

xR-EgoPose: Egocentric 3D Human Pose from an HMD Camera

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UCL





Challenges

Ego-centric setups



EgoCap



Mo2Cap2



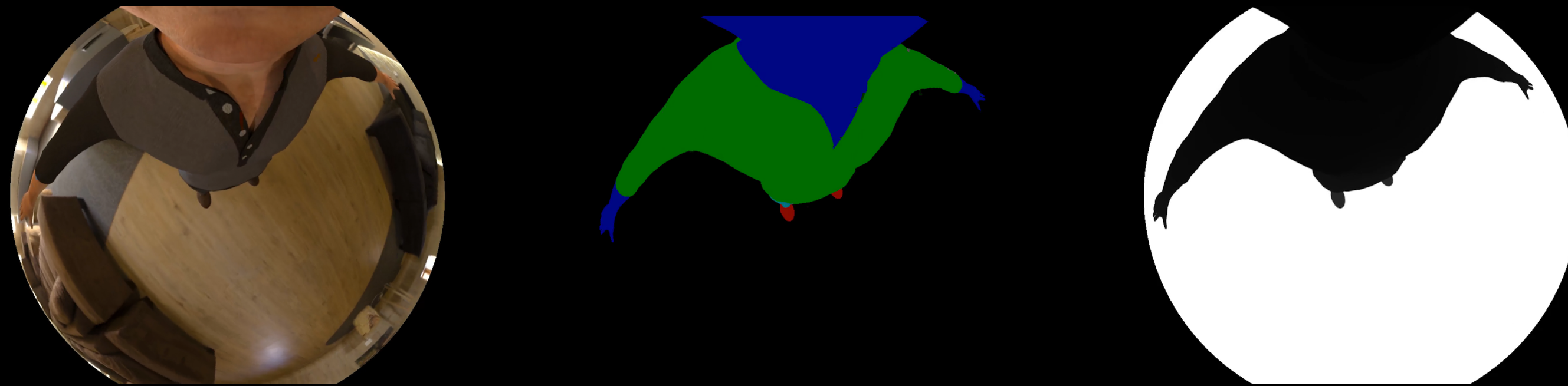
Ours

[1] Rhodin et al. EgoCap: Egocentric Marker-less Motion Capture with Two Fisheye Cameras

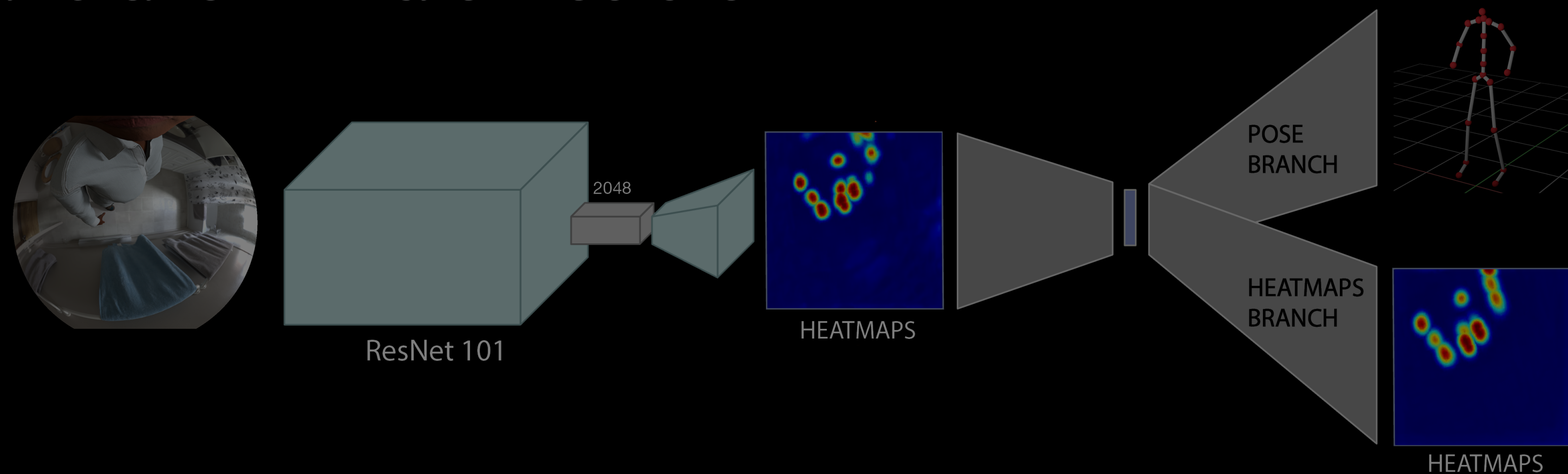
[2] Xu et al. *Mo²Cap²*: Real-time Mobile 3D Motion Capture with a Cap-mounted Fisheye Camera

Contributions

- Novel *ego-centric* synthetic dataset

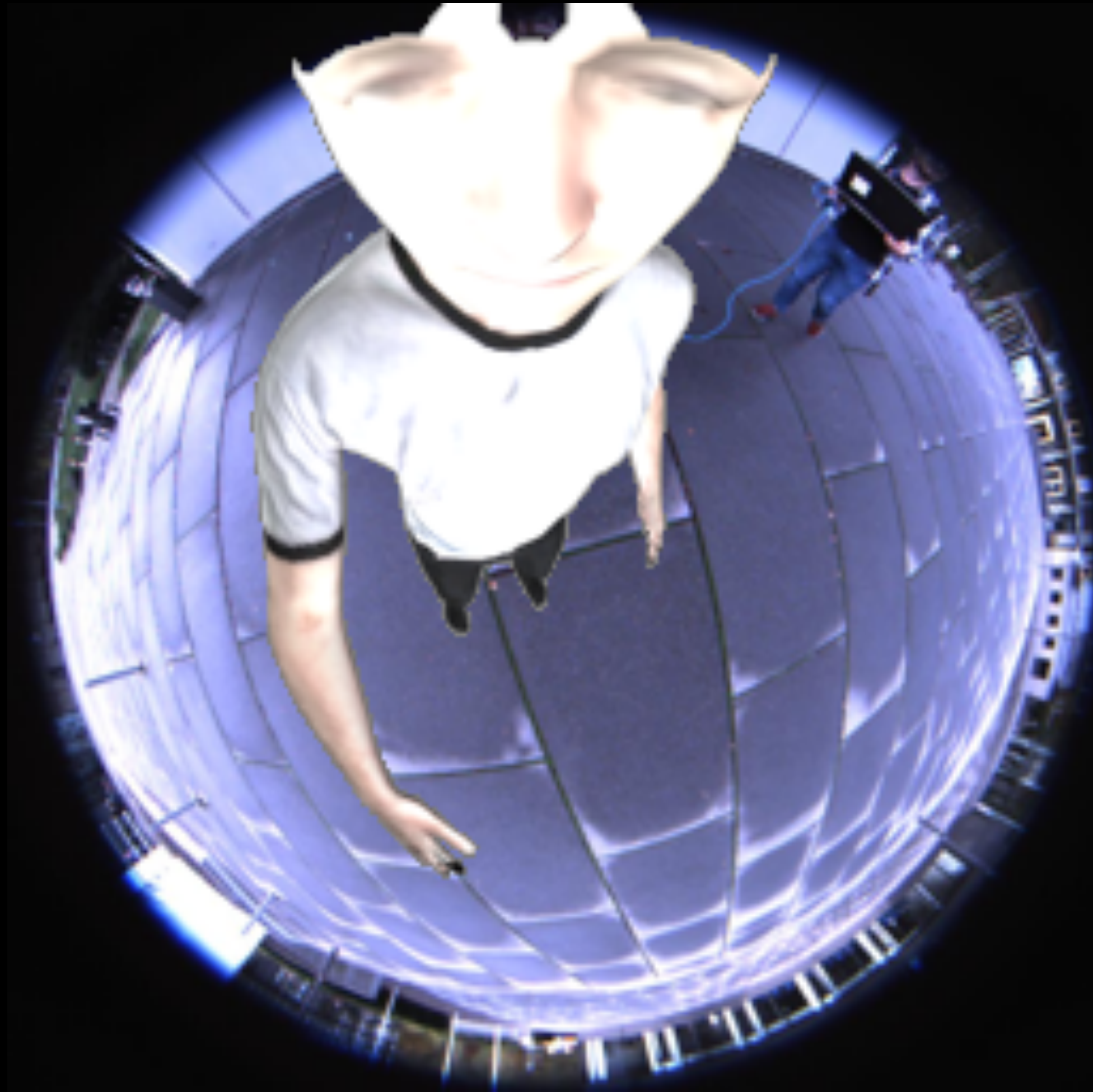


- Novel *dual-branch AE* architecture

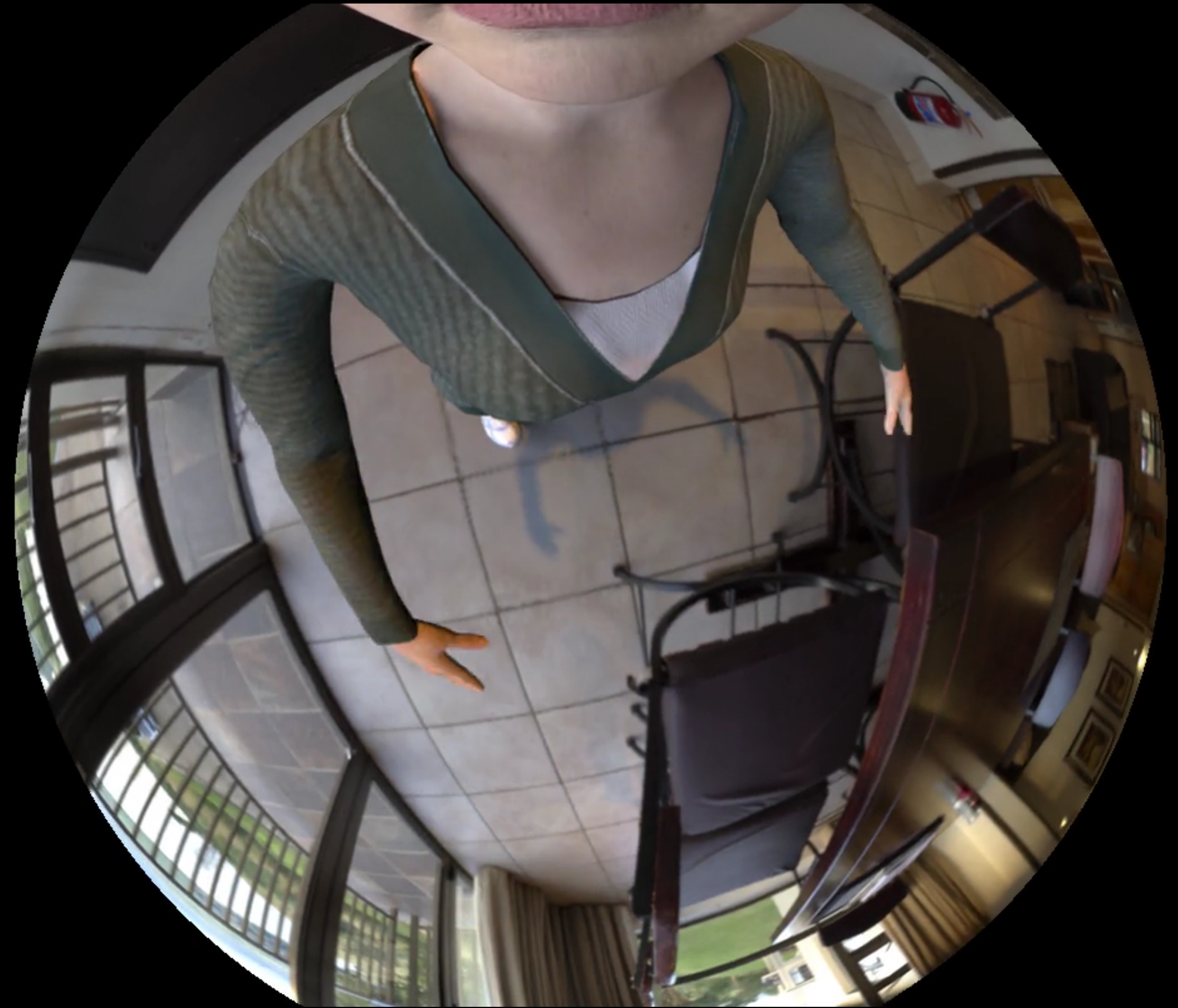


xR-EgoPose | Dataset

Synthetic Dataset Comparison



Mo2Cap2

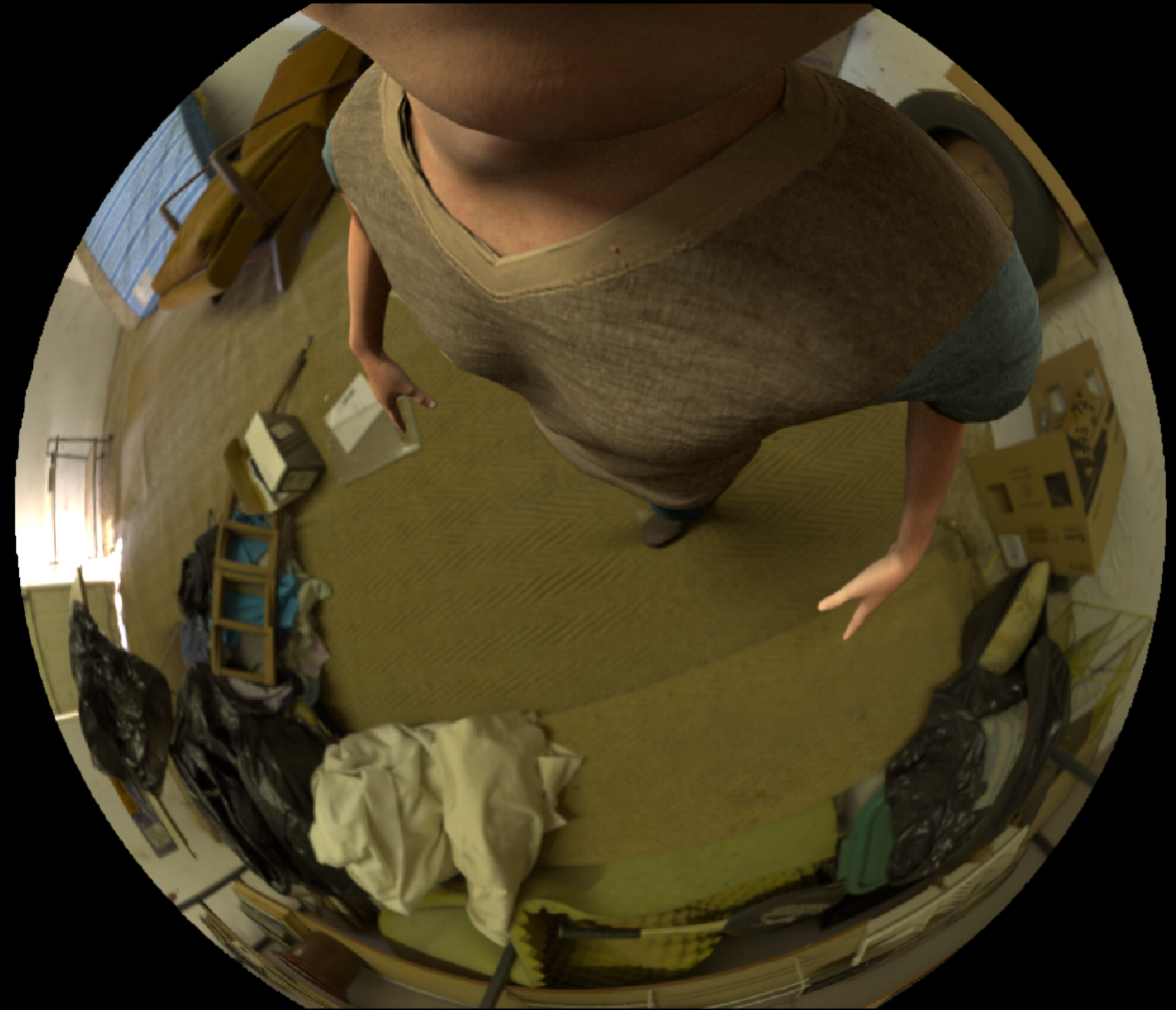


Ours

Synthetic Dataset Comparison



Mo2Cap2



Ours

