

## Report on the 5 Day Online Faculty Development Programme

A 5 Day Online Faculty Development Program on “Machine Learning and IoT applications in VLSI Design” was organized by Department of Electronics and Communication Engineering, S.E.A College of Engineering and Technology, Bangalore from 10<sup>th</sup>-14<sup>th</sup> May, 2022. The timings for Morning Session was 10.30 am to 12.00 pm and afternoon Session was 2.00 to 3.30 pm. There were 150 enthusiastic participants from various Engineering colleges across India. Participants attended the FDP through online mode (Google Meet). The function was presided by Dr.B.Venkatanarayana, Principal, SEACET and introduction of resource persons were given by Dr. Pradeep Kumar N.S., HOD, ECE, SEACET.

### **About FDP:**

 <p><b>S.E.A College of Engineering and Technology</b> <b>K.R. Puram, Bangalore-49</b></p>		
<p><b>Department of Electronics and Communication Engineering Organizes</b></p>		
<p><i>5 Day Online Faculty Development Programme</i> On <b>“Machine Learning and IoT applications in VLSI Design”</b></p>		<p>10<sup>th</sup> -14<sup>th</sup> May, 2022 Morning Session: 10.30 am-12.00 pm Afternoon Session: 2.00 pm-3.30 pm</p>
<p><b>CHIEF PATRONS</b> Mrs. Manjula A. Krishnappa, Chairman, SEA Institutions.</p> <p>Mr. D.T. Srinivasa, Secretary, S.E.A.E.T</p> <p>Mrs Poornima K Srinivasa CEO, S.E.A.C.E.T</p> <p>Mrs. Anupama K Jt. Secretary, S.E.A.C.E.T.</p>	<p><b>ABOUT THE COLLEGE</b> SEACET is an institution that finely combines a great academic heritage with grand futuristic vision. Established in the year 2007, the institution stands as a lasting testimony to the success of private participation in higher education. Located in Bangalore City at Elita Nagar, (K.R. Puram) in a 16-acre sprawling campus, SEACET boasts of a modern infrastructure with state-of-art equipment and laboratory facilities, dedicated and well qualified teaching staff and an impressive academic and placement record with interactive relationship with industry. The objective of SEACET is to impart quality education to students and enable them to develop abilities of problem solving, creative thinking and adaptability in their chosen field.</p>	
<p><b>PATRON</b> Dr. B. Venkata Narayana Principal</p>	<p><b>ABOUT THE DEPARTMENT</b> Electronics aims at making the life of human beings comfortable. Communication brings them together. The vast application of electronics and the rapid advancements in the field of communications makes the study of this branch a coveted option. The department's teaching and research areas include network, microprocessor, communications, signal and image processing, pattern recognition, electronics circuits, solid state electronics, microwave electronics, system and control, biomedical electronics, VLSI, CAD, Parallel and distributed processing. Development of non-technical skills such as communication and team work are also emphasized.</p>	
<p><b>CONVENOR</b> Dr. Pradeep Kumar N S Professor and Head / ECE</p>		
<p><b>CO-ORDINATORS</b> Dr.P. Hosanna Princy Asso.Professor /ECE Dr. T. Cynthia Anbuselvi, Assistant Professor / ECE</p>		
<p><b>ORGANIZING COMMITTEE</b> Prof K. Revathi, Asst Prof / ECE Prof S. Dhivya Karunya, Asst Prof / ECE Prof K. Gayathri, Asst Prof / ECE Prof Asha VKR, Asst Prof / ECE Prof Deepa Gowda N Asst Prof / ECE Prof Suhas S K, Asst Prof / ECE</p>		

## **Objective of the FDP:**

The broad objective of this FDP is to introduce Machine learning concepts for implementation in VLSI Domain. ML techniques are widely used for many applications such as Biometrics, Medical Imaging, Signal Processing, NLP and so on. This FDP will give the basics of Machine Learning and deep learning concepts with applications to VLSI design. It will help to upgrade the expertise and capabilities of the faculty members and will generate a climate for research and enthusiasm for academic excellence.

- Introduction to IOT and Machine Learning
- VLSI Design Using IOT and Machine Learning
- Machine Learning Implementation using Tensor Flow

## **Resource Persons of the FDP:**

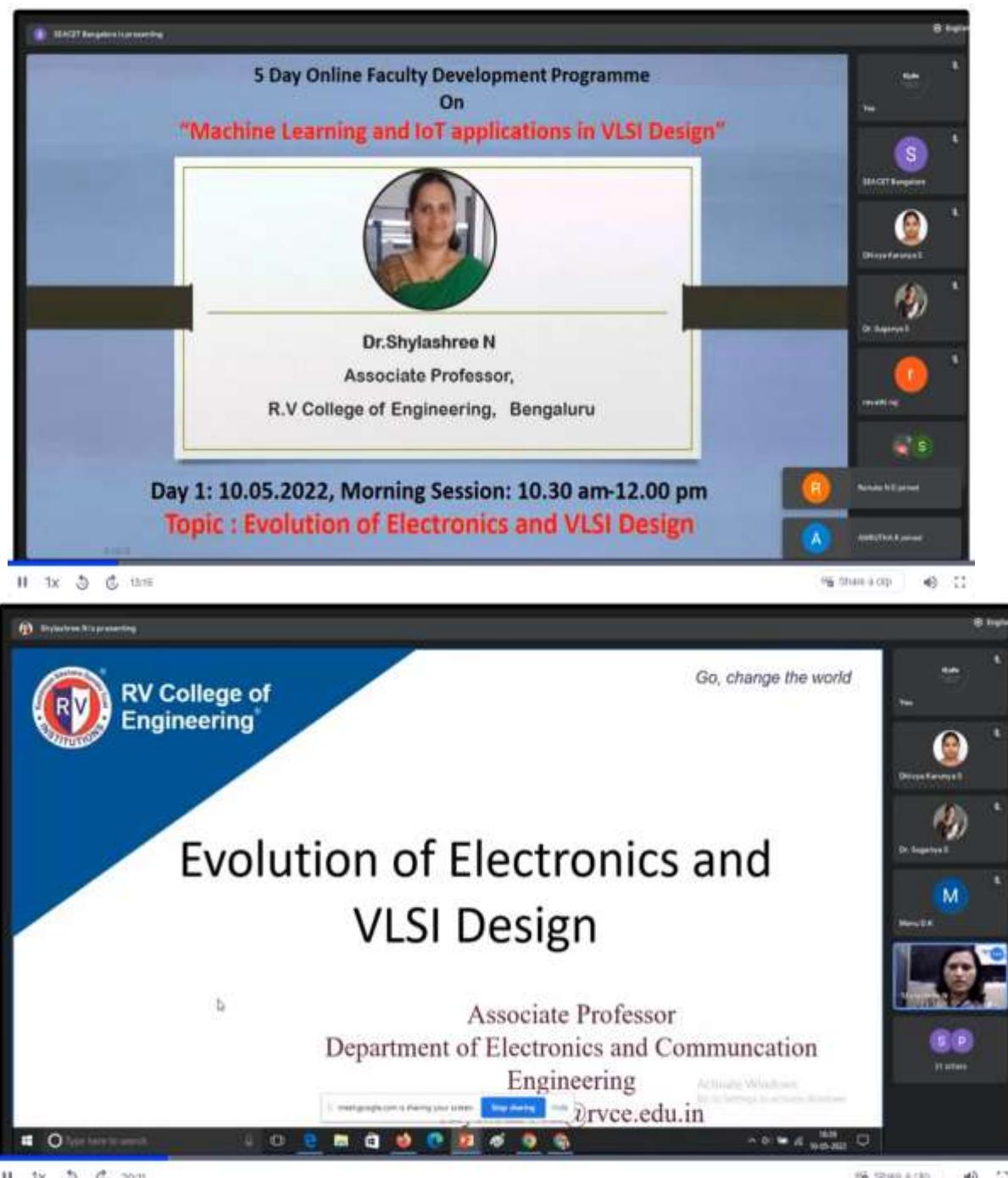
Resource Persons for the FDP were from various reputed institutions they briefed the concept in detail. The details about the resource persons are given below.

