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DAT494

Human Pose Estimation: Understanding and Modeling Human Movement

Abstract:
This lesson gives a clear introduction to human pose estimation and how computers identify the positions of the human body in images or video. It explains what keypoints are, how they form a skeleton representation, and the difference between two dimensional and three dimensional pose tracking. The lesson also describes the basic workflow used in modern pose estimation models, including how an image is processed, how joint locations are predicted, and how deep learning methods improve those predictions. To connect these ideas to real systems, we look at well known models such as OpenPose, HRNet, and PoseNet and discuss why they work well in practical settings. Technical sections cover model structure, training steps, and the way these systems run efficiently in real time applications. Finally, the lesson highlights important uses such as sports analysis, medical monitoring, and digital animation. By the end, students will understand the core concepts, challenges, and methods behind pose estimation and will be ready to explore or build these models on their own.