A REPORT
OF
FACULTY DEVELOPMENT PROGRAMME
ON

MACHINE LEARNING FOR COMPUTER VISION

CONDUCTED THROUGH NKN
BY

DEPARTMENT OF COMPUTER SCIENCE AND APPLICATION

ATAL BIHARI VAJPAYEE VISHWAVIDYALAYA, BILASPUR (C.G)

IN ASSOCIATION WITH

ICT ACADEMIES

MINISTRY OF ELECTRONICS & INFORMATION TECHNOLOGY (MEITY), GOV. OF INDIA

DATE : 29 JUNE - 8 JULY 2020

PRINCIPAL CO-ORDINATING ACADEMY	CO-PRINCIPAL CO-ORDINATING ACADEMY
IIITDM JABALPUR	**MNIT JAIPUR**

CO-ORDINATOR, NODAL CENTRE

Dr. H. S. HOTA
HOD
DEPT. of CSA
ABVV, BILASPUR (C.G.)

ABOUT ICT ACADEMICS

India is fast emerging as a world power in Information, Communications Technology and Electronics (ICTE) sectors. To complement its growth and further development, there is an ever-increasing need for trained professionals with specialization in this space. This includes training of professionals not only in existing and changing technologies but also in the fields of R&D and electronics manufacturing. This will specifically be aimed at the ICTE sector to create a substantial resource pool of talent and generate ample opportunities for entrepreneurs. Ministry of Electronics & Information Technology (Meity) has approved a scheme and setup Electronics and ICT Academies at 07 (seven) institutions viz. IIT Guwahati, IIT Kanpur, NIT Warangal, NIT Patna, IIITDM Jabalpur, IIT Roorkee and MNIT Jaipur. The Ministry had earlier setup two ICT Academies at Tamil Nadu and Kerala respectively. These Academies are aimed at faculty/mentor development and upgradation to improve the employability of the graduates, diploma holders in various streams, through collaboration of States/Union Territories. Each Academy is being provided funding support for four years and is expected to generate revenue by charging fee and taking up other activities to meet the recurring cost in a gradual manner and become self-sustainable by the end of fourth year onwards. All these Academies will cater to the requirements of identified neighbouring States and UTS also.

ABOUT REMOTE CENTRE

Electronics & ICT Academy, PDPM IIITDM Jabalpur has identified Department of Computer Science & Application, Atal Bihari Vajpayee University, Bilaspur (C.G.) as remote nodal centre to run FDP from time to time. The objective is to meet the skill requirements of the industry and generate more employment especially in tier 2 and 3 towns, the rural parts of the country. Initially the department was the only remote nodal centre in the state of CG.

BROCHOURE

Summer Faculty Development Program - 2020

In Association with

Ministry of Electronics & Information Technology (MeitY)
Government of India
Government of India Initiative for Employability Enhancement

Digital India
Power To Empower

Remote Center

Department of Computer Science and Application
(A Nodal centre identified by IIITDM Jabalpur),
Atal Bihari Vajpayee University, Bilaspur, (C.G.)

Online Faculty Development Programme
on
Machine Learning & Computer Vision
June 29 to July 8 , 2020

Jointly Organized by:
IIT ,Guwahati
MNIT ,Jaipur
PDPM IIITDM ,Jabalpur
NIT ,Patna

Resource Persons

- Prof. P.K. Biswas, IIT Kharagpur
-Dr. Partha Pratim Roy, IIT Roorkee
-Dr. Santosh Viparthi, MNIT Jaipur
-Prof. Aparajita Ojha, IIITDM Jabalpur

One day session by NVIDIA

Course Contents

- Introduction to image processing and computer vision(CV).
- Introduction to artificial intelligence (AI) and machine learning(ML).
- Introduction to deep learning(DL).
- Understanding convolutional neural network (CNN) architectures for CV.
- Motion detection and depth estimation(DE).
- Object detection using CNN
- Applications of CNN.
- Practice sessions on implementations of CNN using Python , Tensorflow and Keras.

Key Features

- Online / Live lectures sessions by subject experts.
- Comprehensive tutorials and practice notes.
- Online lab and training sessions.
- Follow up sessions and discussion forums on research problems and internships.

Course Fee Details

Academic (student/faculty): 500 INR
Industry People : 1000 INR
Others : 1000 INR

Online payment details

Bank Name: Indian Bank
A/C No. : 50302042708
IFSC Code: ALLA0212433
Brach Name: Mehgawan, IIITDM Branch

Important :

1. Click https://www.iiitdmj.ac.in/ict.iiitdmj.ac.in/online-summer-fdp-2020.html to register for the FDP.
2. Select Dr. H.S. Hota as Co-ordinator hile filling registration form.
3. Hard copy certificate will be handled over by this remote center duly signed by the authority of organizers.
4. These winter course will be offered through virtual mode by inviting experts from IITs, NITs, IIITs and other premier institutes/industris.

:: Contact Person ::
Dr. H.S. Hota
(Co-ordinator, Nodal Center, Dept. of CSA, Atal Bihari Vajpayee University, Bilaspur (C.G.)
8349243439, 9425222658

PROGRAM SCHEDULE

Date	10:15-10:40	10:45-00:45	12: 45– 14:30	14:30- 16:00	
June 29, 2020	Inaugural	Intro CV (Prof. PK Biswas)	Lunch	Lab 1: Introduction to Python through Jupyter Notebook and Google Colab. [14:30 -16:00]	
	10:30-12:30		12:30 PM – 14:30 PM	14:30 onward	
June 30, 2020	Intro Image Processing (Prof. PK Biswas)		Lunch Time	Lab 2: Image processing problems- Edge detection, image enhancement and related algorithms [14:30 -16:00]	
July 01, 2020	Intro AI and ML (Dr. Partha Pratim Roy)			Lab 3: Understanding of Python libraries and installing Anaconda, TensorFlow, First program on Image classification using ML algorithms [14:30 -16:30]	Queries, Problem Solving, Projects and Research Discussion [16:35 -17:05]
July 02, 2020	Neural Networks and Back Propagation (Dr. Partha Pratim Roy)			Neural Networks: Regularization and Optimization (Dr. Partha Pratim Roy) [14:30-16:30]	Lab 4: Neural network implementation for image classification and feature extraction. [16:35-18:05]
July 03, 2020	Local Patterns and Convolution Neural Networks (Dr. Santosh Kr. Vipparthi)			Lab 5: Implementation of Local Patterns and Convolution operations using Python [14:30 -16:30]	
July 04, 2020	Deep CNN and Applications (Dr. Santosh Kr. Vipparthi)			Lab 6: Implementation of Image Classification using CNN with Transfer Learning [14:30 -16:30]	Queries, Problem Solving, Projects and Research Discussion [16:35 -17:05]
July 05, 2020	Object Detection using CNN (Prof. Aparajita Ojha)			No session [Take home assignment]	
July 06, 2020	Object Detection using CNN (Contd.) (Prof. Aparajita Ojha)			Lab 7: YOLO the and Darknet Framework [14:30 -16:30]	
July 07, 2020	NVIDIA Deep Learning Algorithms and implementation [9:30-12:30]			NVIDIA Deep Learning Algorithms and implementation [14:00-18:00 with small breaks]	
July 08, 2020	Motion Estimation using CNN (Dr Subramanyam Morala)		Valedictory function		

PARTICIPANTS

The Machine Vision FDP, boasting 52 engaged participants, was a comprehensive exploration of the field's latest developments. Through informative presentations and interactive discussions, attendees gained nuanced insights into diverse applications. The program fostered interdisciplinary collaboration, creating a vibrant learning environment. Participants left equipped with enhanced expertise, forming valuable connections for future endeavours. The FDP not only contributed to individual growth but also laid the groundwork for sustained collaborative efforts in advancing the frontier of machine vision technology.

EVENT DETAILS

The Summer Faculty Development Program (FDP) on Machine Learning for Computer Vision, held from June 29 to July 8, 2020, was a significant initiative by the Department of Computer Science and Application at Atal Bihari Vajpayee University, Bilaspur. This FDP was organized as a response to the challenges posed by the COVID-19 pandemic, which forced a transition to online education. It was jointly organized by IIT Guwahati, MNIT Jaipur, IIITDM Jabalpur, and NIT Patna. The FDP was designed to cover a wide range of topics related to Machine Learning for Computer Vision, with a focus on real-world applications. Practical sessions were a key component of the program, conducted entirely online. The FDP provided a comprehensive understanding of Computer Vision and its applications. A local inaugural function was organized at the university's remote center, where the Honorable Vice Chancellor of the university, Prof. G.D. Sharma, interacted with all 56 participants. Dr. Hota, the organizer, introduced the concept of the FDP and its objectives, emphasizing its significance in the context of nationwide online education.

