



# An Eight Day Online Faculty Development Program (FDP) - A Report



The Centre for Excellence in Mathematical Biology (CEMB) of Sri Sathya Sai Institute of Higher Learning (SSSIHL) has organized an eight day online Faculty Development Program (FDP) on “***Dynamical Systems & Optimal Control Theory, AI/ML and Bioinformatics with Applications to Healthcare***” from 8 - 15 July, 2024.

This unique interdisciplinary Faculty Development Program (FDP) seamlessly blended Mathematics, Artificial Intelligence/Machine Learning (AI/ML), and Bioinformatics, with a primary focus on their applications in healthcare. This unique FDP was designed to provide a comprehensive understanding of these fields through both theoretical discussions and hands-on sessions.

The various topics and Hands on Sessions covered under this online FDP included the following:

- Introduction to Dynamical Systems and Optimal Control Theory
- Basics of Dynamical System's Stability Analysis
- Motivations to Dynamical Systems through Applications in Disease Modelling
- Introduction to AI/ML with reference to Supervised, Unsupervised & Deep Learning
- Introduction to Bioinformatics with reference to Computer Aided Drug Design (CADD)
- Hands on sessions on Quantitative Structure Activity Relationship & Pharmacophore Modelling
- Hands on sessions on Disease Modeling & Stability Analysis with Python
- Hands on sessions on Supervised, Unsupervised & Deep Learning
- Hands on sessions on Agent Based Modelling using NETLOGO

[CLICK HERE FOR DETAILED FDP SCHEDULE of FDP](#)

[CLICK HERE FOR THE FLYER OF FDP](#)

The participants for this FDP were both faculty and research scholars who were spread across different parts of India.



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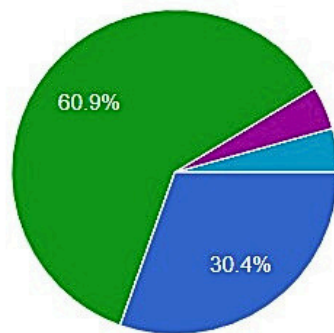


## PARTICIPANTS PROFILES FOR FDP

### NUMBER OF PARTICIPANTS - 23

#### Applicants Occupation

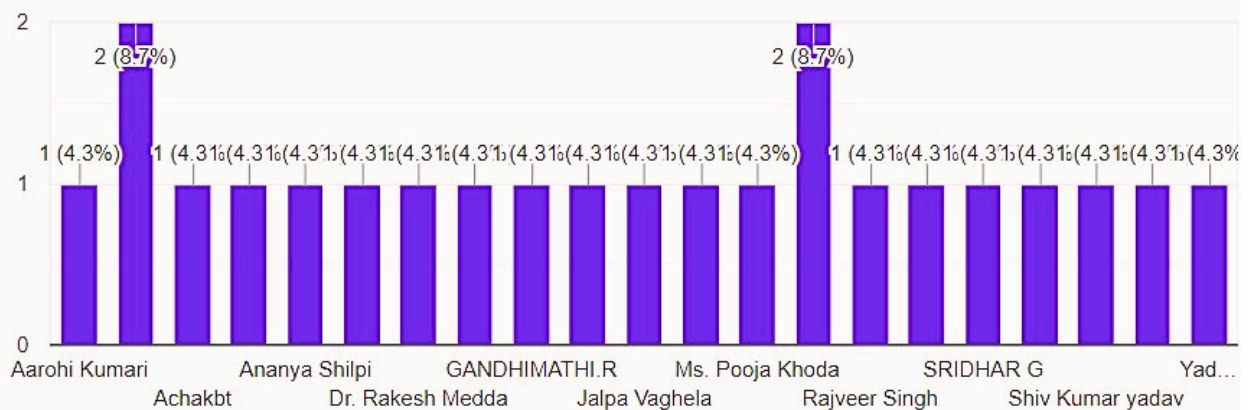
23 responses



- Faculty
- Industry Professional
- Post Doctoral Researcher
- Doctoral Researcher
- Passout masters student
- Ex Research Scholar (Recently awarded Ph.D. form University of Kalyani, WB, India and currently without any affiliation)