Synthetic Dataset Comparison



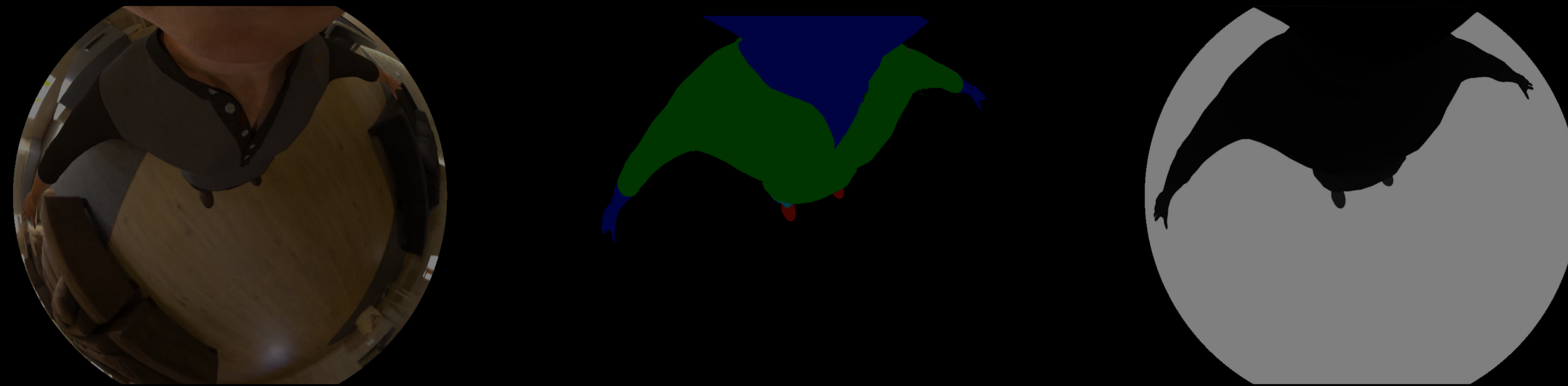
Mo2Cap2



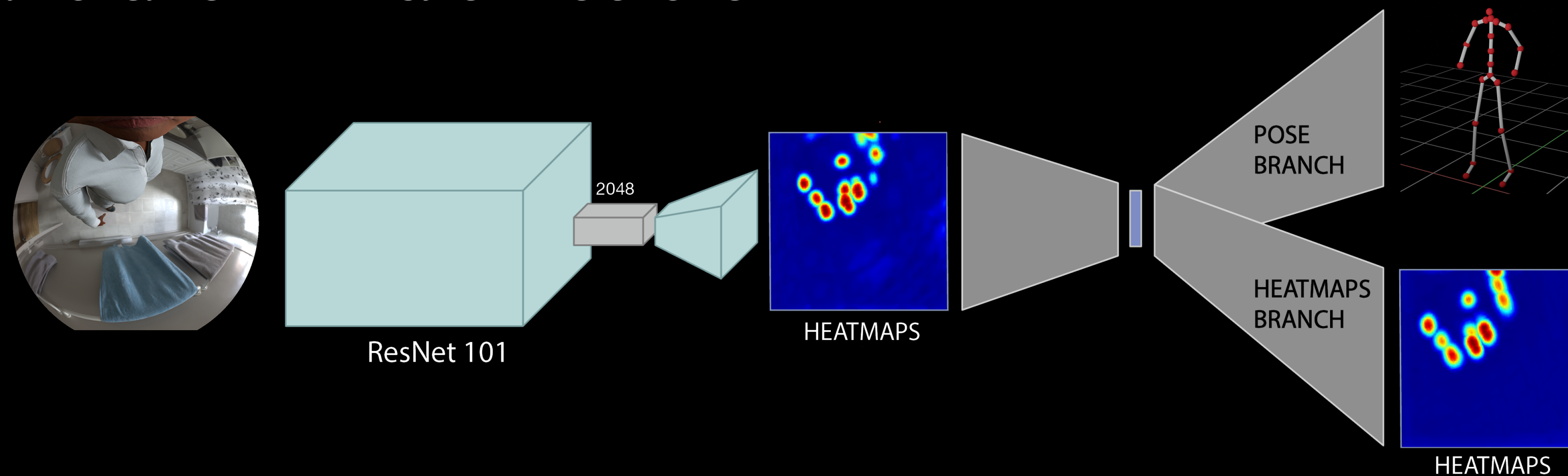
Ours

Contributions

- Novel *ego-centric* synthetic dataset



