



**SYMBIOSIS INSTITUTE OF COMPUTER STUDIES AND RESEARCH**  
**SYMBIOSIS INTERNATIONAL (DEEMED UNIVERSITY)**

Established under section 3 of the UGC Act 1956,

**Re- accredited by NAAC with 'A' Grade**

Founder: Prof. Dr. S. B. Mujumdar, M.Sc., Ph.D. (Awarded Padma Bhushan and Padma Shri by President of India)

**Workshops Conducted Research , Innovation and Skill Development**  
**2020-2021**

Sr No	Academic Year	Name of the workshop/ seminar	Number of Participants	From Date	To Date
1	2020-2021	IoT Workshop	60	27/01/2021	29/01/2021
2	2020-2021	Cybersecurity Workshop	75	27/02/2021	28/02/2021
3	2020-2021	The Expert Talk Series	70	11/2/2021	13/02/2021
4	2020-2021	Dive In Github	77	26/03/2021	26/03/2021
5	2020-2021	Fun With Algorithms	37	14/04/2021	14/04/2021
6	2020-2021	Latest Trends In Information Technology(LTIT)	29	18/05/2021	31/05/2021
7	2020-2021	Importance Of Intellectual Property Rights (IPR) For Academics"	23	23/06/2021	23/06/2021
8	2020-2021	Unblocking The Block In Blockchain	28	12/6/2021	12/6/2021
9	2020-2021	Artificial Intelligence In Industry And Career Opportunities In Data Science	64	24/04/2021	24/04/2021
10	2020-2021	Resume Building Workshop	65	21/02/2021	21/02/2021
11	2020-2021	Guided Beginners Project Session On Machine Learning	60	1/5/2021	1/5/2021



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**NAME OF WORKSHOP**

**IoT Workshop**

**Name of the event: IoT Workshop**

IoT provides a platform that creates opportunities for people to connect the devices and control them with big data technology, which in return will promote efficiency in performance, economic benefits and minimize the need for human involvement.

**Dates and time for Conduction of the Activities:**

Day	Date	Time
Day 1 - Wednesday	27 <sup>th</sup> January 2021	3:00 PM to 5:00 PM (IST)
Day 2 - Thursday	28 <sup>th</sup> January 2021	3:00 PM to 5:00 PM (IST)
Day 3 - Friday	29 <sup>th</sup> January 2021	3:00 PM to 5:00 PM (IST)

**Mode of Conduction (Online/Offline/Hybrid):**

Online on the platform Microsoft Teams

## Speaker List:-

### Names and brief profile of Chief Guest, Guests of honor and Speakers:

Dr.Jatinderkumar R. Saini	(Director and Professor, Symbiosis Institute of Computer Studies and Research)
Dr. Rajeshree Jain	( Professor, Symbiosis Institute of Computer Studies and Research)
Mr. Sahil Lakhani	(student of MSc. SS, Symbiosis Institute of Computer Studies and Research)

## Workshop Report

### Description:

#### Day 1 - 27th January 2021, Wednesday

The director of SICSR, Prof. Dr.Jatinderkumar R. Saini gave a crystal clear introduction to IoT. He effortlessly explained the concept leaving the audience with a comprehensible head start. Moving forward, the session was carried on by Dr. Rajeshree Jain, Professor at SICSR and Active volunteer of IEEE. She diligently began with the basics of physics and moved ahead with a practical session. She introduced Arduino to the crowd and illustrated a demo of a blink sensor using physical components.

#### DAY 2 - 28th January 2021, Thursday

On Day 2, numerous sketches were practically illustrated by Dr. Rajashree Jain. She gave a brief of every component and the code for the sketches.

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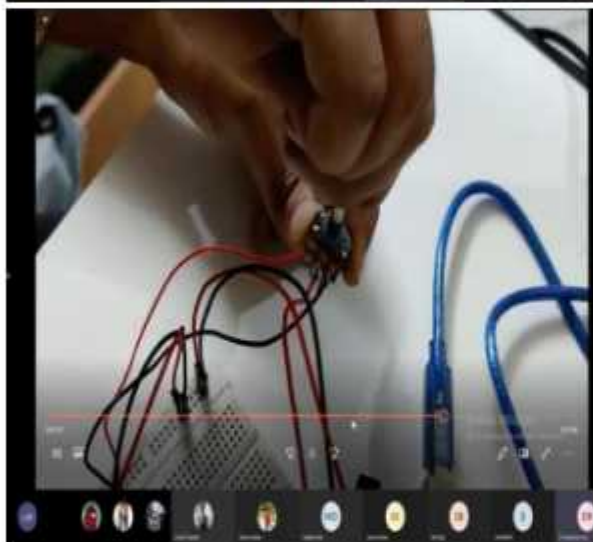
#### DAY 3 - 29th January 2021, Friday

On Day 3, the anchors of the day were Diya Suthiv and Shritama Sengupta. The session was conducted by Mr. Sahil Lakhani, a student of MSc. SS, SICSR. He held a hands-on session by illustrating live examples like blink sensors, listing available Wi-Fi connections, and many more. Additionally, he gave a live brief on Raspberry Pi.

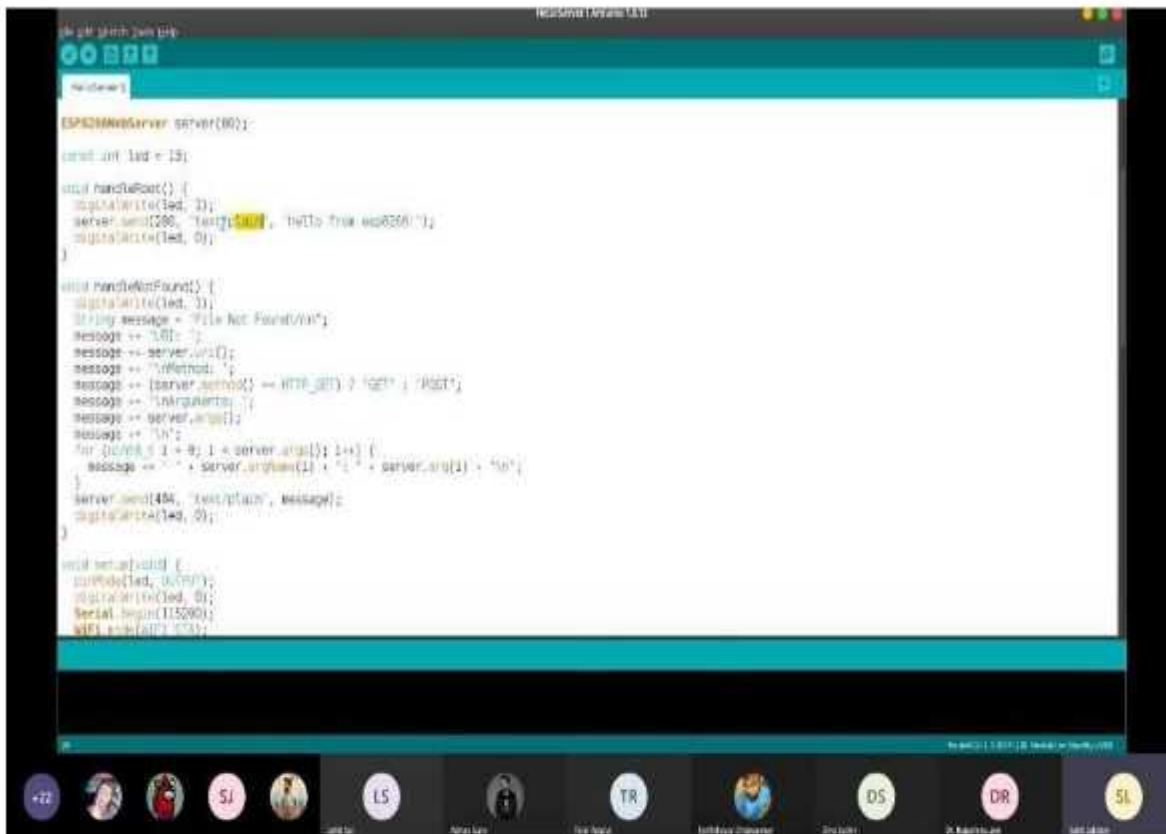
**Number of Attendees: -- 60**



J.Y. Saini



J.K. Saini



J.K. Saini



## **NAME OF WORKSHOP**

### **The Expert Talk Series**

- Date(s) of the Event :11th February 2021, 12th February 2021, 13th February 2021
- Venue : Online mode ( Google meet )
- Date of Submission of Report : 11st February 2021.
- Speakers:-
  - Day1 Jovita Serrao & Rupangi Sharma (Career Counselors and Women Entrepreneurs)
  - Day2 : Darshan Gandhi (Data Analyst, ZEE5 and Startup founder JobsQuest)
  - Day3 : Alisha Mohanty (Google CodeIn Mentor)
- Attendance :
  - 70

Broacher :-



On the occasion of International Day of Women and Girls in Science

## Google's Developer Student Clubs, SICSR



## Youth India Foundation SICSR

Brings to you

### The Expert Talk Series

All about tech and beyond  
with the industrial experts.

Join us from 11th February to 13th February 2021  
Platform : Google Meet  
Time - 6:30pm



Jovita Serrao,  
Founder CareerProva



Garshan Gandhi  
Data Engineer at ZEE5



Alisha Mohanty  
Google Code In Mentor



**Scan to register:** 

Speaker :-



**The Expert Talk Series**

**Our Speaker for Day 1**

**Rupangi Sharma**  
MED from Harvard University  
Founder of EFG Learning Services LLP

Date: 11th February 2021 | Time: 6:30pm

Scan to Register



**The Expert Talk Series**

**Our Speaker for Day 1**

**Jovita Serrao**  
Co- Founder of CareerPray  
Educator at SFIT

Date: 11th February 2021 | Time: 6:30pm

Scan to Register



**The Expert Talk Series**

**Our Speaker for Day 2**

**Darshan Gandhi**  
Data Engineering at ZEES  
Founder at JobsQuest

Date: 12th February 2021 | Time: 6:30pm

Scan to Register



**The Expert Talk Series**

**Our Speaker for Day 3**

**Alisha Mohanty**  
Fedora Advocate | Outreachy  
Alumni | Google Code In  
Mentor

Date: 13th February 2021 | Time: 6:30pm

Scan to Register



Meeting details

**DSC x YIF**  
**The expert talk series!**

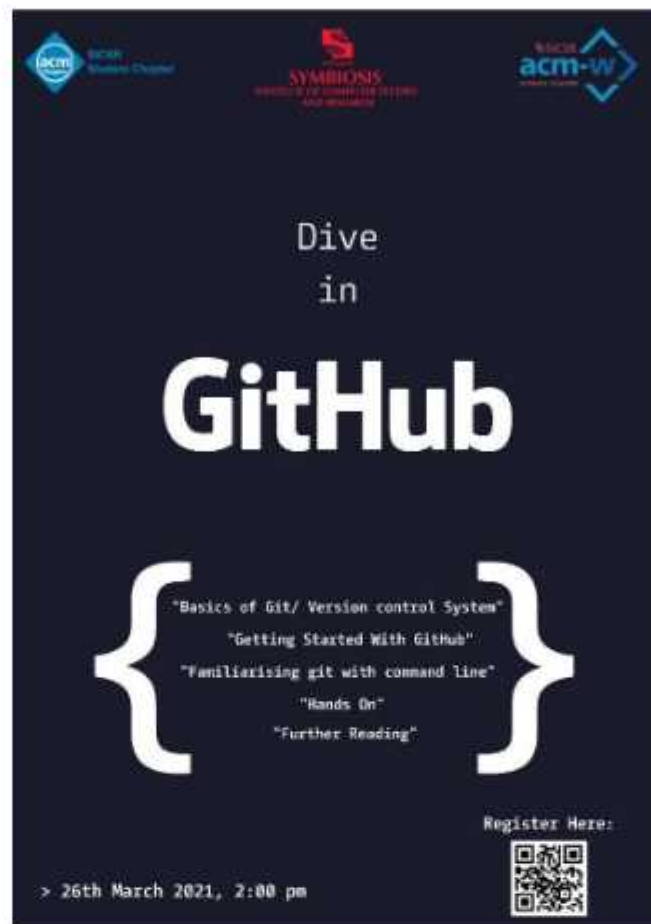
Participants: Anoushka Su., Varsha Arora.



