved may be massive, but the prerequisites are much more rewarding.

-Shreyas Sreenivas
AI&ML, BMSIT&M

3rd Sem Batch of 2023

After the VTU declared that all intermediate semester students were cleared based on internal assessment. The 3rd semester started online on the 1st of September 2020. The whole semester continued online as the teachers and students got used to the online mode of learning. All the three internals were held online which helped the students from different states not risk their life by traveling back to Bangalore. In between the three internals, the students organized various events that saw a fair bit of participation from students across all branches. The externals were made offline and the students were made to return to the college. With all the SOPs followed our college conducted the VTU examinations which started on 16th February 2021 and concluded on 15th April 2021 including Lab examinations. On the 19th of April 2021, we started with our 4th semester.

Introduction to Batch of 2024

The Induction Programme was an eventful week for the second batch of students joining the department of Artificial Intelligence and Machine Learning. Though it was held online due to the pandemic, it did not fail to inspire the young minds who were looking forward to a fun learning experience.

On the day of inauguration of the Student Induction Programme, the students and parents were addressed by our highly regarded Principal **Dr. Mohan Babu G N**, and also by **Mr. M Madan Gopal, IAS (Retd.)**, **Trustee of BMSET**. Physical health and related activities were held every morning. Yoga, Zumba and aerobics, organised throughout the week, gave the students a refreshing start to their day. They also participated in seminars on Universal Human Values, every day. Virtual tours and lectures by dignitaries added to the knowledge of the world. The inauguration program also included interactive sessions with their seniors and were made to take part in literary activities.

On the whole, it was a fun, ice-breaking and engaging learning experience which helped the young minds in widening their understanding about the department, college, society and also basic values and ethics needed in one's life.

Brainium Fest

Transcendence is the technical Intra-collegiate fest organized and hosted by the Artificial Intelligence and Machine Learning, Department of BMSIT&M.

Last semester, inspite of the pandemic that hit all of us in the year 2020, we were fortunate to have experienced a slightly different but fulfilling fest. As students, we yearn to do the most in life, and when it comes to fests, we yearn to enjoy them to the maximum. However, this was cut short due to the ongoing pandemic, and we weren't able to taste that feeling of euphoria.

Our department along with the college put in a high amount of effort in order to bring this fest to us. Among the many events featured, which I will explain further, all of them had one thing in common - that is to inculcate in us some .necessitate skillset.

> *Technical fests gives students a platform to showcase their innovative ideas and compete with their peers. These technical fests are an amalgamation of fun and learning where spectacular ideas are displayed, and students learn and feel inspired.*

There were four exciting events being featured:

1) XTEMPO

This was an event that showcased a participant's speaking and articulation skills.The participants were given a topic and the timer was set for two mins, of which the participants had to start talking for 1 min 30 seconds and the last thirty seconds were to be used for the rebuttal of someone else's ideas from among the participants.

This two-minute high pressure event was won by Dinu Krunner who was awarded Rs.2000 and the runner-up was Mohammed Sinan Khan who was awarded Rs. 1000.

Brainium Fest

2) WEBPAGE DESIGNING

The participants were given a company name and information about what the company is about (its mission and vision). The task was to design a webpage for the company along with a logo. This web page was required to have the basic things the company would want to include on their web page.

The winners of this event was Pratik G K who was awarded Rs.2000 and the runner-up being Rushil bali and Aakash's team was awarded Rs. 1000.

3) SPONTANEOUS POSTER PRESENTATION

The teams were made to choose a number, based on which a topic was assigned on spot. Then the team went on to do research on their respective topics and prepare a digital poster. The poster was then evaluated by judges.

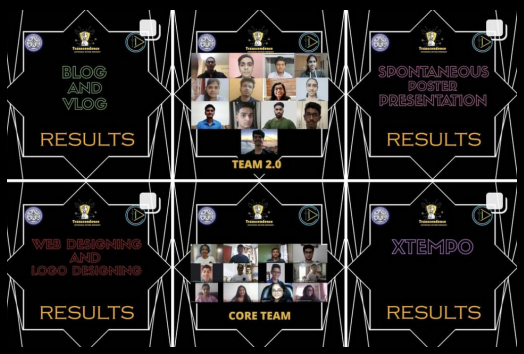
Anushka and Kanishka's team won in this event and were presented Rs.2000 and the runner-up was Zaid who was awarded Rs.1000.

4) BLOG AND VLOG

In this event, each team was given a chance to choose a number between 1-10 which revealed their company and a one line summary of the same, then participants had to come up with a creative name for their company along with content for the blog of the company, detailing functionality and requirements of the company.

The team comprising Diya, Hitanshee, Janavi and Poorna won and were presented with Rs.2000 Nikhil who was the runner-up for the event was awarded Rs.1000 for the same.

Each of these events brought out the excitement of a 6-year-old in us and although it was conducted through an online platform, we enjoyed the process.



Faculty Achievements

Dr Bharathi Malakreddy A

Dr Bharathi Malakreddy A, Professor and HoD, Department of AI&ML has extended her support as Resource person for FDP on "Opportunities and Challenges in Post Pandemic Era: An Overview" organised by BMSIT&M on 10.8.2020

Dr. Bharathi M A, Professor and HoD, Department of AI&ML was a BoS member for PDA College of Engineering, Kalburgi on 12.8.2020.

DR. Bharathi M A, Professor & HoD, AI&ML was a BOE member for School of CIT, Reva University, 24.3.2021

Filed a Patent on " Far Field and Near field Radiation Pattern of Gold Nano Particles in MIE scattering Phenomenon Modelling using DGTD method – 27/9/2020

Research Scholar under guidance of Dr.Bharathi M A awarded with Ph.D degree by VTU for Dissertation on " Automatic Detection of Diabetic Maculopathy "

Delivered keynote address at VVVS Damodar College Margoa, Goa on 28th Oct 2020 on AI – Virtuality in Reality.

Board of Examiner, Member at MSRIT, Bengaluru, on 19/11/2020.

Completed Online Course on CORONA – All You need to Know by Alison, Microsoft.

Reviewed papers for Third International Conference on Advances in Electronics, Computers and Communications (ICAECC 2020) – Dec 2020
Advisor and Mentor for 03 batches of students of NITK, Suratkal working on projects in the area of Machine Learning.

Attended Webinars on:

1.Racing with Machine – Deep Learning V/S Machine Learning

2.Careers in Cyber security by IEEE

3. IPR for Academicians – IEEE

4.Optimization and AI Techniques

Faculty Achievements

Dr Anupama H S

Dr Anupama H S, Associate Professor, Department of AI&ML was a reviewer for Journal of Education.

Dr Anupama H S, Associate Professor, Department of AIML was a reviewer for conference ERCICA_2020, Nitte Meenakshi Institute of Technology, Bengaluru, India.

Dr Anupama H S, “Creation of Open Educational Resource (OER) Activity: Flipping the Classroom with Moodle”, Journal of Seybold Report (UGC Approved Journal), ISSN NO: 1533-9211, Volume 15, Issue 7, Page no: 965-979.

Dr Anupama H S, Associate Professor, Department of AI&ML has extended her support as Resource Person for the two days' workshop on "Artificial Intelligence and its Application: A Practical approach" organized by Department of Computer Science and Engineering, VVCE, Mysuru on 18.8.2020.

Dr Anupama H S, Associate Professor, Department of AI & ML has extended her support as Resource Person for one week online FDP entitled "Emerging Technologies in Wearable Devices" on 19.1.2021 at Department of Computer Science and Engineering, UVCE, Bangalore University

Dr Anupama H S and Dr Vishwa Kiran S, Associate Professor, Dept of AI & ML have submitted the Research Proposal to “VGST” on 20.02.2021 for the FDP “ Real Time Operating Systems and Embedded Systems”.

Dr Anupama H S, Associate Professor, Department of AI & ML, has presented and published a paper at the IEEE sponsored International Conference on Artificial

Faculty Achievements

Dr Santhi Natarajan

Dr Santhi Natarajan, Associate Professor, Department of AIML has extended her support as Resource person for the Faculty Development Programme on the topic “Machine Learning” on 31.7.2020 at BMS Institute of Technology and Management, Intelligence and Smart systems (ICAIS 2021) organised by JCT college of Engineering and Technology, Coimbatore, India.

Dr. Santhi Natarajan, Associate Professor, Department of AIML, was a reviewer for B-HTC 2020: 2020 IEEE Bangalore Humanitarian Technology Conference, Bengaluru, India.

