Exit Report
of
Workshop on Image Processing with Deep Learning
(22nd - 26th March 2022)

The Department of Electronics and Communication Engineering and Department of CSE/IT, JUIT, Solan hass organised a Workshop on Image Processing with Deep Learning between 22nd - 26th March 2022. Deep Learning networks on Image Processing finds its application in biomedical, forensic science, remote sensing, agriculture, and in many more. Due to its wide area of applications, it attracts students, researchers, educators and industrialists from different backgrounds like Electronics and Communication Engineering, Computer Science Engineering, Biotechnology and Bioinformatics Engineering and others. This workshop was organized with the aim to help the participants working or intend to work in the area of computer vision, biomedical engineering, forensic analysis, remote sensing images and telemedicine; and to help the participants to explore the new dimensions for their academic and research activities.

Workshop was conducted in hybrid both (both Offline and Online Mode). All the lectures were delivered remotely by keynote speakers, whereas hands-on sessions were conducted by experts in the Lab. All the sessions were made available through googlemeet for the Online Participants

A total of 373 participants had registered for this workshop. We had received registrations from India and globally from countries like Australia, Denmark, and South Africa. Among the registered participants, 180 were Faculty, 67 were research Scholars, 31 were PG students, 9 registrations were from Industry, 5 were scientists and the remaining registration were UG students. Participants affiliated from premium institutes like Queensland University of Technology, University of Johhanesburg, IIT Bombay, IIT Rookee, NIT Raipur, NIT Srinagar, IIIT Allahabad, DTU, and NSUT Delhi had registered in the workshop. Some participants were from companies like Bharti Airtel, Philips Health Care , HFCL Limited, etc.

In the workshop to clarify the fundamentals, we had 4 lectures on the fundamentals of image processing and deep learning along with 4 hands-on sessions. We also had 5 lectures on research topics that helped the participants to implement the concepts of image processing and deep learning in their area of interest. All the handon session were conducted on Google Colab platform.

Feedback was collected from the participants after every session of the workshop. At the end of the workshop 118 participants with more than 80% attendance were given the

e-Certificates. e-Certificate were also given to our keynote speakers as a token of appreciation.

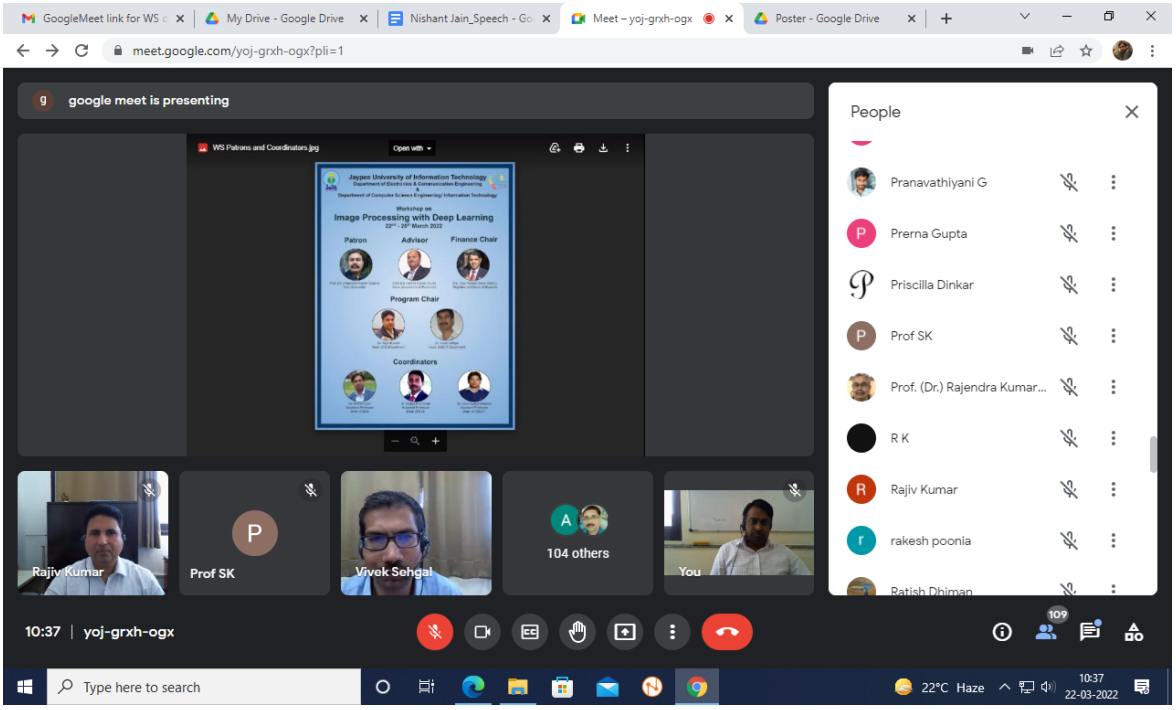
Dr. Nishant Jain, Assistant Professors in ECE, JUIT ; Dr. Emjee Puthooran, Assistant Professors in ECE, JUIT and Dr. Vipul Kumar Sharma, Assistant Professors in CSE/IT, JUIT were the coordinators for this workshop.

