

Report on 01 Day Webinar on 18.02.2021

Organized by:

Department of Electrical Engineering
RCC Institute of Information Technology

Topic: Machine Learning and Industrial Internet of Things (IIOT)

The Department of Electrical Engineering, RCCIIT, organized **01(one) day Webinar** on 18.02.2021 on the topic “***Machine Learning and Industrial Internet of Things (IIOT)***”. The objective of this event was to enlighten students and faculty members about emerging industry oriented knowledge and application beyond core engineering and rapid developments in hardware, software, and communication technologies which have been facilitated in recent years.

02(Two) external experts form Industry are invited for this event. **Mr. Apurba Das**, Chief Architect & Head, Computer Vision Lab (IoT), Tata Consultancy Services Bengaluru, Karnataka and another speaker **Mr. Arijit Hajra** Founding Director & CEO, Think Again Lab, Kolkata. Total **129 members** have participated in this event, among which 23 are faculties. In this program outside the EE Dept., faculties (12 nos) and students (around 12 nos) from the other departments of RCCIIT are also participated.

The event started at 11:45 AM. Dr. Anirban Mukherjee, Principal (O), RCCIIT, inaugurates the event followed by his motivational speech about the necessity of organization of this type of event. Dr. Abhishek Basu, FIC Academic, RCCIIT has presented his short inaugural speech and encourages students and faculty members for organization of this program. Dr. Debasish Mondal, HOD, EE gives welcomes address to all the participants and congratulates the conveners of this event.

After inauguration **Mr. Apurba Das** has started his speech from 12:00 PM and it continues up to 1:30 PM followed by a short discussion session. Mr. Das has delivered his speech on the topic “***Machine Learning & Beyond in AI Vision***”. The whole session was interesting, informative and based on real time applications of Machine Learning and AI.

After lunch break program starts at 2:30 PM. **Mr. Arijit Hajra** continues his speech on the topic on “***IOT in industry 4.0***” and it ends at 4:00 PM. This session was completely interactive talks. Mr Arijit Hajra was interacting continuously with the students and assures all kinds of help to the students for any start up and IOT related projects. Finally, program successfully ends with short discussions followed by a **Vote of Thanks** to the respected speakers, managements of RCCIIT, organizer of the event and all the participants.

The few Snapshots of the Program and Brochure are attached below:

Some Glimpse of the talk of Mr Apurba Das, TCS Bengaluru, Karnataka

The screenshot shows a Cisco Webex meeting interface. The main content is a presentation slide titled "Challenges in Video Analytics" with the subtitle "Viewing Apurba Das's screen". The slide features a grid of images and text boxes illustrating various challenges:

- Cloud to edge - Choose right video analytics architecture:** Includes an image of "Edge computing" showing a network diagram.
- Change in environment:** Includes an image of a car at night with headlights.
- Availability of training data in all variation:** Includes an image of a person standing in front of a large "DATA" wall.
- Real Time Processing - High volume of video footage:** Includes an image of a busy street scene.
- Target Accuracy as per end use case:** Includes an image of target icons.
- Data Security and Privacy:** Includes an image of a person with a "GDPR" logo.

At the bottom of the slide, it says "TATA CONSULTANCY SERVICES" and "Copyright © 2020 Tata Consultancy Services Limited". The meeting interface includes a top bar with "Cisco Webex Meetings (Moderated unmute mode)", a participant list on the right with 107 participants, and a bottom control bar with "Unmute", "Start video", "Share", "Record", "Breakout sessions", "Participants", and "Chat".

The screenshot shows a Cisco Webex meeting interface. The main content is a presentation slide titled "Bringing Life to Things™ TCS IoT". The slide displays a grid of face images and their corresponding processed versions:

- Row 1: Original face images (a, b, c, d).
- Row 2: Binary/edge-detected face images (e, f, g, h).
- Row 3: Stylized or filtered face images (i, j, k, l).

Below the grid, there is a text box: "*Apurba Das, Pallavi Saha, 'Enhancing Low Quality Face Image Matching by Neurovisually Inspired Deep Learning', CAIP 2019: 544-555, Italy, LNCS".

The meeting interface includes a top bar with "Cisco Webex Meetings (Moderated unmute mode)", a participant list on the right with 90 participants, and a bottom control bar with "Unmute", "Start video", "Share", "Record", "Breakout sessions", "Participants", and "Chat".