Advisor and Mentor for 03 batches of students of NITK, Suratkal working on projects in the area of Machine Learning.

Dr Vishwa Kiran S

Dr Anupama H S and Dr Vishwa Kiran S, Associate Professor, Dept of AI & ML have submitted the Research Proposal to “VGST” on 20.02.2021 for the FDP “ Real Time Operating Systems and Embedded Systems”.

Dr Vishwa Kiran S, Assistant Professor, Department of AI & ML has extended his support as Resource person for ATAL workshop on “Wearable OS and Getting Started with Raspberry Pi” from 18.1.2021 to 19.1.2021 at Department of Computer Science and Engineering, UVCE, Bangalore University

Dr Vishwa Kiran S, Associate Professor, Department of AI & ML, was a resource person for the fourth phase of the AICTE sponsored STTP on "IoT powered Solutions for HealthCare Innovations- Research Perspective", organized by KCG College of Technology.

Student Achievements

Sanskar Agarwal

1st year,AI&ML

Sanskar Agarwal is a part of an NGO called '**Smile Udaipur**' who work towards making this world a better place, one step at a time. Their motto is "**Spreading Humanity with Kindness**". They intend to save lives and defeat poverty. Some of their noble work include **feeding stray dogs** during the lock-down, **distribution of food and clothing** to the needy, distribution of **face masks**, creating awareness on following safety protocols in times of pandemic, a drive to **donate plasma** and much more.

Spreading awareness about the importance of mask

Distributing masks to the needy

Sanskar Agarwal is currently undergoing an **Online Internship** with **AiROBOSOFT** as **Machine Learning and Automation Intern**. The company specializes in building highly autonomous systems using core concepts of artificial intelligence.

Student Achievements

Arun Joseph Raj

2nd year,AI&ML

INTERNSHIP AT MARBLE AI:

Here's what Arun has to say about his internship:
Marble AI is a startup founded in 2020, the **idea** behind Marble is to Document user's thoughts and extracts and hence use that as an indicator to help them track their Learning Progress through AI. There is a very good startup vibe and my position in Machine Learning helps me to get hands-on experience with the latest tech out there especially in the field of NLP. There are many fellow students along with me who work at Marble which comes in handy to ask each other for help and thus grow together.

Shreeya G

2nd year,AI&ML

INTERNSHIP AT SMARTER LEARNINGS:

A few words by Shreeya, about her internship - "Smarter Learnings is one of the best learning opportunities I have got in this year 2021. Amidst this pandemic this has been a huge breakthrough in my learning and development of industrial skills. I was offered this internship in the month of January 2021 by a start-up (Smarter Learnings), which was a learning platform they wanted to digitalize. I have worked with U.G research scholars who are in collaboration with our department and the founder himself. It was an amazing experience. We have worked on **React JS** to build the website for the company. I was surprised to be enhancing my skills and having fun at the same time. We wrapped up with testing and documentation of the phase 1 in April 2021, and I had a satisfying outcome."

Student Achievements

Pratiksha Rao

2nd year,AI&ML

INTERNSHIP AT SMARTER LEARNINGS:

My internship experience at Smarter Learning's was wonderful and I feel honored to have got the opportunity to work with a team containing experienced people. Smarter Learning's is an organization that provides an educational portal in which courses on various subjects for students starting from grade 9 to post-graduates are available. I worked as a front-end developer for designing the website. As I was a beginner in the field of web designing, there was something new to learn each day. I got hands-on experience in the process of developing a software product. Not only did my technical skills improve, but I also could better my communicational skills and my ability to work as a team irrespective of the fact that most of the internship took place online due to the Covid-19 pandemic. In a nutshell, I thoroughly enjoyed my experience with Smarter Learning's and I would love to intern with many more organizations in the future.

AI in Fashion

The design and patterns with the right color combination are the key points to design a costume to make it attractive to customers. AI can detect the new trends with demand in projecting the latest trend reducing the forecasting error.

Trends in the fashion industry change very fast as new designs or patterns come every day in the market. Designers need to keep pacing with new styles. And AI algorithms can analyze design through images to copy the popular style.

And after analyzing the data set of designer clothes, AI uses such data to see what does and does not sell well in the markets and create or recommend designers to build and launch a completely new design in the market.

Retailer giants like Amazon and Walmart now have their very own clothing brands and utilize machine learning systems that can identify the spot and, in the not-too-distant future, design fashion trends that customers would prefer to buy.

AI in Fashion Manufacturing, Supply Chain & Fashion Store

In fashion, apparel manufacturing is a labor-intensive industry. From sewing to sorting or dresses, there are mundane tasks now AI can perform with better accuracy at a faster speed reducing the extra cost on workers.

AI in Fashion

AI in Fashion Retail

AI and machine learning in retail are also providing an automated solution to monitor the customer's activities while shopping and visualize their sentiments to know what kind of products they prefer to buy and what they ignore.

AI can also track footfalls in retail shops, record the shopping experience of customers with the option to get feedback on their experience with shopping at their store, with the benefit to improve their services.

And visual perception-based AI models also help store owners to keep the records of the inventory in their store and also categorize items in-store helping store owners to manage their inventory with AI-backed automated solutions.

AI Fashion Stylist — Styling the Fashion Accessories

Moreover, the use of AI in fashion also allows us to find those elusive perfect outfits that suit our body type and fashion preferences.
Such AI-enabled clothes and outfits are not only tailored for different occasions and weather, but also to the user's style, body type, color, and the latest fashion trends.

AI in Fashion

iLUK is an AI-based personal stylist, using the Computer Vision-based and 3D Reconstruction technology at its heart to make distinctive styling based on technology possible. Its design is of a pod and is placed at a retail outlet.

In AI fashion stylist computer vision and 3D reconstruction-based technology are used to develop a 3D avatar of the customers.

The measurement data are then fed into the AI software to analyze your body shape, with an identical body mass, shape, size, and color, while using your face to show the outfits.

Van Heusen created a retail environment complete with a "Virtual Trial" mirror which lets users see how outfits would look on them by simply scanning the item's barcode and standing in front of the mirror as virtual garments are projected onto their reflection.

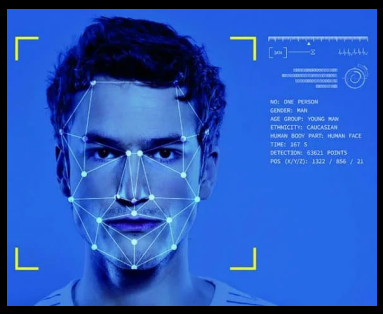
-Ananya S Malagi
3rd sem, AIML, BMSIT&M

Human Bias in AI

Human biases are well-documented, from implicit association tests that demonstrate biases we may not even be aware of, to field experiments that demonstrate how much these biases can affect outcomes. Over the past few years, society has started to wrestle with just how much these human biases can make their way into artificial intelligence systems – with harmful results. At a time when many companies are looking to deploy All systems across their operations, being acutely aware of those risks and working to reduce them is an urgent priority.

Physicists are increasingly developing artificial intelligence and machine learning techniques to advance our understanding of the physical world but there is a rising concern about the bias in such systems and their wider impact on society at large. Machines are often assumed to make smarter, better and more objective decisions, but this algorithmic bias is one of many examples that dispels the notion of machine neutrality and replicates existing inequalities in society

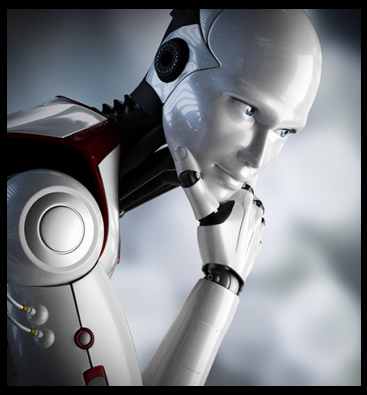
Bias is all of our responsibility. It hurts those discriminated against, of course, and it also hurts everyone by reducing people's ability to participate in the economy and society. It reduces the potential of Al for business and society by encouraging mistrust and producing distorted results. Business and organizational leaders need to ensure that the Al systems they use improve on human decision-making, and they have a responsibility to encourage progress on research and standards that will reduce bias in Al.



“There is no reason and no way that a human mind can keep up with an artificial intelligence machine by 2035.” “Is artificial intelligence less than our intelligence?” “By far, the greatest danger of Artificial Intelligence is that people conclude too early that they understand it.”