Schedule and weblinks of the Recordings and Materials (speakers allowed to share) of all the lectures and hands-on sessions conducted in the Workshop on Image Processing with Deep Learning 2022 is as follows:

Schedule			Recorded Lecture and Supported Files
Day 1 **22nd March** **(Tuesday)**	10:30 - 11:00	Inauguration	
	11:00 - 12:00	**Lecture:** Introduction to Image Processing and its Applications **Keynote Speaker**: Dr. Nishant Jain, Assistant Professor, Department of ECE, JUIT	https://youtu.be/Ekfzeta3T8I
	12:00 -13:00	**Lecture:** Deep Learning for Computer Vision **Keynote Speaker**: Dr. Subrahmanyam Murala, Associate Professor, Electrical Engineering Department, IIT Ropar	https://drive.google.com/file/d/1cOQhN5iUSgfH2Qa8vdHkNg1bzYriQ14g/view?usp=sharing
	13:00	Lunch	
	14:30 -16:30	**Hands-on Session**: Implementation of Image Processing using Python. **Expert**: Dr. Nishant Jain, Assistant Professor, Department of ECE, JUIT	https://youtu.be/7TxUQXD7w3w https://github.com/nishantjain86/Image-Processing
Day 2 **23rd March** **(Wednesday)**	10:15 -11:15	**Lecture:** Feature Extraction Methods for the classification of images. **Keynote Speaker**: Dr. Nishant Jain, Assistant Professor, Department of ECE, JUIT	https://youtu.be/wYZzpE1pPn0
	11:15 - 11:30	Tea Break	
	11:30 -12:30	**Lecture:** Application of Deep Learning Networks on Medical Images. **Keynote Speaker:** Dr. Narendra D. Londhe, Associate Professor,Electrical Engineering Department, NIT Raipur	https://drive.google.com/file/d/1tMgQNZehhXfzvYlgvM8Rnc3_THJ1OZPx/view?usp=sharing
	12:30 - 14:00	Lunch	