The program began with an online inaugural function on June 29, 2023. Experts from all coordinating institutes interacted with the participants, setting the stage for the knowledge-sharing journey. This session introduced the objectives of the FDP, emphasizing the importance of adapting to online teaching and learning during the pandemic. The FDP received enthusiastic participation from the remote nodal center of the university, with 56 registered participants. The FDP featured expert speakers from prestigious institutions, including IITs, IIITs, and NITs. These experts delivered informative lectures on various topics related to Computer Vision. The program comprised a total of 21 sessions, including both theoretical classes and practical sessions. The theoretical sessions were conducted in the first half, while the second half was dedicated to practical sessions. Discussion sessions and examinations were also conducted to assess and reinforce learning.

A special session conducted by NVIDIA added to the program's depth. NVIDIA organized a unique examination, and additional assessments were carried out. Certificates were distributed to all participants, acknowledging their successful completion of the FDP.

In conclusion, the Summer Faculty Development Program on Machine Learning for Computer Vision was a significant response to the challenges posed by the COVID-19 pandemic. It provided educators with a platform to adapt to the new online teaching and learning environment, equipping them with the essential knowledge and skills for Computer Vision. The collaborative effort of multiple institutes, combined with expert guidance and practical sessions, enriched the learning experience for the participants, enabling them to leverage Machine Learning for Computer Vision effectively in the teaching-learning process.

IMPORTANT MAILS

Neha Rawat <neharawat@iiitdmj.ac.in>
to Aparajita, me

Dear Prof Hota,

We hereby give consent to your institution for acting as nodal centre in the programmes requested by you.

Please ensure minimum 30 participants in each FDP,failing which we may not be able to accept you as a nodal centre.

Brochure,application form and financial assistance model (Budget) is attached for your reference.There would be slight variations in the budget which will be intimated to you later.

Also I would like to add that testing of all the nodal centres will be carried out centrally (amongst all the academies) on every Friday of the week prior to the commencement of the FDP. Please ensure all concerned are suitably made available during that time.

I also request you to connect with your respective local coordinators from E&ICT Academy IIITDM Jabalpur for any more queries.Their contact details are mentioned in the brochure.

Request share the information with other coordinators (if any) from your college.
Thanks and regards,

Maj Neha Rawat (Retd)
Business Manager
Electronics and ICT Academy
PDPM Indian Institute of Information Technology,
Design and Manufacturing, Jabalpur (India)
Email: neharawat@iiitdmj.ac.in
Contact no: 9993443284

Gauri Dutt Sharma <gduttasharma@yahoo.co.in>
to neharawat@iiitdmj.ac.in, me

Dear Mam, Rawat,
Thank you very much for your email. We gladly accept your proposal of FDP. We have also conducted FDP earlier. We are nominating Dr H. S. Hota, Head, Computer science and application of our university to coordinate these FDP . His mobile number is 9425022656 and9340660370.
With regards
Professor G D Sharma Vice Chancellor Atal Bihari Vajpeyee University Bilaspur Chhattisgarh

Sent from Yahoo Mail on Android

Gauri Dutt Sharma <gduttasharma@yahoo.co.in>
to neharawat@iiitdmj.ac.in, me

Dear Maj Neha,
Thank you very much for accepting our university as nodal center for FDP . We look forward for more academic activities.
Professor G D Sharma Vice Chancellor Atal Bihari Vajpeyee University Bilaspur Chhattisgarh

Sent from Yahoo Mail on Android

On Tue, 12 Nov 2019 at 19:36, Neha Rawat
<neharawat@iiitdmj.ac.in> wrote:

EICT IIITDM Jabalpur: Winter NKN Courses

Neha Rawat <neharawat@iiitdmj.ac.in>
to gduttasharma, me

Dear Prof Sharma

Greetings from Electronics & ICT Academy, PDPM IIITDM Jabalpur!

I wish to introduce you to the unique initiative of Ministry of Electronics and Information Technology (MEITY), Govt. of India to conduct Joint Faculty Development Programmes during the winter of 2019 (December, 2019-January,2020) through the Electronics ICT Academies established by MEITY at seven premier institutions. One such Academy is instituted at PDPM IIITDM Jabalpur as institute of National Importance established by the IIIT Act of the Parliament of India.

Under the scheme, all the seven academies are conducting faculty development programmes (FDPs) in some of the emerging areas like Python Programming and Industry Perspectives, Deep Learning and Applications, VLSI Design, Natural Language Processing, ICT Tools for Teaching, Learning and Institutes. Lectures will be delivered by eminent experts from academia and industry through video conferencing mode. And for lab sessions, lab exercises, tutorials and support will be provided so that labs could be conducted with local experts. Participants will be surely benefited with such experience. Common brochure for all the courses with details will be communicated to you soon.

We are in the process of identifying nodal centres that are connected through NKN/good broadband /leased line and where participants can be trained under the programme. Each course will be of five days (eight hours a day). Every day, approximately four hours of engagement will be through video conferencing and remaining four hours will be given to participants to learn through practice at the nodal centres.

The nodal centres, besides providing NKN room for 4 Hours in each day, would also be required to spare an additional room/Lab space in the vicinity of the NKN virtual class room for Hands-on training of the participants on their Laptop. **A minimum of 30 faculty participants will be required to be registered in each centre (research scholars to be counted as faculty).** A local coordinator for each identified location/ centre shall be required to oversee that the content is appropriately available to the participants in the NKN room, besides facilitating conduct of hands-on in the afternoon session. He would also ensure connectivity issues and necessary coordination with the concerned Academy for arranging logistics. He would also disburse any kit/ course material in Soft/Hard form to the participants.

For each of the online courses the nodal centre will be paid overhead charges apart from an honorarium to the local and lab coordinators. The Academy will also bear expenses on tea and lunch of participants with a limit of Rs. 250/- per day. Group C,D (class III,IV) support staff will also be suitably paid small remuneration.

We seek your kind consent to identify your institute as a nodal centre (training partner) of the FDPs and help us successfully run programmes under this novel initiative. A faculty member of your institution may please be nominated as the programme coordinator for each of the programme. Since the courses are scheduled in forthcoming winter vacation starting December 2, 2019, your early consent will be highly solicited. We shall soon share with you the details of financial support and course information brochure.

Schedule of courses is as follows:

S.NO	Course Title	Date
1	Python Programming with Industry perspective	02nd Dec to 06th Dec,2019
2	Deep Learning and Applications	09th Dec to 13th Dec, 2019
3	VLSI Design using Open source-Methodologies & Challenges in Digital Integrated Circuits and Memory design	16th Dec to 20th Dec, 2019
4	Natural Language Processing	6 to 10 Jan ' 2020
5	ICT Tools for Teaching, Learning process & Institutes	13 to 17 Jan ' 2020

Looking forward to your positive response and with best regards.