#### Name of the Applicant

23 responses





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## FEEDBACK FROM PARTICIPANTS ON FDP

- Thanks for organizing the Faculty Development Program. The program was exceptionally well-organized and provided invaluable insights that will undoubtedly enhance professional growth. I would like to express my appreciation for your hard work and dedication in coordinating this event. Your efforts have made a significant impact on all the participants.
- It was a great programme. Got to learn many new areas and techniques. It will be really helpful in my PhD as I am working on Mathematical Modelling of diseases. Thank you for organizing such a wonderful FDP.
- I did access the lectures through the Google Drive link you shared, and I found them very informative and motivational. I look forward to participating in future workshops or conferences organized by SSSIHL. Thank you for providing such a valuable research platform.
- Congratulations to the entire team for the success of FDP. Behind such events lots of mind boggling sessions for the choice of topics and speakers take place. I must appreciate you for the areas covered and the guests invited for the lectures. The FDP was a thoughtful attempt to spread the latest advancement and knowledge about softwares being used in different fields of mathematical modelling. It was really beneficial to learn about many open source softwares which we can incorporate in our teaching and research work. All the speakers and eminent professors were very interactive and passed on the knowledge in an elucidate manner. Thank you for giving me this opportunity. Looking forward for many more learning sessions.



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## RESOURCE PERSONS

- Prof. Mukesh Doble, IIT Madras
- Dr. P. Muthu, NIT Warangal
- Dr. B. S. R. V. Prasad, VIT Vellore
  
- Dr. D. K. K. Vamsi, SSSIHL
- Dr. Darshan Gera, SSSIHL
- Dr. M. S. Srinath, SSSIHL
- Dr. K. N. Naresh, SSSIHL
- Dr. N. B. Gayatri, SSSIHL
- Dr. Bharat Parthasarathy, SSSIHL
- Mr. D. Bhanu Prakash, SSSIHL
- Mr. Rithwik Chandra Pandey, SSSIHL

## PATRONS

- Prof. B. Raghavendra Prasad, Vice-Chancellor, SSSIHL
- Dr. Srikanth Khanna, Registrar, SSSIHL
- Prof. Pallav Kumar Baruah, Dean of Sciences, SSSIHL

