Students' Placement Office, IIT Kanpur

Project Verification Form

Title of the Project	Deep learning in Chemical engineering
Commencement Date	Jan'24
Completion Date	Jun'24
Project Supervisor	Pranjal Singh
Organization/Institution where the Project was accomplished	IITK

Project Description (You can use extra A4 sheets in case you run out of space however the extra sheets should also have the seal & signature of the Project Supervisor or the relevant authority)

Objective	• To analyze various CNN architectures aimed at classifying **laminar** and **turbulent** flow using simulation images
Approach	• Developed a comprehensive **dataset of simulated images** of different flow in a 2D cylindrical pipe using **Comsol** • Explored Image Processing techniques (**filters, pooling, padding**) for data preprocessing for deep learning • Implemented and Finalized LeNet-5 for classification after analyzing **ResNet50, VGG16, AlexNet, and MobileNet**
Result	• Achieved an impressive **97%** accuracy using a custom model capable of classifying **laminar** and **turbulent** flow image

By appending your signatures to this form you acknowledge and agree that:

- This form along with the certificate would serve as the official document between the project supervisor and Students Placement Office, IIT Kanpur regarding verification of the student's project work
- The student will provide additional information and documentation relevant to his/her project upon request by the Students' Placement Office
- The student has clearly defined his/her individual role in projects done in cooperation with other students, faculty, groups or company personnel.
- Incorrectly over-stating the reach, impact and/or quantitative/qualitative results of a project is unethical.
- In case of violation of any of the above rules, Students' Placement Office, IIT Kanpur reserves the right to take necessary action including de-registering the student from the placement season and reporting the misconduct to the Institute Authorities.

Submitted by:-	**Project Supervisor Details:-**
Name: Ujjwal Bisaria	Name: Pranjal Singh
Roll No:221154	Designation: 4th year student (project mentor)
Signature: ujjwal Bisaria	Signature: