# fr.CRCE

**FR. CONCEICAO RODRIGUES
COLLEGE OF ENGINEERING**
MOULDING ENGINEERS WHO CAN BUILD THE NATION

# OFFICIAL NEWSLETTER
# TECH PULSE
# 2023

# ISSUE 5

DEPARTMENT OF
**ARTIFICIAL INTELLIGENCE**
& **DATA SCIENCE**

EMBRACE THE UNWRITTEN,
UNFOLD POSSIBILITIES.

# TECHPULSE

**fr.CRCE**
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## VISION

To mould high-quality, innovative, and ethical AI engineers to become part of the global workforce and contribute to the betterment of society

## PROGRAM SPECIFIC OUTCOMES

The graduates of BE in Artificial Intelligence & Data Science program will have strong foundation and ability to use cutting-edge AI tools and techniques to innovate and develop new solutions

## EDITORIAL TEAM

**Faculty In-Charge:**
➢ **Prof. Garima Tripathi**

**Student In-Charge:**
➢ **Sahil Khan, SE AI & DS**

## MISSION

➢ Provide students with a skill-based education that will help them master problem-solving and analytical skills, as well as expand their domain expertise.

➢ Promote continuous learning and research in the core and emerging areas of AI and Data science as well as facilitate an excellent scholastic environment for students and faculty by developing center of excellence in advanced technology.

## PROGRAM EDUCATIONAL OBJECTIVE

➢ Innovate, create, analyze, design, implement and test AI-based solutions to solve real-world business problems.

➢ Adapt to changing AI-DS technology and use it in a multidisciplinary context.

➢ Develop and demonstrate leadership and interpersonal skills in their chosen field.

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# FOREWORD FROM H.O.D

## DR. JAGRUTI SAVE

**fr.CRCE**
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MOULDING ENGINEERS WHO CAN BUILD THE NATION

I am delighted to share the fifth edition of our department newsletter 'TechPulse 2023'. This newsletter provides a platform for displaying the activities and highlighting our department's milestones. I extend my best wishes to the students and congratulate the entire faculty and editorial team on making this issue more informative through their contributions.

Everywhere AI is a trendy term. The incredible power of automated systems driven by AI and DS fascinates humans. The way people work, think, interact, learn, and play will significantly shift during this decade while it will improve lives for people in numerous ways. Along with it, there are associated challenges such as security risk, loss of human connection, and potential job losses.

However, it is up to people to use technology for the benefit of humanity. To prevent unfavourable effects on society, developers must give ethical considerations for AI technologies first priority. We should have faith in our capacity for thought, human intelligence, and work ethic. It's important to always bear in mind that human intelligence is always greater than any technology.

To have a successful career as data analyst, data scientist or AI engineer, my advice to students : Learn essential concepts of statistics, Become expert in either Python or R, Become familiar with tools like Github, Jupyter notebooks, Tableau etc. and Enhance Your Soft Skills like empathy, cooperation, team work and communication. I am confident that my students will succeed. Best regards

# MAREENA FERNANDES

**FR. CRCE**
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## INFO TECH, 2022

Looking back on my journey at Fr. CRCE, I am filled with a sense of empowerment, nostalgia, gratitude, and excitement for the future. While graduating from this esteemed institute brings me immense pride, it is the transformative journey I have undergone that truly fills me with a greater sense of accomplishment.

Since the first day of college, the IT department at Fr. CRCE has provided me with a welcoming environment, allowing me to express myself and flourish as an individual. From the demanding academic pursuits to the lively celebrations during festivals, every moment spent at this institution has been brimming with excitement and challenges. This unique blend of constant learning and curiosity has paved the way for both my personal and professional growth throughout my four-year tenure at CRCE.

During these years, I vividly recall immersing myself in a plethora of extracurricular activities and clubs, expanding my horizons far beyond textbooks and assignments. Engaging in volunteering activities filled me with immense gratitude for my life as I extended a helping hand to the less fortunate. Additionally, I had the privilege of participating in a technical team, representing both CRCE and India on an international stage. The numerous sporting events held throughout the year not only brought joy but also instilled a newfound confidence within me, enabling me to express myself boldly.

Perhaps my proudest memory from this institute was the day I received the BE All Rounder (female) title for the 2022 batch. This accolade perfectly encapsulated my time spent at the college and within my department, symbolizing the significant growth I underwent. As an alumnus of this esteemed institution, I am proud to carry with me the cherished memories, valuable lessons, and lifelong friendships that have shaped my time at Fr. CRCE. It will forever hold a special place in my heart, serving as the foundation upon which I will build a successful and fulfilling career in the ever-evolving world of technology.

# HALL OF FAME

FR. CRCE

FR. CONCEICAO RODRIGUES
COLLEGE OF ENGINEERING
MOULDING ENGINEERS WHO CAN BUILD THE NATION

## YASH GURAV
### TE AI & DS

> 3rd position at Interzonal Taekwondo Tournament.

> Bronze medal at 34th Maharashtra state senior Men's kyorugi Taekwondo championship.

> first position at Inter-colligiate Taekwondo Men's Tournament held at Anna Leela College.

## ATHARVA PATIL
### SE AI & DS

> 30th position at 8th West zone shooting Championship at Ahmedabad,Gujarat

> Participated in the 65th National Shooting Championship Competitions in Rifle Event at Thiruvanthapuram

## NICOLE MASCARENHAS
### SE AI & DS

> 1st position in Our-research R-Act held at IES"s Management college and research centre

## GRACE PEREIRA
## ANDRE ISAAC
## SACHI SHAH
## MEET SATRA
### TE AI & DS

> Runner-up in Unscript 2k23 held at FR CRCE

## VINIT DAVE
## JACE TUSCANO
### TE AI & DS

> Runner-up in IGNITRA 2023 held at St.francis institute of Technology

## EDRYN EAZHAKADAN
### TE AI & DS

> 2nd Position in BIT N BUILD held at FR CRCE

# HALL OF FAME

## ACM Chapter
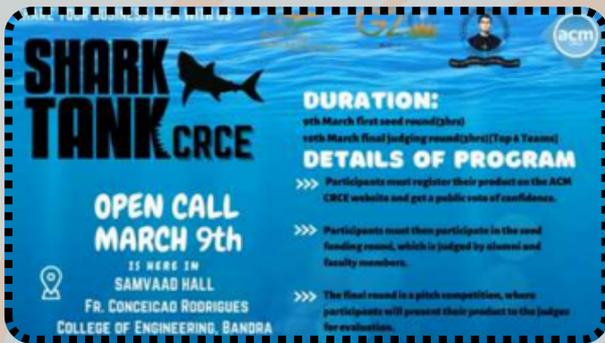
*The event Shark tank 'CRCE' was indeed a great success and ACM CRCE-received the 'Best Startup Event award under IIC – Fr CRCE during crescendo 2023*

# SE AI & DS



# TE AI & DS



SE AI & DS

# DEPARTMENT EVENTS

## CONVOCATION OF INFO TECH BATCH OF 2022



*The Convocation of the Information Technology Engineering batch of 2022 was held on 18th March 2023.*

*It was a wonderful day with the content faces of graduates as well as their family and friends.*

*Congratulations to the I.T batch of 2022 !!!*

# SE ORIENTATION AND MENTORING BY THIRD YEAR STUDENTS.





On 8th August 2022 an orientation was held for SE AI & DS students by the students of TE AI & DS Class.
This orientation was focused on exam preparations, ideas for mini projects and importance of programming languages.