Meeting is in progress

rcctit.webex.com/webappng/sites/rcctit/meeting/download/138dac472e6742b3a76e031ab1208590?siteurl=rcctit&MTID=m0483b90a74c662...

Classical ML vs. DL (CNN) vs. CapsNet vs. Perception Engineering

ML	DL (CNN)	CapsNet	Psycho-vis perception

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Unmute Start video Share Chat

Type here to search

DM

DEBASISH MON... (Cohost)

Chat

from Dipan Bandyopadhyay to Everyone:
logic reasoning decisions making ability 12:47

from BONNY SIKDAR to Everyone:
open-minded 12:47

from BIKRAMJIT Prasad ghosal to Everyone:
decision making and logical reasoning 12:52
BIKRAMJIT ghosal 12:52

Send to: Everyone

Type your message here

Meeting is in progress

rcctit.webex.com/webappng/sites/rcctit/meeting/download/138dac472e6742b3a76e031ab1208590?siteurl=rcctit&MTID=m0483b90a74c662...

Image and Video Analytics

Critical Infrastructure and Government	Transportation & Hospitality	Retail and CPG
<ul style="list-style-type: none"> Security and Surveillance Incident Detection Facial Recognition of suspects 	<ul style="list-style-type: none"> Driver Safety Solutions Traffic Analytics and Management Parking Management Autonomous vehicle 	<ul style="list-style-type: none"> Footfall (People Detection) Consumer & Shopping Behavior Interactive Digital Signage Sentiment Analysis Product Quality Inspection
Manufacturing	Life Sciences & Healthcare	Banking & Finance
<ul style="list-style-type: none"> Product Quality Inspection Counting and Sorting Plant Safety Monitoring of Machine 	<ul style="list-style-type: none"> High Precision Inspection System (e.g., Implants) Disease Diagnosis (Cell Classification & Counting) Vision Guided Robotics 	<ul style="list-style-type: none"> Better Customer Interaction Process Improvement

Cisco- 2019

- Globally, size of **Image & video data** in internet will be **82%** of entire internet data by 2022, up from 75% in 2017.
- Global **Video Analytics** Market was at \$2.7B+ million in 2017, estimated to reach **\$11B+** by 2022

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Unmute Start video Share Chat

Type here to search

AD

Apurba Das

S

Apurba Das

DM AD

AD AD

Some Glimpse of the talk of Mr Arijit Das, Thinks Again Lab, Kolkata

The screenshot shows a Zoom meeting in progress. The main window displays the ThingSpeak website, which is titled "ThingSpeak for IoT Projects" and describes "Data collection in the cloud with advanced data analysis using MATLAB". The website includes a "Get Started For Free" button and a "Learn More" button. A chat window on the right side of the meeting shows a list of messages:

- from NIJAM UDDIN MOLLA to Everyone: good afternoon 14:31
- from Arunava Kumar Chakraborty to Everyone: few time seen 14:39
- from ARPAN DEY to Everyone: expected things is incident 14:41
- from BIKRAMJIT Prasad ghosal to Everyone: Incident predetermined and coincidence accidentally occurred 14:41

The Zoom meeting controls at the bottom show "Mute", "Start video", "Share", "Breakout sessions", "Participants", and "Chat". The system tray at the bottom right indicates the time is 3:32 PM on 2/18/2021.

The screenshot shows a Zoom meeting in progress. The main window displays the AWS IoT Core website, which is titled "Viewing Arijit Hajra's screen" and shows the "Internet of Things" section. The website features a grid of IoT services and solutions, including:

- AWS IoT Core: Connect devices to the cloud
- AWS IoT Analytics: Analytics for IoT devices
- AWS IoT Device Management: Onboard, organize, and remotely manage IoT devices
- AWS IoT Things Graph: Easily connect devices and web services
- AWS Greengrass: Local compute, messaging, and sync for devices
- AWS IoT Button: Cloud programmable dash button
- AWS IoT Events: IoT event detection and response
- AWS Partner Device Catalog: Curated catalog of AWS-compatible IoT hardware
- AWS IoT 1-Click: One click creation of an AWS Lambda trigger
- AWS IoT Device Defender: Security management for IoT devices
- AWS IoT SiteWise: IoT data collector and interpreter
- FreeRTOS: Real-time operating system for microcontrollers

The chat window on the right side of the meeting shows a list of participants (82) and a search bar. The participants listed are:

- RD Rachaita Dutta
- RS Rahul Suresh
- RT Rajib Tudu
- RC Riddhib Chakrab...
- RK Ritik Kumar
- RC Rohit Chakraborty

The Zoom meeting controls at the bottom show "Mute", "Start video", "Share", "Breakout sessions", "Participants", and "Chat". The system tray at the bottom right indicates the time is 3:14 PM on 2/18/2021.