## **NAME OF WORKSHOP**

### **DIVE IN GITHUB**

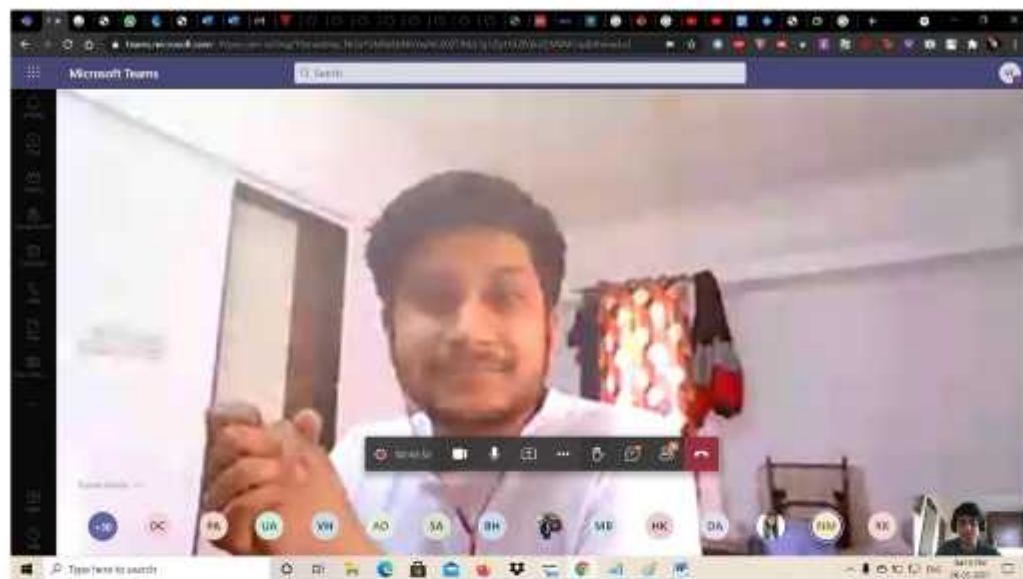
- 1. Topic/Title of the Event : DIVE IN GITHUB**
- 2. Type of the Event : VIRTUAL WORKSHOP**
- 3. Date(s) of the Event : 26<sup>th</sup> MARCH 2021**
- 4. Time/Duration/Period : 2:00 pm**
- 5. Venue : MICROSOFT TEAMS**
- 6. No. of Participants: 78**



## Report

Team SICSR ACM Student Chapters organized its first virtual workshop of this year on the topic **“Dive in GITHUB”**. The workshop started at 2:00 pm with the anchors (Nishank and Vishesh) welcoming the participants and introducing the speaker Kumar Ashwin (Cyber Security Enthusiast and Hacker). The speaker started the workshop with a lot of zeal and enthusiasm. He went on explaining the agendas of the day in a précised manner and later he explained the topics ( Version Control, how GIT came into existence, steps of howto set up a repository, collaboration in GIT and even gave a demo). He also made sure that each and every attendee gets the clear idea about what he is explaining and have a hands on GIT and its resources. The speaker also shared the link of the resource (PPT) which he used as the reference in the workshop to all the attendees for their future purposes. Later the workshop had an impactful QnA session for all the attendees to answer to all their doubts and queries. Kumar Ashwin made sure that each and every attendee got the best experience. The workshop concluded with the vote of thanks to all the attendees, speakers and everyone present in the workshop.

A feedback form was also shared with all the attendees to ensure that the workshop was up to the mark in which we got amazing responses from the attendees thus the workshop was a complete success.



## **NAME OF WORKSHOP**

### **FUN WITH ALGORITHMS**

- 1. Topic/Title of the Event : FUN WITH ALGORITHMS**
- 2. Type of the Event : VIRTUAL WORKSHOP**
- 3. Date(s) of the Event : 10<sup>th</sup> APRIL 2021**
- 4. Time/Duration/Period : 2:00 pm**
- 5. Venue : MICROSOFT TEAMS**

## Report :-

Team SICSr ACM Student Chapters organized the virtual workshop on the topic “**FUN WITH ALGORITHMS**”. The workshop started at 2:00 pm with the host **Rohit Solanki** welcoming the participants and introducing the speaker **Mr. Sachin Lodha (ACM Eminent Speaker)**. The speaker started the workshop with a lot of zeal and enthusiasm. He went on explaining the agendas of the day in a précised manner and then he explained the importance of algorithms in our daily life. He also made sure that each and every attendee gets the clear concept of topics he explained. He had a discussion on puzzles which play a critical role in algorithm design. He used various daily life examples to relate to the various concepts, for example like he used KBC ( Kaun Banega Crorepati) as one of his references. Later the workshop had an impactful QnA session for all the attendees to answer toall their doubts and queries. Mr. Sachin Lodha made sure that each and every attendee got the best experience. The workshop concluded with the vote of thanks to all the attendees, speakersand everyone present in the workshop.

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# NAME OF WORKSHOP -Two Week eSTTP



## Two Week eSTTP on Latest Trends in Information Technology (LTIT) [18-May-2021 to 31-May-2021]



### About the Institute

With its inception in 1985, Symbiosis Institute of Computer Studies and Research, Pune (SICSR) has been one of the oldest techno-management institutes in the country. SICSR has been consistently ranked among the top ten institutes in the country by agencies like CSR, GHRDC and India Today. Our alumni are working with the top notch organizations including Google, Apple, Facebook, Amazon and Microsoft. SICSR is a constituent of Symbiosis International (Deemed University), Pune and was established by Symbiosis which is celebrating its Golden Jubilee year.

### About the eSTTP

This ambitious Two week online Short Term Training Programme (eSTTP) on "Latest Trends in Information Technology" will provide the participants with a platform to interact and learn about various ongoing trends in Information Technology. It will touch upon various topics including Digital Transformation, Bio-medical Image Processing, Natural Language Processing, Artificial Intelligence, Blockchain and FinTech, Geo-spatial technologies and Cloud technologies. Very eminent experts and resource persons from industry as well as the academic fraternity from India and abroad will engage the sessions. Medium of discussion throughout the programme will be English. The link to attend this programme will be

### Registration

Limited seats are available on First Come First Served basis. Though the programme is open for faculties, research scholars, industrialists as well as students to attend, the registration is mandatory with an online payment of INR (₹) 1750/- (including GST) in the name of Account Holder "Symbiosis Institute of Computer Studies and Research", Axis Bank, S.B. Road Branch, Pune-411004. The Bank Account Number is **912010021268844** and IFSC is **UTIB0000315** (characters after 'B' are Zeros). For international participants, the registration fees is USD (\$) 25 and the Bank SWIFT Code is **AXISINBB315**. Intermediary bank name with address is J.P. Morgan Chase Bank New York. The Intermediary Bank Account Number is 0011407376, the Intermediary Bank Swift Code is CHASUS33 and the IBAN No. is FED ABA 021000021. The registration fees will be non-refundable and non-transferable. **The last date of registration is 15-May-2021.**

Registration Link: <https://forms.gle/4dwmGatC7VMqpmDA>

A link to the feedback form will be shared at your registered email address immediately after the last session on each day. For attendance it will be mandatory to fill in the feedback form before the beginning of sessions of next day. All the registered participants with at least 80% attendance will be provided with a Participation eCertificate within ten days of eSTTP completion.

## Schedule

### Schedule

Schedule						
Time (IST)	18-May-2021	19-May-2021	20-May-2021	21-May-2021	22-May-2021	24-May-2021
10.00 to 11.00	Inauguration (15 min.)	Technology Led Global Business Transformation: Experiences and Opportunities (CHK)	Biomedical Image Processing using Python (RAM)	Entity Based Sentiment Analysis in Nepali News Texts (BKB)	Surveillance System (MAK)	Geospatial Information Technologies - An Experience from COVID-19 Pandemic: A Geospatial Perspective (KOM)
11.00 to 12.00	Blockchain (PAJ)	Change in Technology Trends after New Normal (MKS)				
12.00 to 15.00	Break					
15.00 to 16.00	Latest Advances in ML (BHT)	Bio Inspired Optimization (KIS)	Cloud Technologies and Network Automation (SHM)	Visual Speech Recognition (AJG)	Importance of Data Processing before Modeling (PAK)	Open Source Technology: Hands on Designing MOOCs through Moodle LMS (GUM)
16.00 to 17.00		Technology Driven New Business Models (SHJ)				
Time (IST)	25-May-2021	26-May-2021	27-May-2021	28-May-2021	29-May-2021	31-May-2021
10.00 to 11.00	Digital Transformation (MAS)	Software Product Development (RAB)	Digital Transformation (PRP)	Trends in Multi-cloud Infrastructure with Modern Applications (MIJ)	AI Applications in Biology/ Biodiversity (VIB)	Resiliency and the Importance of Good Logging (BHG)
11.00 to 12.00			The Virtual Currency Technology World (ATK)			Responsible AI - Going Beyond Accuracy (BGA)
12.00 to 15.00	Break					
15.00 to 16.00	Radiomics and Pathomics: Application for Predicting Lung Cancer Diagnosis, Prognosis, and Treatment Response (PRV)	Blockchain (NIK)	FinTech (PAD)	5G (MSA)	Cloud Computing and AWS in Industry (SAD)	GIS Application in Biodiversity (NAB)
16.00 to 17.00						Valedictory (15 min.)

## Report

- Two Weeks online eSTTP on “Latest Trends in Information Technology (LTIT)” was organized by Symbiosis Institute of Computer Studies and Research (SICSR), Pune during 18<sup>th</sup> May 2021 to 31<sup>th</sup> May 2021.
- A total of 29 participants including 27 faculty members, 1 placement officer, 1 industry expert registered for the eSTTP from different universities across the country. Opportunity to attend this workshop was extended to SICSR PG students to gain knowledge in the area of their interest.
- Approximately, out of 27 faculty member participants, 60% faculty member participants had completed PhD, and around 25% faculty member participants were pursuing PhD while remaining 15% faculty member participants are completed masters and willing to do research work. Professors, Assoc. Professors as well as Asst. Professors comprised the participants from the teaching fraternity.
- Around 50% resource persons are from industries like IBM, C-DAC ( A Scientific Society of Ministry of Electronics & Information Technology, Government of India), IKEA, TietoEVRY, bricshub.com, Deutsche Bank, Accenture, Zensar, Persistent systems. Around 25% of resource persons from the foreign universities whereas remaining 25% resource persons from Indian universities including those who have completed their PhD from IITs. The resource persons joined online from cities like Canada, Singapore, Florida, Kathmandu, Bengaluru, Surat, Ahmedabad, Gandhinagar, Gulbarga, Mumbai and Pune.
- With the blessings and patronage of Dr. S. B. Mujumdar Sir, honourable Chancellor of the Symbiosis International (Deemed University), Pune , Dr. Vidya Yeravdekar madam, honourable Pro Chancellor of the Symbiosis International (Deemed University), Pune, and the best wishes by Dr. Rajani Gupte, honourable Vice Chancellor of the Symbiosis International (Deemed University) , this eSTTP was inaugurated by Dr. Padmaja Joshi, Senior Director, Centre for Development of Advanced Computing (C-DAC), Mumbai on 18th May 2021 with keynote address.
- The convenor and coordinator of the eSTTP, Prof. Dr. Jatinderkumar R. Saini, Director, SICSR, welcomed the speakers and the participants and spoke about the theme of the short term training programme. He explained how the emerging as well as well-established technologies such as machine learning, cloud computing, blockchain etc. fall under the umbrella of latest trends in information technology. He suggested that we should be aware of

our fields of interest as well as other fields and how the short term training programme would help the participants achieve this goal. He concluded his speech by welcoming the chief guest, Dr. Padmaja Joshi.