	14:00 -16:00	**Hands-on Session:** Feature Extraction methods and training of Neural Network using Python. **Expert**: Dr. Nishant Jain, Assistant Professor, Department of ECE, JUIT	https://youtu.be/wlEaHjqiflA https://github.com/nishantjain86/Image-Processing
Day 3 **24th March** **(Thursday)**	10:15 -11:15	**Lecture:** Feature Extraction and Classification of Liver Ultrasound Images **Keynote Speaker**: Dr. Jitendra Virmani, Senior Technical Officer, Indo-Swiss Training Centre (ISTC), CSIR-CSIO	https://drive.google.com/file/d/1jA2lfsj0usLGdK3jwWlFf9ppOE9goX3S/view?usp=sharing
	11:15 - 11:30	Tea Break	
	11:30 -12:30	**Lecture:** Image Compression using Machine Learning **Keynote Speaker:** Dr. Emjee Puthooran, Assistant Professor, Department of ECE, JUIT	https://drive.google.com/file/d/1jA2lfsj0usLGdK3jwWlFf9ppOE9goX3S/view?usp=sharing
	12:30 - 14:00	Lunch	
	14:00 -16:00	**Hands-on Session:** Implementation of Machine Learning Algorithms using Python **Expert:** Dr. Vikas Baghel, Assistant Professor, Department of ECE, JUIT	https://drive.google.com/file/d/16hElzB_VyaWgBGPHBYqo_vAYCfm-rlfk/view?usp=sharing **Task1:** https://colab.research.google.com/drive/1ryes3HAgjhoxuHYhm1Z-CdN3oN3p7fEF?usp=sharing **Task2:** https://colab.research.google.com/drive/1h5ylt9cK6fDepo9XwE1NUToAlHNc0ons?usp=sharing **Task3:** https://colab.research.google.com/drive/1lKli0RZP1ZPtV9hP5Yct8kOZK1allmBg?usp=sharing
Day 4 **25th March** **(Friday)**	10:15 -11:15	**Lecture:** Introduction to Convolutional Neural Networks **Keynote Speaker**: Dr. Vipul Kumar Sharma, Assistant Professor, Department of CSE/IT, JUIT	https://drive.google.com/file/d/1G-w2KT1Ja2qX7DhbjH_SYdNrt4B26f2V/view?usp=sharing https://docs.google.com/presentation/d/1gtcTJQSf1eqSfrMmqPnrL5oQXiYPpFFi/edit?usp=sharing&ouid=110182110977450671877&rtpof=true&sd=true
	11:15 - 11:30	Tea Break	
	11:30 -12:30	**Lecture:** Automatic Radiology Report Generation using Deep Learning **Keynote Speaker:** Dr. Chandresh Kumar Maurya,	https://drive.google.com/file/d/1G-w2KT1Ja2qX7DhbjH_SYdNrt4B26f2V/view?usp=sharing

		Assistant Professor, Computer Science & Engineering Department, IIT Indore	
	12:30 -13:15	**Lecture:** Application of AI and Image processing for Defence Systems **Keynote Speaker:** Dr. Anita Singh, Scientist 'E' , IRDE, DRDO, Ministry of Defence, Govt. of India, Dehradun	https://drive.google.com/file/d/1awrOQEzB_5eRG_LXy-G-fbwESyb1x2yZ/view?usp=sharing
	12:30 - 14:00	Lunch	
	14:00 -18:00	Trip to Shimla	
Day 5 **26th March (Saturday)**	10:15 -12:30	**Hands-on Session:** Implementation of CNN using python along with Dimensionality reduction, and feature Engineering **Expert:** Dr. Vipul Kumar Sharma, Assistant Professor, Department of CSE/IT, JUIT	https://drive.google.com/file/d/1oA5_6d4wau1vAwHHLEtivblkbBRDeax5/view?usp=sharing https://drive.google.com/file/d/1mCcjZpOvaSep4wny3f8Z0qLN_4ZiPoeJ/view?usp=sharing https://drive.google.com/file/d/1ydE8MKqqHiyWvHDPsix4dRnc9eei8gXs/view?usp=sharing https://drive.google.com/file/d/1yhcOkUGHFe2Qcy8tPhuxCRT8NQGJWCHd/view?usp=sharing
	12:30 - 14:00	Valedictory followed by Lunch	