During the orientation every student had their concerns and doubts which were well handled and solved.
Some amazing websites were also shared, where students can get free courses. Mohit Pansare, Rhea Bhalekar, Bilal Ahmed and Pratham Kambli were the students who lead this successful orientation where all the student cleared their doubts.

This event boosted the confidence of students and second year students got an overall idea about the coming year and what all things to be executed and done that may benefit the future.

# INDUSTRIAL VISIT TO SICK INDIA PVT.LTD

**Industry Name : SICK INDIA PVT LTD**
**Date : 23rd September 2022**
**Venue : Naigoan (E)**

Institute of Electrical and Electronic Engineers (IEEE)-CRCE in Association with the AI & DS department organized an Industrial visit at SICK INDIA PVT LTD on 23rd September 2022. This industry situated at Naigoan (E) is a leading intelligent sensor manufacturer and provides industrial applications sensor solutions. Faculty members of the AI & DS department went for this industrial visit.



SICK Industries manufactures sensors at their German plant and they assemble all the sensors at their plants in Mumbai, New Delhi, Bangalore, Pune, Jamshedpur, Ahmedabad and Chennai. SICK also has wide distributor networks to provide solutions to every industry

SICK INDIA PRIVATE LIMITED was established in February 2005 to cater to the needs of Indian customers locally in line with the high-quality products and services that the SICK Group is renowned for worldwide.

SICK - one of the world's leading producers of sensors and sensor solutions for industrial applications. SICK is a technology and market leader in Factory and Logistics Automation as well as Process Automation. It manufactures world-class sensors like laser sensors, object detection sensors, etc. and all these sensors are used in Airports.

All the faculty members gained information about the advancing sensors industry, how the sensors are getting manufactured, quality control programs used in the Industry, logistics management, client requirements, etc.



The major learning in the industrial visit was about the sensor technology used in the airport system. Right from the motion sensors that turn lights on and off depending on human presence, to Radio Frequency Identification (RFID) tags that accurately track baggage through the airport and on to its final destination to various sensors such as laser surface motion sensors, used in airports to check the movement of luggage, they explained the entire planning of automation of the working of these sensors at the airport.

They also explained about the different types of sensors which are used in Petroleum companies. Various types of Pressure sensors, Temperature sensors, and Position sensors which are used in very harsh environments are manufactured by them. These sensors are corrosion-proof, explosion-proof, water proof, etc. He then explained how the combined inputs of all these sensors are helping the Petroleum industry to control highly flammable substances.

# FACULTY DEVELOPMENT PROGRAM (FDP)
## ORGANIZED BY
# COMPUTER ENGINEERING DEPARTMENT AND AI & DS DEPARTMENT

**Event Name** : *"NLP USING DEEP LEARNING" workshop*
**Date** : *30th Sept and 3rd Oct, 2022*
**Platform** : *Zoom*

Faculty Development Program (FDP) on "NLP USING DEEP LEARNING", 30th Sept and 3rd Oct 2022 was organized by Computer Engineering Department and AI & DS Department.

NLP using Deep learning is one of the most active areas of Research in the Deep Learning space and is one of the stepping stones towards unlocking Artificial General Intelligence.

The objective of the event was to help the students understand the basics of NLP and provide hands-on experience in NLP which will benefit the faculty and students in their Research Domain and Project Implementation in NLP.

The FDP witnessed Total number of Participants 36.

| Day | Time (IST) | Resource Person | Topic |
|---|---|---|---|
| **Day 1**<br>**(30/09/2022)**<br>**Friday** | 1.00pm-1.15pm | ---- | Inauguration<br>/Welcome address |
| | 1.15pm -3.00pm | Mr. Rocky Jagtiani | NLP and its components<br>Applications and challenges<br>NLP pipeline, Practical tryouts |
| | 3.00pm -3.15pm | Session Break | |
| | 3.15pm -4.00pm | Mr. Rocky Jagtiani | NLTK built in functions-Practical tryouts,<br>Demonstration of Text processing-Practical tryouts |
| **Day 2**<br>**(3/10/2022)**<br>**Monday** | 1.00pm-3.00pm | Mr. Rocky Jagtiani | Feature Engineering of Text data<br>Feature extraction techniques-Practical tryouts |
| | 3.00pm -3.15pm | Session Break | |
| | 3.15pm -4.00pm | Mr. Rocky Jagtiani | Case study discussion |

## DAY - 1

The session started with the brief introduction of the topic by Dr. Jagruti Save, HOD of AI & DS Department and Dr. Sujata Deshmukh, HOD Computers Department.

Prof. Kranti Wagle gave the introduction about the Resource Person Mr. Rocky Jagtiani Suven, Master in Data Science, ML and AI Trainer, Project Consultant to RTI, UpGrad, SimpliLearn, Morgan Stanley, Accenture.

Mr. Rocky started with a detailed introduction which included : what is NLP, why we need NLP, its terminologies and finally the applications of NLP in various fields.

He started with the first topic - Collection of text data using twitter APIs, where he mentioned the necessary steps for creating the twitter developer's account to access the tweets for the project.

After the developers' account was created by all the participants, He started explaining the Colab notebook which was shared to the participants. Almost everyone was able to access the tweets for the given condition

The next topic was related to sentiment analysis. Under this the participants had to classify the given particular tweet as "positive" , "negative" or "neutral". This exercise too was successfully completed by all the participants.

He then discussed the other popular cases of NLP, among which text mining was discussed in detail. He started with text extraction and text pre-processing steps which covered topics like tokenization, stop word removal, stemming, lemmatization, POS tagging and information retrieval.