- Novel *dual-branch AE* architecture



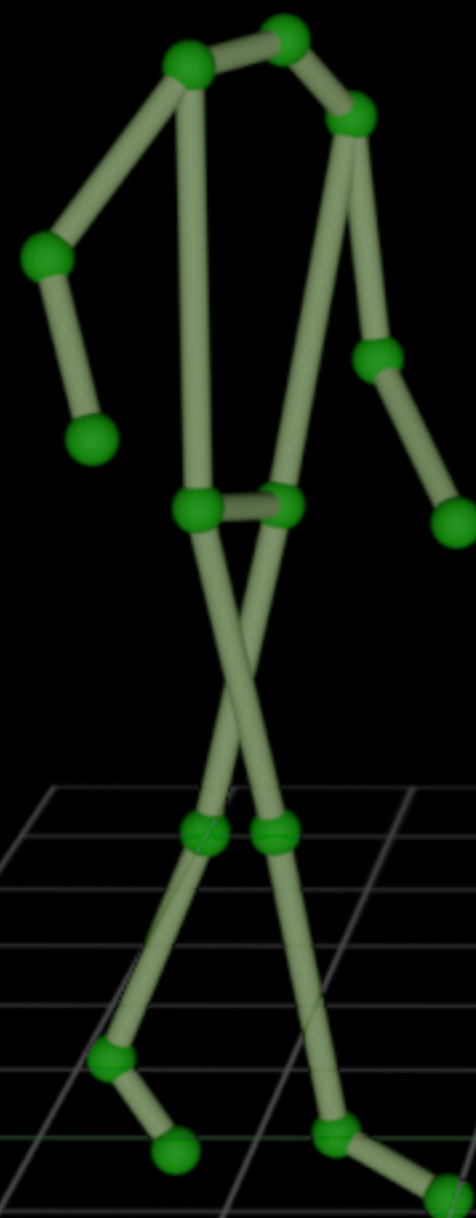
xR-EgoPose | Architecture

xR-EgoPose | Results

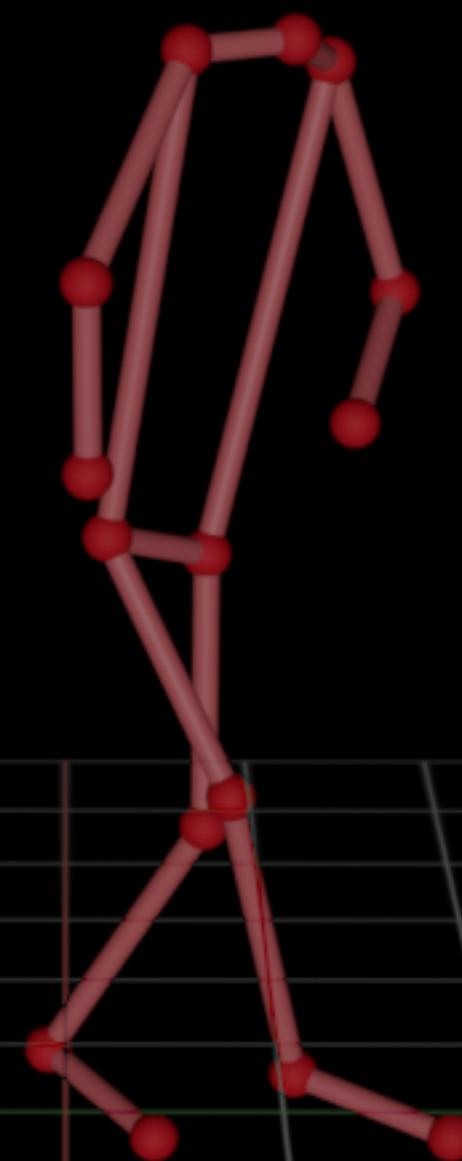