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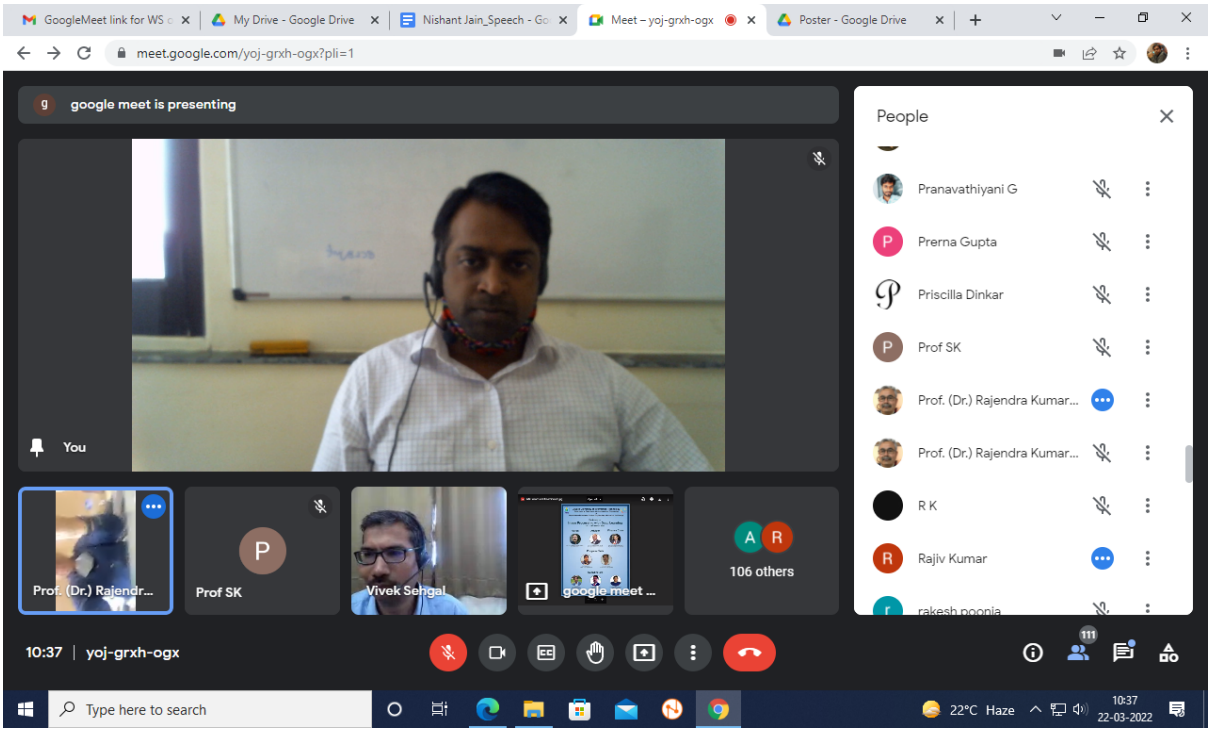
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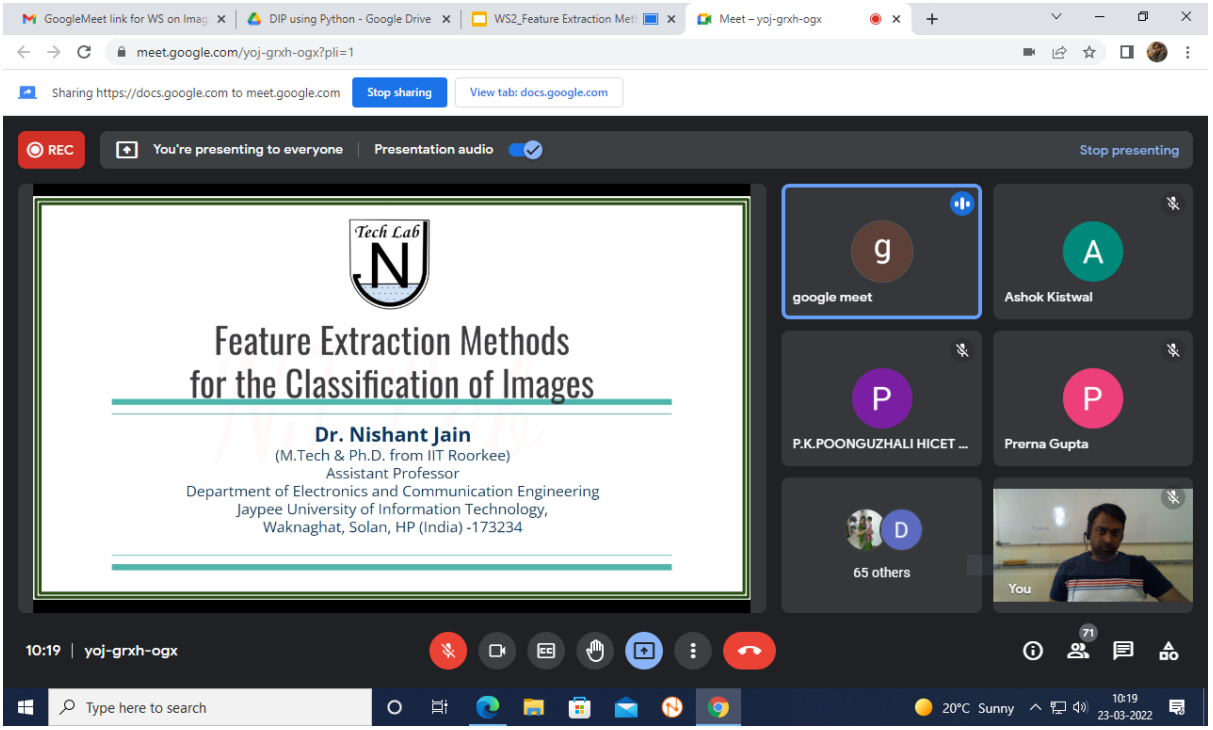
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DIP using Python - Google Drive
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REC
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Tech Lab
Feature Extraction Methods
for the Classification of Images
Dr. Nishant Jain
(M.Tech & Ph.D. from IIT Roorkee)
Assistant Professor
Department of Electronics and Communication Engineering