<b>Resource Persons</b>					
					
Dr. Shylashree N Associate Professor, R.V College of Engineering, Bengaluru	Ms. Chinmaye Ramamurthy Assistant Professor, R.V College of Engineering, Bengaluru	Dr. Girish H Associate Professor, Cambridge Institute of Technology, Bengaluru			
					
Dr. Rajlakshmi Ghatkamble Associate Professor, East Point College of Engineering and Technology, Bengaluru.	Mrs. Navaneetha Velammal Associate Professor, Francis Xavier Engineering College, Tirunelveli.	Dr. A. Andrew Roobert Associate Professor, Francis Xavier Engineering College, Tirunelveli.	Dr. T. Russo Advisory System Analyst IBM India Private Limited Bangalore		

## First day 10.5.22

The First day 10.5.22 Forenoon session lecture was delivered by Dr.Shylashree N, Associate Professor, R.V College of Engineering, Bengaluru in the topic ‘Evolution of Electronics and VLSI Design’. The digital hardware design flow was explained in detail. She briefed about timing analysis about digital circuits and the need for low power VLSI chips.

Screen Shots for First day 10.5.22 Forenoon session



Invitations & presenting

RV College of Engineering

Go, change the world

## Overview of Digital Hardware Design Flow

- Introduction to Digital
- Introduction to Analog
- Difference between Digital and Analog

Link-<https://www.youtube.com/watch?v=XsdGr49UVTg>

Invitations & presenting

RV College of Engineering

Go, change the world

## VLSI Design Flow

The First day 10.5.22 Afternoon session lecture was delivered by Ms.Cchinmaye Ramamurthy, Assistant Professor, R.V College of Engineering, Bengaluru in the topic ‘Applications and Challenges in VLSI Design’. The applications of Integrated circuits in everyday activities was explained in detail. She elaborated about challenges faced in IC design which concentrated on power and speed of Integrated circuits.

Screen Shots for First day 10.5.22 Afternoon session

SEA/CET Bangalore is presenting

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5 Day Online Faculty Development Programme

On

"Machine Learning and IoT applications in VLSI Design"



Ms. Chinmaye Ramamurthy  
Assistant Professor,  
R.V College of Engineering,  
Bengaluru

Day 1: 10.05.2022, Afternoon Session: 2.00 pm-3.30 pm  
Topic : Applications and Challenges in VLSI Design

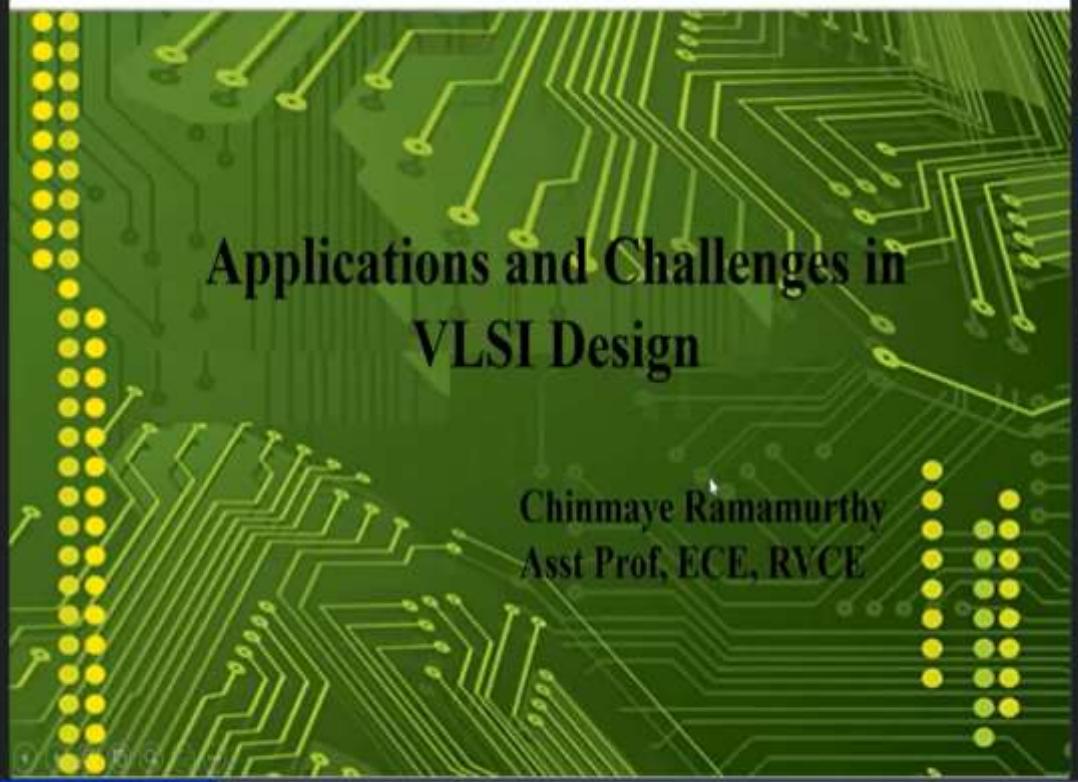
SEA/CET Bangalore

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Chinmaye Ramamurthy is presenting