Thanks and regards,

Maj Neha Rawat (Retd)
Business Manager
Electronics and ICT Academy
PDPM Indian Institute of Information Technology,
Design and Manufacturing, Jabalpur (India)
Email: neharawat@iiitdmj.ac.in
Contact no: 9993443284

ATTENDANCE OF PARTICIPANTS

Name	Institute	Designation
Nishant Behar	Guru Ghasidas University Bilaspur (C G)	Asst Prof ,CSE
LEELADHAR KUMAR GAVEL	Govt. Ghanshyam Singh Gupta Post Graduate College, Balod (C.G.)	Assistant Professor
Hari Shankar Prasad Tonde	Department of Computer Science (UTD), SGGVS, Ambikapur (CG)	Assistant Professor
Akhilesh Kumar Shrivas	Guru Ghasidas Vishwavidyalaya , Bilaspur Chhattisgarh	Assistant Professor
Tarun Dhar Diwan	Govt.E..R.R.P.G Science college bilaspur Chhattisgarh	Assistant professor
Richa Handa	D P Vipra Collge	Asst Professor
Dr Meenakshi Sumeet Arya	SRM Institute of Science and Technology	Professor
RAJU KHUNTTEY	Govt. Digvijay College, Rajnandgaon , (C.G.)	Asstt. Professor
DURGESH KUMAR KOTANGLE	GOVT. V.Y.T. PG. AUTONOMOUS DURG (C.G.)	SCHOLAR
PREM KUMAR CHANDRAKAR	MAHANT LAXMINARAYAN DAS COLLEGE RAIPUR	Assistant Professor
Anamika Shukla Sharma	Government E.R.Rao PG Science College, Bilaspur	Assistant Professor
Mrs. Latika Tamrakar	Govt. Kaktiya PG College , Jagdalpur	Asst. Professor(IT)
Somen Kumar Roy	RVPS LAWER (ABVV BILASPUR)	ASISTANT PROFESSOR
GARGEE SHUKLA	Govt. N.P.G. College of Science, Raipur ,C.G.	Assistant Professor
Dr. Alok Ranjan Tripathy	Ravenshaw University	Assistant Professor
RASHMI GUPTA	ATAL BIHARI VAJPAYEE UNIVERSITY, BILASPUR	FACULTY
Siddharth Mishra	NMDC	Others
Shriya Sahu	Department of Computer Science & Application, Atal Bihari Vajpayee University, Bilaspur	Assistant Professor
Dr. J DURGA PRASAD RAO	Shri Shankaracharya Mahavidyalaya, Junwani , Bhilai	Faculty, Additional Director and HOD Computer Science
Prakash Tripathi	Govt. Naveen College Hasoud	Asst. Professor
SURESH KUMAR THAKUR	Indira Gandhi Govt Arts & comm P G college, vaishali nagar , bhilai	Faculty
Prerna Verma	UTD,ABVV,Bilaspur,Chhattisgarh	Faculty
Dr.Ragini Shukla	Dr.C.V.Raman University,Kota,Bilaspur,Chhattisgarh	Faculty
SALMA MOHD SHAFI	Bhilai Mahila Mahavidhyalaya	Head & Asstt. Professor (Faculty)

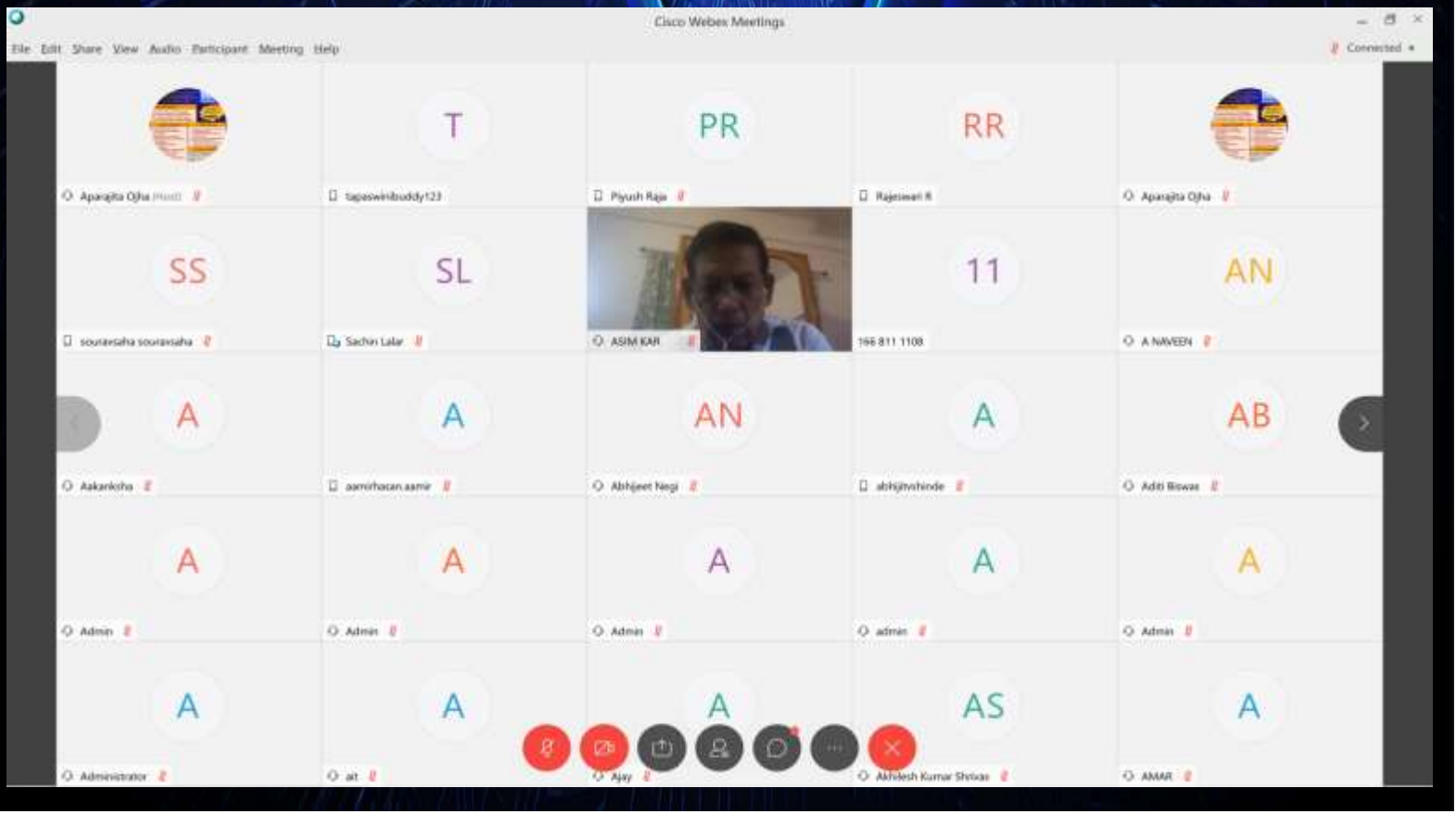
ATTENDANCE OF PARTICIPANTS

Rishabh hota	BMS College of engineering	Student
RESHAMLAL PRADHAN	Pt. Sundarlal Sharma Open University Chhattisgarh, Bilaspur	Assistant Professor
Pratibha Verma	Dr. C. V. Raman University Bilaspur (C.G.)	Research Scholor
Nilesh Verma	Atal Bihari Vajpayee Vishwavidyalaya, Bilaspur, CG	Student
VIVEK TIWARI	GOVT. E. RAGHAVENDRA RAO POSTGRADUATE SCIENCE COLLEGE	ASSISTANT PROFESSOR
Rashmi Gupta	Dr. C. V. Raman University Kota Bilaspur	Research scholar
Poonam Yadav	Shri Shanakaracharya Mahavidyalaya, Junwani , Bhilai	Faculty
SANDEEP TIWARI	CSVTU/JKIE bilaspur	Faculty
Dr.S.Paani	C M Dubey PG college	Faculty
Sanjay Kumar Patra	Indira Gandhi Institute of Technology,Sarang	Assistant Professor
Harsh Ranglani	Guru Ghasidas University Bilaspur (C G)	Student
Dr. KAJAL KIRAN GULHARE	Govt. E. Raghvendra. Rao. P. G. Science College, Bilaspur (C. G.)	Assistant Professor
Vishwas Victor	D. P. Vipra College	Asst. Professor
Shivlal Mewada	Department of Computer Science, Govt. Holkar [Model, Autonomous] Science College	Faculty
Amitesh Kumar Jha	Guru Ghashidas Vishwavidyalaya	Faculty
HIMANSHU SAHU	Atal Bihari Vajpayee University, Bilaspur	Faculty
VIKRANT KUMAR GUPTA	Batmool Ashram College, Mahapalli, Raigarh (C.G.)	Assistant Professor
Sanjeev Kumar	Govt. VIJAY BHUSHAN SINGH DEO GIRLS P.G COLLEGE JASHPURNAGAR C.G	Student(Research Scholar)
Dr. Amita Telang	Gurukul Mahila Mahavidyalaya,Raipur	Faculty
Shashanka Shekhar Panda	Cognizant	Others
MANOJ KUMAR SAHU	Mahant Laxminarayan Das College, Raipur (C.G.)	FACULTY
AYUSH KUMAR AGRAWAL	Dr. C. V. Raman University	Faculty
VINEET KUMAR AWASTHI	Dr. C. V. Raman University	Faculty
Neha Dewangan	C v Raman university kota, bilaspur(c.g)	Student
SHIVKUMAR DWIVEDI	SHRI AGRASEN GIRLS COLLEGE, KORBA	ASSISTANT PROFESSOR
Jyoti Bala Gupta	Dr. C. V. Raman University	Faculty