1. Keynote Address Title: BlockChain

Speaker: Dr. Padmaja Joshi, Senior Director, Centre for Development of Advanced Computing(C-DAC), Mumbai. Date: May 18, 2021



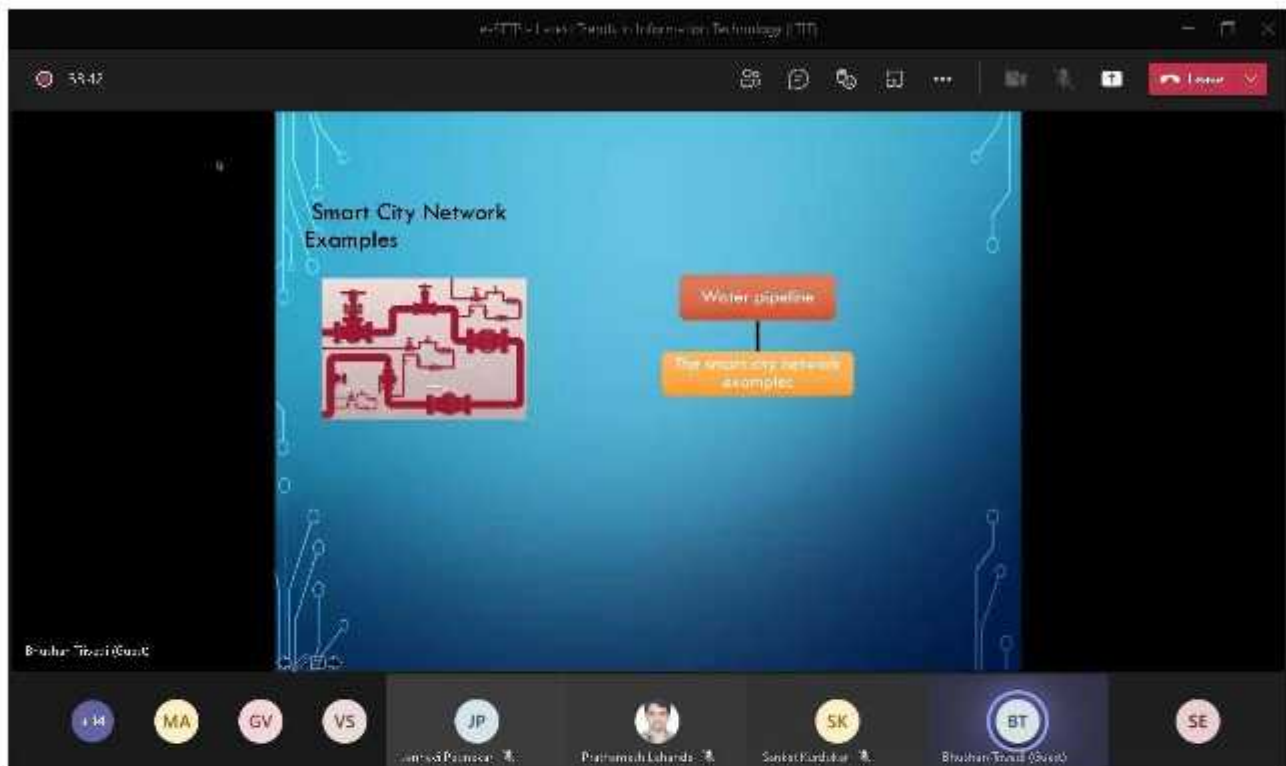
Keynote Address and Technical Session of Dr. Padmaja Joshi in progress

The speaker gave a detailed description of the blockchain technology, which is a peer to peer distributed ledger that is cryptographically secure, append-only, immutable and update only via consensus or agreement among peers. She explained the various components involved in block chain and also how they are related to each other. She demonstrated how the blocks in a block chain are interconnected with the help of a hash. She used an online tool to give a graphical demonstration of this working. She went on to justify the need and use of blockchain in various domains such as governance, medicine, agriculture, cryptocurrencies etc. She spoke about the different properties of blockchain, a few of them being distributed nature, immutable, traceable, chronologically ordered and no possibility of double spending. Dr. Joshi gave an in-depth explanation of symmetric cryptography, asymmetric cryptography, hashing and the Merkle tree. To summarise, the topic was explained in detail using various aids including online tools and graphical representations, which made it easy for the participant to understand the technology. She concluded by giving an overview of the research areas in blockchain such as performance, scalability, interoperability and upgradability.



## 2. Technical Session Title: Latest Advances in ML

Speaker: Dr. Bhushan Trivedi, Dean, Faculty of Computer Technology, GLS University, Ahmedabad. Date: May 18, 2021



### Technical Session of Dr. Bhushan Trivedi in progress

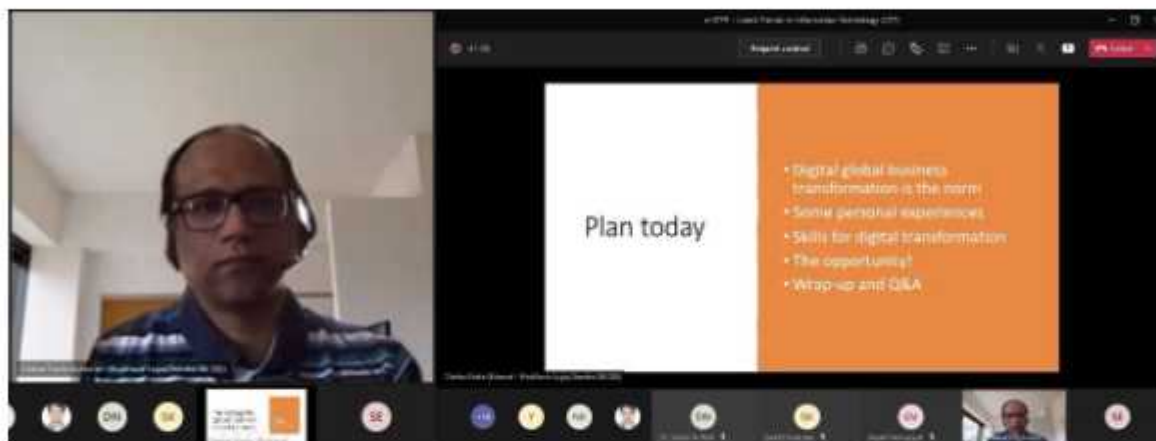
The speaker initiated the talk by discussing different elements that would become part of a smart city. He explained various technologies in detail such as ubiquitous computing, for instance, if an accident occurs, then the information needs to be sent simultaneously to the police department as well as the hospital. He stated that machine learning problems are also big data problems and that both are interdependent. The speaker gave an overview of devices such as smart meters, which reduce the need for manual intervention to take the meter recording, and bridge sensors which keep track of the maintenance of the bridge. He spoke about smart bulbs which are connected over WiFi and can send information to a server. He then showcased the applications of image processing which include the identification of terrorists using the signs they make with their fingers, such as the victory sign, in the videos that they release. He talked about software that reasoned like humans such as chatbots, and also introduced the participants to the Sload digital sky survey, which aims at covering the entire sky and creating a repository of the images of the sky. He spoke about the significant use of artificial intelligence in the healthcare sector as well. The speaker covered several applications of machine learning and conducted an engaging session wherein he discussed use cases where the dataset may need to be tweaked, and where the data set would require spatial features. During the Q and A session, he explained the difference between machine learning and deep learning and discussed why we should

not treat each problem as a machine learning problem. The session was appreciated by all the participants.

### 3. Technical Session Title: Technology Led Global Business Transformation: Experiences and Opportunities

Speaker: Sh. Chetan Korke, Business Manager (Digital Transformation), IKEA, Bengaluru

Date: May 19, 2021



Technical Session of Mr. Chetan Korke in progress

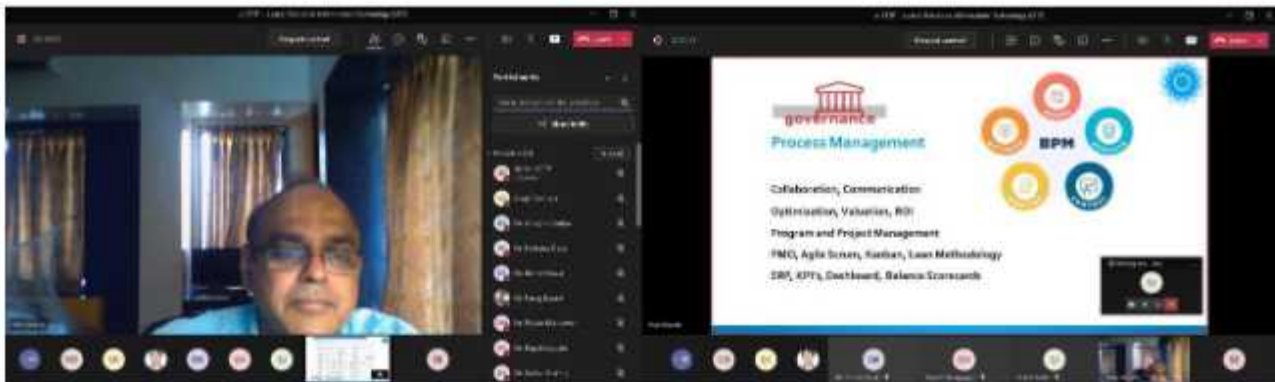
The speaker introduced the concept of digital transformation to the participants and stated that the industry has witnessed various kinds of transformation over the years. He explained that today, the pace of change is quick and the scope is wider. He gave real life experiences from the retail, automobile and IT services industries. He believes that the secret “sauce” for successful transformation contains elements such as human transformation, which is a key element, transformation in technology and in global businesses as well. The speaker mentioned that pragmatic technology skills are required for such a transformation. A few of these skills are product management, requirements management, engineering management, holistic risk management, and design thinking. He explained the pillars around which organisations today are restructuring their IT departments. These are tech, product, design and data. He emphasised on the importance of the human angle for a successful digital transformation. Emotional intelligence, diversity and creativity, negotiation skills, complex communication with cultural nuances, collaboration skills, productivity and accountability are significant skills that employees and companies should focus on. Speaking about diversity, he mentioned the need for all kinds of people such as thinkers, strategists, visualisers, specialists, executors and cross-functional collaborators. The speaker concluded the session by listing the three most important elements for digital transformation, which are technical skills, alignment to the human possibilities paradigm and maximum exposure to the real world.

### 4. Title: Change in Technology Trends after the New Normal

Speaker: Sh. Makarand Shintre, Founder and CEO, Karma, Solutions, Pune

Date: May 19, 2021





### Technical Session of Mr. Makarand Shintre in progress

The speaker spoke about various aspects of business and technology such as the key performance indicators which include sales, financial, customer, operations, human resource and marketing KPIs. Spoke about the blue ocean strategy – addresses the problem of finding a market for your product. Most of the companies are in the red ocean because of huge competition. We should focus on innovation based on value rather than just technology or emotion. Example of the blue ocean is Apple iPad and that of the red ocean is Indian Punjabi Cuisine! Spoke about digital marketing and the use of artificial intelligence in this field. He spoke about the use of drones, virtual reality, progressive web apps and chatbots in this area. He explained how personalisation plays a significant role in digital marketing. He threw light on asset management and spoke about heavy investment, for instance investment made on machinery and equipment, digital assets, e.g. cloud and laptops. He also spoke about considering the useful life and the remaining life of the asset so we can decide whether we should replace the asset. He explained the operations aspect of governance, which involves workflows, automation, inventory, supply chain, enterprise resource planning and product lifecycle management (PLM). He laid emphasis on creating a solid operations management and optimisation by giving an example of the COVID-19 -vaccination process in India. He spoke about software technology which we need to consider, e.g. artificial intelligence, machine learning, web and mobile technologies, and DevOps. He explained how project management tools besides spreadsheets could be used, e.g. agile, jira, dashboards etc. He touched upon the human resource management aspect of governance and explained the importance of training employees periodically for the growth of the organisation. He explained the new normal digitisation eco-system wherein the governance team would look after ERP and other elements such as SCM, headless e-commerce, and the customer would use dashboards and interact with affiliate blogs and social media ads. These two elements are accompanied by an external layer which would encompass AI/ML, cloud, big data analytics and software applications. He gave an overview of the information technology trends such as AI/ML, Robot Process Automation (RPA), IoT, Cloud, Progressive Web Applications, Blockchain, docker containers, AR/VR, DevOps and mobile/web development. With regards to technology trends, he discussed topics such as:

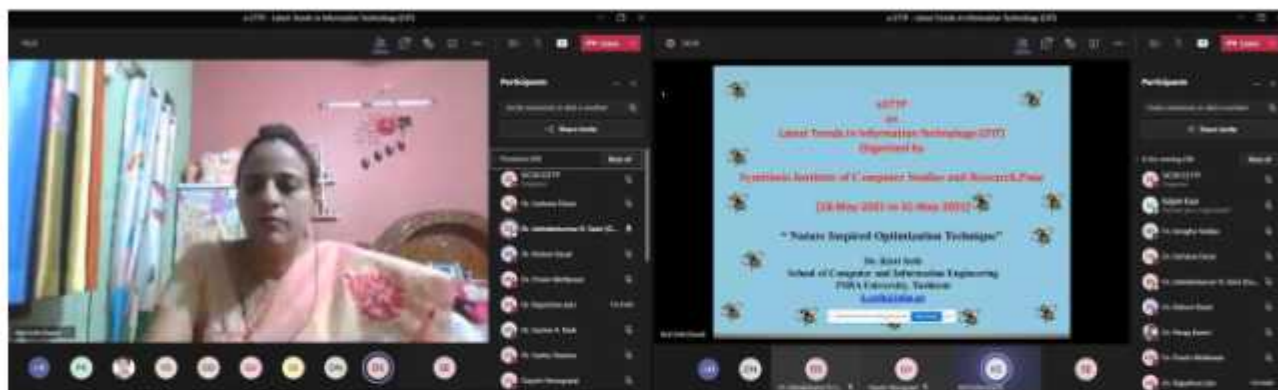
- a. Resilience officer, which would provide resilience against unprecedented external disruptions, forecast demand, prepare for climate change etc.
- b. Quantum computing, where we observe a 40% annual increase in quantum computing start-ups

- c. Simulating empathy, or affective computing, which encompasses AI technologies that can interpret and respond to human emotions as they connect with consumers.
- d. Psychedelic medicines, which usually include banned substances. He spoke about various companies that measure brain activity during treatment with these medicines.
- e. Exclusivity networks – which would have less people joining in by paying a high membership fee, e.g. dating sites, clubs etc.