The second day started with an introduction to feature extraction and its techniques, which included : Bag of words, N-Gram, Document-Term Matrix and TF-IDF.
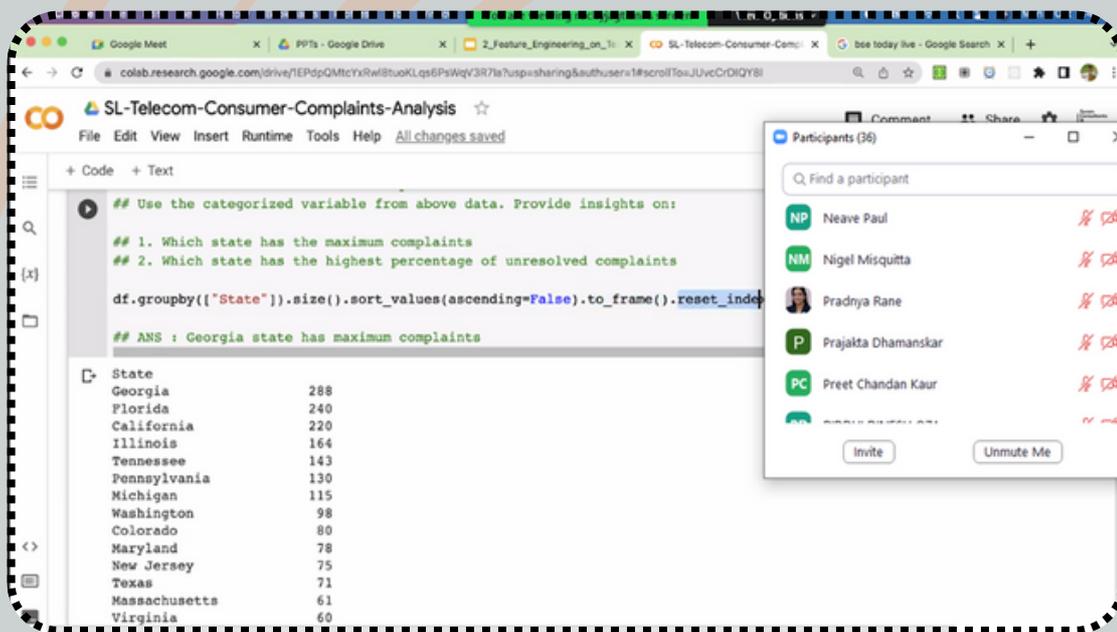
The topic was covered in detail by analysis of Telecom Consumer Complaints, whose colab was shared by the speaker . The problem statement to be solved was focussed on finding the percentage of complaints resolved till date, which were received through the internet and customer care cells.

The next topic was the detailed introduction to Bag of words and common terms used in it : term, term frequency and term matrix. This was continued with TF-IDF, Word2vec Algorithms.

The FDP concluded by giving vote of Thanks and feedback from Few Participants. The overall sessions was very interactive and benefited the Faculty and students, enriching their Knowledge in NLP .
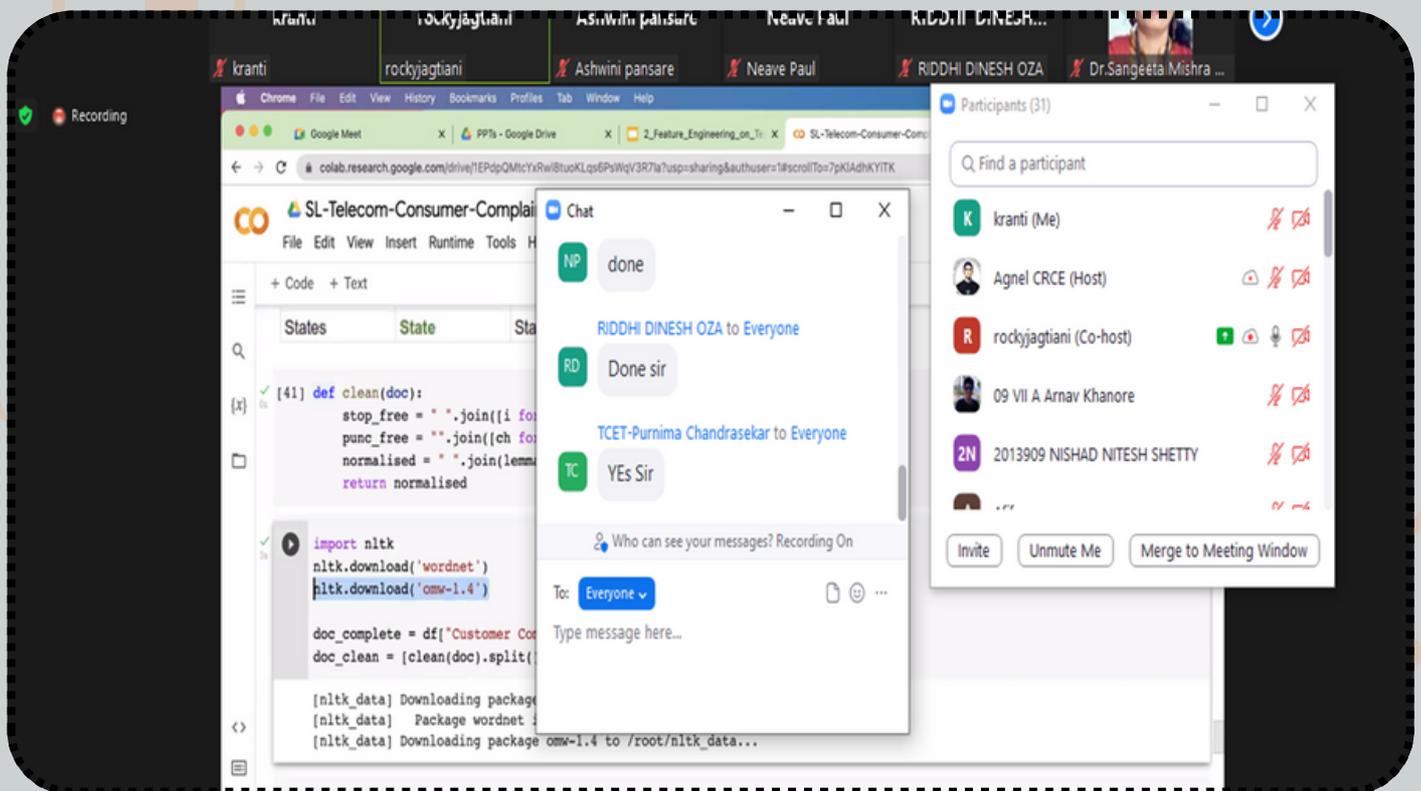
# ASSOCIATION FOR COMPUTING MACHINERY

## MY STORY - BY SOJAN CHANDY

ACM at Fr. Conceicao Rodrigues College of Engineering, Bandra, Mumbai, organised a Webinar on My Story.

| | | |
|---|---|---|
| Name of the event | : | My Story |
| Guest Speaker | : | Sojan Chandy |
| Date of event | : | 2nd April 2022, 4.00 - 5.00 PM |
| Location of the event | : | Online event via Google meet |
| Number of Students attended | : | 50 |

The event was organised for Faculty and students of all branches and years. The objective of this webinar was to inform students about vast career opportunities after getting graduated as an engineer. An engineer is not only meant to solve problems but also have a perspective to build a better and smart technology. Good technology benefits society greatly.

## PORTFOLIO AND API DEVELOPMENT

ACM at Fr. Conceicao Rodrigues College of Engineering, Bandra, Mumbai, organised one workshop on Portfolio and API Development.

| | | |
|---|---|---|
| Name of the event | : | Portfolio and API Development |
| Guest Speaker | : | Sahil Bodke, Bilal Ahmed |
| Date of event | : | November 12th 2022, 7.00-9.30PM |
| Location of the event | : | Online event via Google meet |
| Number of Students attended | : | 40 |

The objective of this workshop was to generate students' interest towards portfolio and API development. As students across all branches attended and most of them had an app/web portal as a topic in their mini project, this session was indeed a fruitful one.