Human Bias in AI

From the growing academic research into Al bias, two imperatives for action emerge. First, we must responsibly take advantage of the several ways that Al can improve on traditional human decision-making. Machine learning systems disregard variables that do not accurately predict outcomes (in the data available to them). This is in contrast to humans, who may lie about or not even realize the factors that led them to, say, hire or disregard a particular job candidate.



It can also be easier to probe algorithms for bias, potentially revealing human biases that had gone unnoticed or unproven (inscrutable though deep learning models may be, a human brain is the ultimate “black box”). Finally, using Al to improve decision-making may benefit traditionally disadvantaged groups, as researchers Jon Kleinberg, Sendhil Mullainathan, and others call the “disparate benefits from improved prediction."

The second imperative is to accelerate the progress we have seen in addressing bias in Al. Here, there are no quick fixes. In fact, one of the most complex steps is also the most obvious - understanding and measuring "fairness." Researchers have developed technical ways of defining fairness, such as requiring that models have equal predictive value across groups or requiring that models have equal false positive and false negative rates across groups. However, this leads to a significant challenge - different fairness definitions usually cannot be satisfied at the same time.

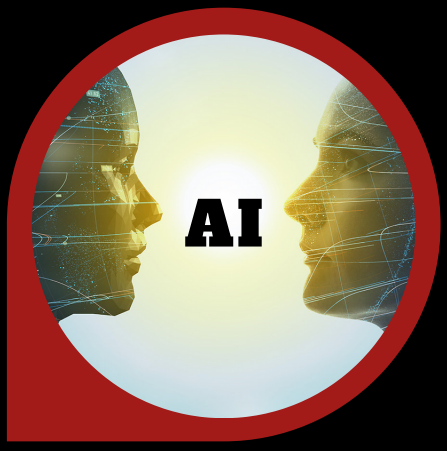
> *“As more and more artificial intelligence is entering into the world, more and more emotional intelligence must enter into leadership.”*

Human Bias in AI

Artificial intelligence has grown rapidly in the recent years, making it possible to turn goals into reality. AI bias is an anomaly in the working and output generation of machine learning algorithms, which can lead to discrimination and other social consequences. This could arise either due to prejudiced assumptions made during the development of algorithm by researchers or engineers or due to prejudices in the training data that is used by the AI system to make decisions. The training data may include unfair human opinions and decisions, or historical and social inequities.

Bias in AI can be of two types based on the reasons:

- Cognitive biases: These are opinionated feelings or thoughts towards a topic or a person based on a particular categorical distinction. These biases can enter a machine learning system either due to the designer or the training data which introduces it into the algorithm.
- Lack of complete data: If data is not complete, it may not represent the whole population and hence, opens opportunity for assumptions.



“Artificial intelligence will reach human levels by around 2029. Follow that out further to, say, 2045, and we will have multiplied the intelligence – the human biological machine intelligence of our civilization – a billion-fold.”

Human Bias in AI

1.Amazon's biased recruiting system:

Amazon started an AI project in 2014 to review resumes of the job applicants by using an AI model which was trained with historical data from the previous 10 years. This data showed that there was male dominance in the tech industry and hence the recruiting tool learnt that male candidates were more preferable which led to the bias against women. Therefore, Amazon stopped using this algorithm.

2.Racial bias in the US healthcare system:

The algorithm used to predict which patient is more likely to require extra medical care, which was used on 200 million citizens, was found to be racially biased. It favoured Caucasian patients over the African-American patients. Historical data showed that African-American patients incurred lower medical costs than white patients, which resulted in the assumption that white patients require more medical assistance.

The notion that AI will ever be unbiased is not just an unfeasible one, but also naïve, since it requires cleaning your training dataset from conscious and unconscious assumptions on race, gender, or other ideological concepts. AI can only be as good as the data and people are the ones who create data.

However, fixing and making constant improvements on the machine learning algorithms is a field which is seeing constant growth. While there are no quick fixes to mitigating biases in AI, there are high level recommendations from consultants like Mckinsey highlighting the best practices of AI bias minimization:

Human Bias in AI

Steps to fixing bias in AI systems:

A thorough understanding of the the algorithm and data to assess where the risk of unfairness is high

You should establish a debiasing strategy that contains a portfolio of technical, operational and organizational actions:

Technical strategy involves tools that can help you identify potential sources of bias and reveal the traits in the data that affects the accuracy of the model

Operational strategies include improving data collection processes using internal “red teams” and third party auditors. You can find more practices from Google AI’s research on fairness

Organizational strategy includes establishing a workplace where metrics and processes are transparently presented

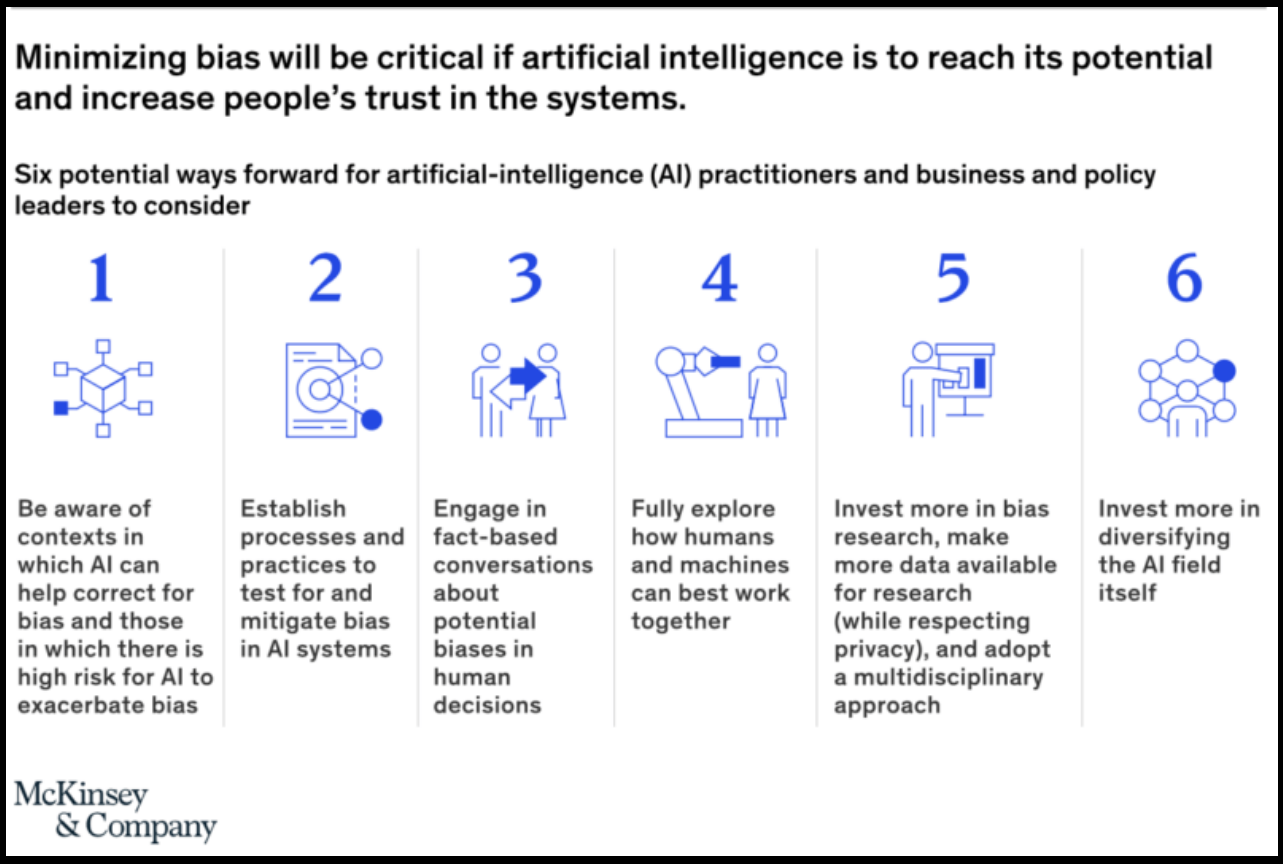
As you identify biases in training data, you should consider how human-driven processes might be improved. Model building and evaluation can highlight biases that have gone noticed for a long time. In the process of building AI models, companies can identify these biases and use this knowledge to understand the reasons for bias. Through training, process design and cultural changes, companies can improve the actual process to reduce bias.