## PROGRAM COORDINATORS

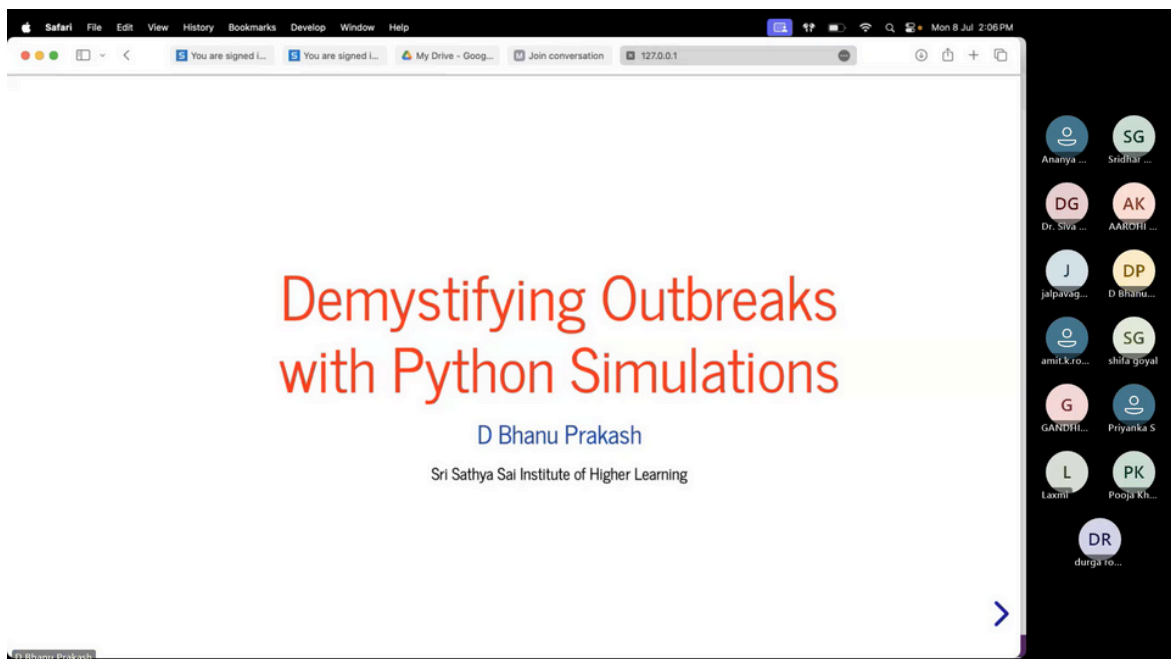
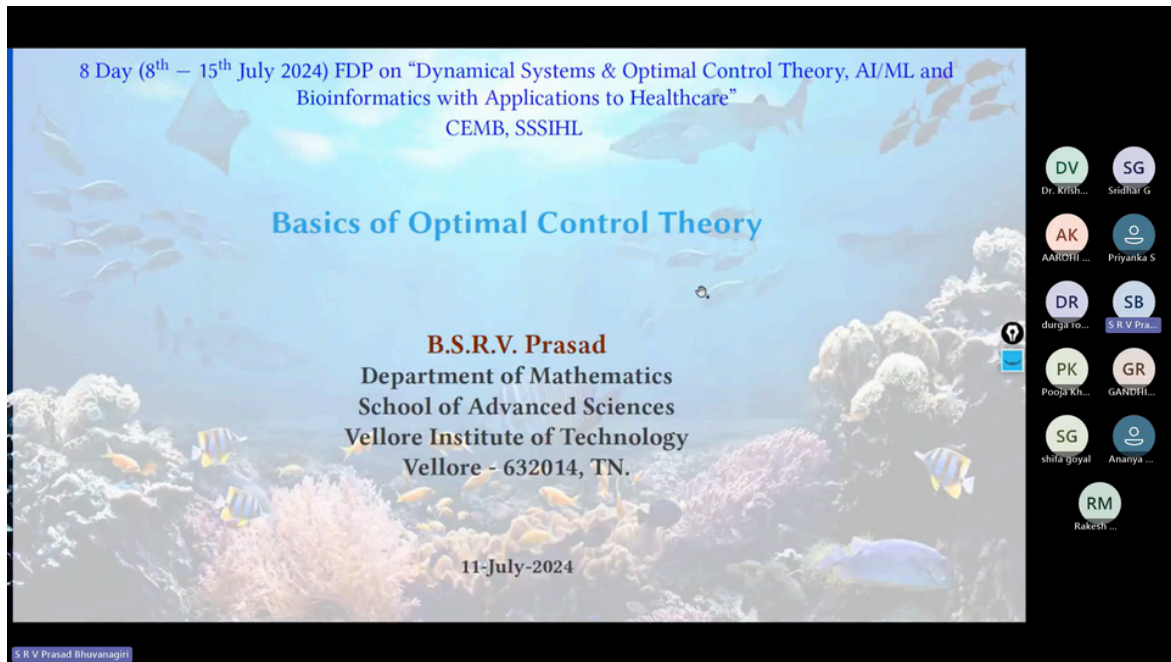
- Dr. D. K. K. Vamsi, SSSIHL, Convenor
- Dr. M. S. Srinath, SSSIHL, Co-Convenor
- Dr. K. N. Naresh, SSSIHL, Co-Convenor



# An Eight Day Online Faculty Development Program (FDP) - A Report



## PHOTO GALLERY





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## PHOTO GALLERY

Aum Sri Sai Ram

**FDP on Dynamical Systems & Optimal Control Theory, AI/ML and Bioinformatics with Applications to Healthcare**

Organized by  
The Center For Excellence in Mathematical Biology (CEMB)  
Sri Sathya Sai Institute of Higher Learning (SSSIHL)  
8-15 July, 2024