Applications and Challenges in  
VLSI Design



Chinmaye Ramamurthy  
Asst Prof, ECE, RVCE

SEA/CET Bangalore

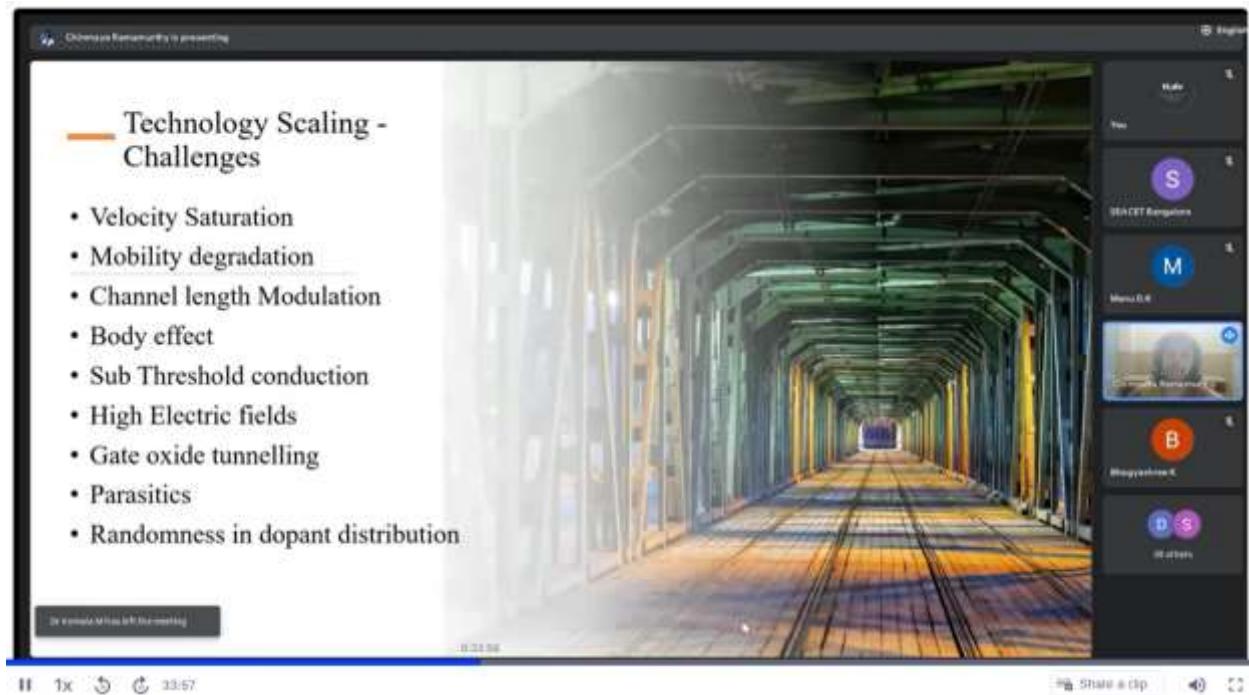
Deepa Ganesa

Shreyaswati

29 others

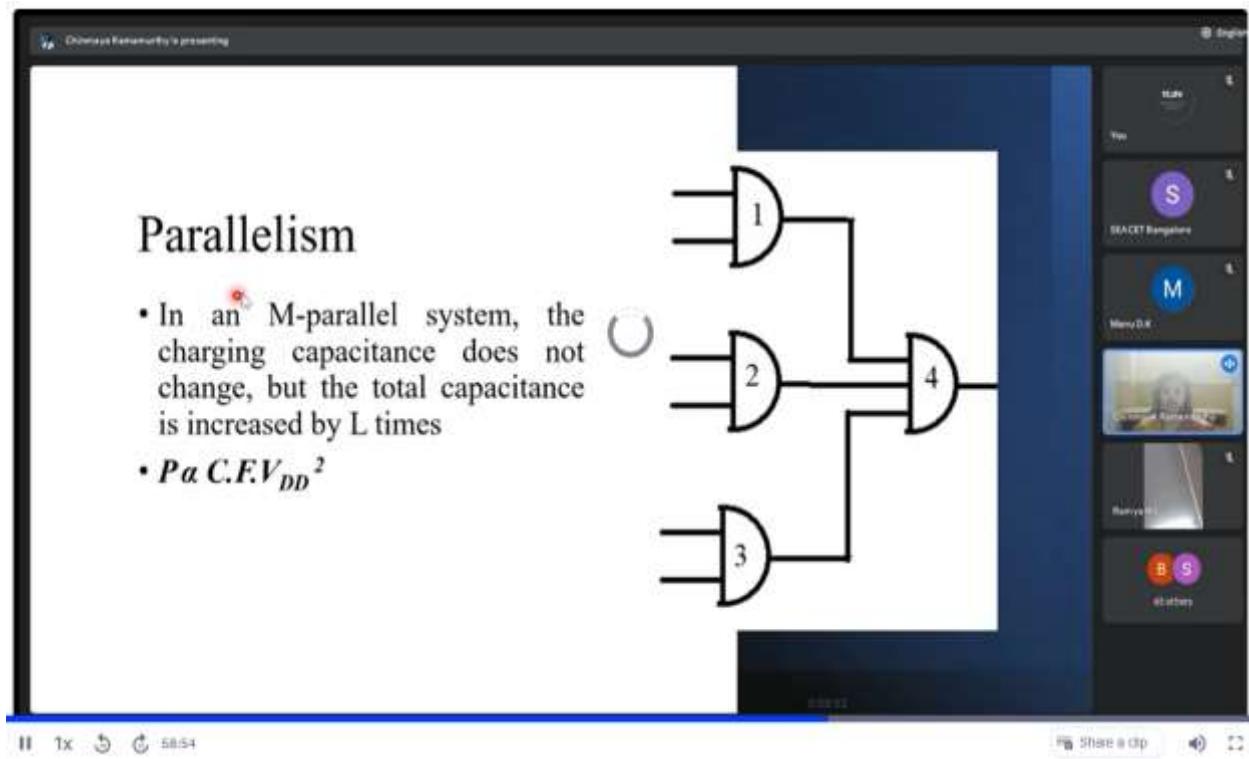
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Technology Scaling - Challenges

- Velocity Saturation
- Mobility degradation
- Channel length Modulation
- Body effect
- Sub Threshold conduction
- High Electric fields
- Gate oxide tunnelling
- Parasitics
- Randomness in dopant distribution



## Parallelism

- In an M-parallel system, the charging capacitance does not change, but the total capacitance is increased by L times
- $P \propto C.F.V_{DD}^2$

## Second day 11.5.22

The Second day 11.5.22 Forenoon and Afternoon sessions lecture was delivered by Dr.Girish H, Associate Professor, Cambridge Institute of Technology, Bengaluru in the topics 'Introduction and Technologies of IoT' and 'Applications and Challenges of IoT'. Participants gained a brief explanation about IoT functionalities and how it is associated with our everyday

life. How to configure Arduino for hardware and software environment which enables IoT and how IoT is used in sensors was explained.

Screen Shots for Second day 11.5.22 Forenoon session

5 Day Online Faculty Development Programme  
On  
"Machine Learning and IoT applications in VLSI Design"

Dr. Girish H  
Associate Professor,  
Cambridge Institute of Technology, Bengaluru

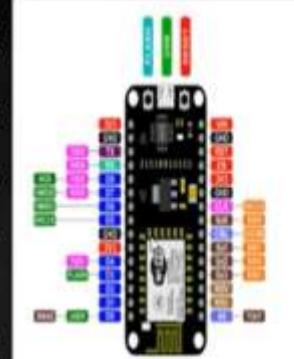
Day 2: 11.05.2022, Morning Session: 10.30 am-12.00 pm  
Topic : Introduction and Technologies of IoT

## CONTENTS

- What is IoT
- Key functions of IoT
- IoT – Data and Control Flow
- Terminologies
- IoT Market – Number of connected devices
- Growth Drivers
- Interesting IoT Products
- IoT Architecture
- Sensors
- Actuators
- Advantages of IoT
- Disadvantages of IoT

## Node MCU Architecture

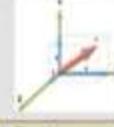
- The Node MCU (ESP8266) is an open source firmware and development kit that helps to prototype IoT product with Arduino IDE.
- It includes firmware which runs on the ESP8266 Wi-Fi SoC and hardware which is based on the ESP-12 module.
- The ESP8266 is a low-cost Wi-Fi chip developed by Espressif Systems with TCP/IP protocol.
- Node MCU Dev Kit has Arduino like Analog (i.e. A0) and Digital (D0-D8) pins on its board.
- It supports serial communication protocols i.e. UART, SPI, I2C etc.
- Using such serial protocols we can connect it with serial devices like I2C enabled LCD display, Magnetometer HMC5883, MPU-6050 Gyro meter + Accelerometer, RTC chips, GPS modules, touch screen displays, SD cards etc.