Decide on use cases where automated decision making should be preferred and when humans should be involved.

Research and development are key to minimizing the bias in data sets and algorithms. Eliminating bias is a multidisciplinary strategy that consists of ethicists, social scientists, and experts who best understand the nuances of each application area in the process. Therefore, companies should seek to include such experts in their AI projects

Diversity in the AI community eases the identification of biases. People that first notice bias issues are mostly users who are from that specific minority community. Therefore, maintaining a diverse AI team can help you mitigate unwanted AI biases.

Human Bias in AI



lability of certain tools to further diminish bias include:

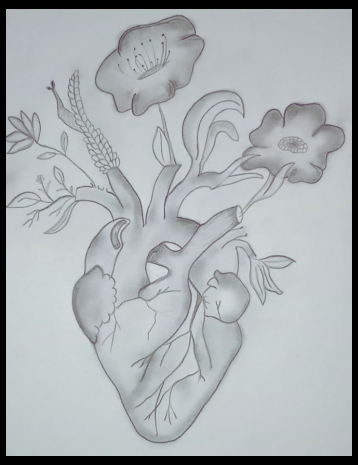
- AI fairness 360
- IBM Watson OpenScale
- Google's What-if tool

While being mindful of the procedure and using the available provisions won't completely remove bias in AI, it heavily contextualises and mitigates the potential biases the Machine Learning Algorithm might contain.

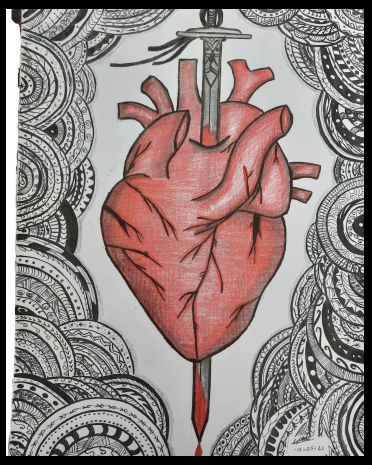
-Meghana Raju & Rohan Unnikrishnan
AIML, BMSIT & M

Student Submission

M S Kaushik
1st year, AIML



Naksha Prakash
1st year, AIML



Aditi P
1st year, AIML

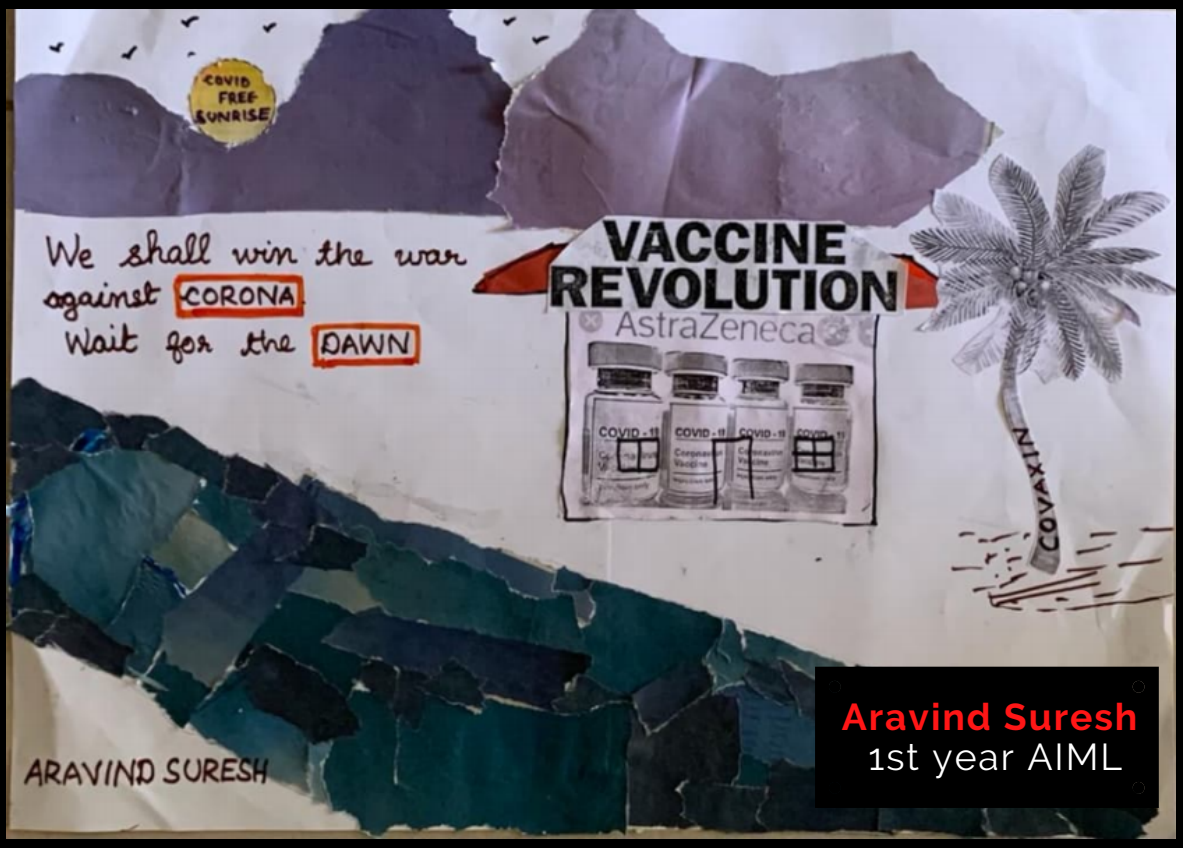
Sakshi Neelgund
1st year, AIML

Meghana Raju
1st year, AIML

Nidhi
1st year, AIML

Vandana
1st year, AIML

Student Submission



Aravind Suresh
1st year AIML

Aditya A S
1st year AIML

Student Submission

To Be

Here, I am here. Or am I?
Wanderlust, wandering past still
waters and high mountains.
I thirst, I crave, I want to be known
as a stranger.
Stranger, to a place, to people,
to a feeling.
I want it to flow through me and take
over my inner self.
My inner self, a place filled with beauty
in all its chaos.
A temple, peaceful and serene yet
sometimes, taken over by disgust.
Disgust, something easy to take in but
hard to overcome.
To overcome, to feel like a winner.
Accomplishments to break free.
To know that you can be here, in chaos
and in beauty, as a stranger
wanting to be not so stranger-like.

Nia Tirumale
1st year AIML

Opened my eyes
To the sight of my room
Woke up realising
I'm home again

But home should feel familiar
Comfortable and simple
However, I found that elsewhere
I found permanence in moving

I found the imperishable
In the indefinite sky
In the wispy white clouds
Passing by the plane

I found comfort and warmth
In the hotel rooms
Whose scents calmed my mind
And wished me a great night

I found simplicity in the breeze
That blew me to where I am today
And I found purity in nature
That triggered that breeze

What made me fall in love with travelling
Are these little beautiful things
The undying happiness
Caused by fleeting moments

Meghana Raju
1st year AIML

Nay proton, nay neutron ; tis the electron I fear,

Am afeared and mine own eyes glazed with fear when the electron is near,

A petty touch with it and I'll soon be gone,

Behold! For I am the potent positron.

Nidhi
1st year AIML

Student Submission

Life: An Experiment

From learning to walk to running against time, From learning to speak to giving councilling sessions,
From mom, "May I play for five more minutes please" to, "Mom may I come home this Sunday",
From learning to draw straight lines and curves to doing an architectural design of a building,
From practising to write letters to writing essays, From counting using fingers to doing pages of algorithms,
From flying a toy plane to accepting aircraft missions overseas,
From carrying heavy books to asking for an extra sheet,
From writing exams within the four walls to solving life problems,
From having the entire call log of that one person to asking strangers for information about that one person,
From, " We are soulmates" to "I'm sorry but do I know you",
From answering questions to attending professional interviews,
From having prejudice to deciding someone else's career,
From complaining about a person to handling a series of companies,
From taking turns in a board game to getting played in real life,
From stacking legos to building magnificent monuments. From doing social service to serving the nation,
From learning the meaning of destiny to deciding a person's future,
From staying up all night to forgetting what time of the day it is,
From listening to bed time stories to taunting our own stories,
From anxiety to maturity,
From living the moment to making memories,
From spending money to opening savings account, From child to adult,
We all face these in the process of growing,
After all from birth to death with a pinch of experience is life.....

Aditi P
1st year AIML

The Eye

I say,
I feel,
I touch,
I conceal.
Hidden beneath a window,
Lies a glow,
That ignites the soul,
With ever hunger for more.

