YOLOv8 (Detection)

What: Real-time CNN for object detection

Role: Identifies persons in each frame

Key Feature: Single-pass processing (fast)

DeepSORT (Tracking)

What: Tracking algorithm (Kalman Filter + Hungarian Algorithm)

Role: Maintains person IDs across frames

Key Feature: Handles occlusions and reappearances

Non-Max Suppression (NMS)

What: Post-processing to remove duplicate boxes

Role: Keeps only the best detection per person