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## Sensors

Senses a physical phenomenon and converts to an electrical signal

			
Ultrasonic Sensors	Temperature Sensor	Soil moisture sensor	Gyroscope
			
Light sensor	Pressure sensor	Accelerometer	Hall effect sensor
			
Humidity Sensor	Gas sensor	PIR Sensor	IR Receiver

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30

## Screen Shots for Second day 11.5.22 Afternoon session

5 Day Online Faculty Development Programme  
On  
"Machine Learning and IoT applications in VLSI Design"

Dr.Girish H  
Associate Professor,  
Cambridge Institute of Technology, Bengaluru

Day 2: 11.05.2022, Afternoon Session: 2.00 pm-3.30 pm  
Topic : Applications and Challenges of IoT

girish.ece@cambridge.edu.in', and 'Phone: 9741122667'. The video controls at the bottom left show a 1x scale and 20:52 time. The video controls at the bottom right include 'Share a clip', 'Stop sharing', and a refresh icon."/>

# Applications and Challenges of IoT

Dr. Girish H  
Associate Professor  
Department of ECE  
Cambridge Institute of Technology  
Email: [girish.ece@cambridge.edu.in](mailto:girish.ece@cambridge.edu.in)  
Phone: 9741122667

## DHT11 Interfacing Code

- ❑ Read temperature and send it to Serial monitor
- ❑ Read humidity and send it to Serial monitor
- ❑ Do this every 3 seconds

```
void loop()
{
    Serial.print("Temperature: ");
    Serial.print(dht.readTemperature());
    Serial.print(" °C");

    Serial.print("Humidity: ");
    Serial.print(dht.readHumidity());
    Serial.println(" %");

    delay(3000);
}
```

The screenshot shows a Microsoft Edge browser window. The address bar displays 'Dashboard | ThingSpeak'. The main content area is the ThingSpeak login page, which includes a 'Next' button and a 'Forgot password?' link. To the right of the login form is a diagram titled 'DATA AGGREGATION AND ANALYTICS'. It shows a 'SMART CONNECTED DEVICE' connected to a 'CLOUD' (labeled 'ThingSpeak'). The cloud is also connected to a 'MATLAB' interface, which is described as 'ALGORITHM DEVELOPMENT SENSOR ANALYTICS'. The bottom of the page features a 'Type here to search' bar and a taskbar with various icons.

## Third day 12.5.22

The Third day 12.5.22 Forenoon and Afternoon sessions lecture was delivered by Dr.Rajlakshmi Ghatkamble, Associate Professor, East Point College of Engineering and Technology, Bengaluru in the topics ‘Broad Types of Problems in Machine Learning’ and ‘Applications , Challenges and Issues in ML’. Participants gained a brief explanation about ML

functionalities and how it is associated with our everyday life. She explained about her research work which was very informative to the participants.

Screen Shots for Third day 12.5.22 Forenoon session

SEACET Bangalore is presenting  
Press Esc to exit full screen

**5 Day Online Faculty Development Programme**  
On  
**"Machine Learning and IoT applications in VLSI Design"**



**Dr. Rajlakshmi Ghatkamble**  
Associate Professor,  
East Point College of Engineering and Technology, Bengaluru

Day 3: 12.05.2022, Morning Session: 10.30 am-12.00 pm  
Topic : Broad Types of Problems in Machine Learning

Dr. Kartik joined

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11 1x 8:38

This screenshot shows a video conference interface with a presentation slide. The slide is titled '5 Day Online Faculty Development Programme' and 'On "Machine Learning and IoT applications in VLSI Design"'. It features a portrait of Dr. Rajlakshmi Ghatkamble, who is identified as an Associate Professor at East Point College of Engineering and Technology, Bengaluru. The text 'Day 3: 12.05.2022, Morning Session: 10.30 am-12.00 pm' and 'Topic : Broad Types of Problems in Machine Learning' is displayed. The video conference interface includes a sidebar with participant profiles and control buttons for the video feed.

Dr. Rajlakshmi Ghatkamble is presenting

# Broad Types of Problems in Machine Learning



**EAST POINT**  
COLLEGE OF  
ENGINEERING &  
TECHNOLOGY

Present By:  
**Dr. Rajlakshmi Ghatkamble**  
Associate Professor at Dept. of ISE,  
East Point College of Engineering and  
Technology

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11 1x 17:58

This screenshot shows a video conference interface with a presentation slide. The slide is titled 'Broad Types of Problems in Machine Learning'. It features a background image of a hand interacting with a glowing digital interface. The logo for 'EAST POINT COLLEGE OF ENGINEERING & TECHNOLOGY' is displayed. The text 'Present By: Dr. Rajlakshmi Ghatkamble' is listed, along with her title 'Associate Professor at Dept. of ISE, East Point College of Engineering and Technology'. The video conference interface includes a sidebar with participant profiles and control buttons for the video feed.

Dr Rajeshwari Ghateambe is presenting.

## The right Machine Learning solution?

The diagram is a flowchart titled 'The right Machine Learning solution?'. It starts with a central downward-pointing arrow. To the left of the arrow is a box for 'Classification' with a lightbulb icon, followed by a box for 'Regression' with a dollar sign icon. To the right of the arrow is a box for 'Clustering' with a puzzle piece icon. Below the central arrow is a box for 'Algorithms used' with a list including Decision Tree, Naive Bayes, Random Forest, Logistic regression, and KNN. At the bottom of the diagram is a footer bar with a 'meet.google.com' link, a 'Stop sharing' button, and a 'Close' button. The right side of the slide shows a dark sidebar with participant icons and names: 'Vishal', 'S', 'R', 'RAVIMY', 'B', 'Shreyash', and '3 others'. A video feed of the presenter is also visible in the sidebar.

Dr Rajeshwari Ghateambe is presenting.

## Major Problem Types

- 1) **Regression:** When the need is to predict numerical values, such kinds of problems are called regression problems. For example, house price prediction
- 2) **Classification:** When there is a need to classify the data in different classes, it is called a classification problem. If there are two classes, it is called a binary classification problem. When it is multiple classes, it is multi-class classification. For example, classify whether a person is suffering from a disease or otherwise. Classify whether a stock is "buy", "sell", or "hold".
- 3) **Clustering:** When there is a need to categorize the data points in similar groupings or clusters, this is called a clustering problem.
- 4) **Time-series forecasting:** Time series data means that data is in a series of particular time periods or intervals. For example, a time-series forecasting problem is about forecasting the sales demand for a product, based on a set of input data such as previous sales figures, consumer sentiment, and weather.
- 5) **Anomaly detection:** if a given record can be classified as an outlier or unexpected event/item, this can be called an anomaly detection problem. For example, credit card fraud transactions detection is an anomaly detection problem.

The diagram is a flowchart titled 'Major Problem Types'. It starts with a central downward-pointing arrow. To the left of the arrow is a box for 'Regression' with a dollar sign icon, followed by a box for 'Classification' with a lightbulb icon. To the right of the arrow is a box for 'Clustering' with a puzzle piece icon. Below the central arrow is a box for 'Time-series forecasting' with a bar chart icon. At the bottom of the diagram is a box for 'Anomaly detection' with a question mark icon. A footer bar at the bottom of the slide includes a 'meet.google.com' link, a 'Stop sharing' button, and a 'Close' button. The right side of the slide shows a dark sidebar with participant icons and names: 'Vishal', 'M', 'R', 'RAVIMY', 'B', 'Shreyash', and '3 others'. A video feed of the presenter is also visible in the sidebar.