# INDIA STARTUP DAY

Association of Computing Machinery at Fr. Conceicao Rodrigues College of Engineering, Bandra, Mumbai, organised one seminar on the occasion of India Startup day.

| | |
|---|---|
| Name of the event | : India Startup day. |
| Guest Speaker | : Mr. Sonal Sinha (Founder of Youthpreneur) |
| Date of event | : October 3rd 2022, 1.30 - 3.30 PM. |
| Location of the event | : Samvaad hall. |
| Number of Students attended | : 113 |

The Main objective of this webinar was to encourage students to take up entrepreneurship as their career instead of the same old conventional path of working under a firm.



# MARKET SURVEY AND FEASIBILITY STUDY FOR YOUR BUSINESS IDEA

ACM at Fr. Conceicao Rodrigues College of Engineering, Bandra, Mumbai, organised one webinar on Market Survey and feasibility study for your business idea.

| | |
|---|---|
| Name of the event | : Market Survey and Feasibility Study for business idea |
| Guest Speaker | : Dr. Shilpa Khandelwal |
| Date of event | : September 14th 2022, 7.00-8.00PM |
| Location of the event | : Online event via Google meet |
| Number of Students attended | :109 |

The objective of this webinar was to generate student's interest in market surveys and how one should approach the feasibility study and to motivate them to come up with innovative ideas to combat various societal issues.
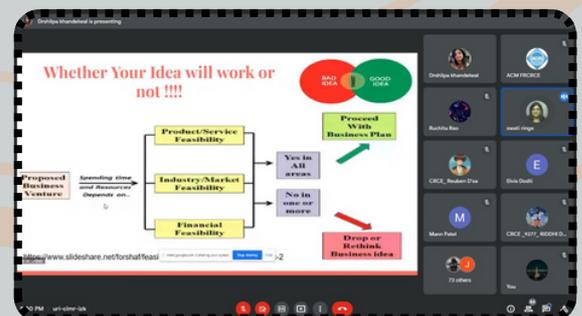
# SYNERGY - NERF BATTLE

ACM at Fr. Conceicao Rodrigues College of Engineering, Bandra, Mumbai, organised Nerf Battle as an event for Synergy.

| | | |
|---|---|---|
| Name of the event | : | Synergy- Nerf Battle |
| Date of event | : | October 21st 2022, 10.30 AM - 5.30PM |
| Location of the event | : | ED Hall (510) |
| Number of Students attended | : | 88 |

The objective of this event was to encourage team spirit among the students of the same class and to promote friendly competition and to test the strategies and tactics that the respective team leaders come up with.



# CRESCENDO - SHARK TANK CRCE

ACM at Fr. Conceicao Rodrigues College of Engineering, Bandra, Mumbai, organised an event titled  Shark Tank CRCE .

| | | |
|---|---|---|
| Name of the event | : | Shark Tank CRCE |
| Guest | : | Mr. Sonal Sinha, (Founder of Youthpreneur) |
| Date of event | : | March 9th 2023, 10.00-4.00PM |
| Location of the event | : | Samvaad hall and Room 703 |
| Number of Students attended | : | 48 |

Shark tank being an entrepreneur inclined show-business allows budding entrepreneurs to showcase their product, business idea to a panel of investors also called as 'Sharks', who then make an investment looking at the potential of the product in the market in exchange of some equity in the company.

# CAREER PROSPECTS IN ARMED FORCES



*Brigadier Ajit Srivastav conducted a session for the second and third year students on "Career Prospects in Armed Forces"*

*A brief insight about the various opportunities in Army and Navy for the Engineering Graduates was given. The qualifying exams and criteria for selection was mentioned.*

# PARENT TEACHER MEETING
## [FOR SECOND YEAR]

**Date** : 04 / 02 / 2023
**Time** : 10.00am - 2.00pm
**Number of parents** : 41
**No. of students** : 38

### Objective of session:

➢ *To make parents aware about the department vision and recent developments in the department.*

➢ *To discuss and exchange ideas on holistic development of the students.*

*P*arent Teacher Meeting for the second year students was conducted on 4th February 2023.

The meeting started off with the welcome of parents by the Head of the department, Dr. Jagruti Save.

Ma'am shared the vision and mission of the department and talked about the infrastructure of the department. The training and placement opportunities provided to the students on the campus.

Attendance criteria for the students was discussed. After which the HoD introduced the subjects teachers of the class.

*Class Teacher, Prof.Garima Tripathi gave a brief overview of the class and their progress in the last semester. She emphasized on the learning environment to be inculcated for the students at home also.*

*Prof. Swati Ringe, NISP Coordinator briefed the parents about the IIC and start-up activities planned for the students.*

*Prof.Swapnali Makadey gave the requirements for applying for placements in college.*

*After the introductory session, parents met the subject teacher with their wards to track their progress. Parents appreciated the activities conducted in college and requested to keep the parent teacher meet twice in a semester.*

*the meeting was concluded with vote of thanks by Prof. Garima Tripathi, Class teacher of SE AI&DS.*

# STUDENT INTERNSHIPS
## TE AI & DS

| NAME | POSITION | COMPANY |
| --- | --- | --- |
| Pratham Mahajan | Data Science Intern | CodeClause |
| Pratham Mahajan | Finance Analyst | Metvy |
| Yash Gurav | Data Science Intern | Oasis Infobyte |
| Smith Tuscano | Data Analyst | Sparks Foundation |
| Smith Tuscano | Data Analyst | TATA(Forage) |
| Alisha Dbritto | Data Analyst | Sparks Foundation |
| Alisha Dbritto | Data Analyst | TATA(Forage) |
| Grace Pereira | ML Intern | Feynn Labs |
| Andre Isaac | Machine Learning Intern | HDLC Technologies |
| Andre Isaac | Machine Learning Intern | Suvidha Foundation |

# STUDENT INTERNSHIPS
## TE AI & DS

| NAME | POSITION | COMPANY |
|---|---|---|
| Ketaki Sarode | Data Science Intern | Shiga Edutainment |
| Ketaki Sarode | Data Research Analyst intern | IGurus INC |
| Aakash Lopes | Business Development Executive | Iris tech |
| Wellborn | Data Science Intern | Oasis |
| Christina Tomy | Graphic design intern | Binary Curve |
| Christina Tomy | Social media management | Profitwheel |
| Bhavika Salvi | Data Analytics Intern | Mahindra and Mahindra Limited |
| Liviya Fernandes | Data science and business analyst | The sparks foundation |
| Lyneshia Correa | Java Developer | Hackveda |
| Lyneshia Correa | Web Dev Intern | CodeClause |