I grasp the world with my gaze,
This the reason you be,
Counted in days,
Until you are free.

Free from what you might ask?
I say, being judged,
scorned, disdained,
For under my mask,
I yearn not to be pained.

The horizons my limit,
Yet what I seek lies beyond it.
Wondrous divine light
makes up my world,
As I quest to be learned.

The world is my oyster,
I see beauty through my beholder,
I am mysterious,
For I contain the truth.

Shreyas Sreenivas
2nd year AIML

Student Submission

UNANSWERED QUESTIONS

There are days you can't talk,
And there are times you can't think,
There are nights reserved for conversations, that you again skip.
Conversations with yourself, the important conversations that you again push for another night,
Because it's not yet time, and you are too tired and you have no energy to fight.
But when is it ever going to be time and when are you ever not going to be tired?
Maybe you are tired because you have been carrying the burden of unanswered questions and thoughts, all mis-wired?
These unanswered questions have question marks that grow bolder and darker and stronger,
As days turn to weeks and weeks turn to months and months turn even longer?As time passes, what happens to these unanswered questions?
Do they become webs, trapping you and growing, thicker and denser?Or do they fade and become less scarier?
Do they explode like stars or do they contract like black holes, suckingin all your sanity?
Do they rot and smell,
Or do they simply vanish leaving behind a weird feeling, for eternity?
Do they chase you in dreams and haunt you, and with every passing dream,deeper they sink?
Or do they wait, for days you can talk and times you can think?
Do they wait until you sit for the conversation, and to do so, you have the courage?
Or do they simply eat you up, leaving you clueless in your own cage?Do they wait until there's no more room left for you to push them for another night or do they let you push them forever? But can you keep pushing them forever?
Don't they, like all things, become stronger and one day push you back so hard, that you have nothing to fall back on and you are forced to hold on to the question mark?
Or are they just nicer, simply becoming a string of unanswered questions till the very end, untouched and abrupt?
Like this?

M S Kaushik
1st year AIML

AI and Drones – An inevitable union

Drones are one of the most useful inventions of the current century, their potential knows almost no limits. What a drone basically is, is an unmanned aerial vehicle, that more often than not has some specialized equipment on board to do a specific task. So that brings up the question, if it's unmanned, who flies it?

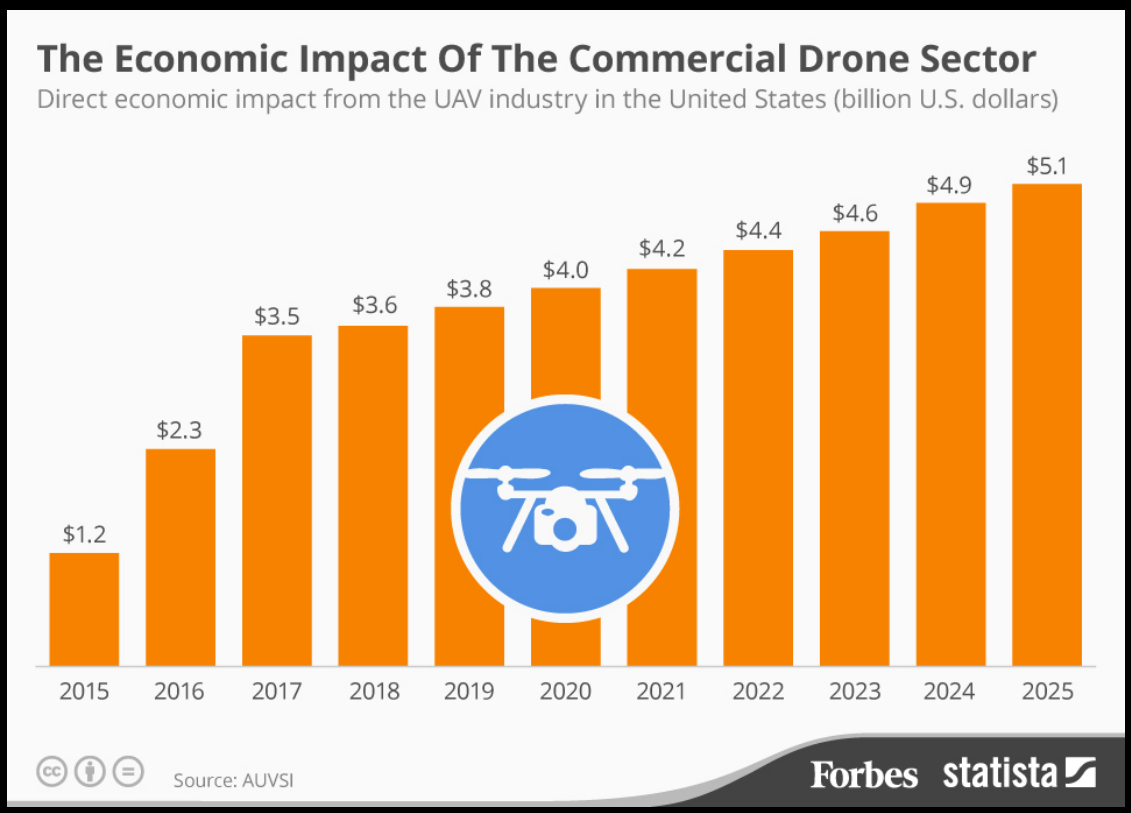
Until a few years ago, the answer to that question, in most cases, would have been a drone operator, i.e, a person that uses remote sensors and controllers to maneuver the drone. But now, AI has entered the field of unmanned navigation, and it is taking the stage by storm! More and more drone developers are ditching conventional methods, and outfitting their drones with AI based navigation and decision-making systems. In the traditional way of deploying drones, a drone pilot controls one or two drones with his remote console, making his decisions based on feedback sent to him by sensors onboard the drone. This system of deployment is plagued with the risk of human error and the possibility of remote sensors malfunctioning, which could lead to damage to the drone.

An Amazon Prime-Air drone

AI and Drones – An inevitable union

Now these drones don't come cheap! A lot of industrial input and costly materials go into making cutting-edge drones. So, naturally, the owner would want to minimize any risk to the drone. This is one of the areas in which AI excels. Response times of AI based control systems are far lesser than any human being's. In the space required by a drone operator to control one drone, a centralized computing hub could be set up, which can be designed to control a whole fleet of drones! The advantages that AI brings with it are propelling the drone industry to heights that were previously unreachable.

One well-known example of this, is Amazon's new Prime Air delivery system. This revolutionary new initiative aims to implement automated drones to deliver packages right to the doorsteps of customers. Plans for implementing Prime Air were first made public in 2013 by Amazon's CEO, Jeff Bezos.

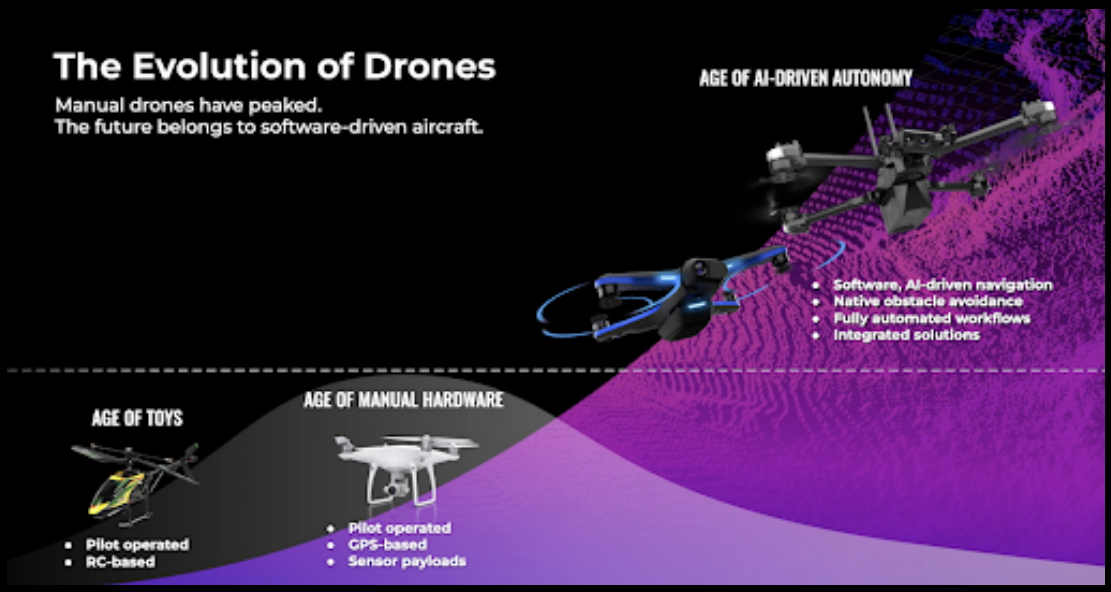


Economic Impact of the drone industry

AI and Drones – An inevitable union

Big names like NASA and SESAR were immediately roped into this project, which allowed it to progress at a searing pace. Just 3 years after this, Amazon successfully delivered it's first package, which consisted of some popcorn and an Amazon Firestick, using drones in Cambridge, UK. The successful implementation of this delivery system meant that customers could get their orders delivered to them as fast as 30 mins after placing the order! It also nearly eliminated the cost of last mile connectivity, which was the highest of all costs involved in package delivery.