Poses represented in the camera reference system



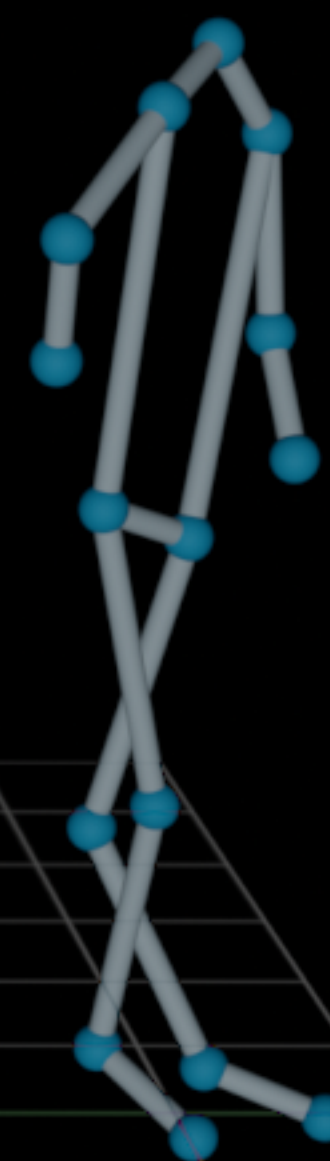
Ours



GT



Mo2Cap2



INDOOR

Total (mm)

Mo2Cap2

61.40

Ours

48.16

OUTDOOR

Total (mm)

