3D Human Pose Estimation with Spatial and Temporal Transformers

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Human Pose Estimation

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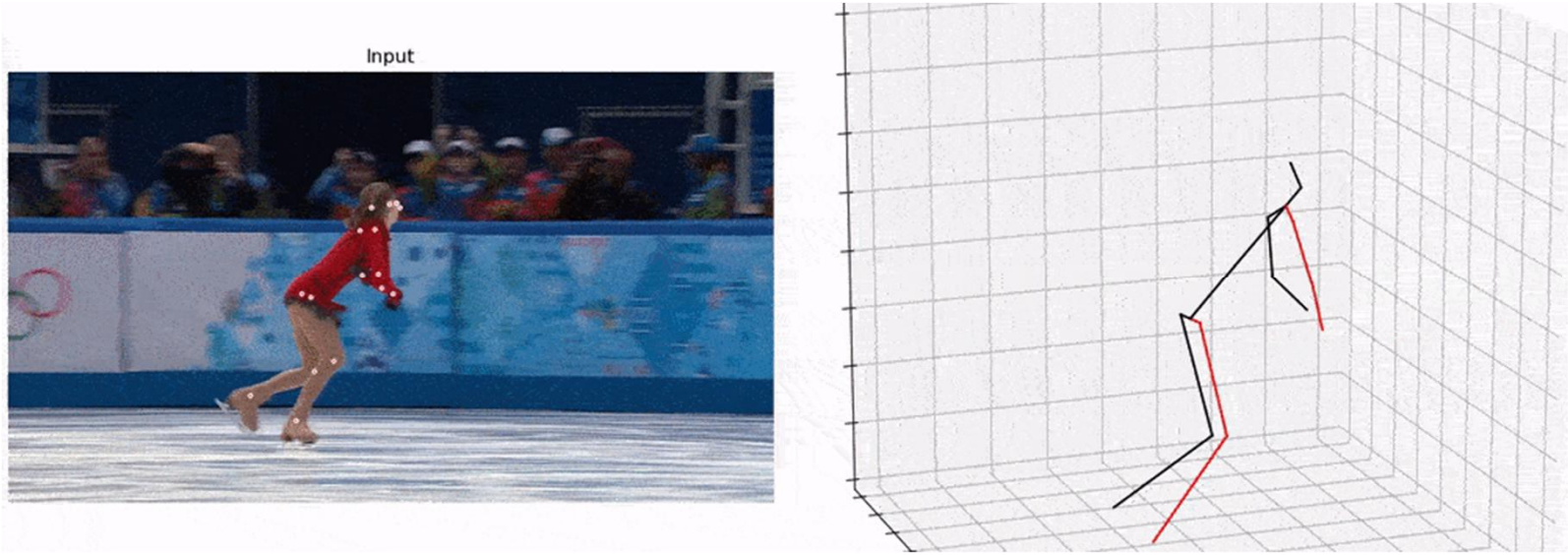
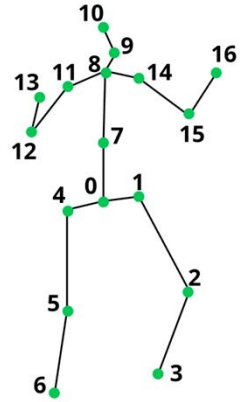


Basic Concepts of HPE

3D KEYPOINTS AND THEIR SPECIFICATION

0 — Bottom torso
1 — Left hip
2 — Left knee
3 — Left foot
4 — Right hip
5 — Right knee
6 — Right foot
7 — Center torso
8 — Upper torso



9 — Neck base
10 — Center head
11 — Right shoulder
12 — Right elbow
13 — Right hand
14 — Left shoulder
15 — Left elbow
16 — Left hand