##### 5. Technical session Title: Bio Inspired Optimization

Speaker: Dr. Kirti Seth, Associate Professor, SOCIE, INHA University, Tashkent, Uzbekistan

Date: May 19, 2021



##### Technical Session of Dr. Kirti Seth in progress

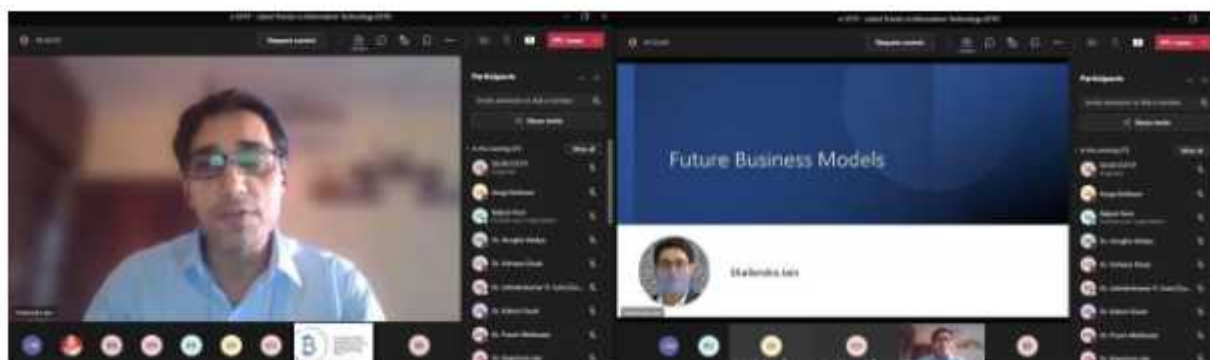
The speaker spoke about bio computation, which is research into human made systems that possess some of the essential properties of life. It can be divided into the use of technology to explore biology from an IT oriented paradigm, and the use of biology as a metaphor in computer science. The objective was to explain how biological terms can be used in computer science. These problems can be termed as combinatorial optimization problems. She explained the spirit of optimisation and associated it with optimism by giving various examples from daily life and described the objective of optimisation as minimising or maximising the objective function while satisfying certain constraints. She explained the categories of optimisation functions, i.e., deterministic and stochastic optimisation, single-objective and multi-objective, traditional and non-traditional methods. She focussed on Ant Colony Optimisation (ACO). As part of this topic, she explained swarm intelligence as the collective behaviour of decentralised self-organising systems. This is commonly found in ant colonies. She explained the principles of swarm intelligence, which are awareness, autonomy, solidarity, expandability and resilience. She explained how an ant's path represents a candidate solution and how constraints have been compared to pheromone (marker which the ant leaves behind) strength. She also gave an overview of particle swarm optimisation, wherein each particle searches for an optimum position and remembers the best position obtained at every step.



## 6. Technical Session Title: Technology Driven New Business Models

Speaker: Sh. Shailendra Jain, Head, SU Product Services (India), TietoEVRY, Pune

Date: 19 May 2021



Technical Session of Mr. Shailendra Jain in progress

The speaker began the presentation by talking about the ancient barter system of transactions and moved towards local currencies which were later replaced by international currencies, and today crypto currencies have gained popularity. He explained the concept of product as a service, which is already operational in B2B. He gave an example of “Homie” washing machine service where they were offering washing as a service. He also gave an example of Rolls Royce wherein they are charging power per hour. He explained various aspects that revolved around product as a service such as continuous customer satisfaction, 24x7 support, monitoring and regular billing and machine maintenance. He also explained the pros and cons of Product-as-a-Service (PaaS). He spoke about the capital needed to implement PaaS. He concluded by speaking about whether the pandemic would have any effect on the model of PaaS.

## 7. Technical Session Title: Biomedical Image Processing using Python

Speaker: Dr. Ramesh Manza, Professor, Dr. Babasaheb Ambedkar Marathwada University, Aurangabad

Date: 20 May 2021



Technical Session of Dr. Ramesh Manza in progress

The speaker explained the need for digital image processing and described a digital image as a representation of a two-dimensional image as a finite set of digital values called picture elements or pixels. He explained the method of image acquisition and image sensing. He also spoke about the various applications of image processing. In order to explain diabetic retinopathy, he explained the structure of the human eye and the retina in detail. He also gave an overview of diabetes. He spoke about diabetic retinopathy, which is a disorder in which the retina is affected owing to diabetes. He also gave the audience an idea about the vision of a normal person and that of a person suffering from diabetic retinopathy. He briefly described the three types of diabetic retinopathy and various related abnormalities. He explained his study revolving around diabetic retinopathy and also spoke about the use of the databases and techniques used in the study. Since the Python programming language was used in the study, he gave an overview of the language and the reason for using Python for image processing. He gave a step-by-step demonstration of the use of Python libraries for processing the image of the eye by reading the dataset, and explained noise removal methods.

#### 8. Technical Session Title: Cloud Technologies and Network Automation

Speaker: Sh. Shailendra Moyal, Squad Leader, IBM, Pune

Date: 20 May 2021



Technical Session of Mr. Shailendra Moyal in progress

The speaker introduced the audience to the concept of cloud, which is the delivery of on-demand computer services over the Internet with a pay as you go model. He explained the various advantages of using cloud such as no requirement of server space, no expert required for server maintenance, better data security, easy data recovery and replication, high flexibility, automatic software updates and rapid implementation. He also walked the audience through a history of cloud technology. He talked about the public cloud, which is one of the deployment models, wherein the users do not need to purchase the hardware, software or supporting infrastructure. He also gave an overview of private cloud and community cloud. He explained the association between cloud technologies and the Software-as-a-Service (SaaS) model, and the pros and cons of SaaS. He spoke about other service models as well such as Platform-as-a-Service (PaaS) and Infrastructure-as-a-Service (IaaS), along

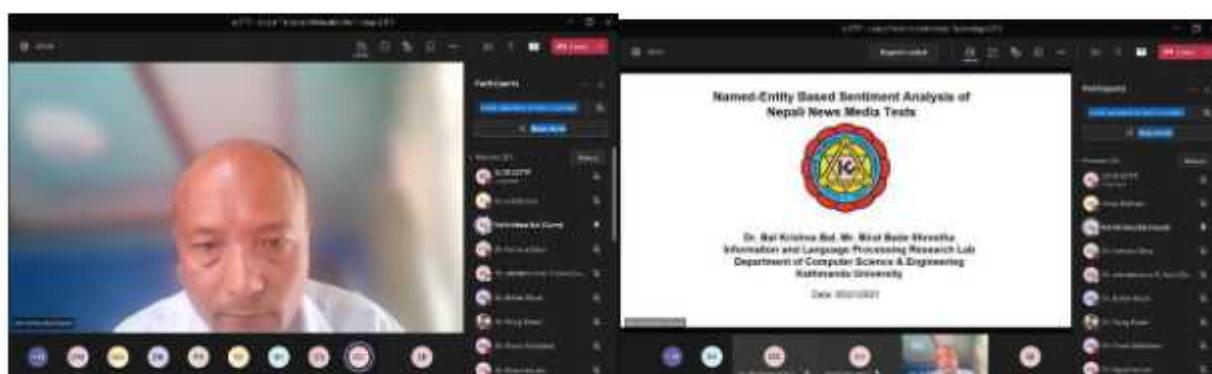


with the pros and cons of each model. Along with the benefits and features, he also listed various disadvantages of using Cloud and justified why cloud technology is not the solution to every problem. He covered various future cloud services such as edge computing, distributed ledger, cryptocurrency, Internet of Things, DevOps and Automation etc. and also listed the popular cloud providers. He briefed the audience about the need for and scope of network automation, which refers to the automation of the physical and virtual devices in a network.

#### 9. Technical Session Topic: Entity Based Sentiment Analysis in Nepali News Texts

Speaker: Dr. Bal Krishna Bal, Associate Professor, Department of CSE, Kathmandu University, Nepal

Date: May 21, 2021



Technical Session of Dr. Bal Krishna Bal in progress

The speaker spoke about the background of the project on named entity based sentiment analysis of Nepali news texts. The basic objective was to track the popularity and trend analyses of political figures in news texts. He explained how real world entities such as people, places, organisations etc. were identified in the text. Nepali politicians were considered as named entities in this research. This research was conducted as the popularity of politicians in the form of approval ratings that were generated using opinion polls, does not exist in the context of Nepal. He went on to talk about the theoretical/conceptual framework, wherein popularity was defined with the help of certain parameters such as number of comments, number of views, number of likes, number of subscriptions, number of mentions, number of tweets/retweets etc. Since news media texts are large, unstructured, ambiguous, implicit and at times sarcastic, this was a challenging problem. Other objectives of the project were to develop linguistic resources for the project and to train and test the model for entity based sentiment analysis. He explained the architecture they used to implement the project and talked about the existing work in this area. The speaker gave a detailed overview of the datasets and linguistic resources used, and described the algorithms used in the project. He concluded by demonstrating the outcome of the project which was a time series analysis of the popularity of three politicians of Nepal.

#### 10. Technical Session Topic: Visual Speech Recognition

Speakers: Dr. Ajit Ghodke, Dr. Ajit Ghodke, International Faculty, Guangdong, Nanhai, China



Sh. Ritesh Magre, Research Scholar, Dr. Babasaheb Ambedkar Marathwada University, Aurangabad.

Date: May 21, 2021



Technical Session of Dr. Ajit Ghodke and Mr. Ritesh Magre in progress

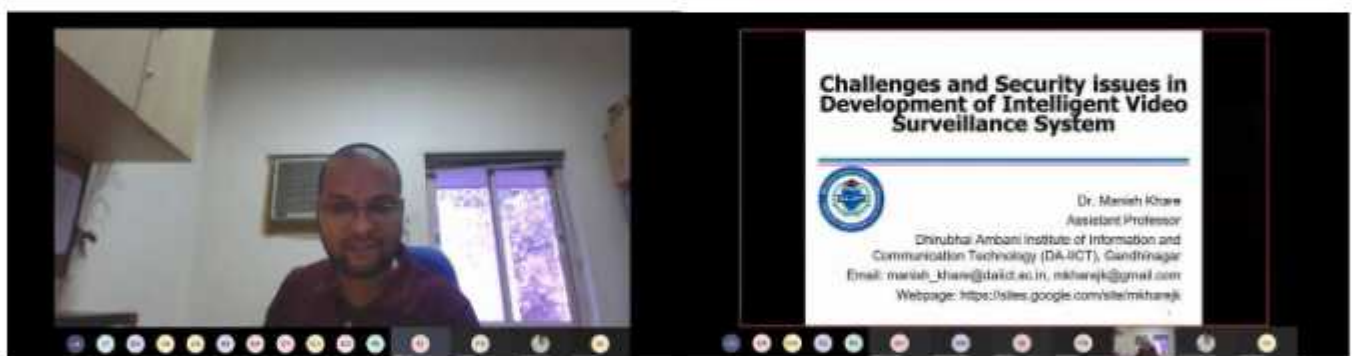
The speaker introduced the participants to the area of visual speech recognition. He explained terms such as utterance, speaker dependence, vocabulary, accuracy and training as these are the basics of speech recognition technology. He also spoke about speaker identification and verification and the various aspects of speech processing, a few of which are analysis/synthesis, recognition, coding, wherein recognition can further be categorised into speech recognition, speaker recognition (involving identification, detection and verification) and language recognition. He then spoke about lip reading, which enables a person with hearing impairment to communicate with others and to engage in social activities. He elucidated the importance of visual speech recognition (VSR), in which the objective is to recognise spoken word(s) by using only the visual signal that is produced during

speech. He then handed the session over to Mr. Ritesh Magre, his Ph.D. student who demonstrated the project that they have worked on. He spoke about speech, visual speech, visual speech recognition and speaker recognition. The speaker talked about the different types of machine learning by giving various examples of each type. He described the objectives of the research which include development of database and techniques, speaker and speech identification and to enhance human computer interaction. He walked the participants through the methodology which included data collection, feature extraction and classification. As part of this he spoke about the databases that they used for the project, the method of acquiring data, pre-processing techniques used and the features extracted for the classification problem. He also showed a sample recording of one of the data files that were collated. The speaker explained in detail the algorithms used for classification and the results thus achieved. The project and the presentation were appreciated by all the participants unanimously.