# STUDENT INTERNSHIPS
## TE AI & DS

| NAME | POSITION | COMPANY |
|------|----------|---------|
| Sachi Shah | AI / ML intern | Gainn Fintech |
| Kinjal Bagal | Web Developer | Rely service |
| Nayonica Sherlin | Core Team Member of Customer Acquisition and Engagement | Nimaya Bank |
| Adelard Dcunha | Data science intern | Plan my venture |

| NAME | POSITION | COMPANY |
|------|----------|---------|
| Janet Nelson | Project Lead | Remark skill education |
| Aditya Kalambe | Web Developer | Intrainz |
| Shivprasad Chavarattil | Intern | Goldman Sachs |

**STUDENTS WHO OBTAINED NON-TECHNICAL INTERNSHIPS 10%**
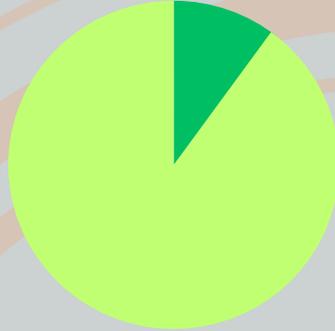
**STUDENTS WHO OBTAINED TECHNICAL INTERNSHIPS 90%**

*The Department of Artificial Intelligence & Data Science constantly makes efforts towards the practical skill development of students and encourages them to join internships during the course to get first hand experience as an industrial professional and prepare them for future.*

**MANY STUDENTS RECEIVED UP TO 10,000₹ STIPEND**

# ONLINE COURSES

## Done by the Students



OTHERS
17.6%

KAGGLE
15.3%

GREAT LEARNING
10.6%

COURSERA
23.5%

UDEMY
32.9%
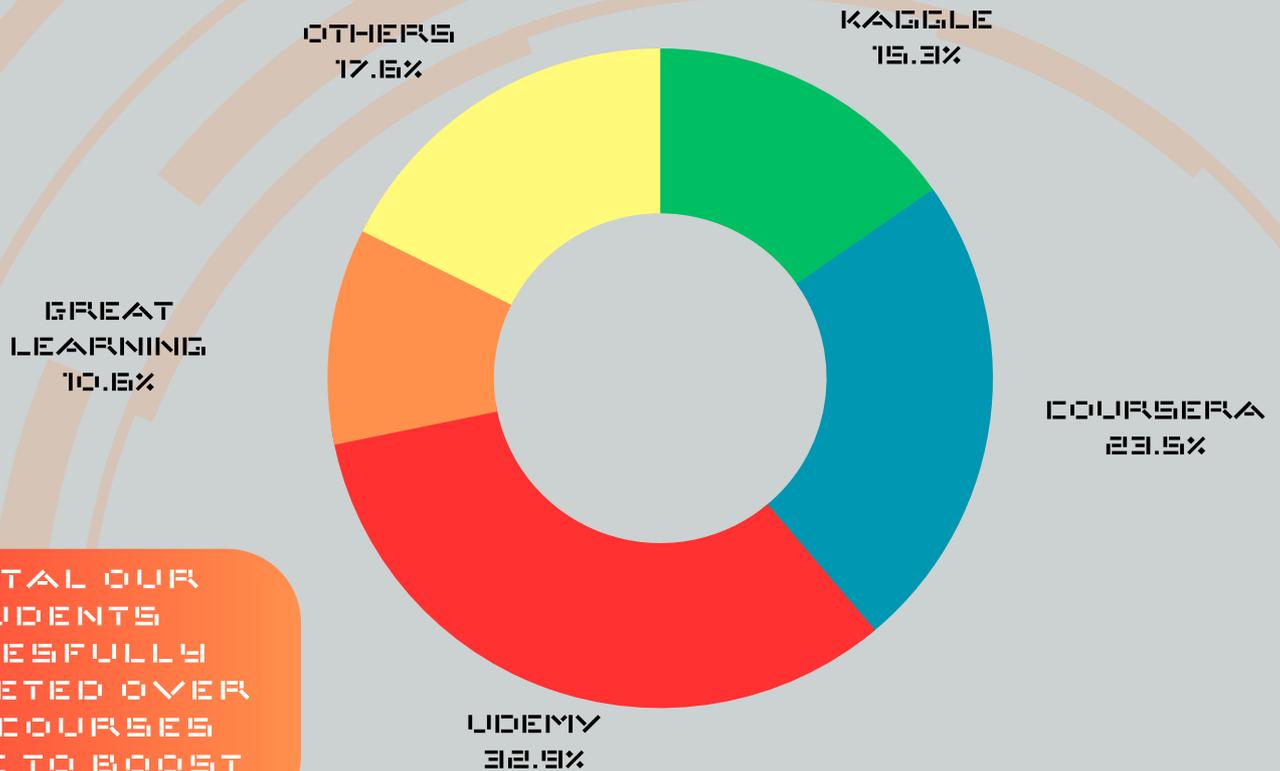
IN TOTAL OUR STUDENTS SUCCESFULLY COMPLETED OVER 100+ COURSES ONLINE TO BOOST THEIR SKILLS

*With the advancement in technology on regular basis the Department of Artificial Intelligence & Data Science promotes the students to take up online courses related to or apart from curriculum to help them improve their skillset and acquire necessary certification required for job roles in the industry. The online facilities allows students to learn their desired skills on their discretion, hence creating a student friendly environment.*