mobidev

3 Keywords for HPE

Target : Multi-person VS Single-person

Approach : Top-down VS Bottom-up

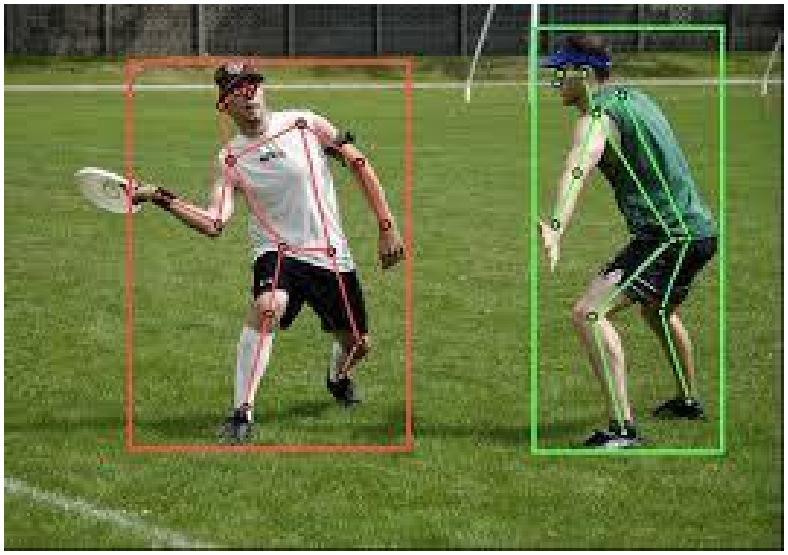
Goal : 2D pose VS 3D pose

Multi-person VS Single-person

Multi-person VS Single-person

Top-down VS Bottom-up

Top-down VS Bottom-up



2D Pose VS 3D Pose

2D Pose VS 3D Pose

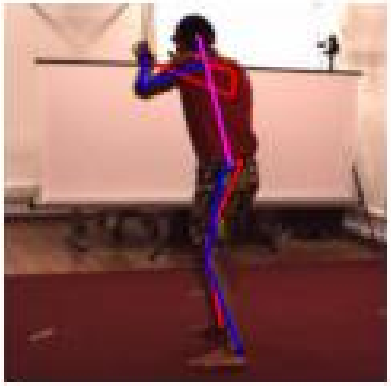
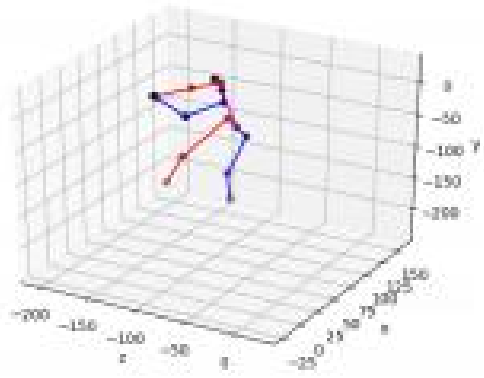
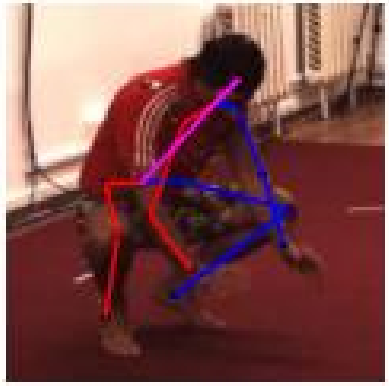
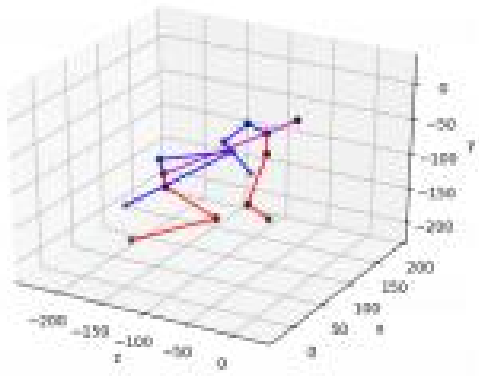
