ECE-178 Class Project
Due on Sunday, December 8th, 2024, 11:59 PM

Class Project Instructions:

The zip file provided via the link on the main GitHub site contains **500 noisy projection images** of a macromolecule representative of the types of data encountered in structural biology, particularly in cryo-electron microscopy (cryo-EM). These images include various types of **noise corruptions** and may also exhibit distortions from **point-spread functions (PSFs)**. Additionally, the **in-plane orientation** and **translation** of the macromolecule vary between images.

Objective:

Your task is to reconstruct the best possible representation of the macromolecule's underlying structure using the provided dataset.

Deliverables:

1. **Final Image:** Submit your reconstructed representation of the underlying structure.
2. **Detailed Methodology:** Include a comprehensive step-by-step explanation of the steps and techniques you used to process the data and achieve your result. This should cover:
    - Preprocessing steps (e.g., noise reduction, alignment).
    - Any algorithms or software tools applied for reconstruction.
    - How you addressed challenges such as noise, PSF variations, and misalignments.
    - Key decisions and reasoning behind your approach.

Make sure your submission is clear, well-organized, and reflects a thorough understanding of the image analysis techniques applied. The deadline for submission is 11:59 PM December 8th, 2024.