With so many pros, and almost no cons, it's no surprise that the drone industry is racing to upgrade itself with AI. This is quickly becoming the case with many other industries, as such integrations of technologies creates solutions to problems that previously had no answers. Considering all these factors, there can be no doubt in one's mind that AI is paving the way to a better and more productive future for all.



Trends in the drone industry

-Sudhanva Satish
3rd sem, AIML, BMSIT&M

How safe is a bitcoin?

What does Craig Wright, Dorian Nakamoto and Nick Szabo have in common, apart from being stalwarts in the field of computer science, well they have all been pegged as the founder of bitcoin Satoshi Nakamoto. While no one really knows the true identity of the founder of bitcoin most are familiar with his work and we have all seen the benefits of it and if not directly have at least heard of its potential uses. I'm not here to speak of its benefits. There are plenty who will do so and many more to back them but my question arises as to what happens if Shor's algorithm proves to be able to crack a public key cryptography. The foundational principle upon which blockchain relies upon is its shared ledger and and also its high security, current systems cannot break it at least not efficiently but throw quantum computers into the dynamic and there emerges a possibility that there could be a break in security. So what is a quantum computer, what is Shor's algorithm and what does it all mean?

Let's start off with what a quantum computer is according to the MIT technology review :
A quantum computer harnesses some of the almost-mystical phenomena of quantum mechanics to deliver huge leaps forward in processing power. Quantum machines promise to outstrip even the most capable of today's—and Tomorrow's—supercomputers. The secret to a quantum computer's power lies in its ability to generate and manipulate quantum bits, or qubits; they can represent
numerous possible combinations of 1 and 0 at the same time. This ability to simultaneously be in multiple states is called superposition. In simple terms they can crunch data at an exemplary speed.

How safe is a bitcoin?

So now, what is Shor's algorithm?

Shor's algorithm is a polynomial-time quantum computer algorithm for integer factorization. Informally, it solves the following problem:

Given an integer N, find its prime factors.
So how do they combine to make an otherwise impossible task well within the realm of possibility given the right tools? Shor's algorithm is a quantum algorithm for factoring a number N in O((log N)3) time and O(log N) space and it is significant because it implies that public key cryptography might be easily broken, given a sufficiently large quantum computer.

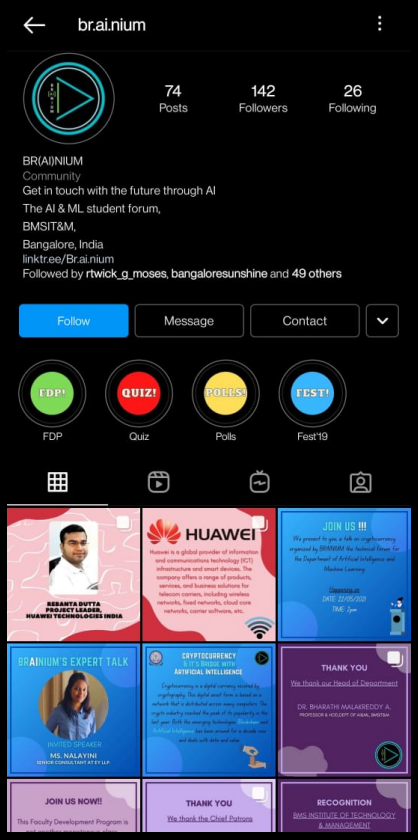
So what was once an impossible task can now occur. So the question arises as to if its possible and if so, how close are we to a decimation of this technology?

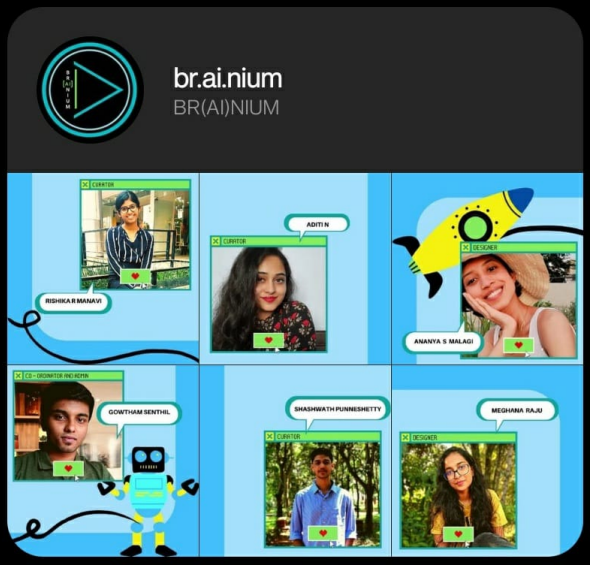
Sadly, the answer is that we don't know. The current quantum computers are still in its infancy and I personally don't see scientists turning it to destroy financial institutions but at the same time the prevalence of these and many more systems should be discussed further to better understand their implication as many have invested both time and energy to build upon these platforms.