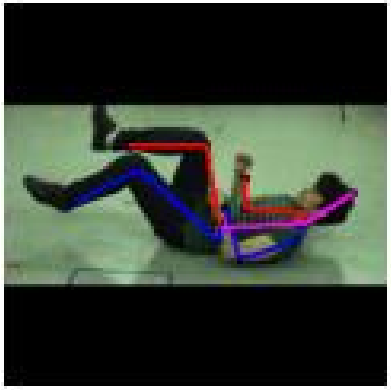
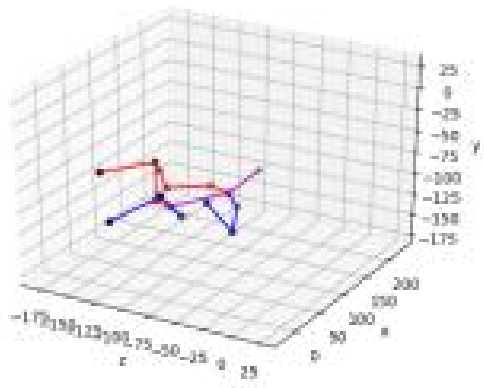
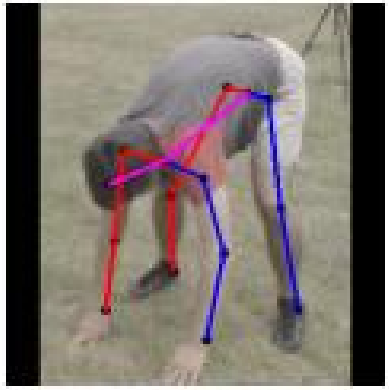
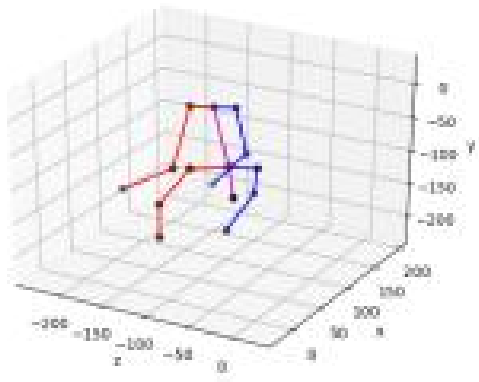
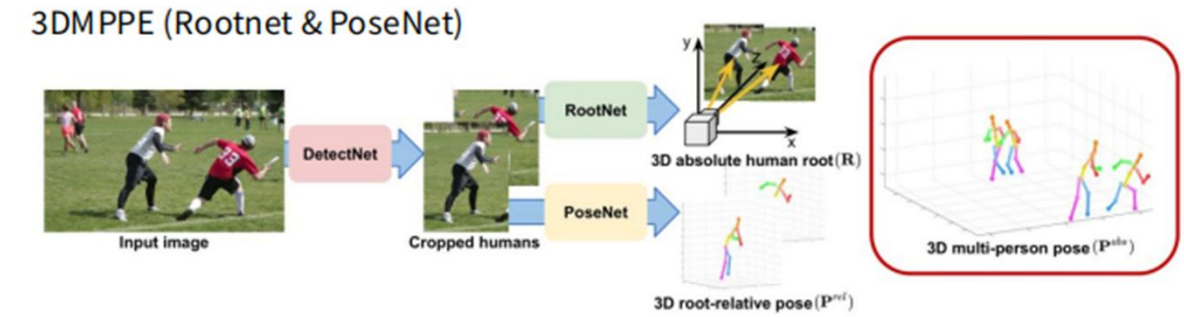
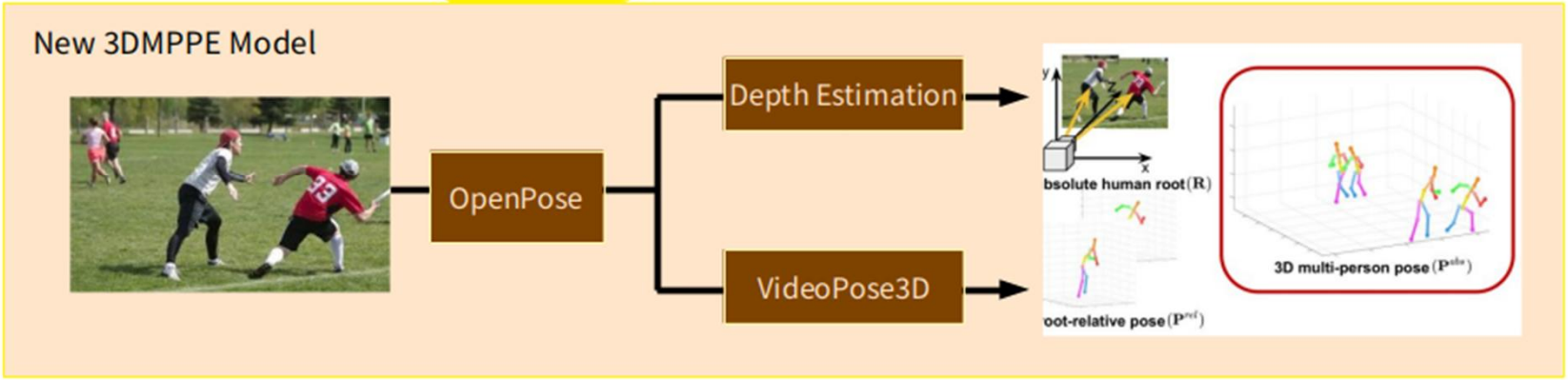









Image 3D Pose



기존 3DMPPE모델에서 DetectNet부분만
Mask-RCNN에서 OpenPose로 변화 시도.
PoseNet부분이 2D-keypoint 정보를 사용하지 않고,
RootNet이 Bounding box를 사용한다는 점에서
OpenPose와 다소 부적합



위와 같은 모델을 제안 할 수 있다. 그러나, 다소 수정 사항이 많아 작은 부분부터 구현 필요하다.

Video 3D Pose