# STUDENTS ENROLLED IN HONORS / MINOR PROGRAMME

**Legend:** ■ AI & DS  ■ MECH  ■ COMPS  ■ ECS

- ROBOTICS
- 3D PRINTING
- DATA SCIENCE
- AI & ML
- BLOCKCHAIN
- CYBERSECURITY
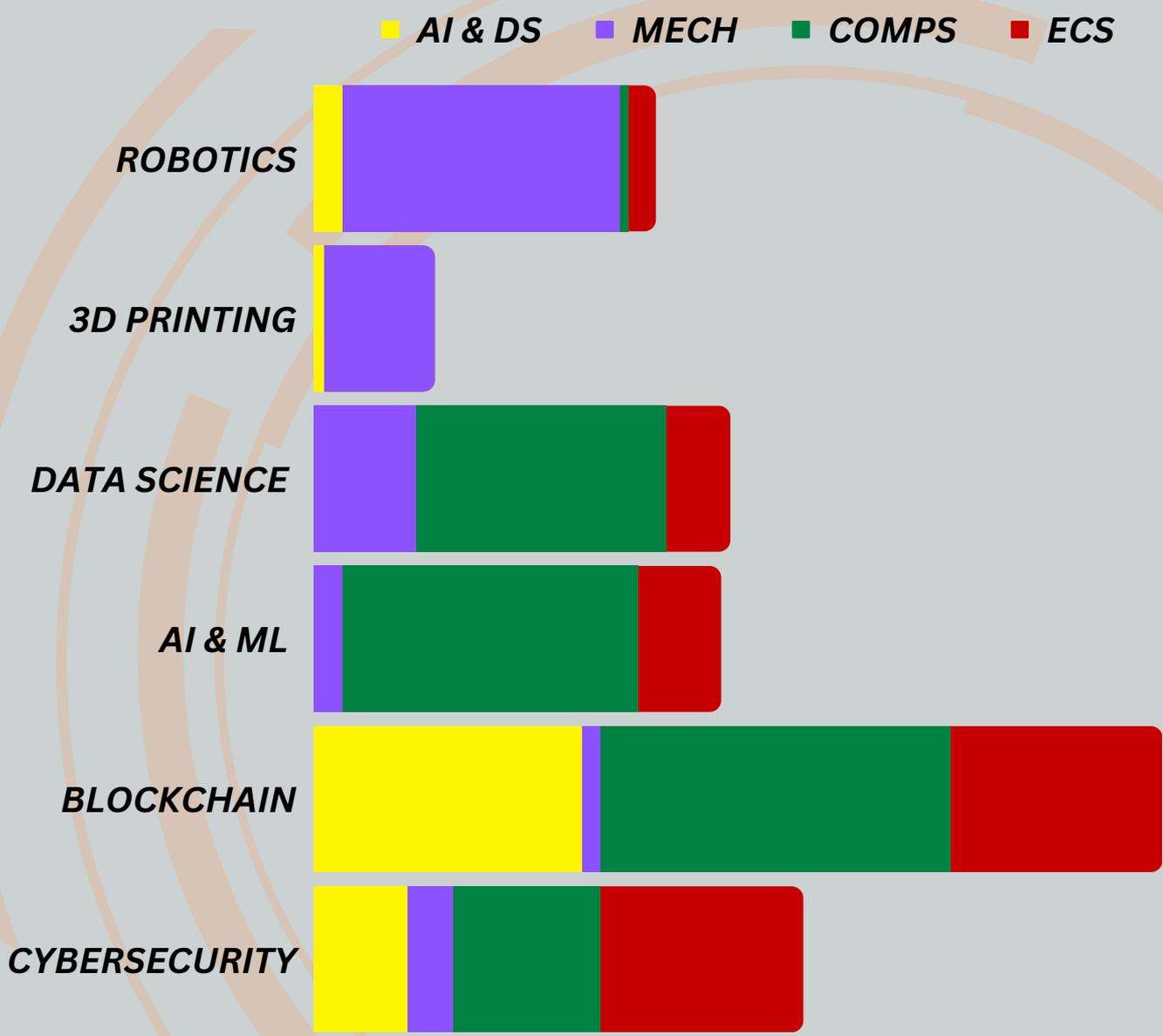
BLOCKCHAIN AND CYBERSECURITY HAVE BEEN POPULAR CHOICES AMONG ARTIFICIAL INTELLIGENCE & DATA SCIENCE STUDENTS, A TOTAL OF 43 STUDENTS ENROLLED THEMSELVES IN THE PROGRAMME.

ROBOTICS - 3

BLOCKCHAIN - 29

3D PRINTING - 1

CYBERSECURITY - 10

# FACULTY CONTRIBUTION

## FACULTY DEVELOPMENT PROGRAMS ATTENDED

| NAME OF FACULTY ATTENDED | TYPE OF PROGRAM | TITLE | ORGANIZED BY |
|---|---|---|---|
| Garima Tripathi | FDP | Quantum Computing | Fr CRCE |
| Garima Tripathi | FDP | Natural Language processing | Fr CRCE |
| Sarika Davare | FDP | NLP and Deep learning | Fr CRCE |
| Sarika Davare | Workshop | Devops workshop | VESIT Chembur |
| Swapnali Makdey | FDP | Quantum Computing | Fr CRCE |
| Swapnali Makdey | FDP | Natural Language processing | Fr CRCE |
| Swapnali Makdey | FDP | Exploring Agile by Doing, Living and Thinking Agile | TCS |

| NAME OF FACULTY ATTENDED | TYPE OF PROGRAM | TITLE | ORGANIZED BY |
|---|---|---|---|
| Dr. Jagruti Save | FDP | ISTE approved FDP on Data analytics and visualization | TSEC Bandra |
| Swapnali Makdey | Industrial Training | AI / ML | (NSS) – IIT Roorkee |
| Swati Ringe | FDP | NLP and Deep learning | Fr CRCE |
| Swati Ringe | STTP | ISTE approved STTP on Social Media Analytics | VESIT Chembur |
| Swati Ringe | Regional Meet | IIC Regional Meet | Symbiosis Pune |
| Saurabh Kulkarni | FDP | Orientation towards technical education and curriculum aspects | AICTE, NITTR |
| Prachi Dalvi | FDP | AI for healthcare technology and management | IIT Patna |
| Garima Tripathi | STTP | MLOps | VCE, Vasai |

# TECHNICAL PUBLICATIONS

| AUTHOR | PAPER TITLE | JOURNAL / CONFERENCE |
|---|---|---|
| Mihir Nikam<br>Ameya Ranade<br>Rushil Patel<br>Prof. Prachi Dalvi<br>Aarti Karande | Explainable Approach for Species Identification using LIME | IEEE Explore (IBSSC 2022) |
| Prof. Swati Ringe<br>Ron George<br>Clayton Almeida<br>Akshay Naphade | Resolving the Data Imbalance problem in Fraud Detection Using Sampling and Machine Learning Techniques | POSITIF Journal (Vol22 Issue 7 2022, ISSN NO : 0048-4911) |
| Prof. Swapnali Makdey | Design of behaviour prediction model of molybdenum disulfide magnetic tunnel junctions using deep networks | IOP Science (Semiconductor and science Technology) |

# FACULTY INTERACTION WITH THE OUTSIDE WORLD

| FACULTY | NATURE OF WORK | ORGANISED BY |
|---|---|---|
| Garima Tripathi | Vigilance Squad Duty | Mumbai University |
| Dr. Jagruti Save | Reviewer for 5th IEEE-International Conference on "Advances in Science & Technology (IEEE-ICAST – 2022)" | KJSIEIT Sion, Mumbai |
| Dr. Jagruti Save | Session chair for national conference on Role of Engineers in Nation building | VIVA Institute of technolgy |
| Dr. Jagruti Save | Reviewer for 4th International conference on communication systems, computing and IT applications (CSCITA-23) | SFIT |
| Dr. Jagruti Save | Judge for project competition "Prakalp 2023" | SFIT |

| FACULTY | NATURE OF WORK | ORGANISED BY |
|---------|----------------|--------------|
| Swapnali Makdey | Judge for S.P.I.T. Innovation Cup-23 and Inauguration Session | S.P.I.T |
| Swati Ringe | IIC Regional Meet | Symbiosis International University |
| Saurabh Kulkarni | Reviewer for PeerJ computer Science | PeerJ Publications USA |
| Prachi Dalvi | Judge for Hardware HAckathon Peripherathon1.0 | SPIT |

# FACULTY ACHIEVEMENTS



*Global EduTech Awards recognize some of the Innovative and Global Leaders in Education Technology at the World Education Congress 2020. These awards honor unique and creative leaders that demonstrate guidance, integrity and outstanding commitment to Education Technology.*