#### 11. Technical Session Topic: Challenges and Security issues in the Development of Intelligent Video Surveillance Systems

Speaker: Dr. Manish Khare, Assistant Professor, Dhirubhai Ambani Institute of Information and Communication Technology, Gandhinagar

Date: 22 May 2021



#### Technical Session of Dr. Manish Khare in progress

The speaker initiated the talk by justifying the need for video surveillance, and spoke about the applications of a video surveillance system. He explained how such systems help improve public safety, mitigate risks of crime and terrorism, protect assets, prevent fraud, and improve efficiency. With regards to the application, the speaker gave numerous examples including government buildings, traffic monitoring, transport, public security, object detection and tracing etc. and explained each application in detail demonstrating the importance of activity recognition and behaviour understanding. He spoke about the difference between a regular video surveillance system and an intelligent video surveillance system. An intelligent system is expected to identify the behaviour of human beings in the video captured by cameras. He then gave an overview of the architecture of an intelligent video surveillance system, which involves stages such as motion segmentation, object classification, object tracking, human activity and behaviour recognition, and behaviour analysis. He

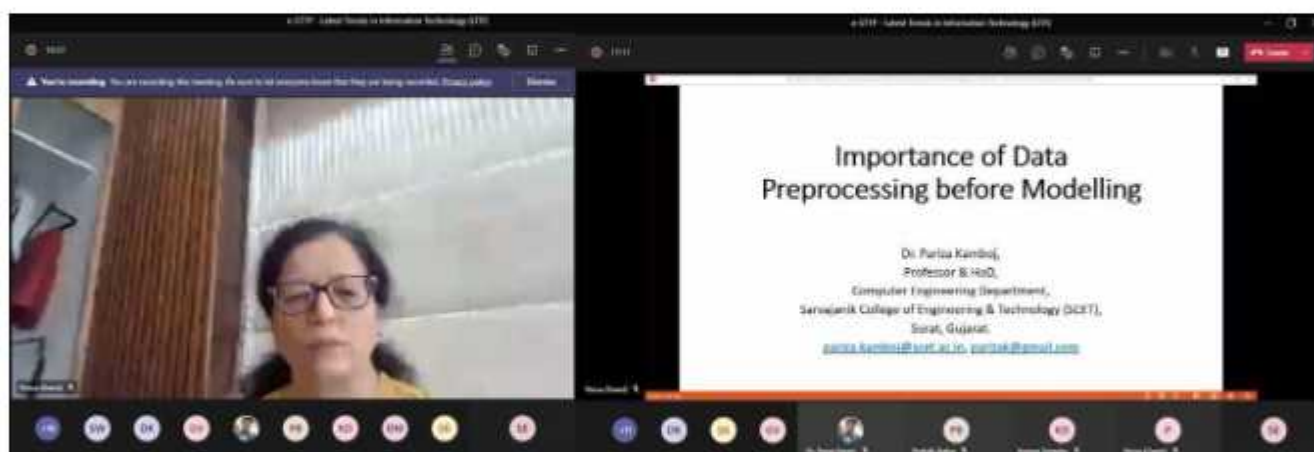


elaborated the operations performed and challenges involved at each of these stages with the help of detailed visualisations. In this process, the speaker gave various examples of sub-components such as object detection, human pose estimation, events, real time alarms, and long term and large scale analysis of activities. He then went on to discuss the issues in high level video analysis such as segmentation of motion blobs, object tracking, creating video object representations, high level representations, efficient data structures for high-dimensional feature space, and efficient and expressive query interface for query manipulation. The speaker concluded the session by talking about the current capabilities of intelligent video surveillance systems and discussing the advanced challenges in this field.

## 12. Technical Session Topic: Importance of Data Processing before Modelling

Speaker: Dr. Pariza Kamboj, Professor & HOD, Computer Engg. Dept., Sarvajani College of Engg. and Tech. (SCET), Surat

Date: 22 May 2021



Technical Session of Dr. Pariza Kamboj in progress.

The speaker began the talk by giving a deep understanding of data pre-processing, which is a data mining technique to turn the real world's data gathered from diverse resources into cleaner information which is more suitable for work, and explained that it is an iterative process and we need to perform this operation as long as the data is not structured and clean. She gave examples of unclean data such as data with missing values, duplicate records, wrongly formatted dataset etc. She spoke about data integration wherein data from multiple data sources are combined, which is later transformed into the appropriate format or structure which is more valuable for analytics. This data is then reduced into a representation which would consist of all the critical information and which would not lead to an overfitted model. In the topic of data transformation, the speaker also spoke about binarization, discretisation, standardisation, normalisation and feature rescaling. Explaining the need for data processing, she gave examples of algorithms that require different kinds of data and

algorithms that have certain restrictions with regards to characteristics of data sets, for instance, random forest algorithm does not allow null values in the dataset. She explained predictive modeling which can further be divided into model focused and data focused predictive modeling. In the data focused predictive modeling method, the entire responsibility of the outcome of the model is dependent on the data. She also explained the phrase “garbage in, garbage out”, which basically means that the performance of the model is dependent on the quality of the data fed into it. The speaker then conducted a detailed hands-on session wherein the software and the required files were circulated to the participants and they could execute the code simultaneously with the speaker. This hands-on session covered all the topics that were touched upon by the speaker initially and helped the participants in getting a detailed understanding not just about data cleaning but also about various Python packages and data visualisation techniques which helps understand the data in a more convenient manner. The elaborate session was appreciated by all the participants.

### 13. Technical Session Topic: Geospatial Information Technologies – An Experience from COVID-19 Pandemic: A Geoscientist’s Perspective

Speaker: Dr. Kotha Mahender, Vice-Dean (Academic) & Professor in Earth Science, School of Earth, Ocean and Atmospheric Sciences, Goa University, Goa

Date: 24 May 2021



Technical Session of Dr. Kotha Mahender in progress

The speaker introduced the participants to geospatial technologies, which allow us to determine the exact location of an object or a person on our planet. He explained that Geographical Information Systems (GIS) concepts are not new and spoke about how it was used in SAARS 2003 and other cases of epidemics. He presented the COVID 19 dashboard which shows geospatial statistics about the pandemic. He then spoke about various associated components such as remote sensing, GPS, GIS, Artificial Intelligence and Machine Learning, Data Analytics and Data Mining. He explained how geography, cartography, CAD and computer graphics, surveying and photogrammetry, and remote sensing led to the evolution of GIS. He also explained the vector and raster forms of data. He justified the importance of data, spatial as well as non-spatial, in a GIS project. The speaker gave numerous examples of GIS, the prominent among them being Google Earth. He then spoke about spatial analysis in which the ultimate output is the spot map which could be based on raster data or vector



data. He also gave an overview of terrain analysis and network analysis. He listed the software that can be used for conducting a GIS study.

14. Technical Session Topic: Open Source Technology: Hands on Designing MOOCs through Moodle LMS

Speaker: Dr. Gururaj Mukarambi, Assistant Professor, Department of Computer Science, Central University of Karnataka, Kalaburagi

Date: 24 May 2021



Technical Session of Dr. Gururaj Mukarambi in progress

The speaker began the session by talking about the prerequisites for designing online courses, which include software tools such as screen recorders, for instance, screencastify, free cam, loom etc., and video recording software such as presentationtube, screencast-o-matic and OBS. He then demonstrated the use of Moodle LMS through GNOMIO. He then spoke about the process of finding open educational resources, for instance research papers. The speaker walked the participants through this process in a step-by-step manner and demonstrated how to search for open access papers. He went on to explain the process of searching for open source images that the content creator would need for the resource being created. He then explained the methodology for designing online courses by giving an example of a module creation for teaching Java. He spoke about the four-quadrant approach, wherein we add audio/video content in the first quadrant, the content we create in quadrant two, forums for discussion among students in quadrant three, and assessment material in quadrant four, which can be done online with the help of Moodle. He demonstrated the use of each quadrant during the session. He explained the concept of learning outcomes which is a key component of the National Education Policy (NEP). He also demonstrated the use of YouTube Studio to create content for students. The participants also got hands-on experience with GNOMIO using which they could create a Moodle site for teaching and sharing resources. He concluded the session by guiding the participants in the creation of quizzes for evaluation, and conducted an informative Q and A session.

15. Technical Session Topic: Digital Transformation



Speaker: Sh. Manish Kumar Singh, APIs and Cloud Solutions Architect, Digital API Craft, Bengaluru  
Date: 25 May 2021



Technical Session of Mr. Manish Singh in progress

The speaker introduced the audience to the concept of APIs, which is a method of providing access to the business logic to the outside world using a URL, while maintaining security at the same time. He then spoke about API management by giving a detailed description about API management and the different types of APIs. He listed the various components of API management, which are gateway, portal, administration and operations, analytics, and monetisation. He then explained the issue with API management platforms, which is their high cost. But at the same time he also justified the cost of such platforms and why companies are willing to spend on such platforms. He spoke about the enterprise service bus which forms the integration layer of an API management platform. It integrates data lakes, data warehouses, databases, service oriented architecture, CRM, ERP etc. He spoke about the entry point of the system which is secure, scalable, and provides an analytical component. The third layer is the one with which the consumers interact such as digital devices. The management platform provides a connected digital experience to the consumer, that is, if one device updates the data, the other web application accessing the platform would obtain the latest data. The speaker then explained that the backend would typically consist of legacy applications such as ERP, the platform would make it available as an API. He also spoke about the digital value chain, which is composed of customer, app, developer, API, API team and backend. He then took the example of Facebook to explain a connected digital experience. He went on to talk about the top trends in API management, the driving factors for API management market and the opportunities for the API management market. He listed the top companies in API management such as Google Apigee, MuleSoft, AWS API Gateway etc. He explained in detail, the industry standards that are being implemented by companies now such as Open ID Connect, Open Banking and Open Energy to name a few. He concluded the session by giving a demo of Google Apigee.

16. Technical Session Topic: Radiomics and Pathomics: Application for Predicting Lung Cancer

## Diagnosis, Prognosis and Treatment Response

Speaker: Ms. Pranjal Vaidya, Graduate Student, CCIPD, Biomedical Engineering Department, Case Western Reserve University, USA

Date: 25 May 2021



### Technical Session of Ms. Pranjal Vaidya in progress

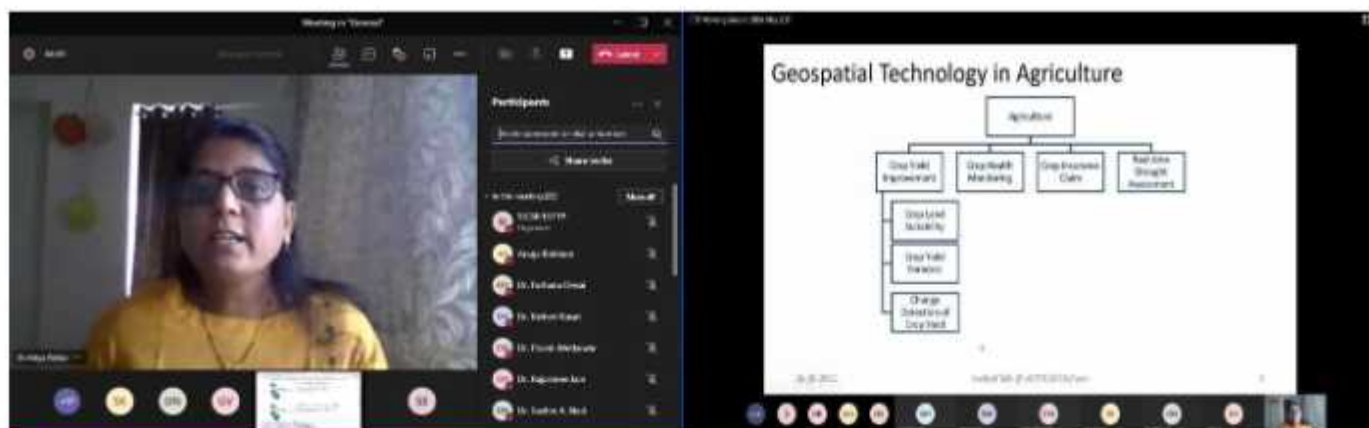
The speaker gave an introduction about her PhD thesis which revolves around prediction of lung cancer diagnosis. She spoke about translational medicine, which uses AI and machine learning algorithms to predict disease outcome and treatment responses. She gave a brief outline of cancer, lung cancer and demonstrated how cancer is spread into the lungs. She stated that the primary diagnosis of lung cancer is done using CT scans. She demonstrated different views of a CT scan with the help of a tool. She differentiated between clinical applications and research applications, and explained that her study revolves around extracting and analysing radiomic textural features, which are patterns describing the morphology of the tissues not visible to the human eye. The speaker listed a few of the features such as size and shape of the nodule, intensity, range, energy etc. which fall under the category of first order features, and grey level co-occurrence matrix, Laws and Laplace family-based features, higher order filters etc. which fall under the category of higher order features. These features are then fed into a machine learning classifier, which predicts cancer outcome, survival and different treatment responses. She explained tissue scans, the need for pathology and pathomic analysis. She spoke about precision medicine, which is a combination of prognosis and prediction, that is, it refers to the use of prognostic and predictive tools to tailor treatment at patient level. The speaker explained the study in detail and conducted an engaging Q and A session.