Screen Shots for Third day 12.5.22 Afternoon session

SEACET Bangalore is presenting

5 Day Online Faculty Development Programme  
On  
"Machine Learning and IoT applications in VLSI Design"



Dr. Rajlakshmi Ghatkamble  
Associate Professor,  
East Point College of Engineering and Technology, Bengaluru

Day 3: 12.05.2022, Afternoon Session: 2.00 pm-3.30 pm  
Topic : Applications , Challenges and Issues in ML

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Dr Rajlakshmi Ghatkamble is presenting

# Applications, Challenges and Issues in Machine Learning



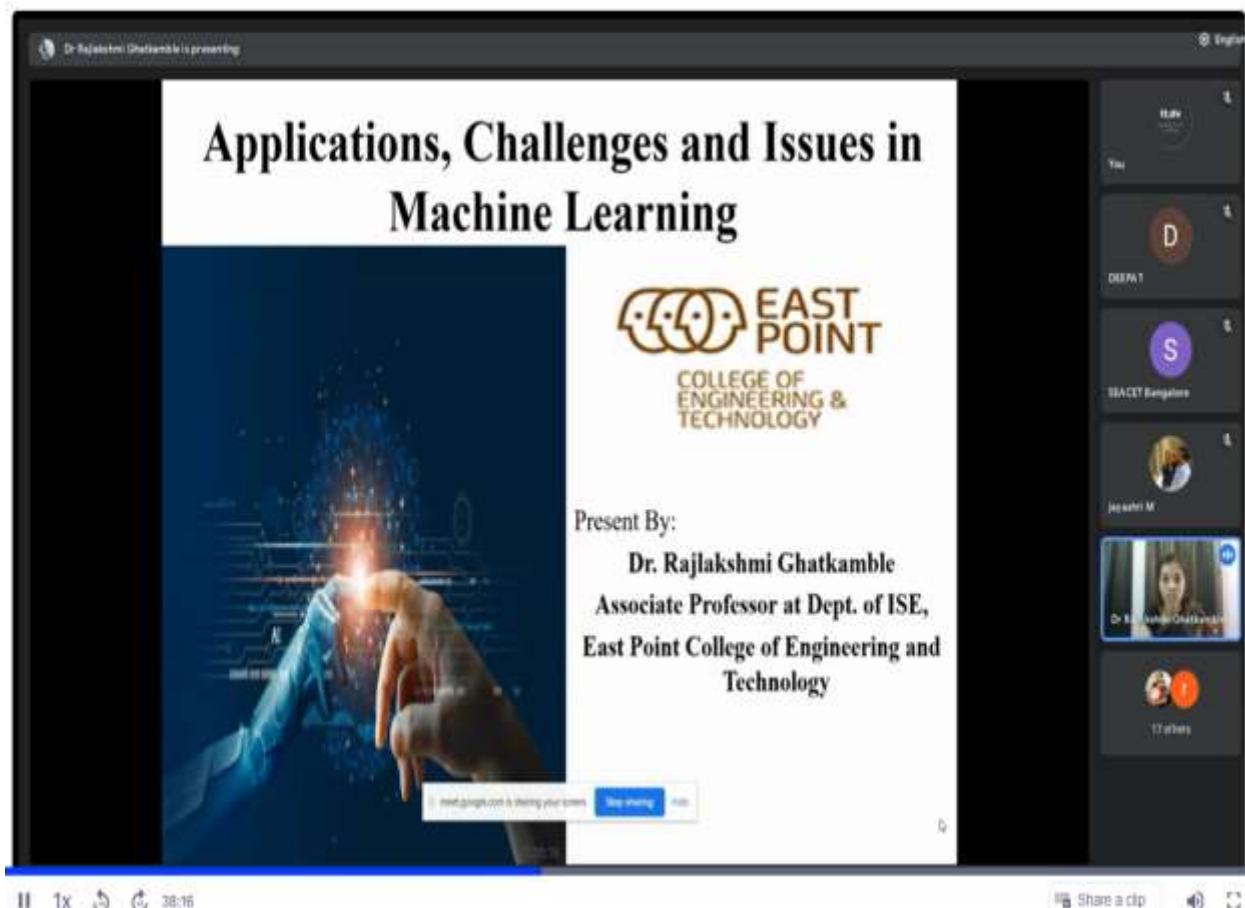
**EAST POINT**  
COLLEGE OF  
ENGINEERING &  
TECHNOLOGY

Present By:  
Dr. Rajlakshmi Ghatkamble  
Associate Professor at Dept. of ISE,  
East Point College of Engineering and  
Technology

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Dr Rajalakshmi presenting

## Challenges in Machine Learning (Continued)

**Poor Quality Data**  
60%

**Irrelevant Features**

**Overfitting**

**Underfitting**

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11:03:44

Dr Rajalakshmi presenting

## Challenges in Machine Learning (Continued)

### Software Integration

### Offline Learning / Deployment

### Cost Involved

=> MLops  
=> Devops

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11:18:04

#### Fourth day 13.5.22

The Fourth day 13.5.22 Forenoon session lecture was delivered by Mrs Navaneetha Velammal, Associate Professor, Francis Xavier Engineering College , Tirunelveli in the topic ‘Machine Learning Approaches for VLSI Hardware Implementation’. The brief explanation was delivered how ML and AI is associated with VLSI design. Various ML approaches with practical examples were briefed. In addition orange tool to implement ML algorithm in VLSI was taught.

Screen Shots for Fourth day 13.5.22 Forenoon session

5 Day Online Faculty Development Programme  
On  
"Machine Learning and IoT applications in VLSI Design"

Mrs Navaneetha Velammal  
Associate Professor,  
Francis Xavier Engineering College , Tirunelveli.

Day 4: 13.05.2022, Morning Session: 10.30 am-12.00 pm  
Topic : Machine Learning Approaches for VLSI Hardware Implementation

11 1x Share a clip 15:36

SEACET Bangalore is presenting

Participants: You, S, M, y, A, Francis Xavier E.C, Navaneetha Velammal M, S, M, 21 others

Machine Learning  
Approaches for  
VLSI Hardware  
Implementation

NAVANEETHA  
VELAMMAL.M.M.E.,(Ph.D)  
Associate Professor,  
Francis Xavier Engineering  
College,Tirunelveli  
Tamilnadu.