ATTENDANCE OF PARTICIPANTS

Amrita Verma	Dr.C.V.Raman University,Kota Bilaspur C.G	Ph.D scholar
Vinita Abhishek Gupta	BIT, Durg	Assistant Professor

GLIMPSES OF FDP



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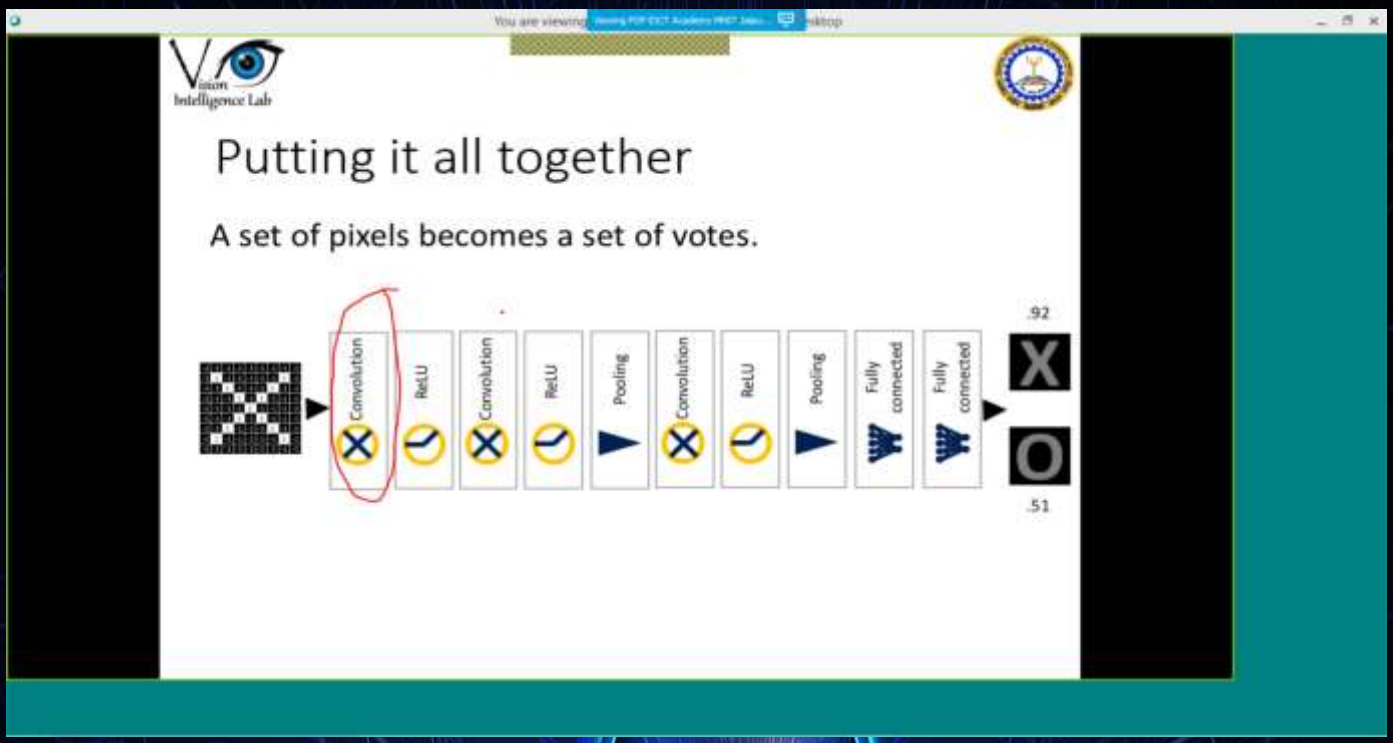