## 17. Technical Session Topic: Role of Geospatial Technology in Agriculture

Speaker: Dr. Vidya Patkar, Deputy Director, Symbiosis Institute of Geoinformatics, Symbiosis International (Deemed University)

Date: 26 May 2021





### Technical Session of Dr. Vidya Patkar in progress

The speaker spoke about geospatial data which could be in vector format or in pixel format, and gave a gist of geospatial technologies. She showcased the products that are associated with different satellites travelling around the earth, which can be viewed on <https://dms.sig.ac.in>. She explained the agriculture profile of India and stated that around 20% of the GDP is contributed by agriculture, and that owing to natural calamities, losses around Rs. 1000 crore are incurred every year. The speaker then covered the applications of geospatial technology in agriculture, such as crop yield improvement, crop health monitoring, crop insurance claim and real time drought assessment. She explained crop land suitability in detail, wherein the participants were informed about different parameters such as soil parameters, climatic parameters, topographic parameters were used with data collected from different departments. She demonstrated land maps which consisted of pixel based colour coded areas. This was used to determine which land was suitable for which types of crops. She also showcased the soil health cards that are available on <https://soilhealth.dac.gov.in>. The second application that the speaker explained was crop yield forecasting. She showcased an image in a pixel-format which was classified using supervised classification which would label the map according to the predefined classes, such as wheat area, gram area etc. The third application that the speaker explained was crop insurance claim, wherein farmers claim insurance for the crops they grow. Insurance applications are high in Maharashtra but claiming and availing the benefit is equally important, which is where the researchers uncovered gaps. It was found that there were either false claims or claims wherein it was not feasible to check for the truth of the claim. She showed the area-wise statistics associated with crop insurance and explained how geospatial technology can help in this process. The speaker then explained crop health monitoring and demonstrated how satellite images were classified to help with this process. She concluded by giving the participants a glimpse of the funded project that she has worked on, in which geospatial technology was used in real time drought assessment.

### 18. Technical Session Topic: Blockchain

Speaker: Dr. Nikhil Karkhanis, Founder, bricshub.com and insuchain, Singapore

Date: 26 May 2021





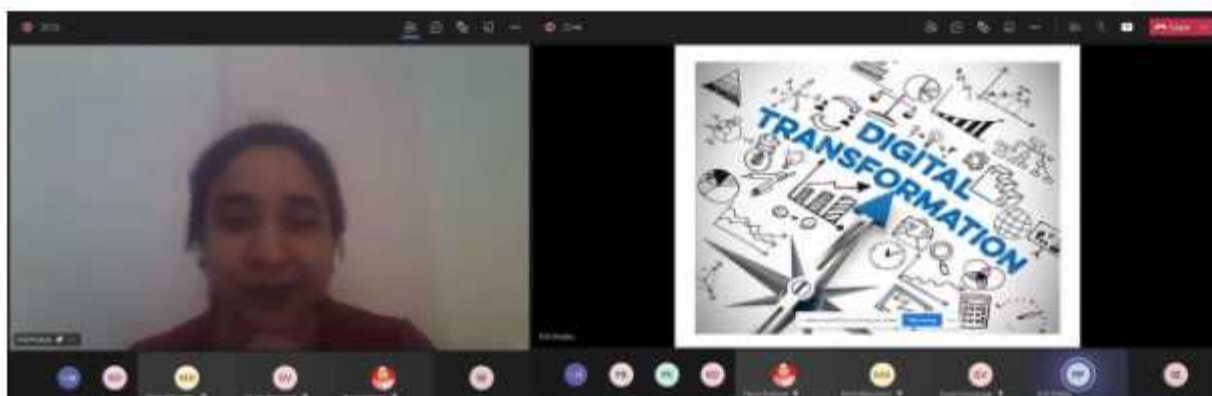
### Technical Session of Dr. Nikhil Karkhanis in progress

The speaker spoke about his experience with blockchain and urged the participants to talk about their understanding of the concept. He then spoke about the evolution of blockchain and the application of blockchain in FinTech as well as non-FinTech domains. He spoke about the architecture based on levels of control such as centralised and decentralised control. He showcased how decentralisation supports blockchain technology. With regards to the decentralised landscape, he explained that there is no central authority, there is increased data flow, no single point of failure, and the code and the compute are distributed, e.g. Steemit, Springrole and Storj. He explained the difference between a database and a blockchain with respect to integrity of data, write access, cost, and trust. He explained how Ethereum was born and spoke about smart contracts and blockchain 2.0. Examples of use of smart contract include pay-as-you-go services, rental agreement, goods received note, CCTV actions, employment, insurance claim, copyright, vending, voting etc. He then explained blockchain in the FinTech domain, wherein he spoke about tokenization and its advantages, which include credibility, greater liquidity, faster and cheaper transactions, transparency, high accessibility etc. He spoke about Web 3.0 and gave a perspective of security aspects to be considered in Web 3.0. The speaker went on to explain the Ethereum app development environment. He also used multiple videos to explain certain concepts. He concluded the session by discussing the future of blockchain, and stated that though it has been highly criticised, it might become an unstoppable technology just like the Internet did.

### 19. Technical Session Topic: Digital Transformation

Speaker: Ms. Priti Phatale, Ex. Asst. Vice President, Deutsche Bank; Founder, SoberRecover, Pune

Date: 27 May 2021



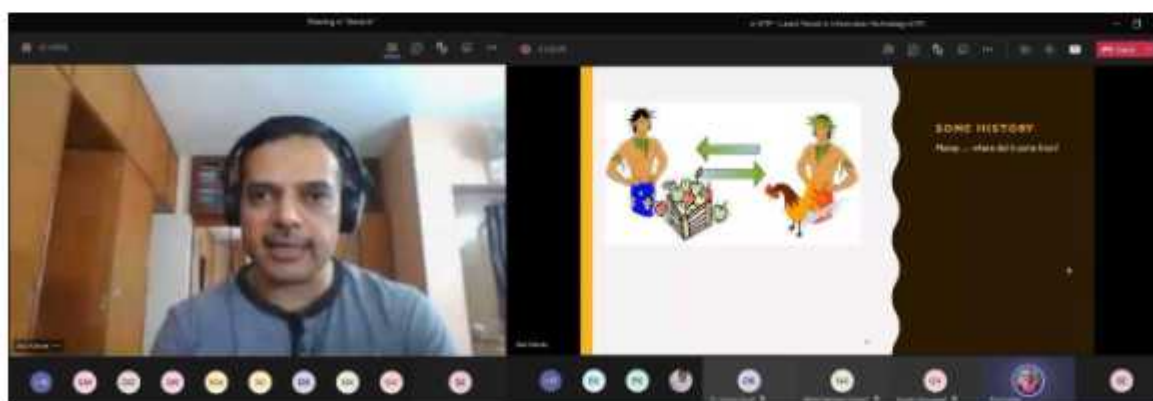
### Technical Session of Ms. Priti Phatale in progress

The speaker introduced the concept of digital transformation and explained that it involves practices that need to be adopted to improve digital business maturity. She spoke about the journey from analog to digital, and explained the reasons for digital transformation in companies. She gave examples of innovations in fields such as e-commerce and banking. She explained that innovations in banking are more security-driven. The speaker listed and explained the factors that drive digital transformation such as technology innovation, customer behaviour and demand, and external environmental factors. She then spoke about the talent division which involves technology, data, process and organization change capability. She laid emphasis on the importance of soft skills in digital transformation. She stated that digital transformation should happen at all levels and not just at a technical level. The speaker spoke about various hard skills such as subject matter expertise, data and technical skills etc. and various soft skills such as problem solving, storytelling and curiosity. She gave examples of each skill in detail and stated how each skill contributes toward building better professionals.

### 20. Technical Session Topic: The Virtual Currency Technology World

Speaker: Sh. Atul Kahate, Renowned Writer, Pune

Date: 27 May 2021



### Technical Session of Mr. Atul Kahate in progress

The speaker initiated the talk by talking about the concept of money beginning from the barter system,

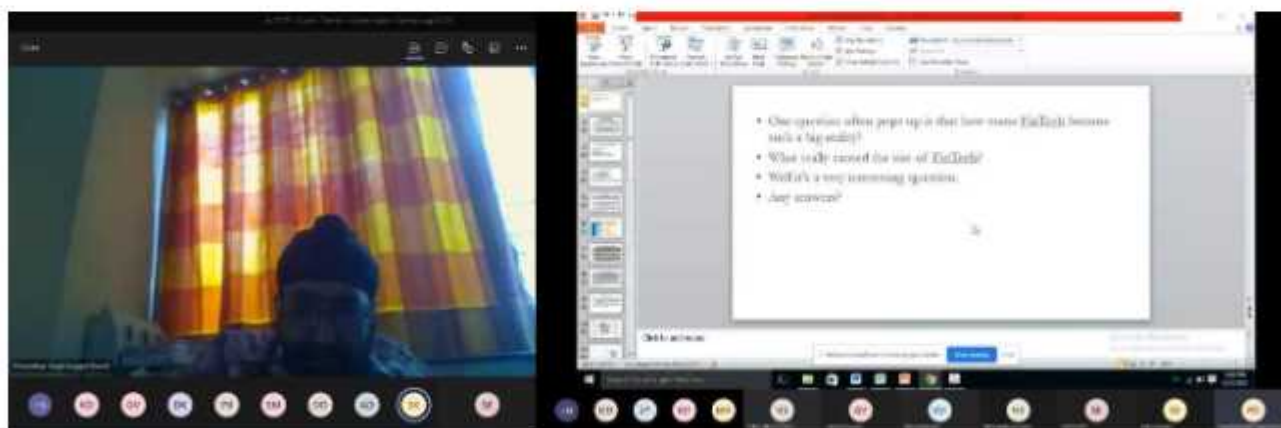


after which transactions were done using precious metals, which later developed into coins and paper notes that we use till date. He spoke about the evolution of currencies and the use of cheques, demand drafts, credit cards, debit cards, online payments, banking and e-wallets. He explained how virtual currency came into the picture with the development of the internet and the 2008-2009 global financial crisis. He explained that the initial idea of cryptocurrency was not to hold onto money. He explained that today the value of cryptocurrency such as BitCoin is pure speculation. But initially it was invented to use as a medium of exchange just like the barter system. The earlier attempts prior to Bitcoin, involved a trusted third party such as a bank, and a proof of ownership. He spoke about the double spending problem which means that the same note cannot be spent by the same person a second time. This is not the case in virtual currency if we do not know the owner of the currency. The attractive proposition with regards to Bitcoin was that the number of bitcoins that could be created was limited. The speaker explained the blockchain network that is used as the Bitcoin network, i.e., it would contain a record of the transactions, and the system would be completely distributed. The idea is that the wallet of a person in the network would be identified by their public key. The Bitcoin system would also create a private key for the person, which should not be shared with anyone. Anyone who wants to send money would need the public wallet address of the person receiving the money. All the transactions are placed in a block and multiple such blocks form the blockchain system. Each block is chained to each other with the help of a message digest. Each block has a message digest, which is based on the previous block's message digest. The speaker went to explain the process of mining and explained how it may lead to unpredictability. He also touched upon the concept of smart contracts.

## 21. Technical Session Topic: FinTech

Speaker: Sh. Pawandeep Singh Duggal, Chartered Accountant & Author, Pune

Date: 27 May 2021



### Technical Session of Mr. Pawandeep Singh Duggal in progress

The speaker explained how technology is used by banks to give loans to companies. He mentioned that the financial tech field grew in 2008. We did not witness a financial crisis in India in 2008 as compared to the rest of the world owing to strict regulations imposed by RBI and SEBI. He spoke

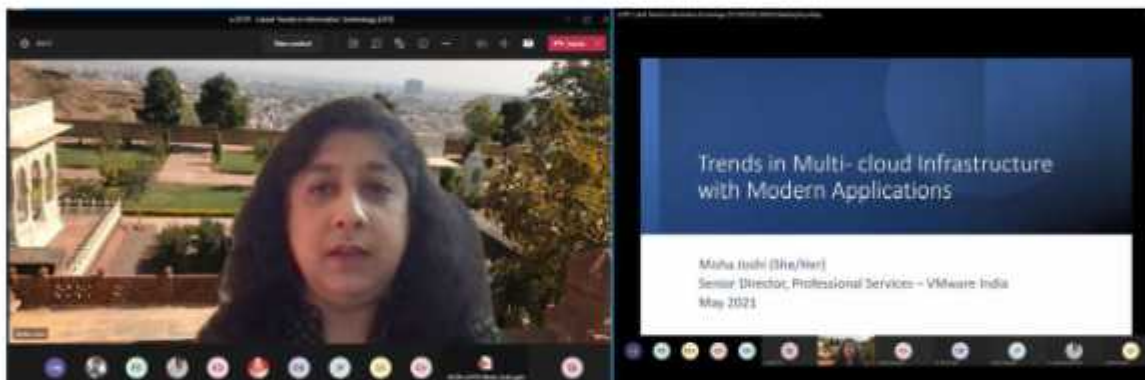


about small finance banks which focussed on microfinance. As services expanded, technology followed and this led to the growth of fintech in India. He explained that a variety of innovative business products and emerging technologies play a key role in fintech. He mentioned that the technology is required to follow the latest innovative financial business models. The speaker also spoke about the use of blockchain in this field. He spoke about robo advisors and algorithmic trading which are applications of fintech. He listed a few other applications as well such as crowdfunding, peer-to-peer lending and many more. He explained that predictive analytics, big data analytics and machine learning are being used for providing investment advice to the consumers. Decisions such as providing loans are being made with the help of machine learning techniques. He spoke about distributed computing and distributed ledgers being used widely. He explained why the Aadhar card was introduced in India and also about the associated aspects including technology and security issues. Such developments led to the growth of fintech companies. He stated that around 700 fintech companies have been established in the last two years and concluded the session with an engaging Q and A session revolving around the need for regulations in fintech such as blockchain technology.