Jaypee University of Information Technology,
Waknaghat, Solan, HP (India) -173234
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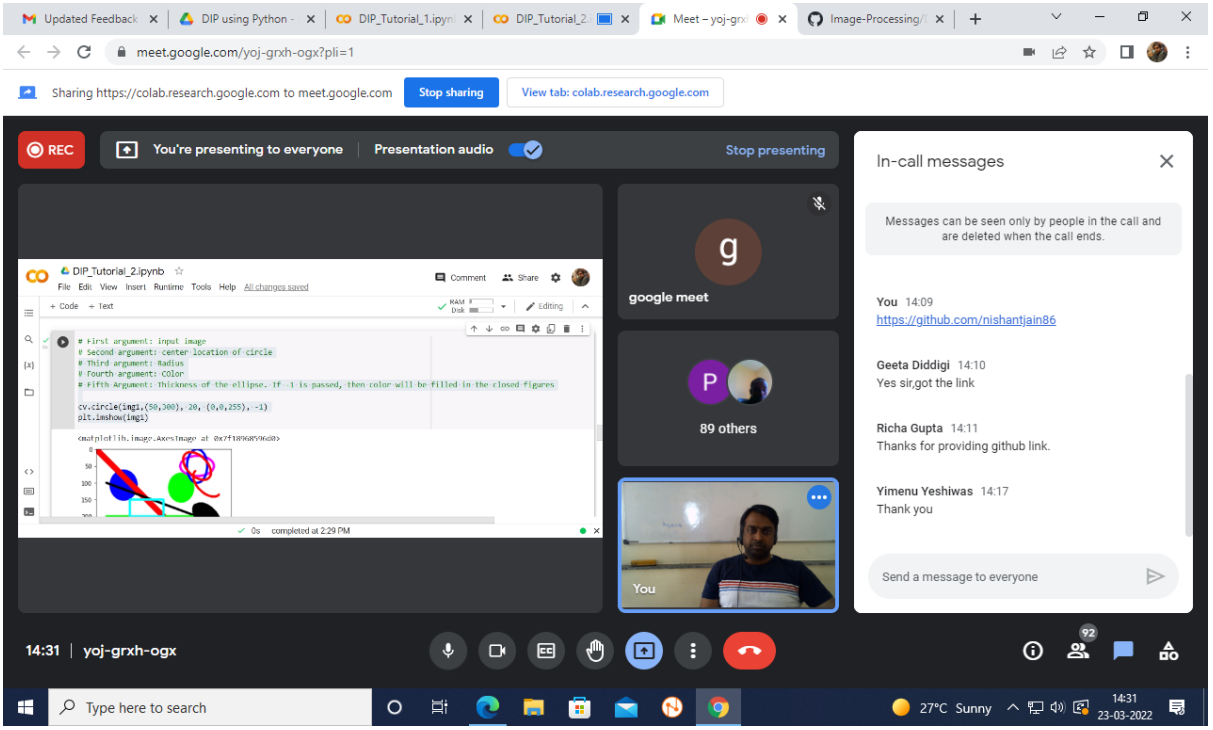
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https://github.com/nishantjain86
Geeta Diddigi 14:10
Yes sir,got the link
Richa Gupta 14:11
Thanks for providing github link.
Yimenu Yeshiwas 14:17
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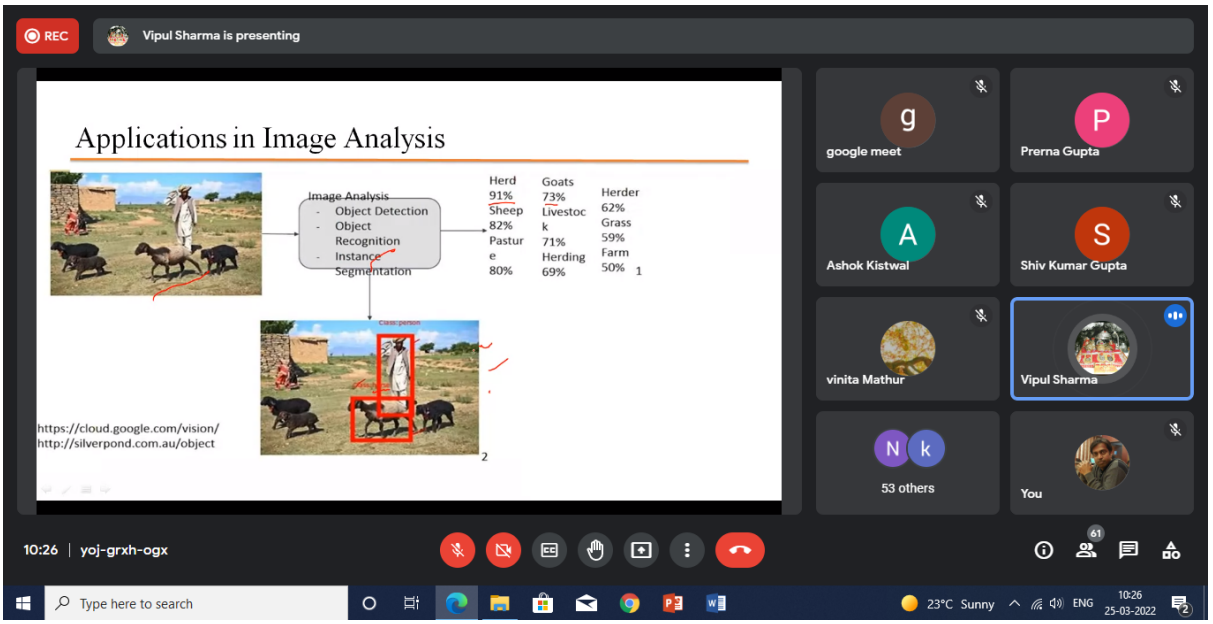
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Vipul Sharma is presenting
Applications in Image Analysis
Image Analysis