Mo2Cap2

80.64

Ours

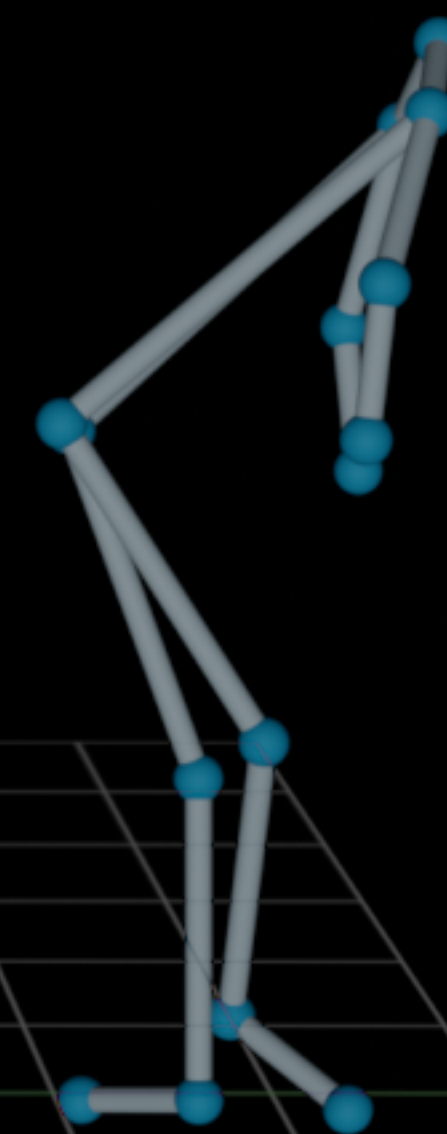
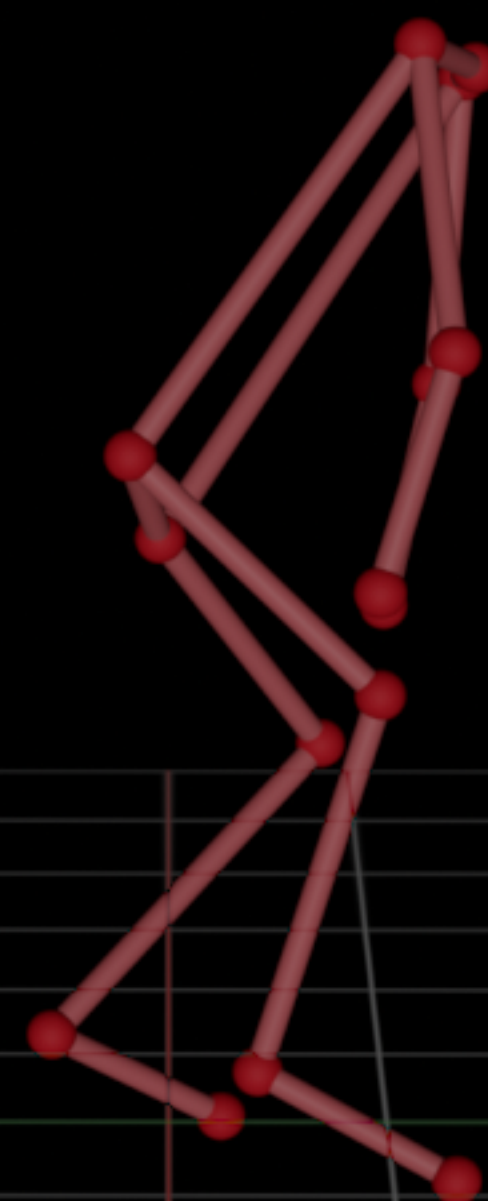
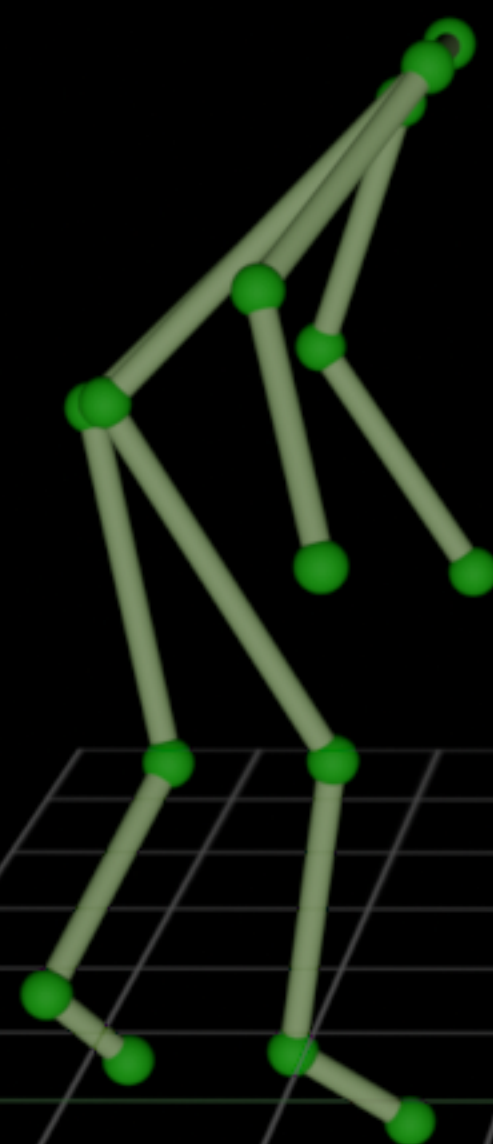
60.19



Ours

GT

Mo2Cap2



INDOOR

Total (mm)

Mo2Cap2

61.40

Ours

48.16

OUTDOOR

Total (mm)