## 22. Technical Session Topic: Trends in Multicloud Infrastructure with Modern Applications

Speaker: Ms. Misha Joshi, Senior Director-Professional Services, VMware, Bengaluru

Date: 28 May 2021



Technical Session of Ms. Misha Joshi in progress

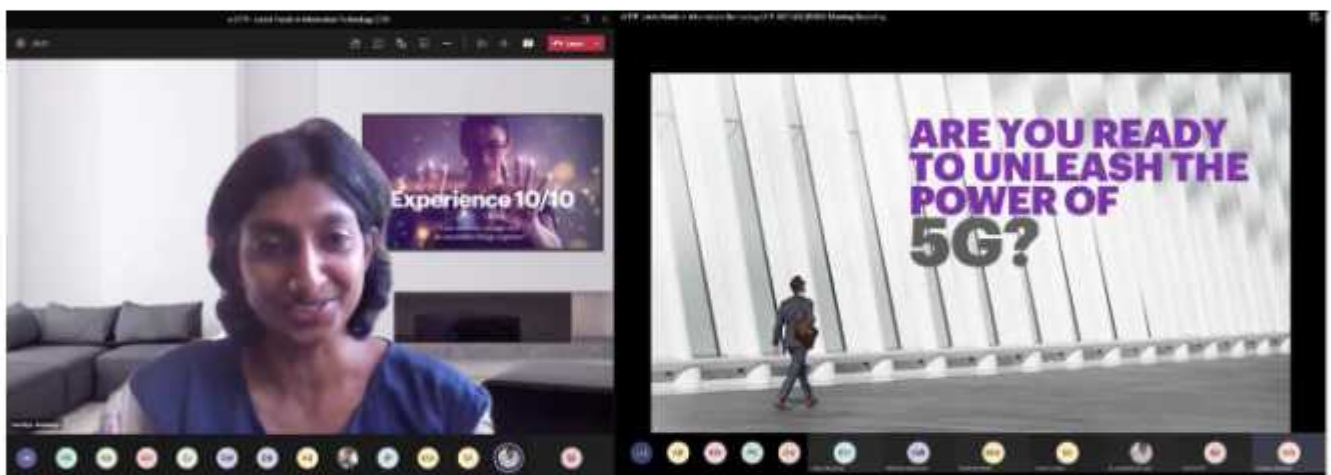
The speaker began the session by talking about how application needs are driving infrastructure needs. She stated that digital transformation is the need of the hour. She emphasised on the need for agility and showcased the mega-trends in the industry, the key elements among them being, cashless solutions, automation, data-driven solutions using big data and analytics, and the future of mobility. The speaker presented her interpretation of the success factors, which involved organisational restructuring, offerings and solutions, capabilities, and streamlined GTM. She spoke about separating the incubation environment from the production environment, and explained that it is necessary to design a comprehensive digital portfolio and to have verticalised use-case specific IPs, along with innovative engagement models, and to leverage partnerships. She spoke about the various applications that have been released in the pandemic such as the Aarogya Setu app and the Cowin website. She also spoke about spinning up virtual desktops for remote workers. The speaker listed various legal and financial aspects of partnerships. She focussed on the importance of design thinking

which focuses on the end user, while at the same time also focussing on the employee, for instance to think of IT admins, users of the solutions across functions. The speaker then spoke about customers' expectations along the journey and how multi-cloud needs are evolving. She mentioned that 88% of APAC IT leaders agree that improving app portfolio improves customer experience, 83% agree that customer experience is tied to revenue growth, yet 48% have not made application improvements in over a year or more. She spoke about the need for a comprehensive approach and showcased how VMware addresses these needs. The speaker then listed the various skills required such as skills required with regards to facilitation, technology, commercial aspects, marketing and the web. She discussed the factors that will help adapting to change, for instance, shift to self-driving and self-healing infrastructure, self-service based operations and employee experience etc. The speaker concluded the session by sharing the achievements of the VMWare IT team, one of them being achieving their carbon neutrality goal.

### 23. Technical Session Topic: 5G

Speaker: Ms. Mathangi Sandilya, Managing Director, Accenture, Bengaluru

Date: 28 May 2021



Technical Session of Ms. Mathangi Sandilya in progress

The speaker spoke about the prominent features of 5G such as latency, efficiency, device connection density, speed and flexibility. She mentioned that 5G enables global opportunities across industries. She explained how services such as enhanced video services, content creation and monitoring, smart surveillance and other remote operations can benefit from this technology. She spoke about various use cases in the industry such as for mobility, travel, retail, consumer goods and services, manufacturing and life sciences. The speaker explained the new features in 5G such as millimetre waves, multi-access edge computing, network slicing, massive mimo and mentioned that 5G will leverage advanced antenna technologies to improve coverage and capacity. She then spoke about the key challenges, which are spectrum availability and cost, network deployment approach, i.e., it might require a new regulatory and deployment approach, strategy use cases and business model as investments require a business case, and operational complexity, as a tidal transformation would be

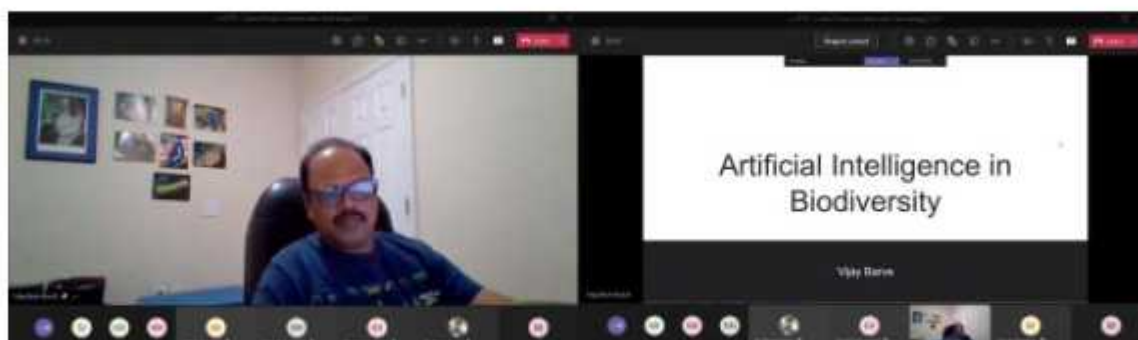


required in stacks, processes and people. The speaker concluded the session by giving an overview of how Accenture approached this problem.

#### 24. Technical Session Topic: Artificial Intelligence in Biodiversity

Speaker: Dr. Vijay Barve, Post-Doctoral Researcher, Terrestrial Parasite Tracker TCN, Department of Entomology, Purdue University, USA

Date: May 29 2021



Technical Session of Dr. Vijay Barve in progress

The speaker initiated the session by talking about the relationship between artificial intelligence, machine learning, deep learning and data science. He gave a detailed overview of each topic and took the session forward by introducing the participants to the area of biodiversity, which includes the air we breathe, the water we drink, and the food we eat. He spoke about the extinction of tigers and how conservation efforts have helped in protecting their population. He justified the importance of biodiversity documentation, which is a process of identifying and recording the presence of species of plants and animals at a particular place and time. This documentation is done through collection, record keeping, photography, or sound recording. Owing to the huge amount of data in different forms, biodiversity science has entered the big data scene. The speaker then explained primary biodiversity records, which include what, where, when and who questions. He then showcased how computer vision models around the world have helped in species identification. While speaking about the challenges, he mentioned that it is data intensive work and that training data is not easily available. He also spoke about the requirement of a lot of power for building models. He then showcased studies that focus on identifying species based on the sounds of animals. He also showcased research around the area of object detection in the field of biodiversity. The speaker then listed the open source tools and other resources provided by various companies to promote research in the domain of biodiversity. The session concluded with an engaging discussion around the applications of AI in biodiversity conservation.

#### 25. Technical Session Topic: Cloud Computing and AWS in Industry

Speaker: Sh. Sameer Dhanorkar, Sr. Technical Specialist, Zensar Technologies, Pune

Date: 29 May 2021





### Technical Session of Mr. Sameer Dhanorkar in progress

The speaker began the session by talking about the client-server architecture that was prominent around twenty years back. He explained that it was a distributed-centralised system, which led to latency and dependency issues. In order to overcome such issues, virtual architecture came into the picture, which later evolved into cloud computing. He explained the virtual architecture in detail and also gave an overview of the concept of cloud. While speaking about cloud computing, he stated that it is the delivery of computing services—servers, storage, database, networking, tools and software over the Internet. The speaker then delved deeper into the categories of cloud computing models, which are deployment models and service models. Deployment models further consist of public, private and hybrid cloud. Service models consist of infrastructure as a service, software as a service and platform as a service. He spoke about each model in detail with their applications. The speaker also shed light on the advantages and disadvantages of cloud computing. While answering a question by one of the participants, he discussed the future of cloud, specifically after around five years, and mentioned the challenges that the industry would face while maintaining the infrastructure. The speaker then gave an overview of the history of AWS, which was launched in 2002, and relaunched in 2006 with Amazon EC2 instance. Speaking about the global network of AWS regions, he stated that the geographic region and the availability zones are not the same. Geographic regions refer to the regions across the world where Amazon has placed its data centres. Availability zone refers to a collection of data centres. He then spoke about the advantages and disadvantages of AWS. The speaker gave a detailed description of services used at various layers such as for deployment and management, application services layer, and the foundation services layer. He then spoke about the reason behind choosing AWS.

While speaking about disaster recovery, the speaker mentioned that we can configure the environment by anticipating such disasters and add additional layers of security so that the data is safe.

26. Technical Session Topic: Text Classification Models for Social Media Data

Speaker: Dr. Yogesh Somwanshi, Assistant Professor, Department of Computer Science, Baliram Patil Arts, Commerce and Science College, Kinwat, District Nanded, Maharashtra

Date: 31 May 2021



Technical Session of Dr. Yogesh Somwanshi in progress

The speaker gave an overview of social media and social media content. He addressed the problem associated with social media content, that is, the unstructured and noisy nature of the data. He explained the two categories of data mining, which are predictive data mining and descriptive data mining. Predictive data mining in turn consists of classification and prediction, whereas descriptive data mining consists of clustering, association and summarisation. Classification could further be divided into supervised, semi-supervised and unsupervised classification techniques. The speaker listed the various methods of text representation such as the bag-of-words model and explained the pre-processing methods that are used to process textual content, such as tokenisation and stemming.

He spoke about the TF-IDF model which can be used to weigh the features. He explained TF-IDF

in detail and spoke about the various classification algorithms that can be used such as Naive Bayes, support vector models, decision trees and voted perception. He explained short text and its features such as sparsity, immediacy and un-standard ability. He described the process of training a



classification model for each of the algorithms listed earlier. The speaker concluded the session by giving a demo of the WEKA tool.