Date of Discussion:  
13th May 2022

Session -  
10.30 a.m

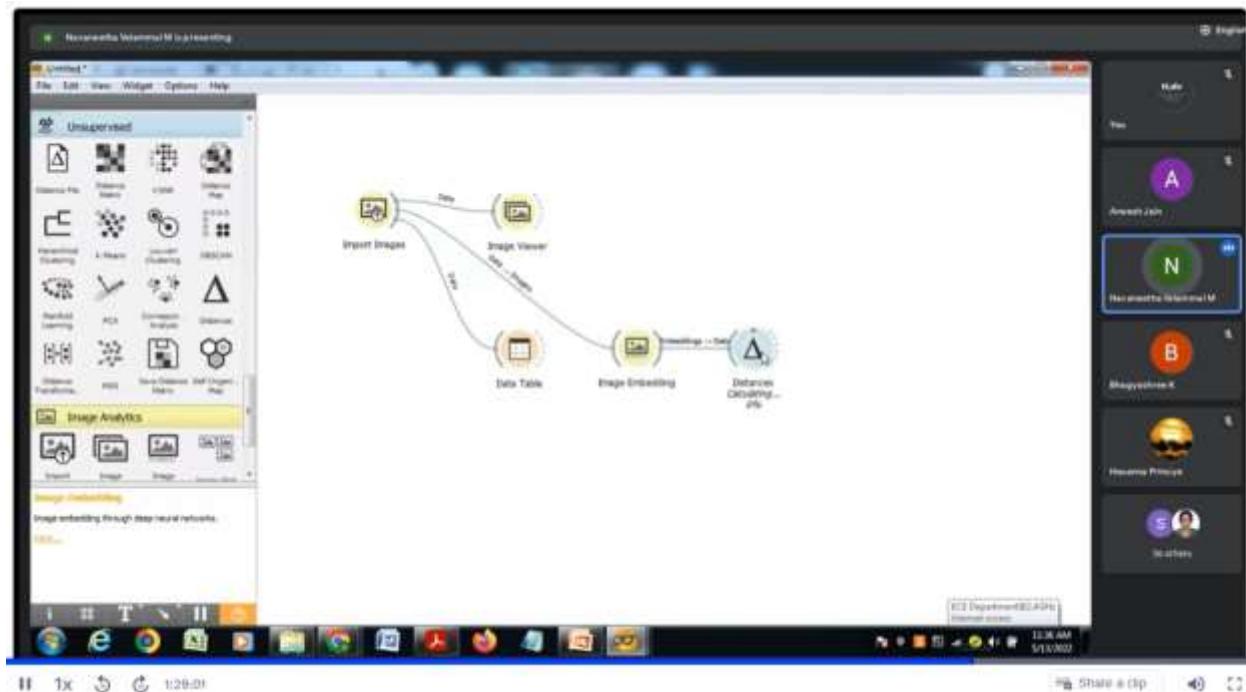
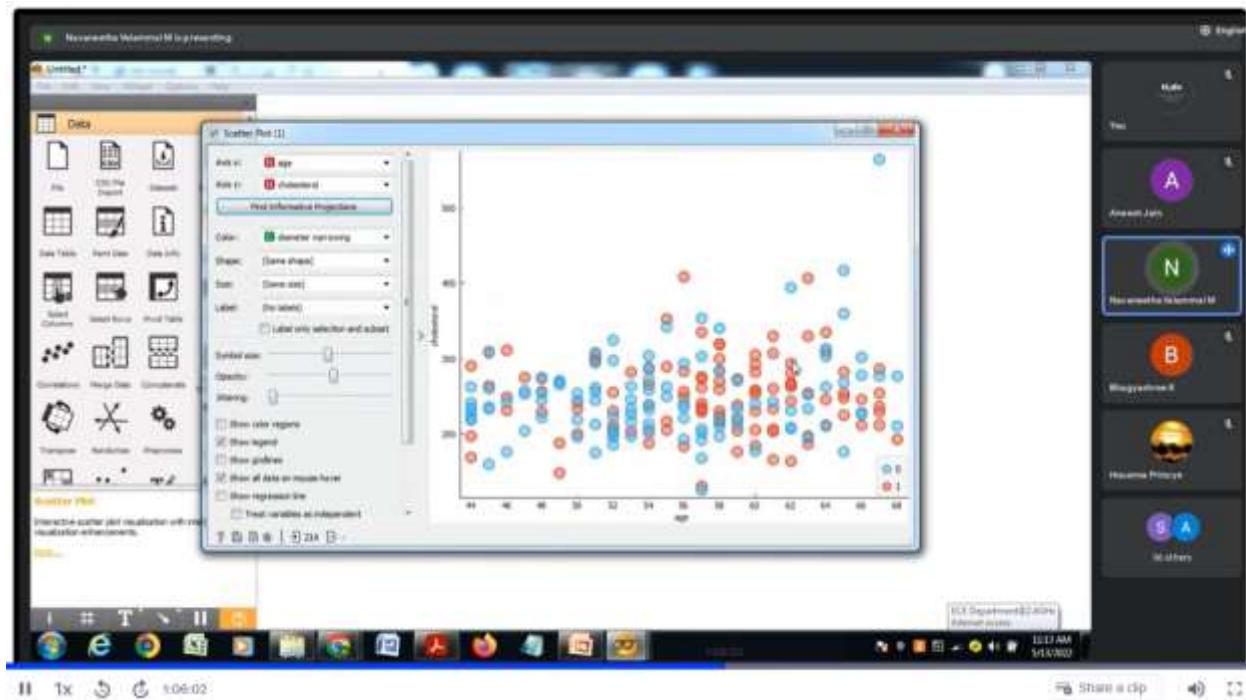
SEACET Bangalore is presenting

Participants: You, r, Navaneetha Velammal M, S, S, M, 21 others

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The Fourth day 13.5.22 Afternoon session lecture was delivered Dr.A.Andrew Roobert, Associate Professor, Francis Xavier Engineering College , Tirunelveli in the topic ‘Applications of AI and ML in VLSI for IoT Circuits’. The brief explanation was delivered how ML and AI is associated with VLSI design for IoT circuits. How logic circuits is linked with neural networks and how modern VLSI layout is designed and implemented with AI and ML is breifed with practical examples.

## Screen Shots for Fourth day 13.5.22 Afternoon session

SEACET Bangalore is presenting

### 5 Day Online Faculty Development Programme On "Machine Learning and IoT applications in VLSI Design"



**Dr.A.Andrew Roobert**  
Associate Professor,  
Francis Xavier Engineering College, Tirunelveli

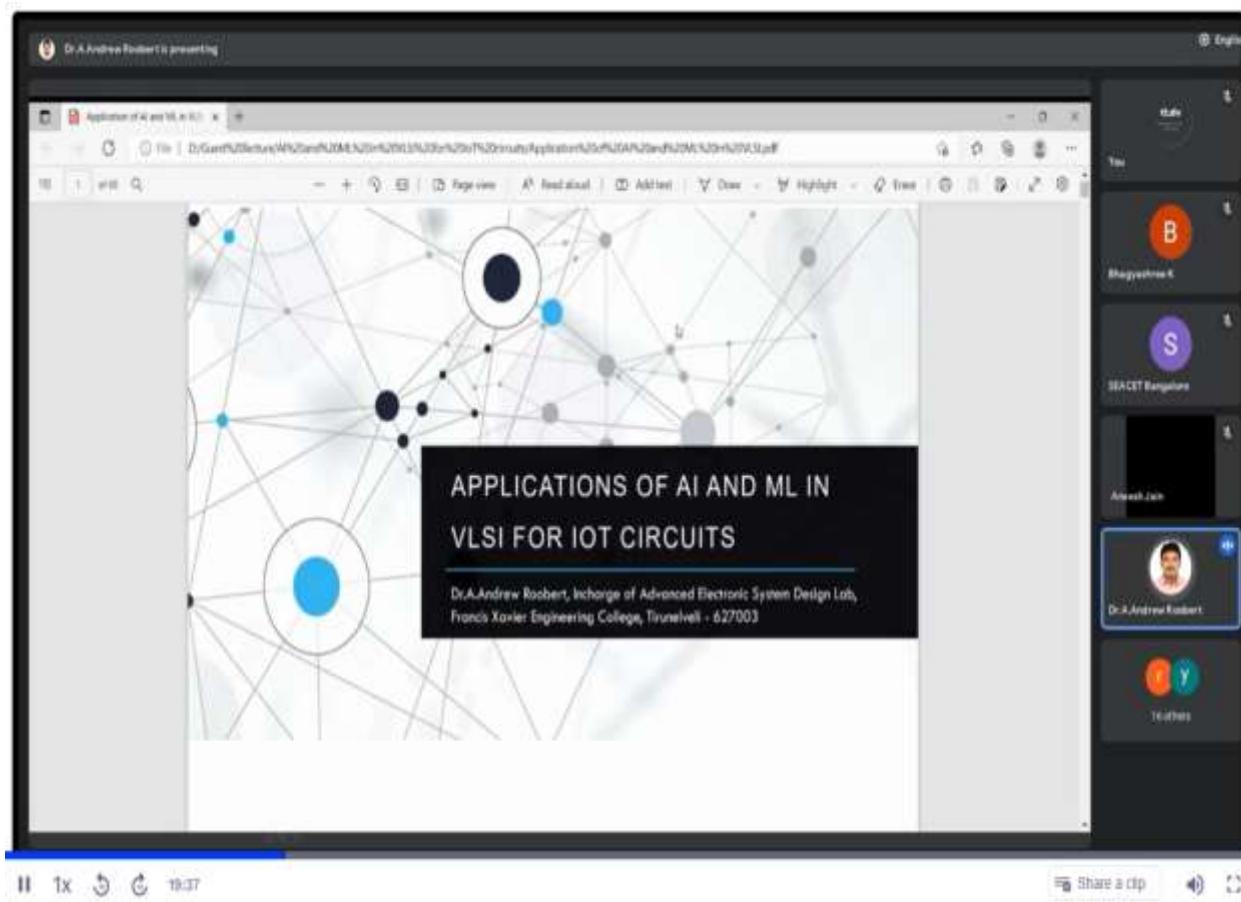
Day 4: 13.05.2022, Afternoon Session: 1.45 pm-3.15 pm  
Topic : Applications of AI and ML in VLSI for IoT Circuits