**On 7th July, 2022, Our HoD Dr. Jagruti Save was honoured with the EduTech Leadership Award during the Global EduTech Congress Awards organised by World Education Congress.**

*Mrs. Swati Ringe was selected to represent our institute in NISP track at the IIC Regional Meet on 1st August 2022*

# EXTRA & CO-CURRICULAR ACHIEVERS

## TE AI & DS





## CULTURAL

### WELLBORN
BE REEL

## TECHNICAL

### OMKAR ANABATHULA
2ND IN
CODE-O-FIESTA

## SPORTS

### MOEEZ SHAIKH
### ADELARD DCUNHA
BOYS BADMINTON
DOUBLES
(WINNER)

### GIRLS TEAM
GIRLS THROWBALL
(RUNNER-UP)

### SPORTS DAY
YASH GURAV
(1ST IN 1200 M RUNNING)
YASH GURAV
(2ND IN 800M RUNNING)
WELLBORN BAR
(3RD IN 800M RUNNING)

# EXTRA & CO-CURRICULAR ACHIEVERS

## SE AI & DS

## SPORTS

**ARPITA KATKAM**

**SANIKA THAKUR**

*GIRLS TABLE-TENNIS DOUBLES (WINNER)*

**ARPITA KATKAM**

*GIRLS TABLE-TENNIS SINGLES (RUNNER-UP)*

*GIRLS CARROM SINGLES (WINNER)*

**NICOLE MASCARENHAS**

*GIRLS CHESS (WINNER)*

**LARRY DMONTE**

*BOYS TABLE-TENNIS SINGLES (THIRD PLACE)*

**SAHIL KHAN**

**LANCE CORREIA**

**LEROY PEREIRA**

**NESTON CABRAL**

**MYRON G.**

**ARON PEREIRA**

**ARYAN KYATHAM**

*BOYS RINK FOOTBALL (WINNER)*

# TECHNICAL ARTICLE

## Janet Nelson, SE AI & DS

## AI and Cybersecurity: Battling Emerging Threats

In the ever-evolving digital landscape, the emergence of artificial intelligence (AI) has revolutionized the field of cybersecurity. As technology advances, so do the threats we face, making it imperative to leverage AI in our battle against emerging cyber threats. This article delves into the intersection of AI and cybersecurity, exploring how AI is being utilized to detect, prevent, and respond to these threats, ultimately bolstering our defenses and safeguarding our digital infrastructure. AI and cybersecurity are two important fields that have shown unprecedented brilliance since the digital age. It is undeniable that AI has contributed significantly to many areas of human endeavor, including cybersecurity. The same AI that has improved cybersecurity also presents emerging threats that the digital world has not seen before. Although AI has the potential to help cybersecurity experts identify potential threats, it can also be used by cybercriminals to carry out sophisticated, large-scale, and automated attacks. This explores the impact of AI on cybersecurity, its benefits and emerging threats, and the measures that organizations can take to mitigate these threats.

The emergence of AI in cybersecurity has been lauded as a significant development in the fight against cybercrime. Today, AI security systems can identify potential threats, monitor network traffic, detect unusual activities, and prevent attacks before they happen. For instance, AI security solutions like intrusion detection systems, network access control systems, and behavioral analytics systems have proven highly-effective in combating cybersecurity threats. These systems enable faster and more efficient identification and remediation of issues. As cyber threats continue to evolve and grow in sophistication, AI has emerged as a critical tool in the battle against these emerging threats.

By leveraging the power of AI, organizations can enhance their threat detection capabilities, respond swiftly to incidents, and fortify their cybersecurity defenses. It is essential to navigate the ethical considerations and challenges associated with AI in cybersecurity, ensuring fairness, privacy, and accountability. With AI as our ally, we can bolster our defenses and protect our digital infrastructure from the ever-present and ever-evolving cyber threats.

However, AI also presents emerging threats. Cybercriminals can use AI to evade detection and launch sophisticated attacks that are difficult to detect. For instance, AI-powered phishing attacks can easily bypass traditional security systems and trick users into giving away sensitive information. Similarly, AI-generated deep fake attacks can manipulate images and videos to disseminate false information and create fake news. The result of such attacks is not just financial losses; it could lead to reputational damage, regulatory fines, and a loss of trust and confidence in an organization. To mitigate these threats, organizations need to adapt a multi-pronged approach. Firstly, they need to invest in advanced cybersecurity solutions that leverage AI to detect and mitigate threats. These solutions should have machine learning algorithms that enable them to learn from previous attacks and use that knowledge to prevent similar attacks in the future. Additionally, organizations should implement more robust user identification and authentication mechanisms, enforce strict security protocols, and educate their employees on cybersecurity risks

Another critical factor to consider is employee training and By training employees on security protocols and best practices, organizations can avoid attacks that trick users into giving away sensitive information. Organizations can leverage AI to simulate how employees will react to potential threats. Running simulations and using AI is an excellent indicator of how well an organization's cybersecurity measures are functioning. More importantly, organizations should take a proactive approach to cybersecurity. Typically, most organizations respond to security threats after they occur. This reactive approach is not always sufficient. Instead, organizations should anticipate potential threats and develop preventive measures in advance. Moreover, AI can also be used to detect and respond to cyber threats in real-time.

With the help of machine learning algorithms, AI can analyze vast amounts of data and identify patterns that may indicate a potential cyber attack. This can help organizations to respond quickly and effectively to cyber threats, minimizing the damage caused by such attacks. It is important to note that AI is not a silver bullet solution to cybersecurity. It should be used in conjunction with other security measures to provide a comprehensive defense against cyber threats. In conclusion, AI has the potential to revolutionize the cybersecurity landscape, but it requires a proactive and holistic approach to be truly effective.

Furthermore, AI can also assist in the identification of vulnerabilities in an organization's network and systems. By analyzing data and identifying potential weak points, AI can help organizations to proactively address these vulnerabilities before they can be exploited by cybercriminals. This can help to prevent cyber attacks from occurring in the first place, rather than simply responding to them after the fact. It is important to ensure that AI is properly integrated into an organization's cybersecurity strategy and that it is regularly updated and maintained to ensure its effectiveness. With the right approach, AI can be a powerful tool in the fight against cyber threats.

In conclusion, the use of AI in cybersecurity is becoming increasingly popular, and its effectiveness in mitigating cyber threats cannot be overstated. However, cybersecurity professionals must continually evaluate and improve AI's security measures to minimize the risk of AI being compromised by cybercriminals. Furthermore, AI-based cybersecurity solutions must be integrated with existing security measures to create a comprehensive security framework, capable of adapting to ever-evolving cyber threats. As rightly said "In the ever-evolving cyber battlefield, AI emerges as our strongest ally against emerging threats."

## FrameWorks { }

Why do we do programming? Develop things for people to use, to make things easier and convenient in their life. The UI/UX is something that has been improving over the time with rapid growth. But improving a user's overall experience will require some crazy level of coding skills don't you agree? Just imagine the amount of code people must be writing when they first created the first website.