# Introduction to Deep Learning

Dr. Darshan Gera  
Associate Professor, Department of Mathematics & Computer Science, SSSIHL

Participants: DV (Dr. Krish...), Ananya..., Priyanka S, KR (kanaka d...), L (Laxmi)

```
filename = os.path.join('/content/gdrive/My Drive/cemfdp', filename)
[2] print('Dataset file is : ', filename)
Dataset file is : /content/gdrive/My Drive/cemfdp/diabetes.csv

#Libraries required for Neural network training using pytorch deep learning framework and plotting
import torch
import numpy as np
import matplotlib.pyplot as plt

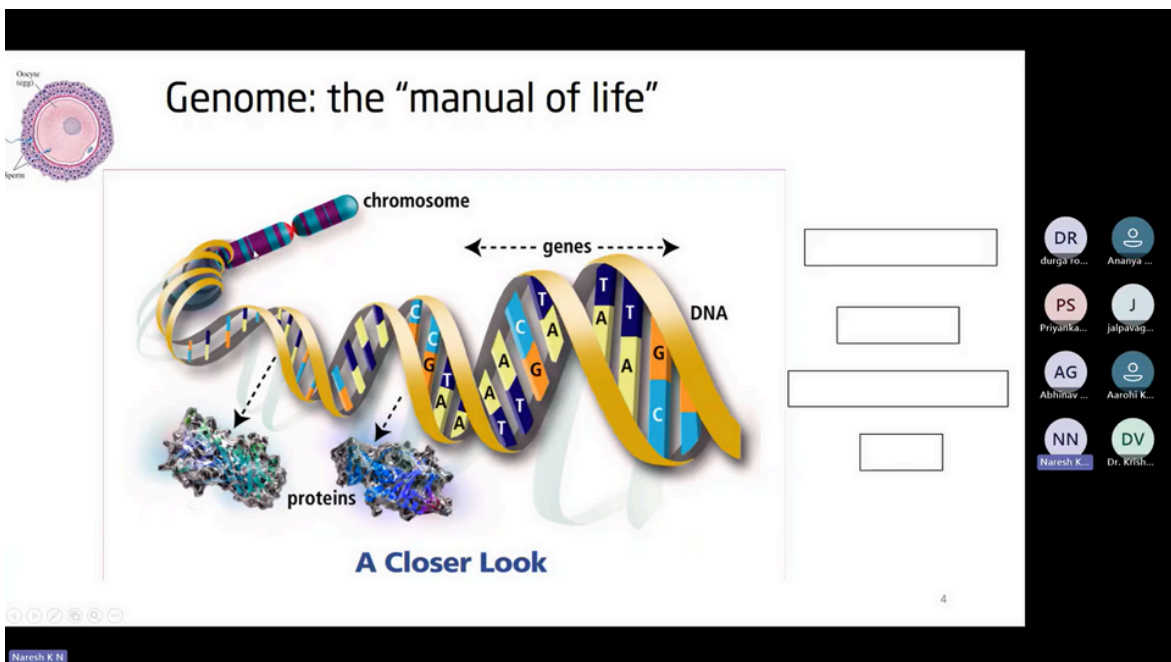
# Check versions
print("PyTorch version: {}".format(torch.__version__))
print("Numpy version: {}".format(np.__version__))

# Check whether GPU available
torch.cuda.is_available()

# Select device to compute cpu/gpu
device = torch.device('cpu')
device = torch.device('cuda')
print('device : ', device)
```

Participants: SG (Sudhakar...), DV (Dr. Krish...), AK (AAROTHI...), Priyanka S, Ananya..., DR (durga ro...), SG (shifa goyal)

## PHOTO GALLERY





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**Faculty Development Program**  
**Dynamical Systems & Optical Control Theory, AI/ML and Bioinformatics with Applications in Healthcare**  
8<sup>th</sup> - 15<sup>th</sup> July, 2024

**Introduction to Bioinformatics**  
14<sup>th</sup> July, 2024

Presented by  
Dr. K. N. Naresh,  
Assistant Professor,  
Department of Biosciences,  
Sri Sathya Sai Institute of Higher Learning,  
Prasanthi Nilayam, A.P., India - 515134  
[knaresh@sssihl.edu.in](mailto:knaresh@sssihl.edu.in)  
14<sup>th</sup> July, 2024

Zoom participants: DR, DV, PS, AG, Aarohi K., jalpavag..., Ananya..., durga ro..., Dr. Krish...