0:27:00

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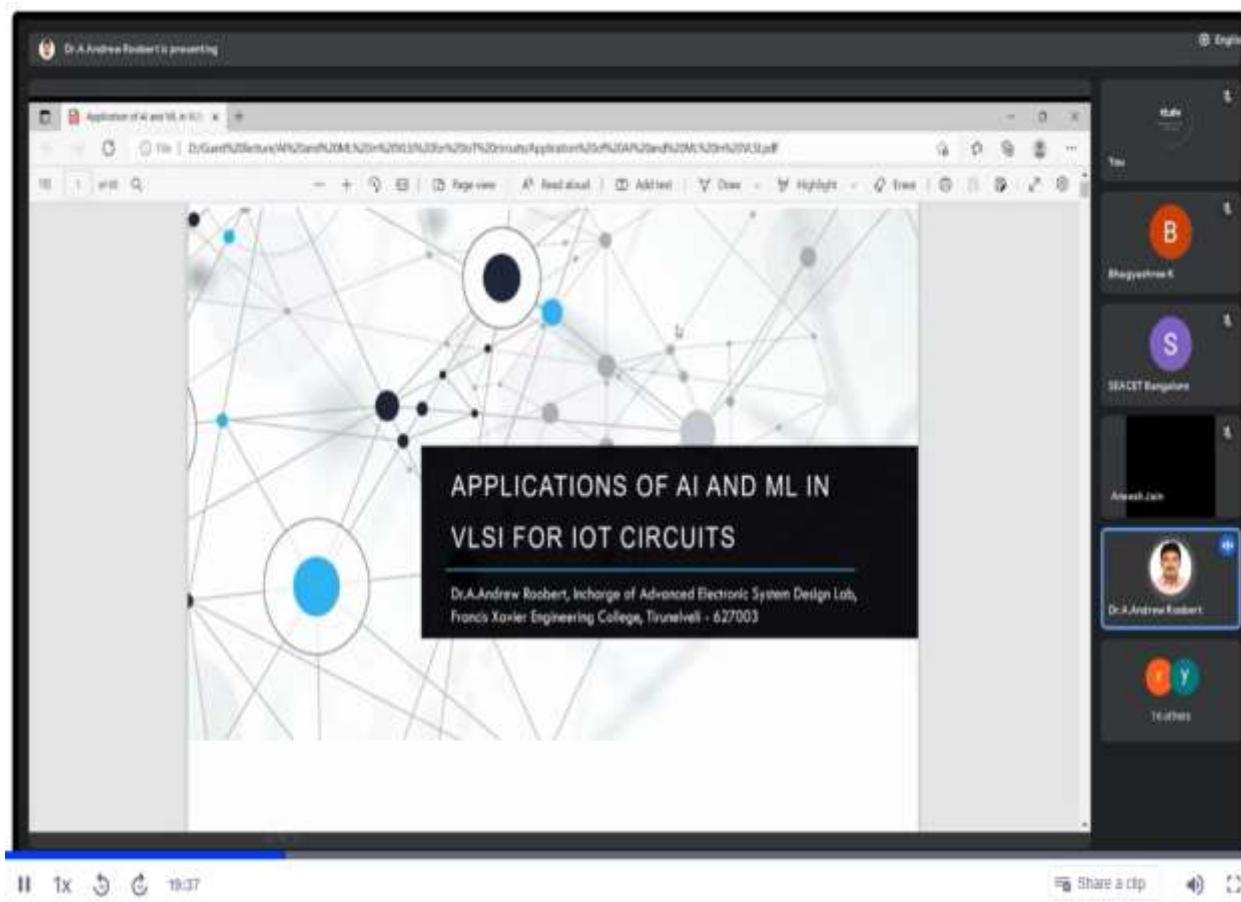
Dr.A.Andrew Roobert is presenting



APPLICATIONS OF AI AND ML IN  
VLSI FOR IOT CIRCUITS

Dr.A.Andrew Roobert, Incharge of Advanced Electronic System Design Lab,  
Francis Xavier Engineering College, Tirunelveli - 627003

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Dr. A. Andrew Roobert is presenting

Placement Example

Floorplan

Placement

[Courtesy NTU team]

Optimization targets

- Satisfy timing constraints?
- Satisfy power constraints?
- 100% routable?
- Wirelength minimized?
- ...

1x 49:01 Share a clip

Dr. A. Andrew Roobert is presenting

Opportunities for machine learning in IC physical implementation

- ML applications aimed at removing unnecessary design and modeling margins through new correlation mechanisms.
- ML applications that seek faster design convergence through predictors of downstream flow outcomes.
- ML to help the IC design and EDA fields escape the current "local minimum" of coevolution in design methodology and design tools.

Four Stages for ML insertion in Physical Design

- First stage of ML insertion into IC will entail creating robots: mechanizing and automating (via expert systems, perhaps) 24/7 replacements for human engineers that reliably execute a given flow to completion. "Multi-armed bandit" (MAB) sampling can achieve resource-adaptive commercial synthesis, place and route with no human involvement – in a "robotic" manner that is distinct from expert systems approaches

1x 1:03:42 Share a clip

## Fifth day 14.5.22

The Fifth day 14.5.22 Forenoon session lecture was delivered Dr.A.Andrew Roobert, Associate Professor, Francis Xavier Engineering College , Tirunelveli in the topic ‘Optimization of complex circuits using Cadence Virtuoso ADE XL tool and Machine Learning Methods’. Participants learned to implement ML techniques in IC designing using cadence software.

Screen Shots for Fifth day 14.5.22 Forenoon session

5 Day Online Faculty Development Programme  
On  
"Machine Learning and IoT applications in VLSI Design"



Dr. A. Andrew Roobert  
Associate Professor,  
Francis Xavier Engineering College, Tirunelveli

Day 5: 14.05.2022, Morning Session: 10.30 am-12.00 pm  
Topic : Optimization of complex circuits using Cadence Virtuoso  
ADE XL tool and Machine Learning Methods

Optimization of  
complex circuits  
using Cadence  
Virtuoso ADE XL  
tool and machine  
learning methods