- Object Detection
- Object Recognition
- Instance Segmentation
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Pasture 80%
Goats 73%
Livestock 71%
Herding 69%
Herder 62%
Grass 59%
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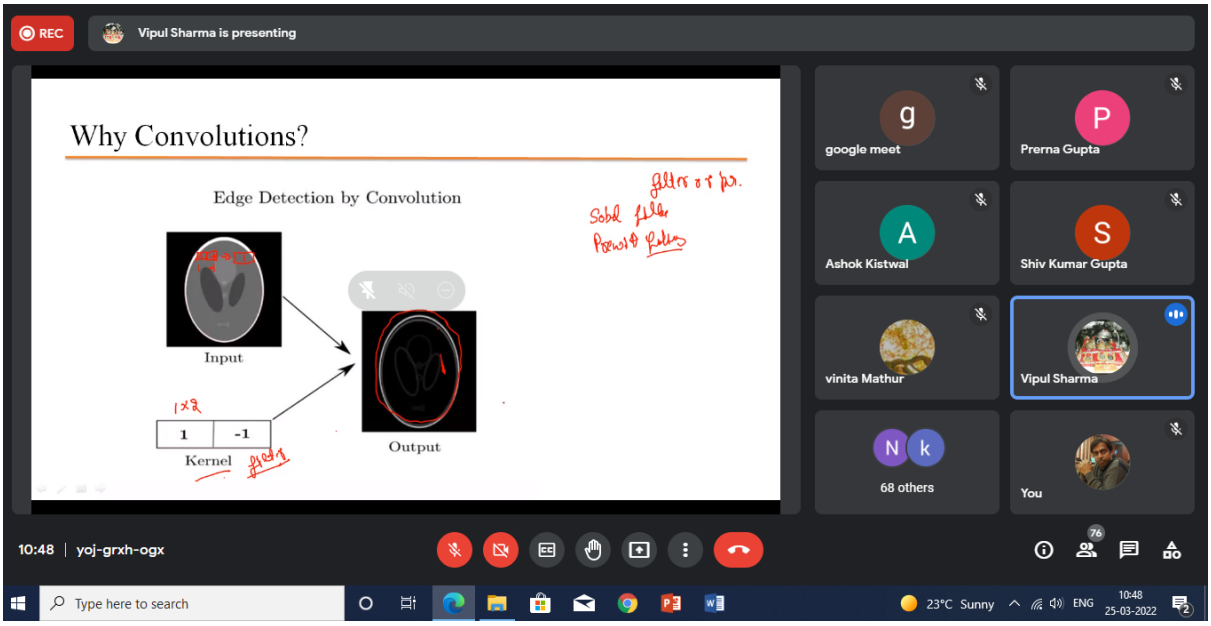
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Vipul Sharma is presenting
Why Convolutions?
Edge Detection by Convolution
Input
Kernel
Output
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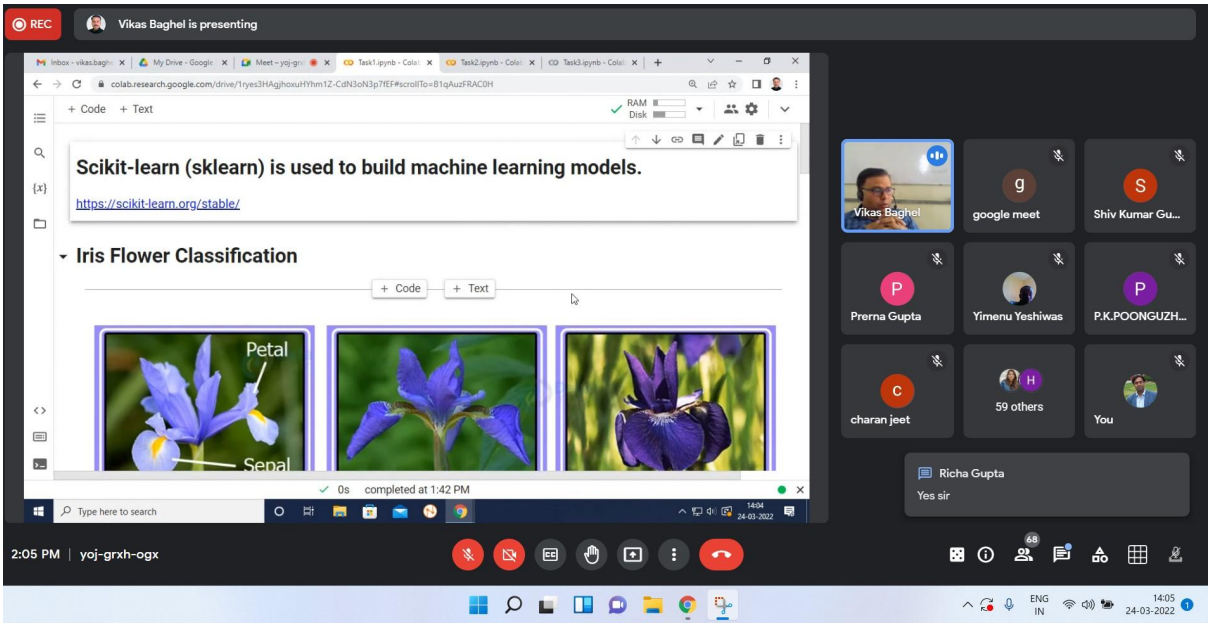
REC
Vikas Baghel is presenting
Scikit-learn (sklearn) is used to build machine learning models.
https://scikit-learn.org/stable/
Iris Flower Classification
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Vikas Baghel
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Jaypee University of Information Technology

Department of Electronics & Communication Engineering

Workshop on
Image Processing with Deep Learning
(22nd - 26th March 2022)

Keynote Speaker

Title: Implementation of Machine Learning Algorithms using Python

Dr. Vikas Baghel
Assistant Professor
Department of ECE, JUIT

Date: 24th March, 2022, Time: 14:00 - 16:00 IST

Medium: GoogleMeet