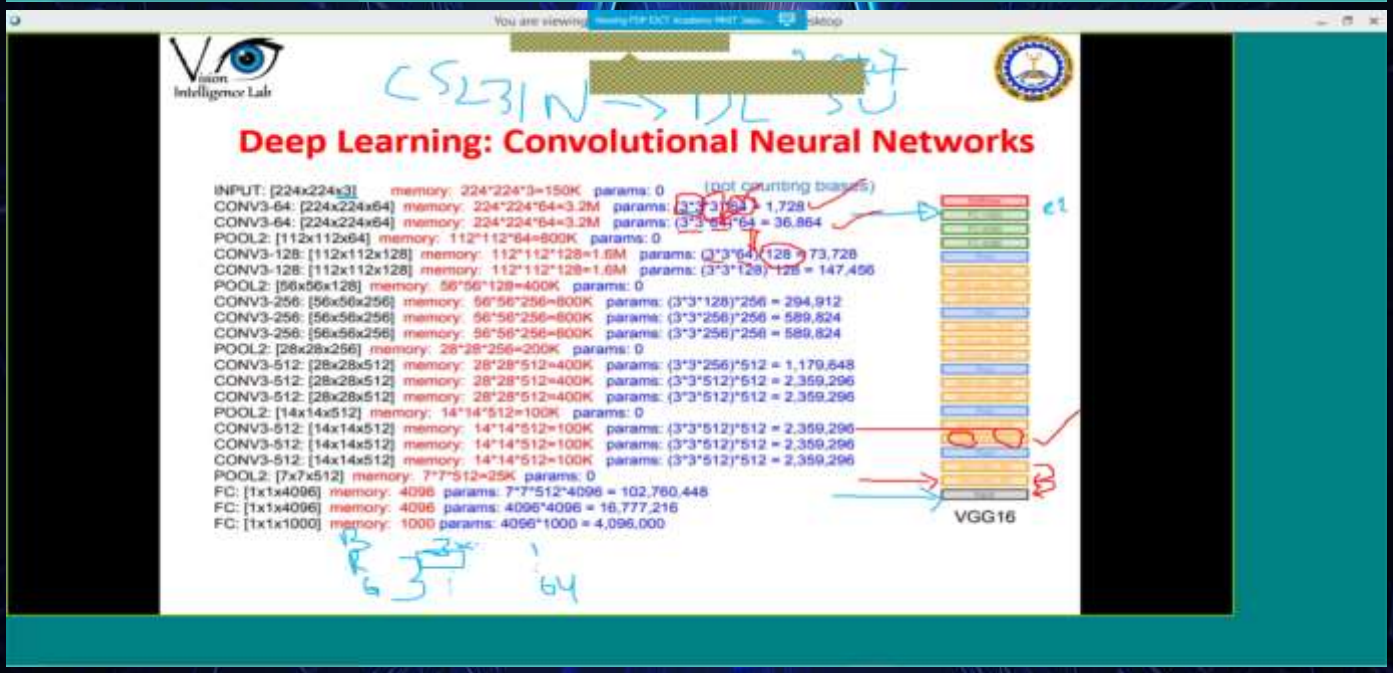

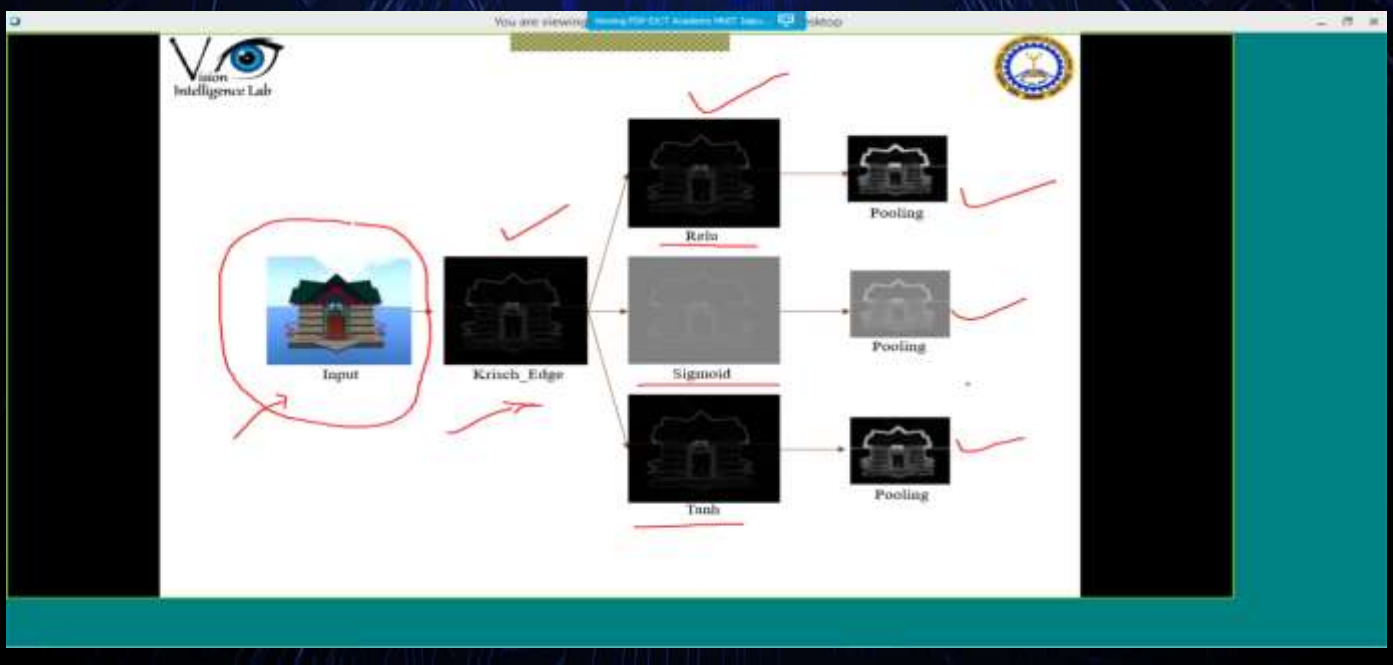

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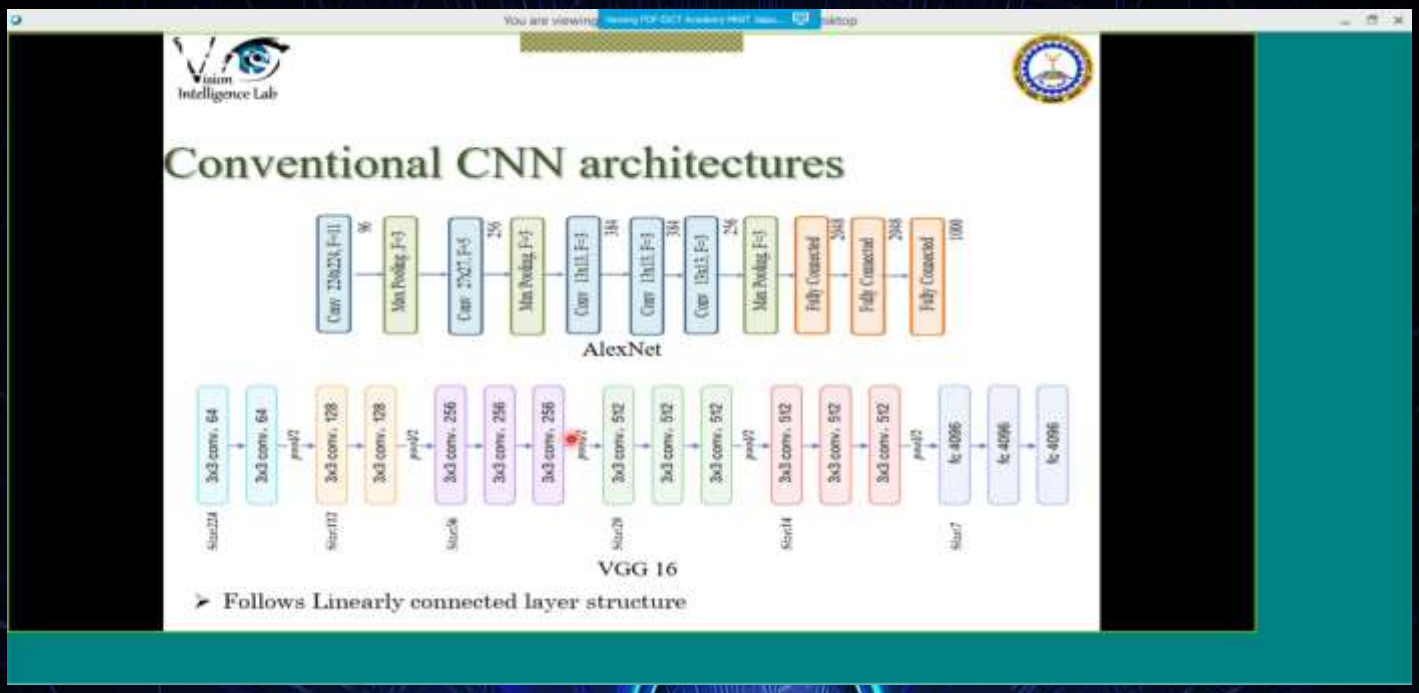