THE INSTITUTE

RCC Institute of Information Technology (RCCIIT) is an Engineering College affiliated to the West Bengal University of Technology and is approved by the All India Council of Technical Education (AICTE).

It was setup in 1999 by Regional Computer center Calcutta, with active support from National Informatics Center (NIC), Govt. of India and Dept of Higher Education, Govt. of West Bengal.

RCC Institute of Information Technology, is now under RCC Institute Of Technology, an autonomous Society of Department of Higher Education, Govt. Of West Bengal.



THE DEPARTMENT

The Electrical Engineering course was initiated along with the Institution in 2009. Presently Department runs Four years undergraduate B. Tech. course in Electrical Engineering. The Department is well equipped with highly sophisticated and modern laboratories. AICTE approved total student Intake in this department is 60. The **Department is NBA accredited** since 2017.

Objectives of the webinar

Machine Learning, as the name suggests, provides machines with the ability to learn autonomously based on experiences, observations and analyzing patterns within a given data set without explicitly programming. When we write a program or a code for some specific purpose, we are actually writing a definite set of instructions which the machine will follow.

Whereas in machine learning, we input a data set through which the machine will learn by identifying and analyzing the patterns in the data set and learn to take decisions autonomously based on its observations and learning from the dataset.

The **Fourth Industrial Revolution** (or **Industry 4.0**) is the ongoing automation of traditional manufacturing and industrial practices, using modern smart technology. Large-scale machine-to-machine communication (M2M) and the internet of things (IoT) are integrated for increased automation, improved communication and self-monitoring, and production of smart machines that can analyze and diagnose issues without the need for human intervention.

Registration link: <https://forms.gle/HTdwjbJh1g8VoBAJ6>

Speakers

Mr. Apurba Das

Chief Architect & Head, Computer Vision Lab (IoT)
Tata Consultancy Services, Bengaluru, Karnataka, India

Topic: *“Machine Learning & Beyond in AI Vision”*

Time: 12.00 pm–1.30 pm

Mr. Arijit Hajra

Founding Director and CEO
Thing Again Lab, Kolkata

Topic: *“IOT in industry 4.0”*

Time: 2.30 pm–4.00 pm

ADVISORY COMMITTEE

Prof. (Dr.) Anirban Mukherjee, Principal (O), RCCIIT
Dr. Abhishek Basu, FIC, Academic
Dr. Debasish Mondal, HoD, EE
Prof. (Dr.) Alok Kole (Prof. EE)
Prof. (Dr.) Ashoke Mondal (Prof, ECE)

ORGANIZING COMMITTEE

Conveners:

Mr. Budhaditya Biswas (Assistant Professor, EE)
Dr. Shilpi Bhattacharya (Associate Professor, EE)

Members:

Dr. Debasish Mondal, HOD, EE
Dr. Alok Kole, Professor, EE
Mr. Dipankar Santra, Asso Prof, EE
Mr. Nijam Uddin Molla, Asst Prof, EE
Mr. Sarbojit Mukherjee, Asst Prof, EE
Mr. Subhasish Banerjee, Asst Prof, EE
Mr. Rupak Bhoumick
Mr. Asim Biswas
Mr. Sumit Mukherjee
Mr. Nilanjan Maity
Mr. Abir Sen

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WEBINAR ON “MACHINE LEARNING & INDUSTRIAL INTERNET OF THINGS (IIOT)”

LIVE WEBINAR

Machine Learning and
Industrial Internet Of
Things (IIOT)

Organized by
Department of
Electrical Engineering

18th February, 2021



11:45 - 12:00	Inauguration
12:00 - 1:30	Speaker: Mr. Apurba Das, TCS, Bengaluru
1:30 - 1:45	Discussion & Program feedback
1:45 - 2:30	Break
2:30 - 4:00	Speaker: Mr. Arijit Hajra, Thing Again Lab, Kolkata
4:00 - 4:15	Discussion & Program feedback
4:15	Vote of Thanks

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(No Registration fees)