Punjab AI Excellence

Data Science Intern Completion Certificate

Date: 21 July 2025

TO WHOMSOEVER IT MAY CONCERN This is to certify that Ms. Komalpreet Kaur, a student of Guru Nanak Dev Engineering College, successfully completed her Data Science Internship at Punjab AI Excellence from 23 June 2025 to 21 July 2025 under the guidance of Dr. Sandeep Singh Sandha.

PROJECT OVERVIEW: Worked on 'AI-Powered Waste Classification and Recycling Suggestions' - developing deep learning models to classify waste into biodegradable and non-biodegradable categories across 12 classes such as paper, cardboard, biological, metal, plastic, glass (green, brown, white), clothes, shoes, batteries, and trash, with recycling or reuse suggestions.

KEY CONTRIBUTIONS: Built a custom CNN and fine-tuned EfficientNetB0 with transfer learning; applied preprocessing (resizing, normalization, augmentation); achieved 92.97% accuracy with EfficientNetB0, surpassing baseline CNN; demonstrated applicability for integration into smart bins, mobile apps, and municipal waste systems.

Ms. Komalpreet Kaur displayed strong technical skills, innovation, and professionalism throughout the internship. We congratulate her and wish continued success.

Sincerely,

Sandeep

Dr. Sandeep Singh Sandha

Coordinator, Punjab AI Excellence

PhD, M.S. Computer Science - UCLA I B.Tech - IIT Roorkee

Website: https://sites.google.com/view/pai-excel/ I Email: sandha.iitr@gmail.com