-Rtwick George Moses
3rd sem, AIML, BMSIT&M

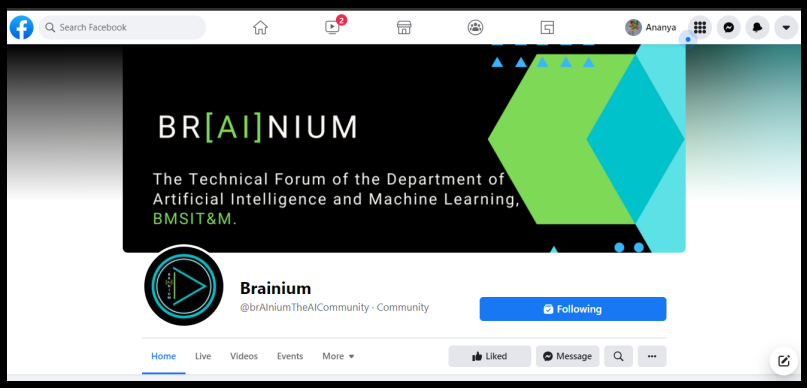
Social Media

@br.ai.nium

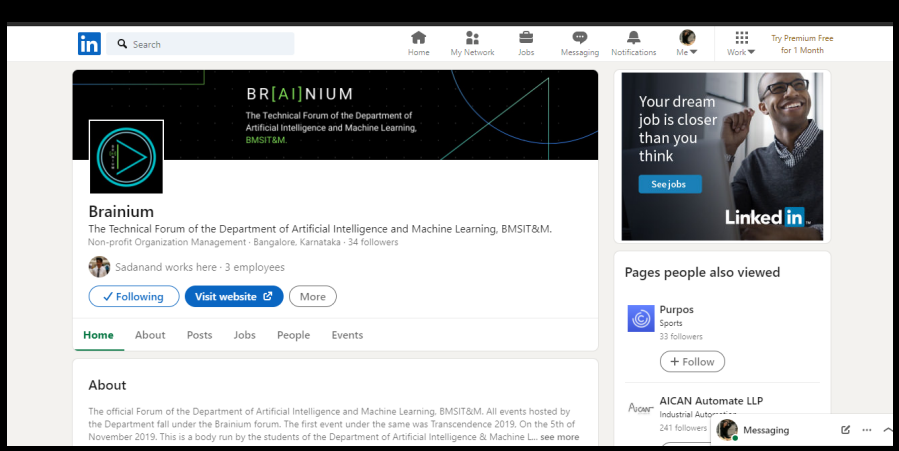




@brAIniumTheAICommunity

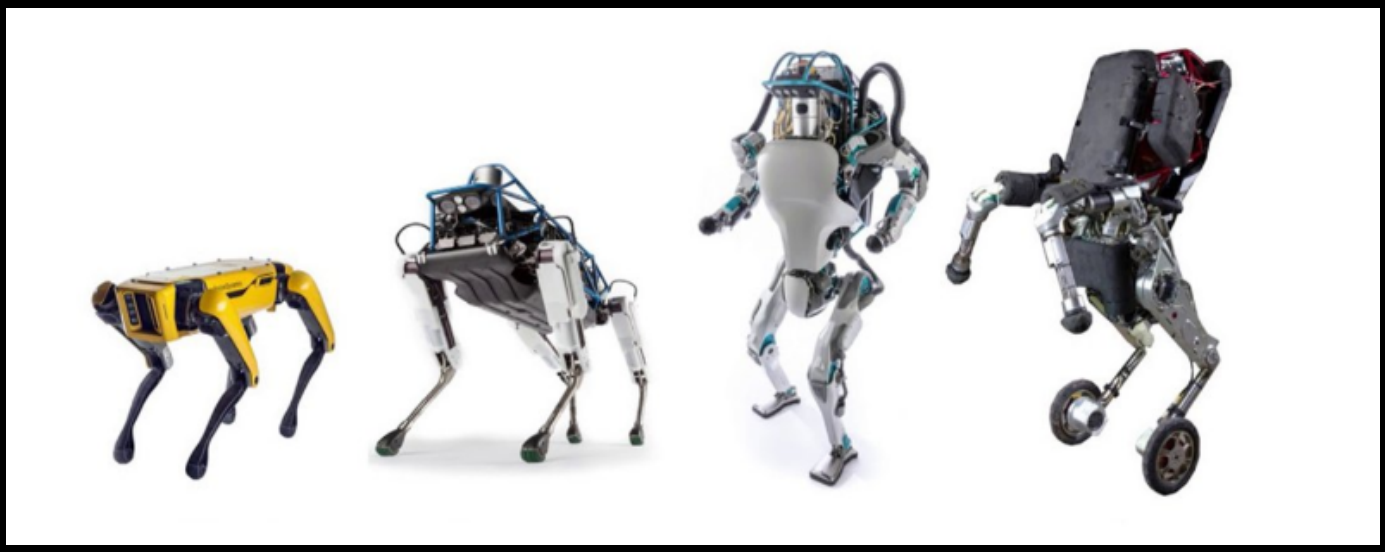


Brainium



"BRAINIUM is now official on most of the social media sites. Do follow us for everyday updates."

Fun Section



What if you could access your sites remotely in real time from anywhere in the world? What if you could capture unlimited data about your site safely, efficiently and frequently? What if you could keep your workers safe from hazards without losing accessibility or operational visibility?

Comprehensive awareness of your operations enables quick responses to changing conditions on the ground. At the same time, frequently collected, well-structured data empowers your intelligent systems to provide greater insight and business value. Together, they empower quick, informed decision making, operational efficiencies and real business agility.

IoT and other Edge technologies demonstrate the potential of site data, however fixed sensors are costly to deploy and can't respond to changing conditions on the ground, often leaving you without situational awareness when you need it the most. Agile mobile robots like Boston Dynamics' Spot provide an out-of-the-box solution that can bring the right sensors to the right place at the right time.

These quadrupedrobots may resemble dogs, but their superhuman sensing ability, smartand safe autonomy and powerful integrations enable innovation, agility and operational efficiencies across industrial organizations—providing powerful advantages over the competition.

Fun Section

Use Robots to Improve Operational Efficiency

Organizations that want to succeed in this environment need to find ways to feed actionable information to people and automated business systems for quick, informed decision making. This allows them to react to changing marketing conditions, adapt to rising customer expectations and take advantage of opportunities before competitors.

Business process automation starts with accurate, reliable data, but most organizations continue to rely on manual data collection by people. Data collection performed by humans is prone to errors, expensive and slow. It's also often hazardous or impractical in remote environments. Operational efficiency comes from shifting human work to higher-level tasks and decision making.

Agile mobile robots are a disruptive technology that are changing the way industrial organizations operate and how construction firms manage site progress. Hype aside, they can generate substantial ROI for innovative companies who have the bold vision to leverage their capabilities.

Direct ROI from agile mobile robots is straightforward and compelling: increasing safety by removing workers from hazardous environments, freeing skilled labor from routine data collection, reducing travel and operating cost and improving efficiency by getting the right data at the right time.

But these are just the tip of the iceberg. Indirect ROI—the benefits that result from 100x improvements in remote and autonomous data collection and seamless integration into existing systems—is harder to measure but far greater in magnitude

Fun Section

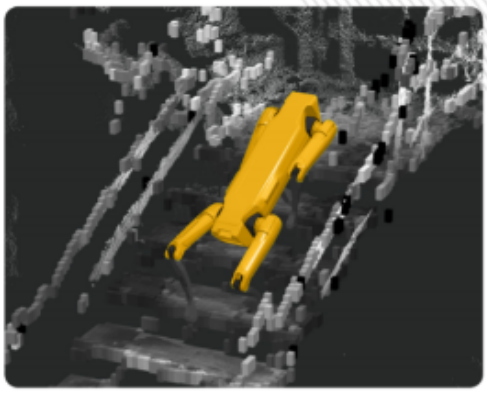
Incremental Proof of Concept Testing using Robots

Regular Site Scans

Daily site walks that capture 360 images and/or laser scans at repeatable locations and send the data wirelessly to the cloud where they are processed by software and algorithms to generate valuable insight such as work-in-place reports.

Closing Data Gaps

Remotely access the robot to inspect an area of your environment where an issue has been reported or that you've found to be under-documented and send the inspection data to a centralized location accessible by your facility management platform.



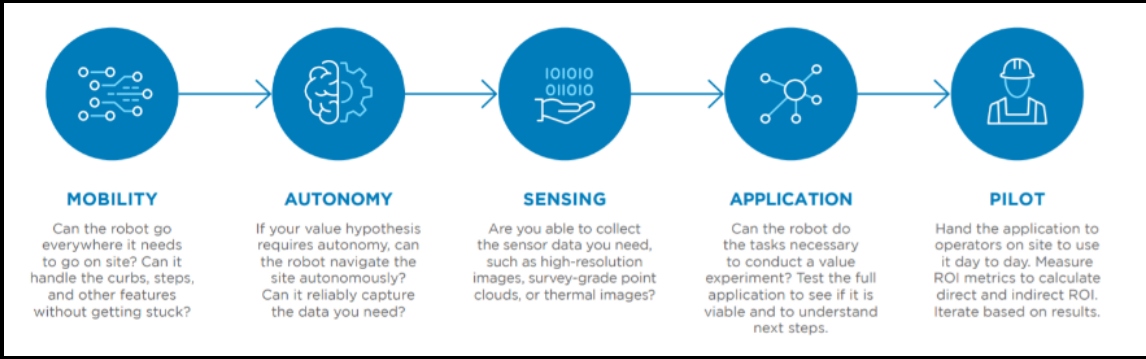
Automated Inspection

Automate operator rounds and readings by sending inspection images through an edge CV pipeline before uploading to your business intelligence dashboard.