**Computer Aided Drug Design**

Mukesh Doble  
Dept of Cariology, Saveetha Dental College & Hospitals  
Former Prof IIT Madras  
[mukeshd@iitm.ac.in](mailto:mukeshd@iitm.ac.in), [mukesh.doble0@gmail.com](mailto:mukesh.doble0@gmail.com),  
[mukeshdoble.sdc@saveetha.com](mailto:mukeshdoble.sdc@saveetha.com)

Zoom participants: SG, SY, L, SG, KR, DV, NG, MD, shifa goyal, shiv kum..., Priyanka S, Laxmi, Sridhar G, Ananya..., kanaka d..., Dr. Krish..., Naresh K..., N B. Gay...



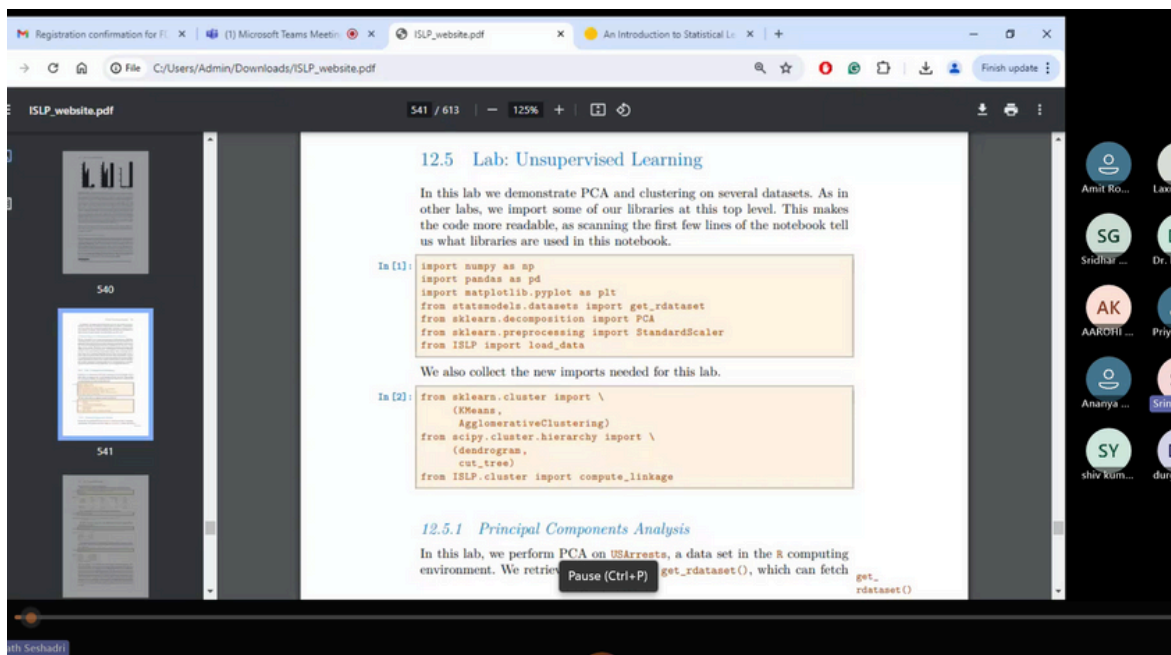
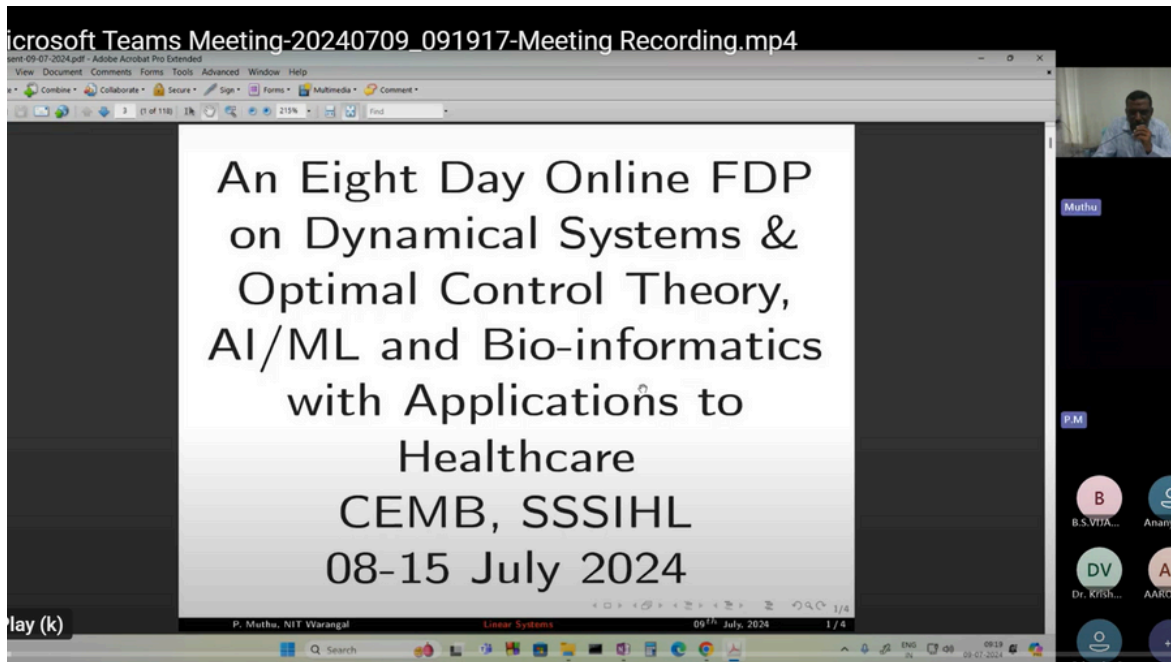