27. Technical Session Topic: Responsible AI - Going Beyond

Accuracy Speaker: Dr. Bhushan Garware, Sr. Data Scientist,

Persistent Systems, Pune Date: 31 May 2021



Technical Session of Dr. Bhushan Garware in progress

The speaker initiated the session by discussing the difference and similarities among artificial intelligence (AI), machine learning and deep learning. He explained that artificial intelligence is a sub-field of computer science, which includes automation and ensures that a system learns from its environment and adapts on its own. Machine learning is a sub-field of AI, which involves making predictions based on past experience. Deep learning involves the use of neural networks and forms apart of AI. He spoke about traditional machine learning which involves dataset creation, feature engineering, algorithm selection, and model tuning and evaluation. He explained Auto ML, wherein a data scientist is replaced by a bot, which would automate the processes of problem formulation, feature engineering and selection, model tuning and deployment. With regards to evaluation, he explained that only accuracy is not sufficient. He mentioned the black box nature of a model as being a disadvantage with regards to trusting the decisions made by the model. He explained that the key pillars of responsible AI are interpretable and explainable AI, secure and private AI, compliance and ethical AI, reproducible AI, and accessible AI. He showcased the errors made by various models owing to the bias in the training data. He listed the XAI frameworks such as Explainable AI, AI Explainability 360 and InterpretML. The speaker discussed the issue revolving around the security of private information and spoke about removing personal identifiable information (PII), which is called data anonymisation, but this can still be cracked. He suggested the use of data encryption and differential privacy, which can be implemented using libraries such as white noise, differential privacy etc. He also explained the concept of federated learning or

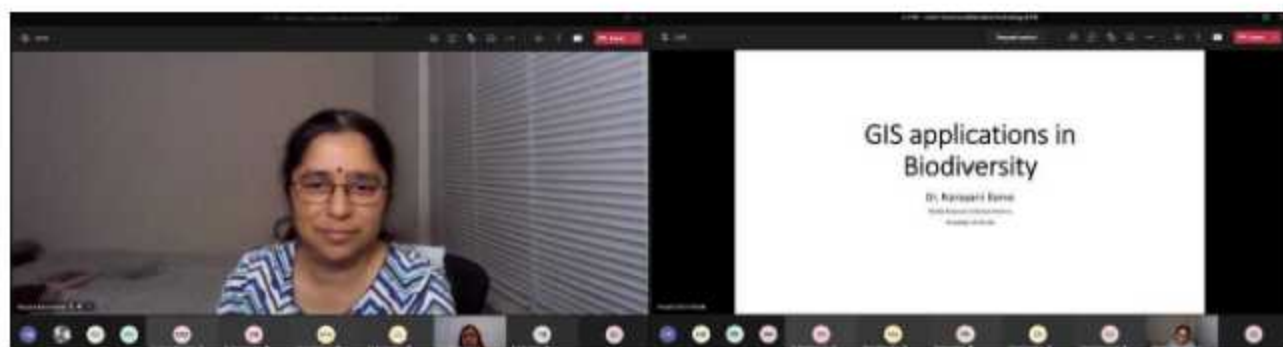


distributed learning. He then spoke about fairness engineering. The speaker concluded the session by touching upon the topic of reproducibility in AI, and machine learning operationalisation.

## 28. Technical Session Topic: GIS Application in Biodiversity

Speaker: Dr. Narayani Barve, Assistant Scientist, Florida Museum, Florida

University, USA Date: 31 May 2021



### Technical Session of Dr. Narayani Barve in progress

The speaker introduced the participants to the area of geographical information systems (GIS), which is a method to visualise, manipulate, analyse and display spatial data. She spoke about spatial and tabular data, wherein spatial data is further categorised into continuous data and discrete data. She also explained projection, which is the result of a mathematical formula that converts spherical

coordinates of longitude and latitude into planar coordinates. The speaker then explained the concept of remote sensing and the terms associated with it. While explaining biodiversity, she described the three types of diversities, which are, genetic diversity, species diversity, and ecosystem diversity. She stated that India is one of the richest countries with a big pool of ecosystem diversity, ranging from deserts, plains, hills, mangroves, evergreen forests to the Himalayas. She justified the need for taking care of our biodiversity. The speaker went on to talk about the research areas in biological sciences, and explained the research studies undertaken by her. She spoke about species distribution studies which help us gain insights into habitat loss and degradation.

The two-weeks e-Short Term Training Program on Latest Trends in Information Technology ended with the valedictory address by the co-coordinator, Dr. Sachin A. Naik, Deputy Director, Symbiosis Institute of Computer Studies and Research, Symbiosis International (Deemed University). He informed everyone about the varied and rich profile of the resource persons who shared their knowledge and insights on a wide range

of topics. He also thanked specially to the Director sir Prof.Dr. Jatinderkumar R. Saini for his motivation and inspiration to conduct this event. He thanked all the participants and the eSTTP team for their constant support.

**NAME OF WORKSHOP**  
**UNBLOCKING THE BLOCK IN BLOCKCHAIN**

1. **Topic/Title of the Event : UNBLOCKING THE BLOCK IN BLOCKCHAIN**
2. **Type of the Event : VIRTUAL WORKSHOP**
3. **Date(s) of the Event : 12<sup>th</sup> JUNE 2021**
4. **Time/Duration/Period : 11:30 AM- 1:30 PM**
5. **Venue : MICROSOFT TEAMS**



## Report :-

Team SICSr ACM Student Chapters organized a virtual workshop on the topic **“Unblocking the blocks in BLOCKCHAIN”**. The workshop started at 11:30 am with the anchors (Ayushi and Rohit) along with Mrs. Tejaswini Apte, welcoming the participants and introducing the speaker Rahul Johari. The speaker started the workshop by introducing the topic and its importance in our lives which helped grab the attention of students. He went on explaining the government’s initiative in blockchain technology, and how MAAGI companies have been involved in this tech. He covered the main purpose of blockchain i.e. protecting private data, which is becoming extremely important with the advancement of IT sector. He also made sure that students get to know about the people who have contributed in IT and blockchain, especially award winners and Satoshi Nakamoto who we believe mined the first block in the world of blockchain. The attendees were involved throughout the workshop by sharing the links of websites that were used during the explanation and were given exercises in a simulated environment to construct a pseudo code for a smart contract. Overall, it was an informative session covering prerequisites, java codes, application, videos and experiments on blockchain technology.

It ended with a Q&A session for the students, Mr. Rahul shared his e-mail with students who would like to know more on the topic. This was followed by a vote of thanks from our anchors and teacher and a picture to mark the end of a successful event.



## **Artificial Intelligence in Industry and Career Opportunities in Data**

1. Topic/Title of the Event :- Artificial Intelligence in Industry and Career Opportunities in Data
2. Type of the Event : VIRTUAL WORKSHOP
3. Date(s) of the Event : 24<sup>th</sup> April 2021
4. Time/Duration/Period : 5:30 AM- 6:30 PM
5. Venue : MICROSOFT TEAMS

IEEE SICSr PUNE  
STUDENT BRANCH  
PRESENTS

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**ARTIFICIAL  
INTELLIGENCE  
IN INDUSTRY  
AND CAREER  
OPPORTUNITIES  
IN DATA  
SCIENCE**

*WEBINAR*

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**24TH APRIL 2021  
5:30PM - 6:30PM**

**IEEE**  
SICSr PUNE  
STUDENT BRANCH

**SICSr**  
Symbiosis Institute of Computer Studies  
and Research

**GUEST SPEAKER**



**MR. ANKIT DWIVEDI**

**DATA SCIENTIST AT  
ANALYTICS & INSIGHTS,  
TATA CONSULTANCY  
SERVICES**

**SCAN TO REGISTER**





## Workshop Report

**Name of the event:** Artificial Intelligence in Industry and Career Opportunities in Data Science

**Speaker:** Mr. Ankit Dwivedi

**Date of Event:** 24<sup>th</sup> April, 2021

**Time for Conduction of Event:** 5:30 to 6:30 pm

**Mode of Conduction (Online/Offline/Hybrid):**

Conducted Online on Microsoft Teams

### **Description:**

On 24th April 2021, a webinar on Artificial Intelligence in Industry and Career Opportunities in Data Science was conducted from 5:30pm to 6:30pm. The guest speaker, Mr. Ankit Dwivedi, Data Scientist at Analytics & Insights, Tata Consultancy Services, wonderfully delivered his session on the same. A welcome note was presented by Dr. Rajashree Jain.

Mr. Ankit Dwivedi started off with how the industry has transformed looking at the supply and demand needs. He added how human learning and machine learning differentiate each other. Subsequently, he elucidated on two of his research case studies namely, Image Captioning and Automatic Invoice Processing. While he explained image captioning, he went into the technical depth of the two types of merge architecture: top down and bottom up approaches. Moreover, he shared a comprehensive architecture of invoice processing platform and discussed its proposed architecture modules during his overview on his research case study regarding enhancing enterprise business processes through AI based approach for entity extraction. He took up questions gracefully amid the session. He carried off with his valuable thoughts on the career opportunities in data science. A Q&A session was subsequently taken in which the speaker delightfully answered all the queries asked by the audience. Furthermore, Dr. Rajashree Jain extended hearty gratitude to the speaker and the participants for their presence. The anchors (Sahil Lakhani and Raibata Basu) presented a vote of thanks and the event concluded by presenting an e-memento to Mr. Ankit Dwivedi.

## NAME OF WORKSHOP

### Resume Building Workshop

1. Topic/Title of the Event : Résumé Building Workshop
2. Type of the Event : Workshop
3. Date(s) of the Event : 21st February 2021
4. Time/Duration/Period : 12pm - 1pm
5. Venue : Online on Microsoft Teams

The poster is for a 'Résumé Building Workshop' presented by the SICSr IEEE Student Branch. It features logos for IEEE Pune Student Branch, IEEE Pune Section, and SICSr. The speaker is Rutwik Jain, a BITS Pilani Alumnus and Young Professional member of IEEE Pune Section. His experience includes being an ASIC Design Engineer at Nvidia Graphics in Bengaluru and conducting sessions on placement and resume building. He has an Electrical and Electronics Engineering (EEE) degree from BITS Pilani. The workshop is scheduled for 21st February 2021, from 12pm to 1pm, and is held online. Registration is free, and a QR code is provided for registration. The poster also includes an illustration of a person pointing at a screen and a small graphic of a person holding a document.

**IEEE**  
IEEE PUNE  
STUDENT BRANCH

**IEEE**  
Pune Section

**SICSr**  
Sri Lanka Institute of Computer Studies  
and Research

**SICSr IEEE Student Branch**  
*Presents*  
**Résumé Building Workshop**

**ABOUT SPEAKER**  
BITS Pilani Alumnus  
Young Professional member of IEEE Pune Section

**EXPERIENCE**

- ASIC Design Engineer at Nvidia Graphics, Bengaluru.
- previously conducted various session on placement and resume building.

**EDUCATION**  
Electrical and Electronics Engineering (EEE) from BITS Pilani, Pilani Campus in 2019

**Rutwik Jain**

**Date: 21st February, 2021**  
**Time: 12pm-1pm**  
**Venue: Online**

Registration **FREE!**  
Scan to register now!

## Report :-

The Résumé Building Workshop was conducted on 21st February 2021 from 12 pm to 1 pm. It wonderfully started off with a welcoming ceremony by the anchors, Diya Suthiv and Shatakshi Vishwakarma. Mr. Rutwik Jain (BITS Pilani Alumnus, Young Professional member of IEEE Pune Section), delivered a delightful session on building a résumé from scratch. He gave every tiny bit of detail about the format of a resume. Moreover, he briefly explained the difference between a résumé and a CV. He emphasized on grammar and phrasing the bullet points. He explained each section on a résumé. He introduced the audience to the CAR Rule; which consists of Context (Where, Who), Accomplishment (What) and Results (Outcomes, Why). While closing his session he shared resources for the audience and had a Q & A session alongside. Dr. Rajashree Jain thanked him for his enlightening workshop. The anchors presented a virtual e-memento to Mr. Rutwik Jain and wrapped up the event.



## **NAME OF WORKSHOP**

### **Guided Beginners Project Session on Machine Learning**

1. Topic/Title of the Event : Guided Beginners Project Session on Machine Learning
2. Type of the Event : Workshop
3. Date(s) of the Event : 25<sup>th</sup> April 2021
4. Time/Duration/Period : 11:00 pm – 1:00 pm
5. Venue : Online on Microsoft Teams



## Workshop Report

### Name of the event:

The workshop, Guided Beginners Project Session on Machine Learning, was organized and hosted by IEEE SICS Pune Student Branch - STB 11434.

### Objectives:

- 1) To get a brief understanding of Machine Learning concepts
- 2) To implement the concepts in a form of the project (Hands-on activity)
- 3) To provide a learning platform for the interested students

**Abstracts & Takeaways:**

- Learn basics of Machine Learning
- Learn how to implement the concepts practically
- Guided Beginners Project

**Dates and time for Conduction of the Activities:**

Day	Date	Time
Saturday	1 <sup>th</sup> May 2021	11:00 AM to 1:00 PM (IST)

**Mode of Conduction (Online/Offline/Hybrid):**

Online on the platform [Microsoft Teams](#)

**Description:**

On 1st May 2021, a workshop on Guided Beginners Project Session on Machine Learning was organized from 11:00 am to 1:00 pm. The workshop started with a welcome ceremony where the anchors for the day, Sahil Lakhani and Raibata Basu, welcomed the guest speaker and all participants to the workshop. The guest speaker, Mr. Sashwath Mishra, Director at Cavemendev, wonderfully delivered his session on the topic of the day.

Mr. Sashwath Mishra commenced his session with an introduction to data science, artificial intelligence and machine learning. He then explained the importance of data in today's time and briefed about the pioneers of the data. Afterwards, he elucidated the relationship between mathematics and machine learning. He also enlightened the students with some use cases of machine learning such as Facebook, OTD platforms, Kreditbee, Anthem, Cytora, Plant Village, etc. While explaining the concepts of the same he used a hands-on demo of a test case for insurance compensation using sample data from Kaggle. To conclude his session, he shared some more learning resources for the attendees present in the session. A Q&A session was subsequently taken in which the speaker delightfully answered all the queries asked by the audience. Furthermore, Dr. Rajashree Jain extended hearty gratitude to the speaker and the participants for their presence. The anchors (Sahil Lakhani and Raibata Basu) presented a vote of thanks and the event concluded by presenting an e-memento to Mr. Saswath Mishra.