Fun Section

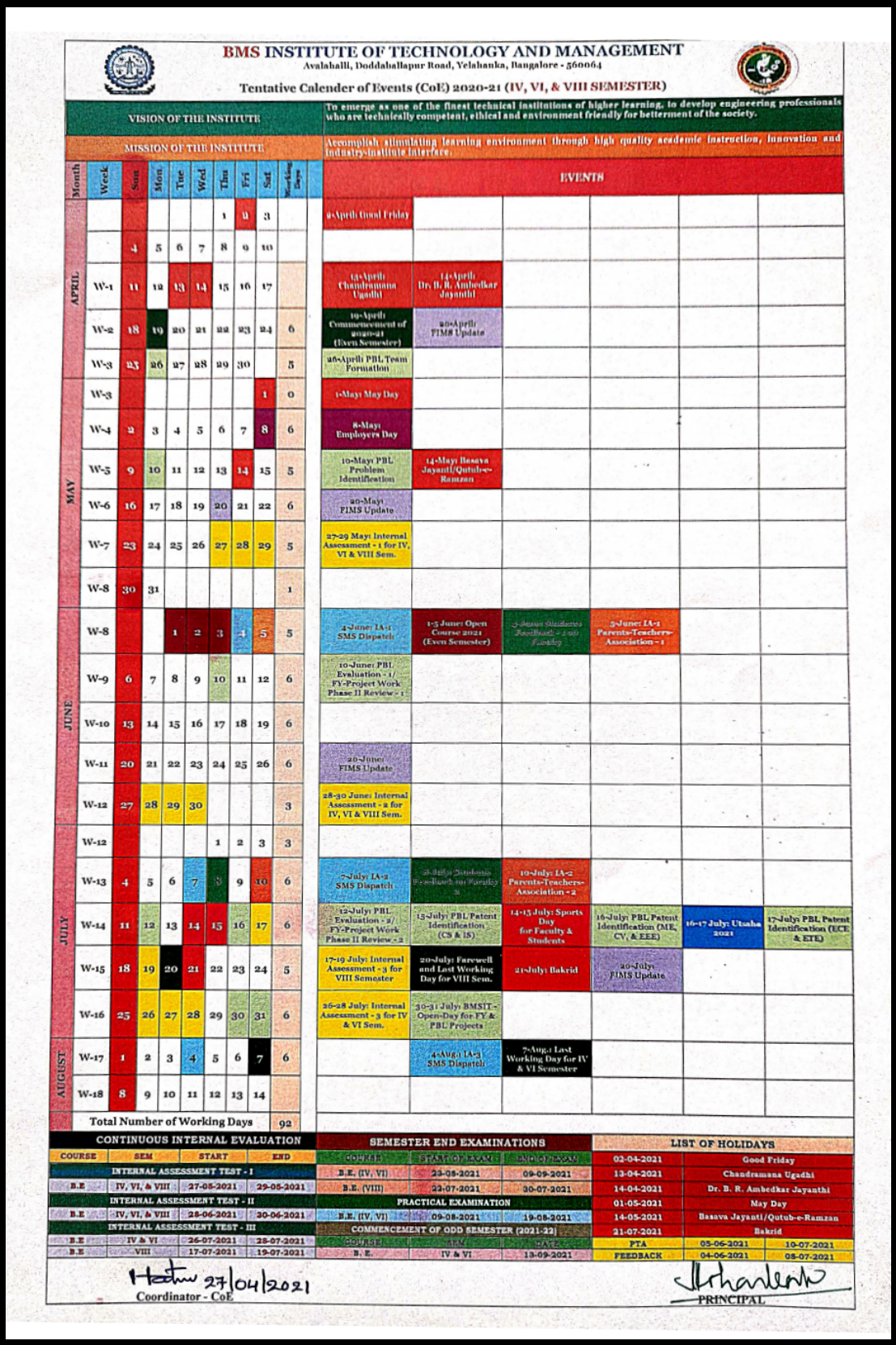
How automating the tasks with agile mobile robots can be productive and cost effective?

- Safer work environments for staff
- Reduced travel and operating costs
- Increased stakeholder engagement
- More efficient data collection
- Better protection from litigation



-Shashank Ramesh
2nd Sem, AIML, BMSIT&M

CoE



BMS INSTITUTE OF TECHNOLOGY AND MANAGEMENT
Avalahalli, Doddaballapur Road, Yelahanka, Bangalore - 560064

Tentative Calender of Events (CoE) 2020-21 (IV, VI, & VIII SEMESTER)

VISION OF THE INSTITUTE	To emerge as one of the finest technical institutions of higher learning, to develop engineering professionals who are technically competent, ethical and environment friendly for betterment of the society.
MISSION OF THE INSTITUTE	Accomplish stimulating learning environment through high quality academic instruction, innovation and industry-institute interface.

Month	Week	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Working Days	EVENTS
APRIL						1	2	3		2-April: Good Friday
		4	5	6	7	8	9	10		
	W-1	11	12	13	14	15	16	17		13-April: Chandramana Ugadhi; 14-April: Dr. B. R. Ambedkar Jayanthi
	W-2	18	19	20	21	22	23	24	6	19-April: Commencement of 2020-21 (Even Semester); 20-April: FIMS Update
	W-3	25	26	27	28	29	30		5	26-April: PBL Team Formation
MAY	W-3							1	0	1-May: May Day
	W-4	2	3	4	5	6	7	8	6	8-May: Employers Day
	W-5	9	10	11	12	13	14	15	5	10-May: PBL Problem Identification; 14-May: Basava Jayanti/Qutub-e-Ramzan
	W-6	16	17	18	19	20	21	22	6	20-May: FIMS Update
	W-7	23	24	25	26	27	28	29	5	27-29 May: Internal Assessment - 1 for IV, VI & VIII Sem.
	W-8	30	31						1	
JUNE	W-8			1	2	3	4	5	5	4-June: IA-1 SMS Dispatch; 1-5 June: Open Course 2021 (Even Semester); 3-June: Students Feedback - 2 on Faculty; 3-June: IA-1 Parents-Teachers-Association - 1
	W-9	6	7	8	9	10	11	12	6	10-June: PBL Evaluation - 1/ FY-Project Work Phase II Review - 1
	W-10	13	14	15	16	17	18	19	6	
	W-11	20	21	22	23	24	25	26	6	20-June: FIMS Update
	W-12	27	28	29	30				3	28-30 June: Internal Assessment - 2 for IV, VI & VIII Sem.
JULY	W-12					1	2	3	3	
	W-13	4	5	6	7	8	9	10	6	7-July: IA-2 SMS Dispatch; 8-July: Students Feedback on Faculty - 2; 10-July: IA-2 Parents-Teachers-Association - 2
	W-14	11	12	13	14	15	16	17	6	12-July: PBL Evaluation - 2/ FY-Project Work Phase II Review - 2; 13-July: PBL Patent Identification (CS & IS); 14-15 July: Sports Day for Faculty & Students; 16-July: PBL Patent Identification (ME, CV, & EEE); 16-17 July: Utsaha 2021; 17-July: PBL Patent Identification (ECE & ETE)
	W-15	18	19	20	21	22	23	24	5	17-19 July: Internal Assessment - 3 for VIII Semester; 20-July: Farewell and Last Working Day for VIII Sem.; 21-July: Bakrid; 20-July: FIMS Update
	W-16	25	26	27	28	29	30	31	6	26-28 July: Internal Assessment - 3 for IV & VI Sem.; 30-31 July: BMSIT - Open-Day for FY & PBL Projects
AUGUST	W-17	1	2	3	4	5	6	7	6	4-Aug.: IA-3 SMS Dispatch; 7-Aug.: Last Working Day for IV & VI Semester
	W-18	8	9	10	11	12	13	14		
	Total Number of Working Days								92	

CONTINUOUS INTERNAL EVALUATION

COURSE	SEM	START	END
INTERNAL ASSESSMENT TEST - I			
B.E	IV, VI, & VIII	27-05-2021	29-05-2021
INTERNAL ASSESSMENT TEST - II			
B.E	IV, VI, & VIII	28-06-2021	30-06-2021
INTERNAL ASSESSMENT TEST - III			
B.E	IV & VI	26-07-2021	28-07-2021
B.E	VIII	17-07-2021	19-07-2021

SEMESTER END EXAMINATIONS

COURSE	START OF EXAM	END OF EXAM
B.E. (IV, VI)	23-06-2021	09-09-2021
B.E. (VIII)	22-07-2021	30-07-2021
PRACTICAL EXAMINATION		
B.E. (IV, VI)	09-08-2021	19-08-2021
COMMENCEMENT OF ODD SEMESTER (2021-22)		
COURSE	SEM	DATE
B. E.	IV & VI	13-09-2021

LIST OF HOLIDAYS

02-04-2021	Good Friday
13-04-2021	Chandramana Ugadhi
14-04-2021	Dr. B. R. Ambedkar Jayanthi
01-05-2021	May Day
14-05-2021	Basava Jayanti/Qutub-e-Ramzan
21-07-2021	Bakrid
PTA	05-06-2021 to 10-07-2021
FEEDBACK	04-06-2021 to 08-07-2021

Coordinator - CoE 27/04/2021

PRINCIPAL

Memory Booth

Memory Booth

How many lemon teas??

MOMOS!?!?

Signing OFF

We, the team of Circadian would like to thank the department of AI&ML, our highly regarded Principal of BMSIT&M and you, our dear readers, for making all our efforts to compile this magazine worthwhile. We hope to continue to publish many more editions of Circadian for all of you.

Thank you

The Official Magazine of
The Department of Artificial Intelligence and Machine Learning