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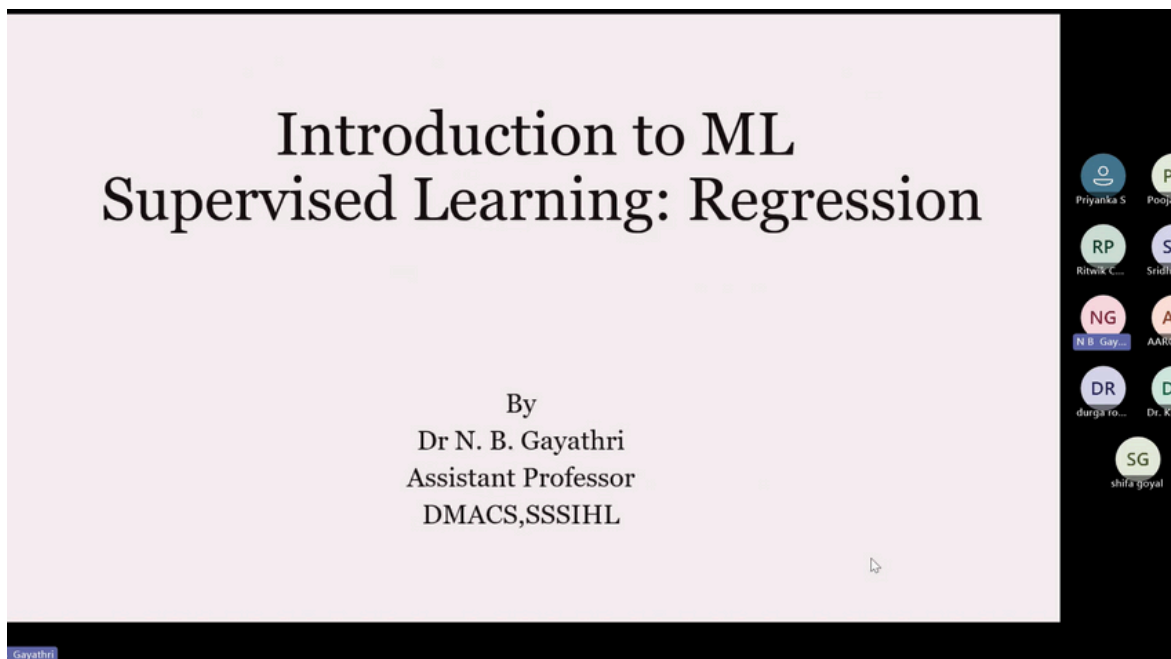
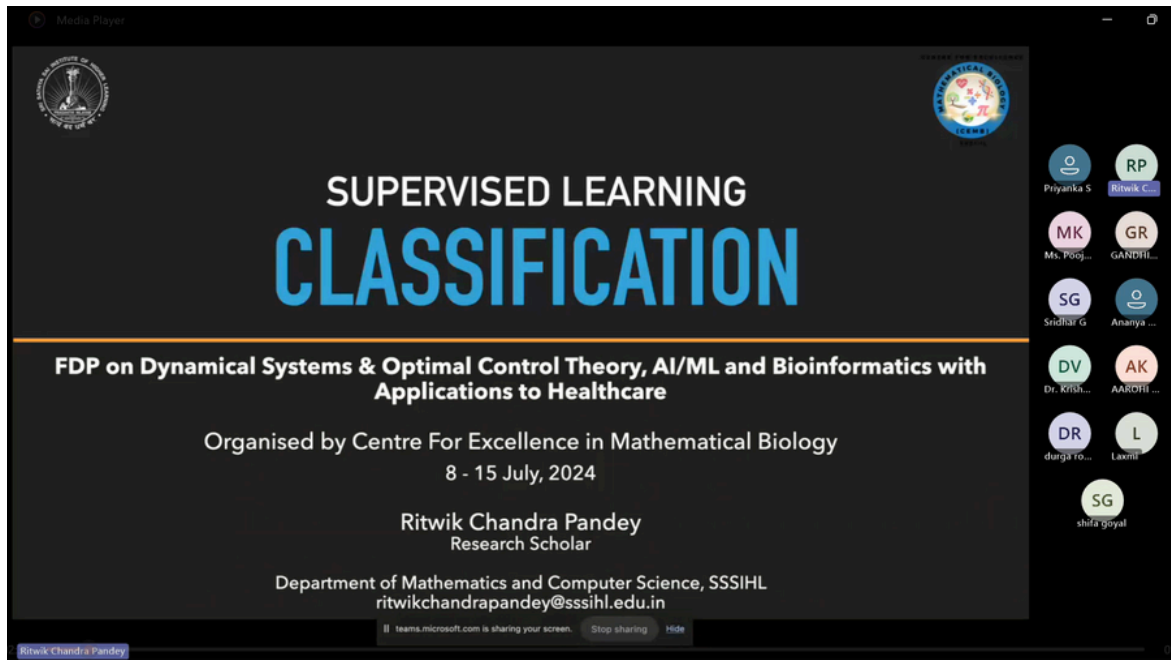




