Inter IIT tech meet preparation

Computer Vision

Task 2

Goal – Part 1: Research Report on SEResNet

As reading research papers is one of the most important things while solving a tech meet PS, hence it is important for everyone to be comfortable with reading papers. This task will help you understand how to read a paper and find inferences.

Participants must write a **detailed report** summarizing and analyzing the **Squeeze-and-Excitation Networks** research paper. The report must be very detailed and should reflect your understanding about the architecture.

Report Requirements:

- **Overview of the architecture**
- **Detailed explanation of the "Squeeze and Excitation" block**:
  Include its motivation, inner working, and how it is integrated into ResNet.
- **Comparison between standard ResNet & SEResNet**:
  Discuss architectural changes and performance differences.
- **Why this architecture improves accuracy/performance.**

Goal – Part 2: Implement SEResNet from Scratch in PyTorch

Participants must implement the SEResNet architecture using **PyTorch** and apply it to the **CIFAR-10 image classification dataset**.

Task Requirements:

- **Use the CIFAR-10 dataset** (available via `torchvision.datasets`)
- Implement:
  - ResNet block
  - Squeeze-and-Excitation (SE) block
  - SEResNet (e.g., SEResNet-18 or similar)

- **Train the model** and evaluate performance.
- **Report the final accuracy on the test set**
- **Achieve at least 80% accuracy** for full marks.

Submission Requirements (ZIP File)

Your submission must include:

- `seresnet.py`: Well-commented source code (modular, clean)
- `train.py`: Code to train and evaluate the model
- `report_part1.pdf`: A detailed report about the paper

Guidelines

- **Language**: Python with PyTorch is mandatory for Part 2.
- **No plagiarism**: All content and code must be original.
- **Code quality matters**: Proper structure, readability, comments
- **Reproducibility**: Include instructions or scripts to re-run your training and evaluation
- **Deadline : 22 June 2025**

Evaluation:

- Accuracy – 50
- Code quality and clarity – 10
- Report clarity and insights - 40