"Tim Berners-Lee invented the World Wide Web while working at CERN in 1989, applying the concept of hyperlinking that had by then existed for some decades." - from Wikipedia.

The above line shows that in the early stage the pages were linked using hyperlink! Now compared to today's dynamic websites you can say that those websites were nothing. User authentication, dynamic rendering, conditional rendering, bulk rendering were never an option that time. The most people could do with that website was read. If you want to check it out then you can visit this link and see for yourself 'http://info.cern.ch/'.



http://info.cern.ch - home of the first website

From here you can:

- Browse the first website
- Browse the first website using the line-mode browser simulator
- Learn about the birth of the web
- Learn about CERN, the physics laboratory where the web was born

But looking at the endless possibilities with the web applications we have today, don't you wonder how all these things became possible?

A quick question: can you name the first dynamic website and the first proper framework?
The ans is given below as you read further.

But before we reach that part we need to know how the dynamic nature of the websites started. In order to make the website more functional javaScript was introduced in 1995. But it was not until the year 2006 someone actually thought of using JS in the form of Jquery to make web applications more interactive and dynamic in nature. The first ever bi-directional, interactive and dynamic web application that was built using Jquery was Gmail on 1st April 2004. Hotmail was created in 1996 almost 8 years before Gmail. But the experience we are talking about was observed in Gmail.

Not too long enough, In 2010, Jeremy Ashkenas released Backbone, the first framework aimed at creating single page applications. Backbone was different from Jquery, But you still cannot call it a proper framework as it was just a JS library which kind of played the role of a framework back then. Also, it wasn't good enough for handling a lot of multiple tasks at the same time and handling bi-directional data binding as well. Along with these problems there were several other problems too.

But soon enough in 2009 Angular development started at Google by Miško Hevery and was released as open source in the year 2010. So with this you can conclude that Angular was the first ever proper frontend framework developed which brought revolutionary changes later on. Surprisingly Angular is still among the few most famous frameworks like React.
Angular became famous in 2016 after its first initial release on 14 September 2016 as Angular Version 1.0 .

Till today's date we have a lot of different frameworks based on different languages and purposes like frontend framework for designing frontend or backend frameworks with sole purpose of creating backend logic only. We have lightweight frameworks for creating applications with minimal processing. Then we have industrial level applications which can handle heavy processing and a lot of traffic at the same time.

But long story short, the idea of bringing all the basic and necessary features of a web application in one place which was thought by Miško Hevery back then has come to reality. Nowadays features like URL mapping are no longer than one line. The same goes for page rendering. Features like no reload rendering provided by REACT JS are some features which would be really difficult without frameworks. You can just imagine how difficult it would be if we had to use the primitive development methods for developing a web application in the present day .

As a Python developer I highly prefer the Django framework. It is a python based industrial level framework. But the features it provides are amazing. Once you acquire enough knowledge about these frameworks you can easily create a working web application within a few hours. Compared to the old days this is probably 50-70 times faster and labours(programmers) efficient.

From the above article and knowing the history of web application we can make a conclusion that the necessity of a framework and rapid growth in its technology was must alongside with the growth of HTML. Because of these frameworks we have features like Video Streaming, advanced Chatting Applications like whatsapp, Video Calling, Online Shopping, Online Teaching Platform and Social Media has become possible. At the end of the day it doesn't matter much which framework you use as long as it satisfies the users demand and experience.

FR. CONCEICAO RODRIGUES
COLLEGE OF ENGINEERING
MOULDING ENGINEERS WHO CAN BUILD THE NATION

## AI chatbots may be entertaining, but they drink irresponsibly

Chatbots like chatgpt are always intoxicated. They can drink up to 500ml of water during a typical 20–50 question conversation to cool their servers. They also have a significant carbon impact as a result of their constant need for energy. Let's examine the ecological effects of the increasing use of AI and possible ways to lessen them.

Artificial intelligence cannot exist without water, just like real life cannot. Indirectly, at the power plants that provide the electricity for those servers, and directly, it needs water to cool its enormous server rooms. 'Water footprint' refers to AI's overall water usage.

Popular new AI tools with a significant water footprint include chatgpt and bard, which belong to the genre of "large language models." These models are developed using enormous datasets that are stored on numerous power-hungry servers. Even though the centres are situated in cold climates, cooling becomes important due to the amount of heat produced by their operation. Server farms need sizable cooling towers to maintain the ideal temperature range for servers, which is between 10 and 27 degrees Celsius. Cooling towers need a gallon (3.8 litres) of water for every unit (kilowatt-hour) of electricity used by the servers. workings of cooling towers.

How cooling towers work

The same idea underlies how cooling towers operate as standard room coolers. Water evaporation lowers the ambient temperature by absorbing heat from its surroundings. Inside the cooling tower, the water vapour rises and is released into the atmosphere. Water consumed by data centres is lost as a result and cannot be recycled.

Due to the fact that data centres' cooling towers can only use pure, fresh water, this is a double-problem. like, from lakes and rivers. Seawater is not a good alternative because its high salt content would lead to corrosion and harm to delicate data centre equipment.

## Carbon/water trade-off

Because the climate is naturally cooler in those nations, data centres there require less water. Examples include Sweden and Finland. But hotter climates increase the need for water in the Asia-Pacific area, where most AI activity is currently centred.

There is frequently a trade-off between carbon efficiency and water efficiency, according to a research article titled "Uncovering and Addressing the Secret Water Footprint of AI Models". The afternoon is the warmest part of the day, so you can generate more solar energy to power servers (thus, less carbon footprint), but you also need more water for cooling.

The authors of the research report use the example of LaMDA's training in the sun-drenched Nevada to illustrate their point. ""AI model developers may want to train their models at noon because solar energy is more plentiful at that time of day, but it's also the hottest time of day and has the lowest water efficiency," " they write. Google's AI-based conversation technology is called LaMDA.

In other words, using renewable energy might occasionally conflict with efforts to conserve water. Therefore, the task is to develop new methods for sustainably AI that balance carbon and water efficiencies.

## What Companies Are Doing

By 2030, the majority of AI businesses have promised to make their systems sustainable. Running AI model training in many locations at various times might be one approach.

Microsoft claims that by using outdoor air to cool servers for the majority of the year, its data centres in Phoenix, Arizona, which hosted the training of GPT-3 and its advanced version ChatGPT4, saved water. Otherwise, they employ direct evaporation to cool, which consumes a lot less water than other, more conventional water-based cooling methods like cooling towers.

By moving from conventional electricity to solar systems from the "Sun Streams 2 Solar Project," run by its local partner Longroad electricity, Microsoft further expects to save a million litres of water every day.

Google, on the other hand, utilises a mixture of air conditioning, water cooling, refrigerants, or some other method to lessen its water usage. Hydrology, topography, energy, and emissions concerns all played a role in the choice.

*"All knowledge that the world has ever received comes from the mind; the infinite library of the universe is in our own mind."*

–SWAMI VIVEKANANDA