Mo2Cap2

80.64

Ours

60.19

Human3.6M *top 5*

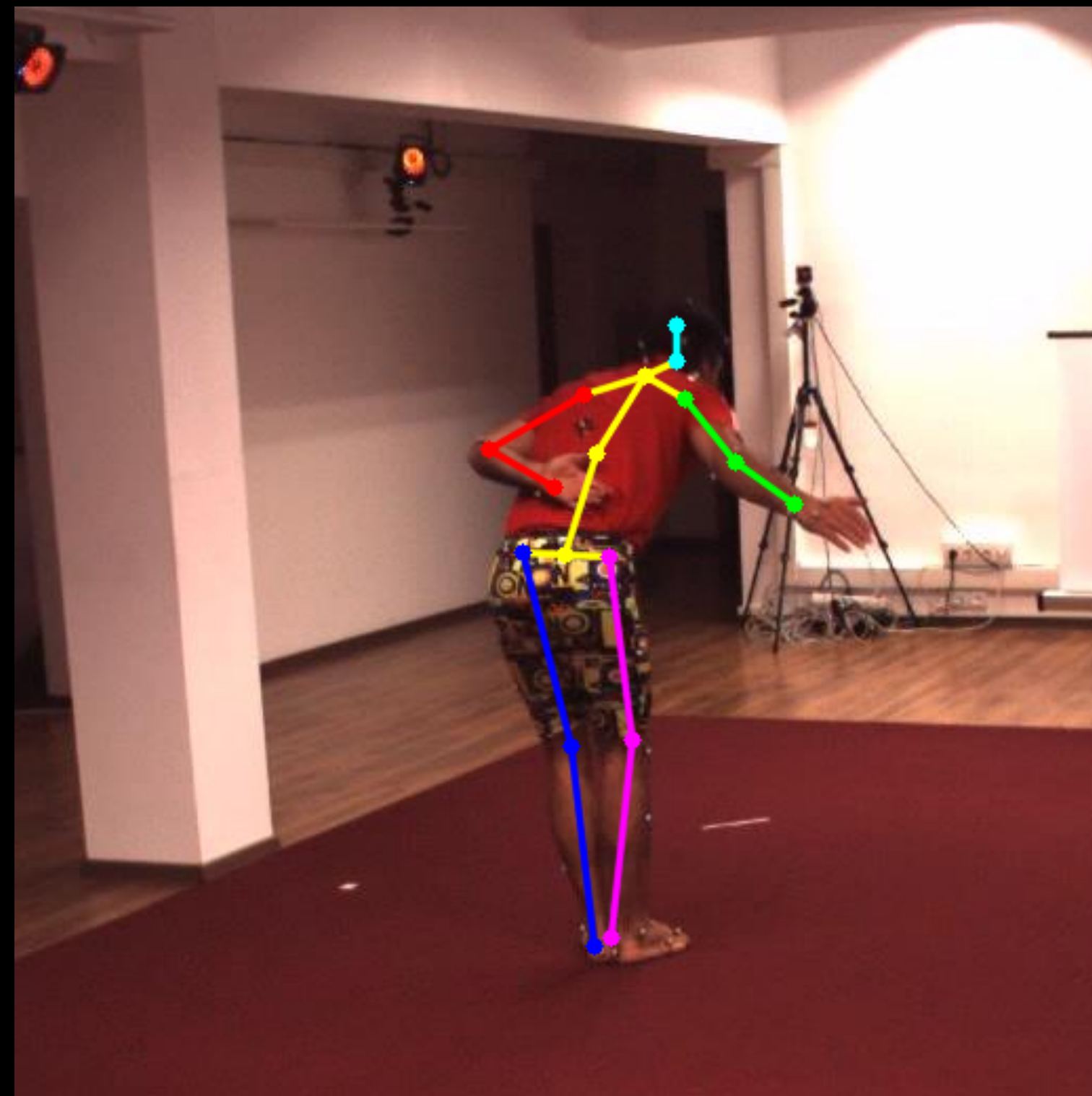
Approach	Kanazawa [22]	Sun [47]	Fang [11]	Ours	Sun [46]
Error (mm)	58.8	48.3	45.7	45.2	40.6

[1] Human3.6M: Large Scale Datasets and Predictive Methods for 3D Human Sensing in Natural Environments

[2] Latent Structured Models for Human Pose Estimation

Human3.6M *top 5*

Approach	Kanazawa [22]	Sun [47]	Fang [11]	Ours	Sun [46]
Error (mm)	58.8	48.3	45.7	45.2	40.6



Human3.6M *top 5*

Approach	Kanazawa [22]	Sun [47]	Fang [11]	Ours	Sun [46]
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Poster 11!