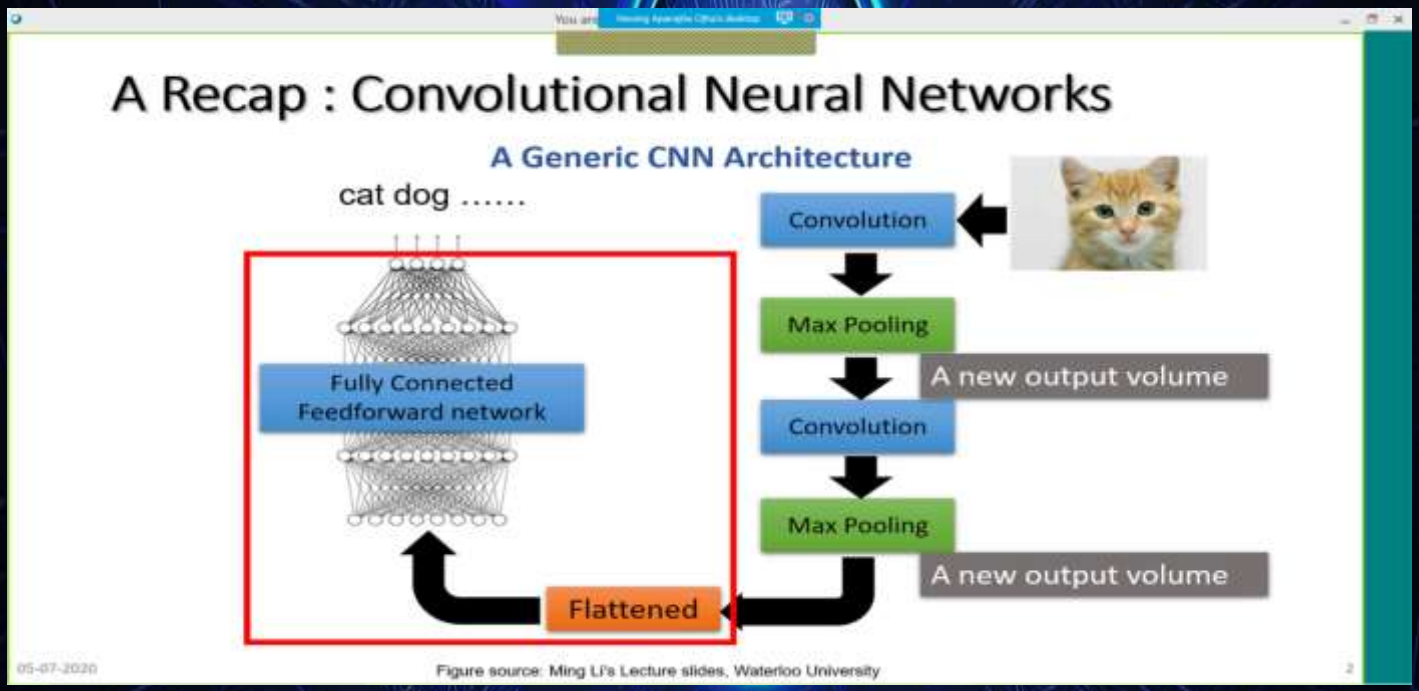

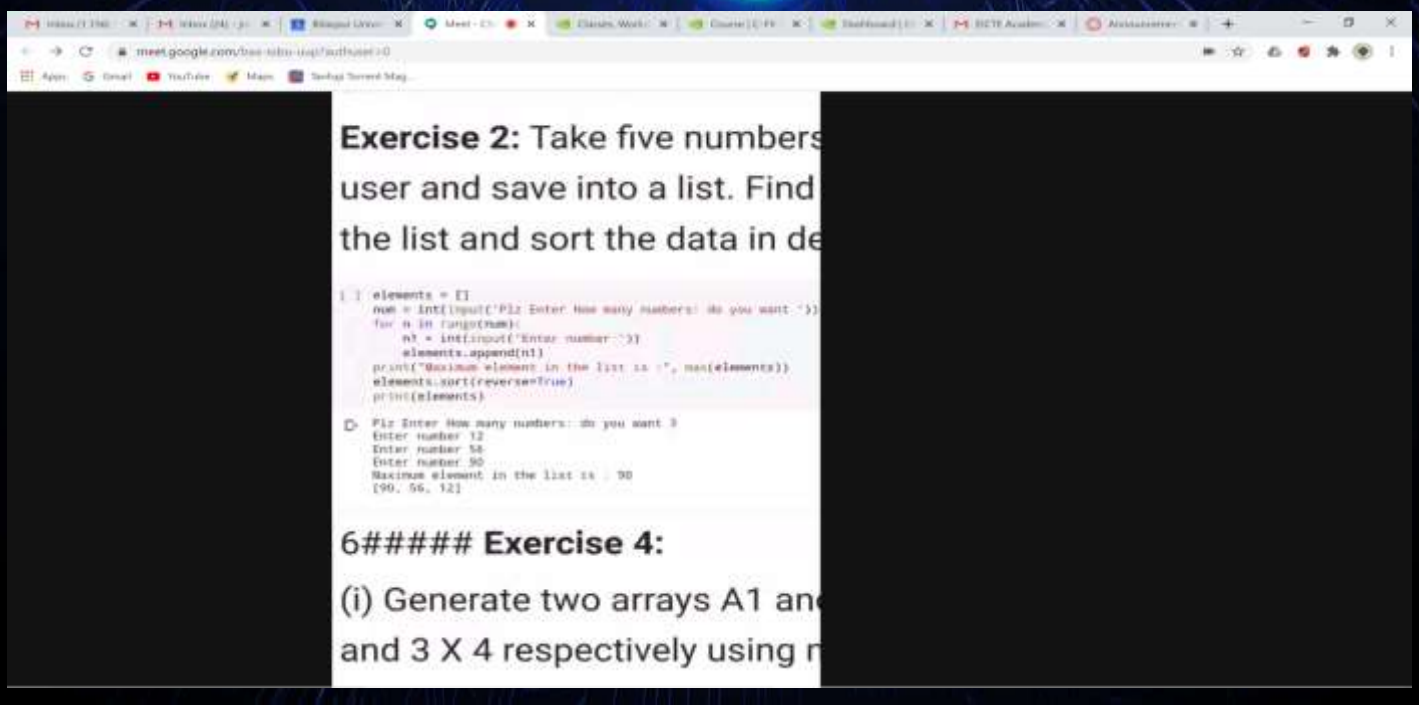

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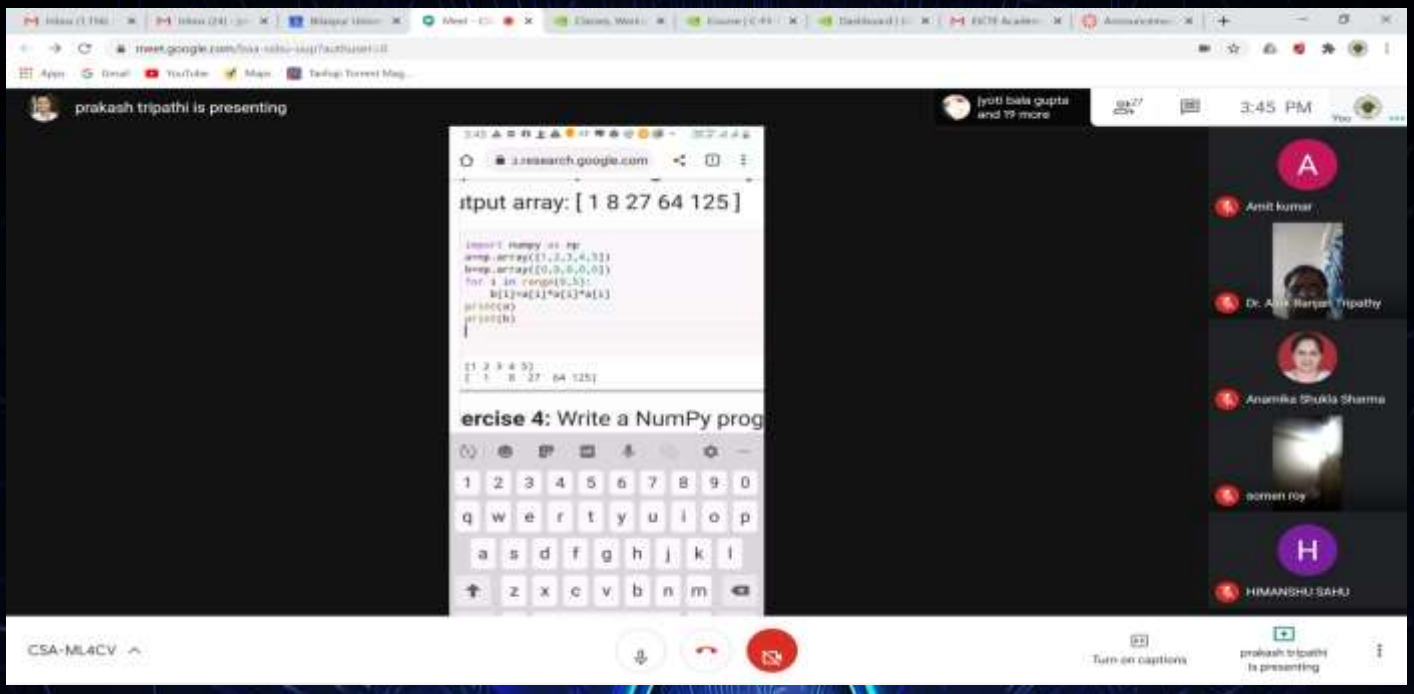

