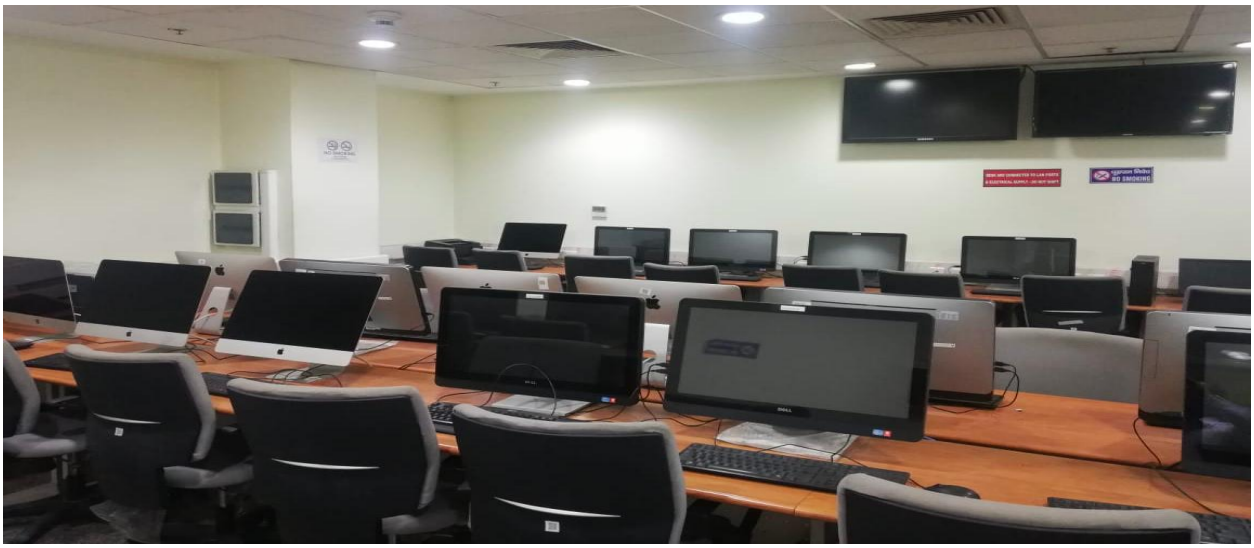
Computer LAB

The LAB is equipped with high-end workstations which allows access to students and faculties.

Computers available in the LAB with the following configurations are:

- **15** Dell workstations with i7 3rd generation, 1TB hard disk, 8 GB RAM
- **7** Macintosh with i5 processor, 1TB hard disk, 8GB RAM.
- **2** HP workstations



LAB is Wi-Fi enabled, designed in such a way that Students can do projects with multiple technology requirements and work on real-time projects as well. Some of the completed projects are:

1. **PRECISELY: The Opportunity Hub**
   Precisely is a mobile first platform which helps youth search and discover the latest personalized academic and professional opportunities with the help of machine learning and data science. Precisely combines collaborative human opinions with machine learning of preferences within the intuitive Android framework to separate music from the noise and recommend the perfect opportunities personalized to each users' needs.
   App Link:
   https://play.google.com/store/apps/details?id=com.wayneventures.precisely
   Website Link: https://precisely.co.in/
   Number of downloads: 17,000+

Precisely can be viewed in over 20+ languages and is helping people find the right opportunities in over 16 countries!

Technologies used: Android, Machine Learning, Recommendation system, Collaborative Filtering

Student Names: Pankaj Baranwal (IV-Year), Hitesh Gautam (II-Year), Yatharth Rai (II-Year) [B.Tech IT & MI]

2. BEHAVIOURAL ANALYSIS OF MALWARE USING MACHINE LEARNING

With the recent increase in malicious attacks via ransom ware and the losses incurred by various segments of the society, both in terms of data and money, the need of the hour is to find novel techniques to improve detection rates and performance. Current antivirus techniques rely on hash or signature comparisons via static analysis, which makes zero-day detection impossible. In order to cope with this many antivirus companies are now incorporating behavioral approaches.

In this project, students worked on how machine learning can be combined with behavioral analysis in order to cluster the malware samples into distinct similar-behavior families which can further facilitate a paradigm shift in detection techniques. Alongside proposing a behavioral profile based malware detection, they have also used machine learning to reveal inconsistencies associated with antivirus labels of malware.

Software Requirements: Cuckoo Sandbox, VirtualBox, Python3

Hardware Requirements: i7 or higher processor, 8GB RAM

Student Names: Arjun Sharma (IV-Year)) [B.Tech IT & MI]

3. EMOTION DETECTION FROM IMAGES

Emotions play a crucial role in our lives because they have important functions. These include both interpersonal, intrapersonal, and the social and cultural functions of emotions. In this project, they have applied Convolutional Neural Network (CNN) architectures for classification of facial images into distinct emotions.

Software Requirements: Python3, Tensorflow, Keras

Hardware Requirements: i7 or higher processor, 8GB RAM

Student Names: Utkarsh Mittal (IV-Year), Sanjeev Dubey (IV-Year)) **[B.Tech IT & MI]**

4. IMAGE CAPTIONING

Computer vision has become ubiquitous in our society, with applications in several fields. In this project, the focus was on one of the visual recognition facets of computer vision, i.e. image captioning. The problem of generating language descriptions for visual data has been studied from a long time but in the field of videos. In the recent few years emphasis has been lead on still image description with natural text. Due to the recent advancements in the field of object detection, the task of scene description in an image has become easier.

The aim of the project was to use a pre-trained model for image classification i.e. the VGG16 model and combine the results of this image classifier with a recurrent neural network to generate a caption for the classified image. Students achieved a BLEU score of 56 on the Flickr 8k dataset while the state of the art results rest at 66 on the dataset.
Software Requirements: Python3, Tensorflow, Keras
Hardware Requirements: i7 or higher processor, 8GB RAM
Student Names: Shobhit Maheshwari (IV-Year)) **[B.Tech IT & MI]**

Functional work performed by students [PEER-TO-PEER Connection]