DR. A. ANDREW ROOBERT,  
FRANCIS XAVIER ENGINEERING  
COLLEGE

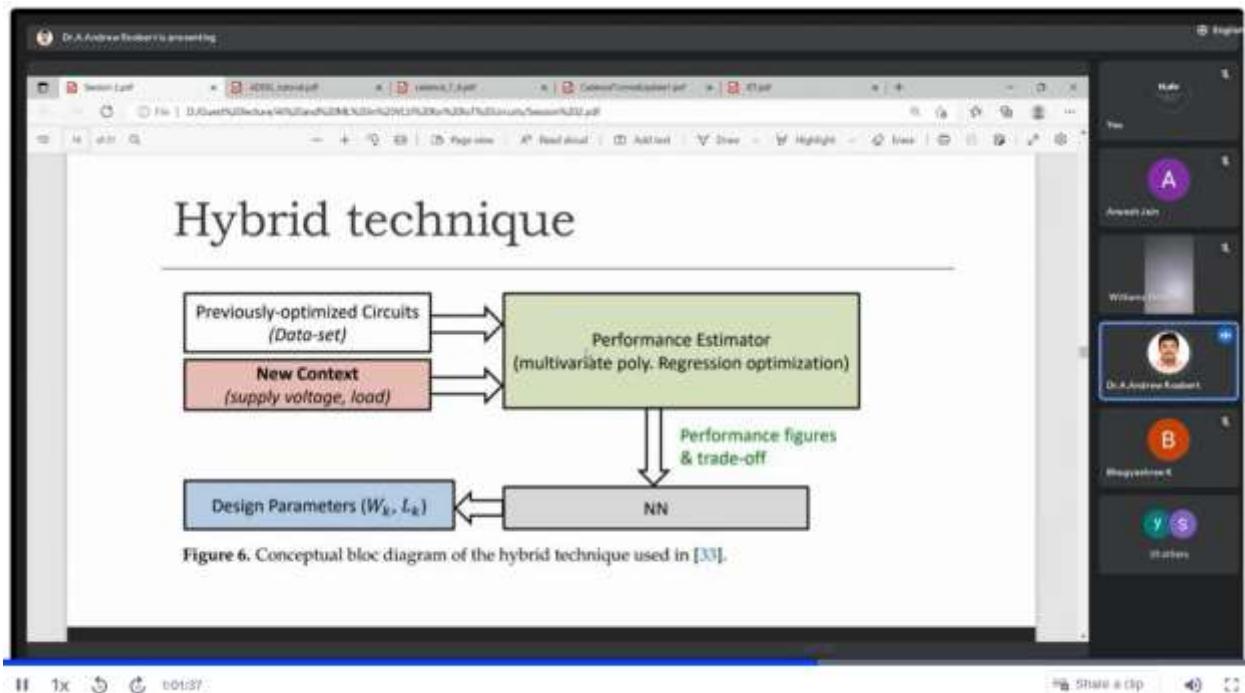
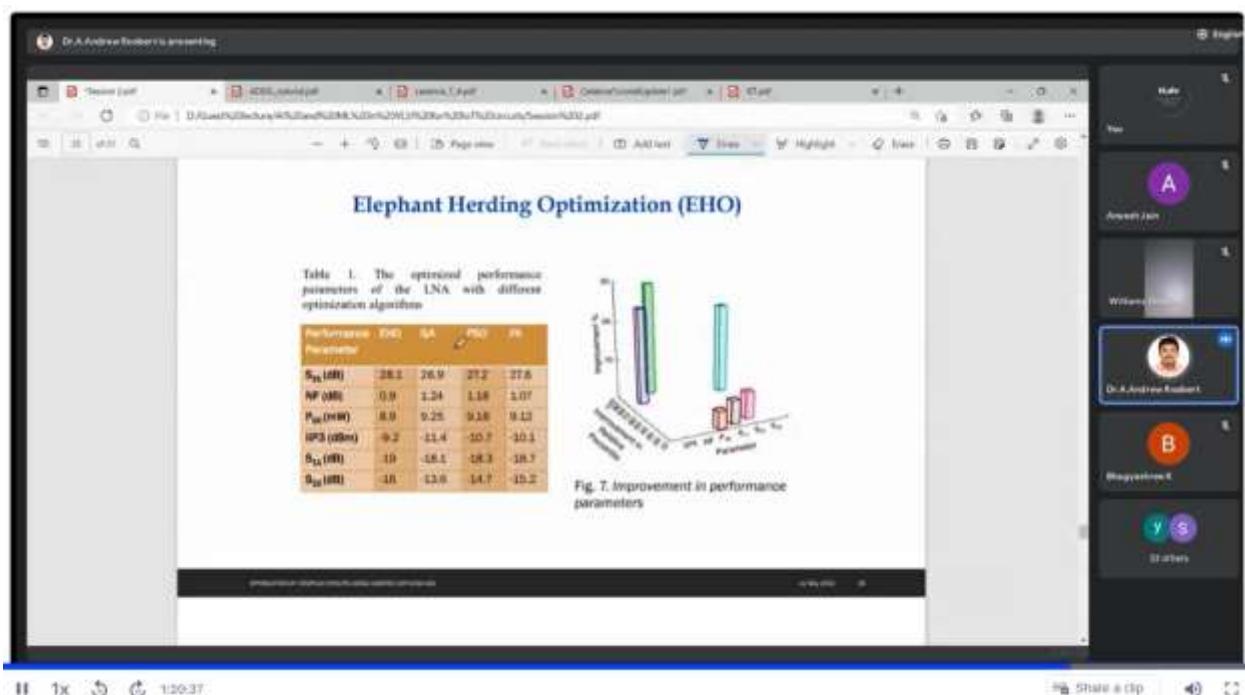


Figure 6. Conceptual bloc diagram of the hybrid technique used in [33].



The Fifth day 14.5.22 Afternoon session lecture was delivered by Dr.T Russo, Advisory System Analyst, IBM India Private Limited, Bangalore in the topic ‘Machine Learning using Tensorflow’. Participants learned to implement ML techniques using Tensorflow software.

SEACET Bangalore is presenting

5 Day Online Faculty Development Programme  
On  
"Machine Learning and IoT applications in VLSI Design"



**Dr. T Russo**  
Advisory System Analyst  
IBM India Private Limited  
Bangalore

Day 5: 14.05.2022, Afternoon Session: 2.00 pm-3.30 pm  
Topic : Machine Learning using Tensorflow

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Dr. A. Andrew Ruso is presenting

# Machine Learning using Tensorflow

**Dr. T. Russo**  
Advisory System Analyst  
IBM  
9841492810

+91-6381941110    [racingruso@gmail.com](mailto:racingruso@gmail.com)

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Dr. A. Andhra Reddy is presenting

## Machine Learning...

- Machine learning (ML) is a field of inquiry devoted to understanding and building methods that 'learn', that is, methods that leverage data to improve performance on some set of tasks.
- It is seen as a part of [artificial intelligence](#). Machine learning algorithms build a model based on sample data, known as [training data](#), in order to make predictions or decisions without being explicitly programmed to do so.

1x 37:22 Share a clip

Dr. A. Andhra Reddy is presenting

The diagram illustrates the 'Top 15 open-source artificial intelligence tools to learn in 2020'. It features a central figure of a person interacting with a computer screen displaying a brain icon. Surrounding the screen are various AI platforms and tools, each with its logo and name. The categories include:

- AI Platforms:** TensorFlow, H2O.ai
- Machine Learning Libraries:** PyTorch, TensorFlow, Keras, Caffe
- Deep Learning Libraries:** TensorFlow, Keras, PyTorch, TensorFlow, OpenCV
- AI for Mobile:** TensorFlow, OpenCV
- NLP, audio, video, text:** SimpleCV, Detection2

Springboard

1x 51:06 Share a clip

The FDP was concluded at 3.30pm. The workshop ended with the vote of thanks by Dr. Pradeep Kumar N.S., HOD, ECE, SEACET. Online submission of feedback form was collected at the end of all sessions. The FDP was highly informative to staffs. Thus FDP provided valuable awareness and insights on the various aspects of Machine Learning and IoT applications in VLSI Design.