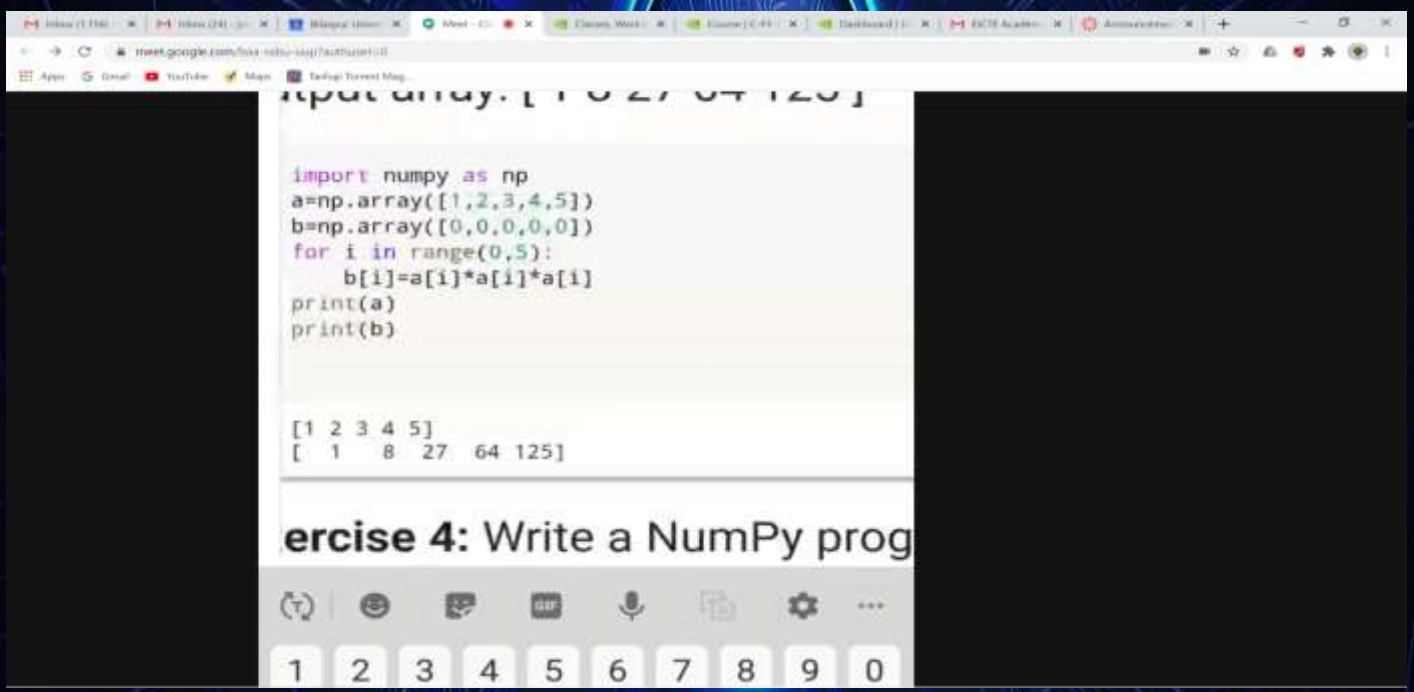

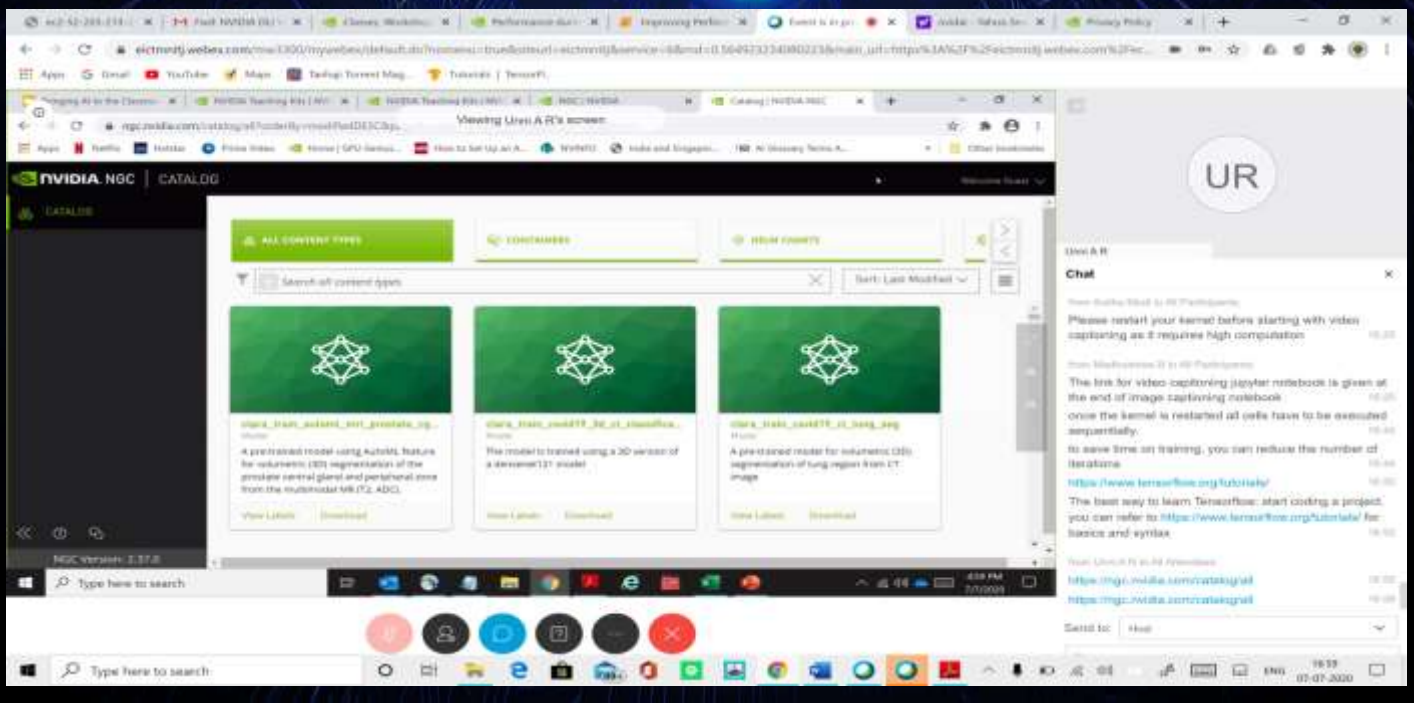

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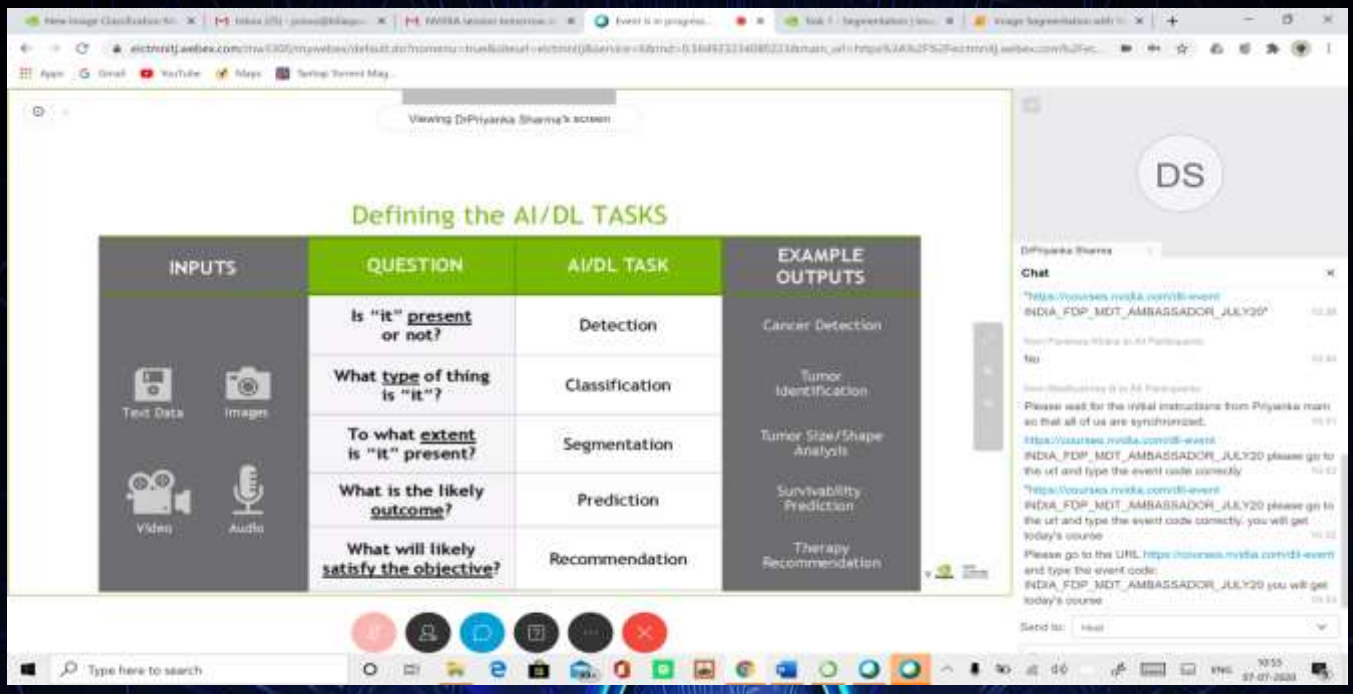

