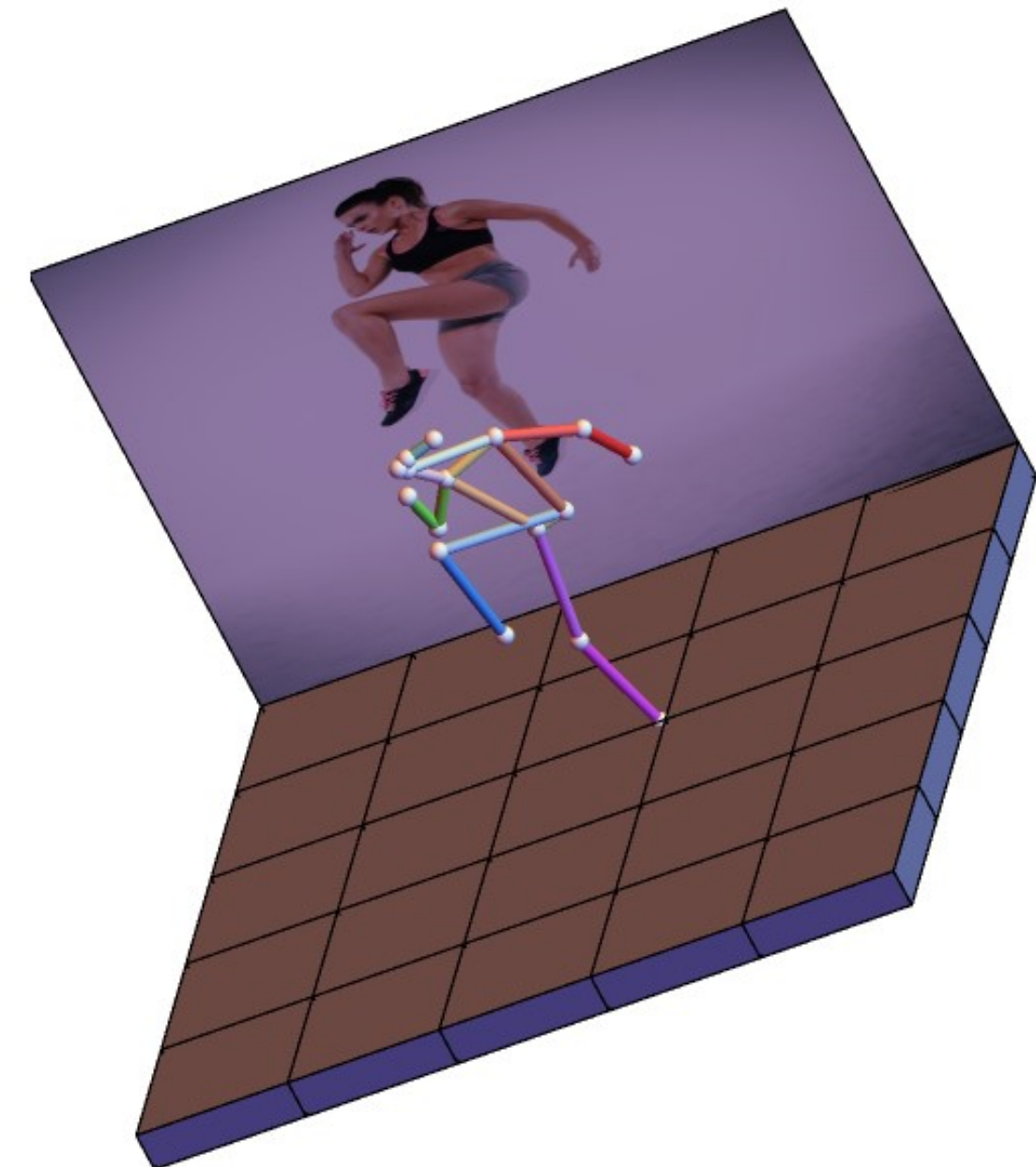
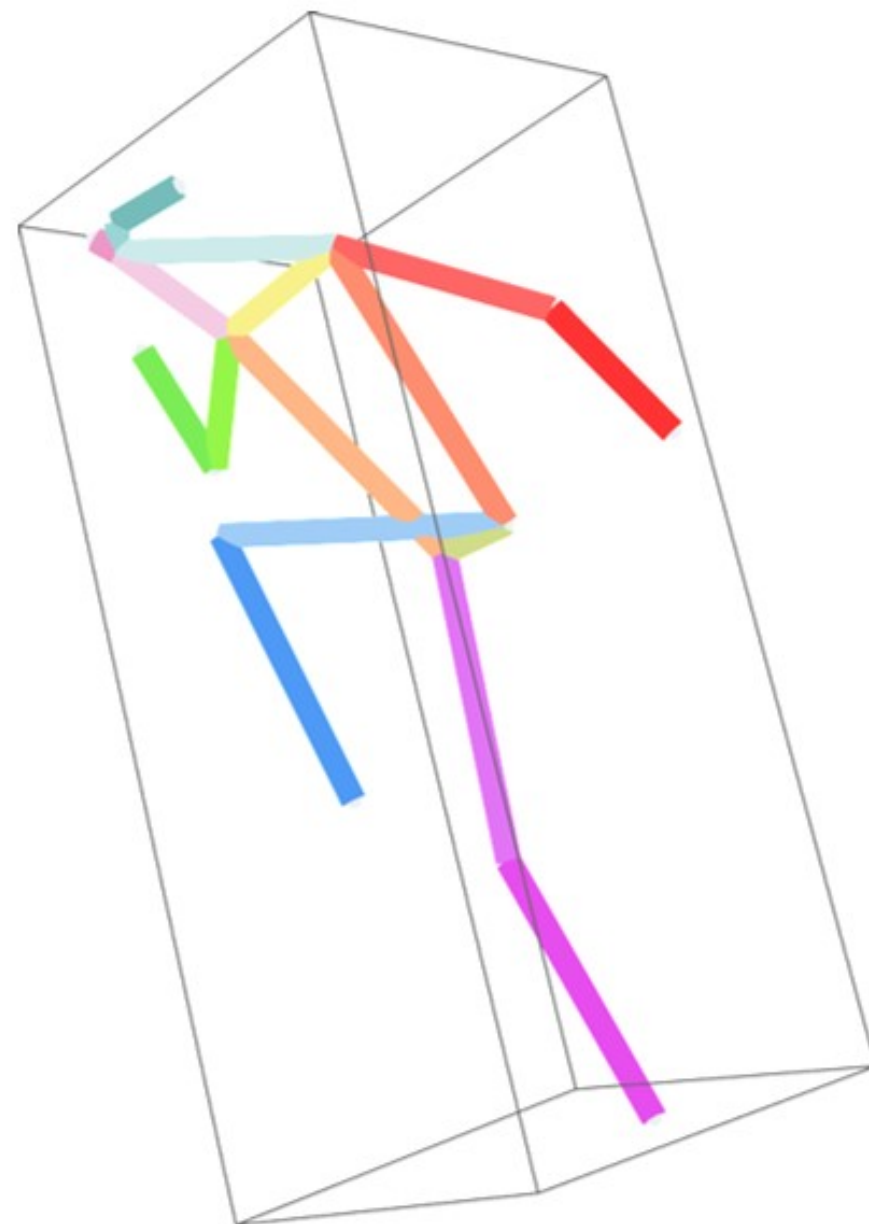


3D Human Pose Estimation Using Machine Learning

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GOAL

This project aims to leverage advanced computer vision techniques to accurately estimate the 3D positions of 17 keypoints on the human body and create visually appealing visualizations of the estimated pose in a 3-dimensional display.

SUMMARY OF RESULTS

This project implemented a two-step approach for 3D human pose estimation. The CenterNet model from the Wolfram Neural Network repository was employed to estimate the 2D coordinates of 17 keypoints on the human body. The MiDaS monocular depth estimation model was utilized by importing it using ONNX to obtain depth information. By combining the 2D coordinates with the estimated depths, the body joint linkages were established and the pose was visualized in 3D. We tested the pipeline on various single person images and videos, and it demonstrated comparable results and visualizations to state-of-the-art technologies.

FUTURE WORK

Future work includes extending the project to estimate 3D keypoints from multiple persons in an image, developing an occlusion-resistant model and lifting the 3D pose to a human mesh representation.