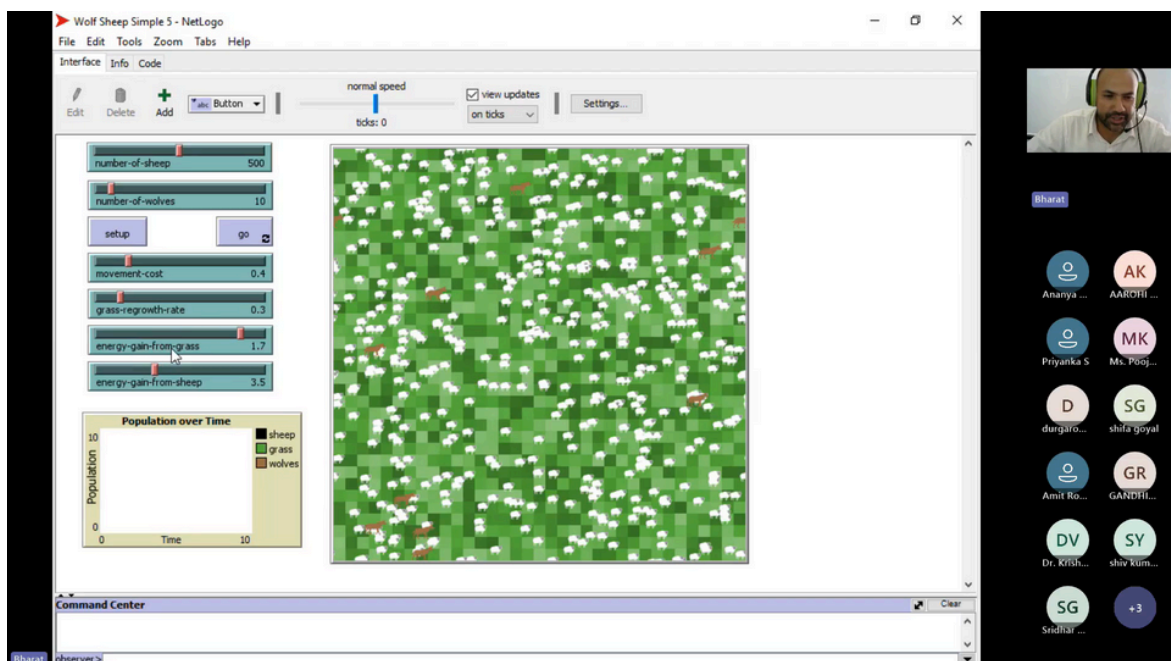
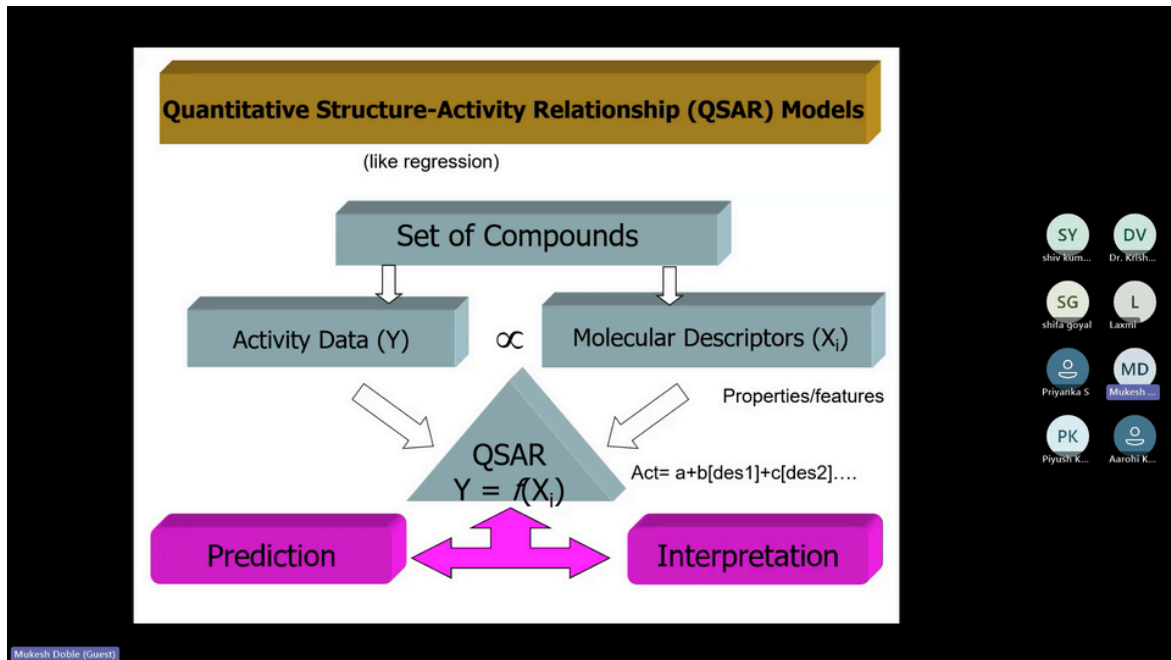
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