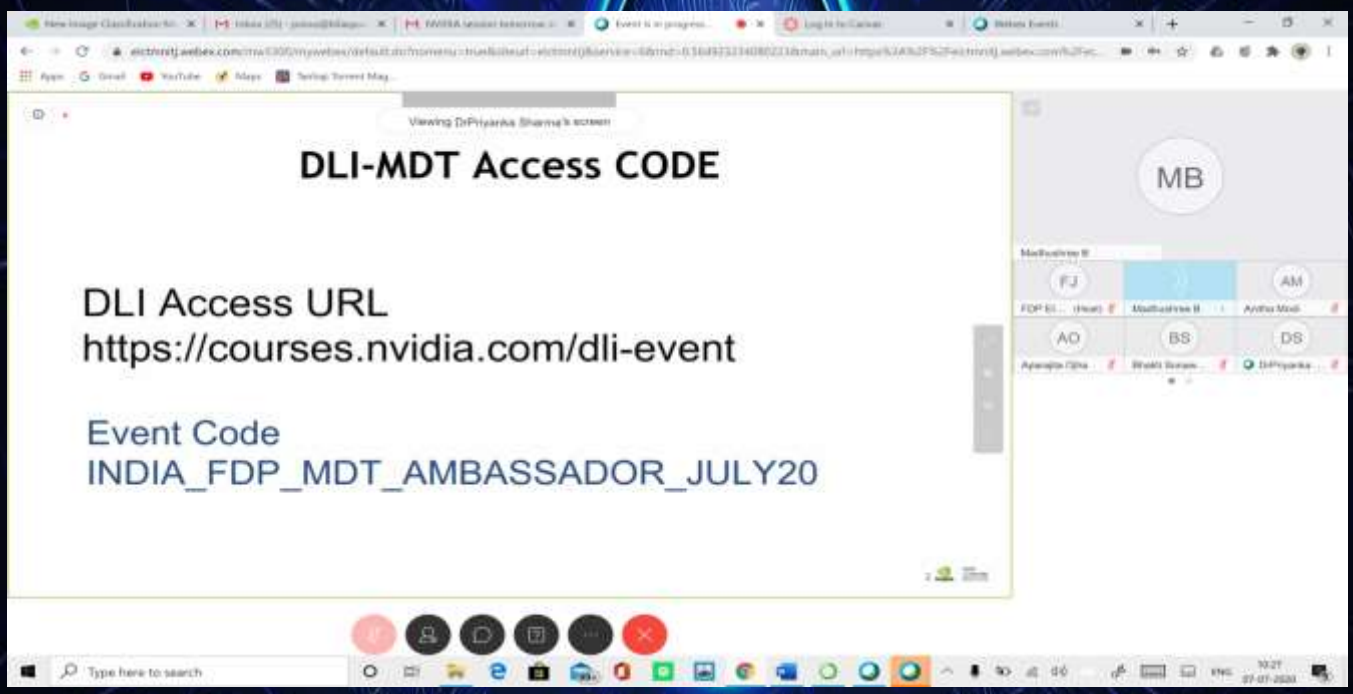

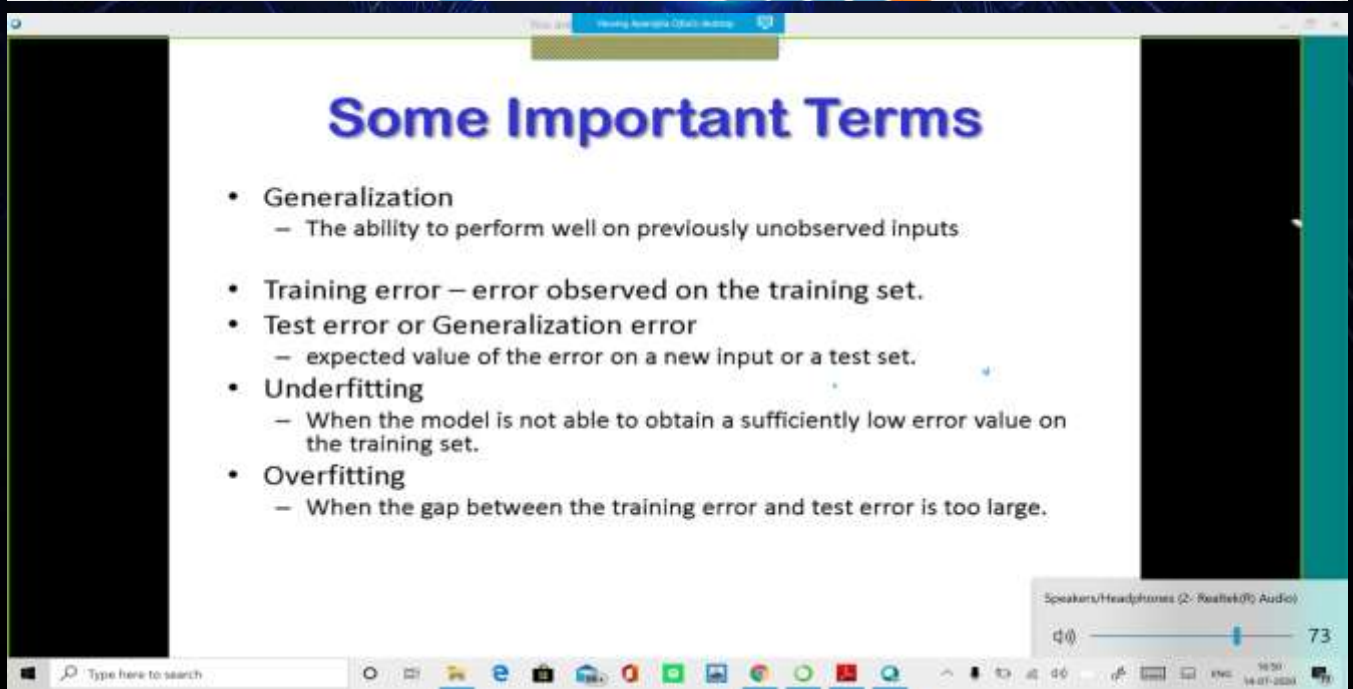
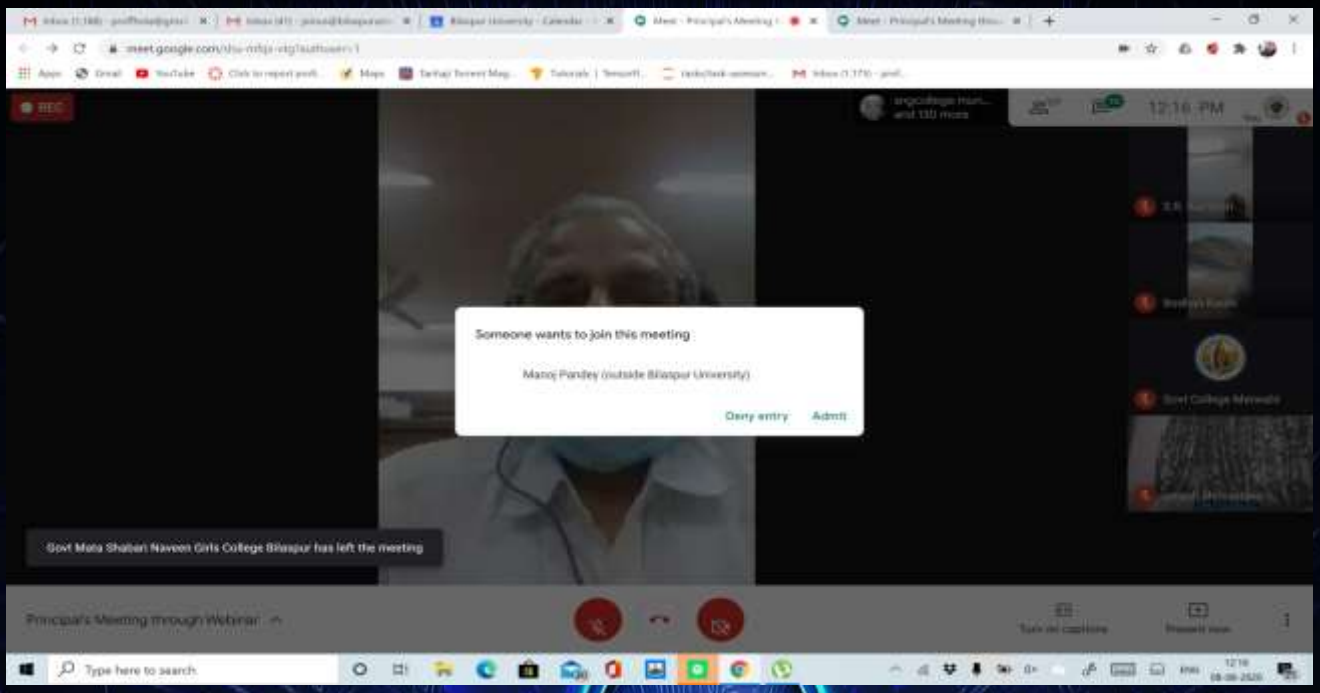
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