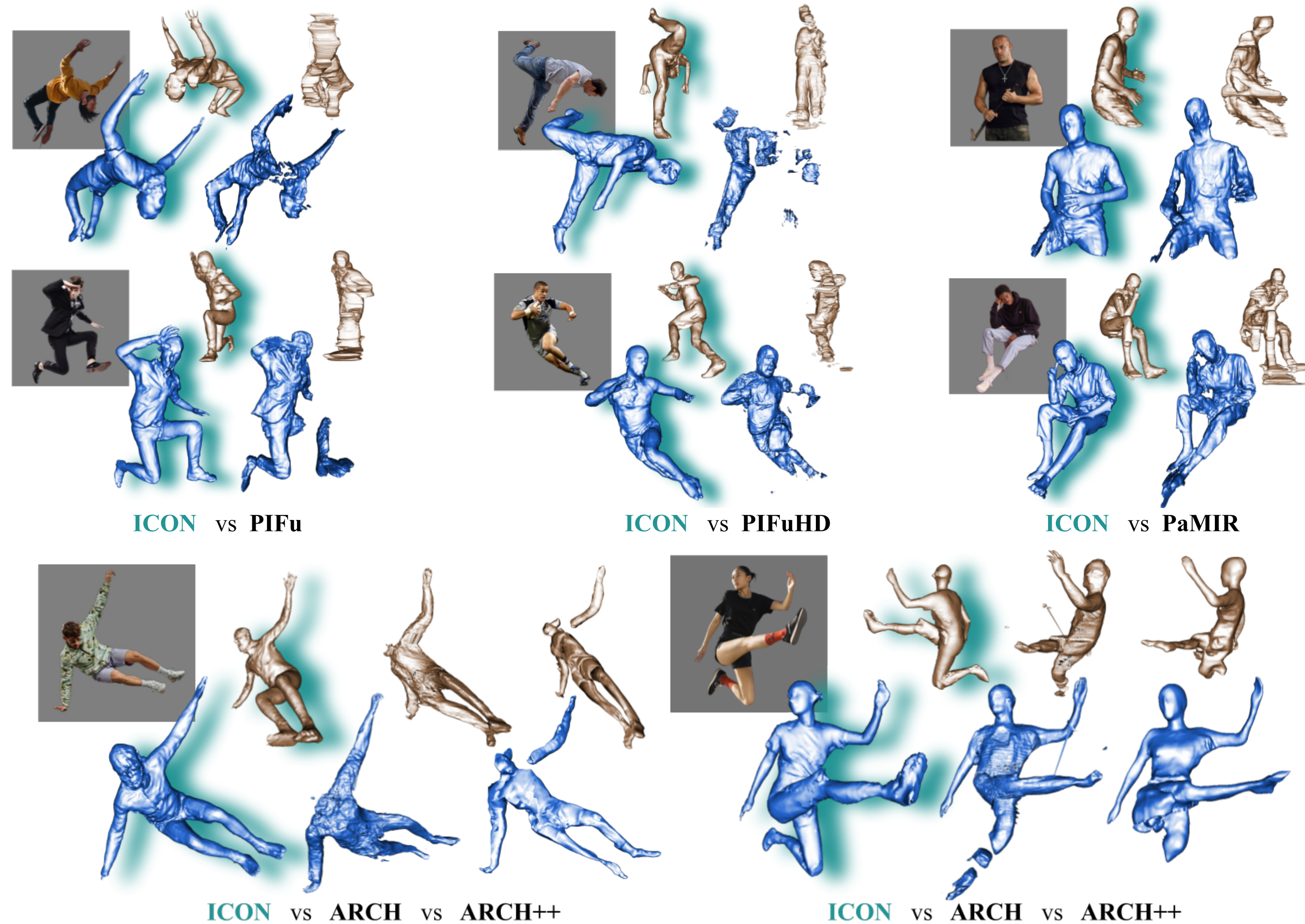


## Introduction

**Goal:** Robust 3D reconstruction from single RGB images of segmented clothed humans with challenging and unconstrained poses



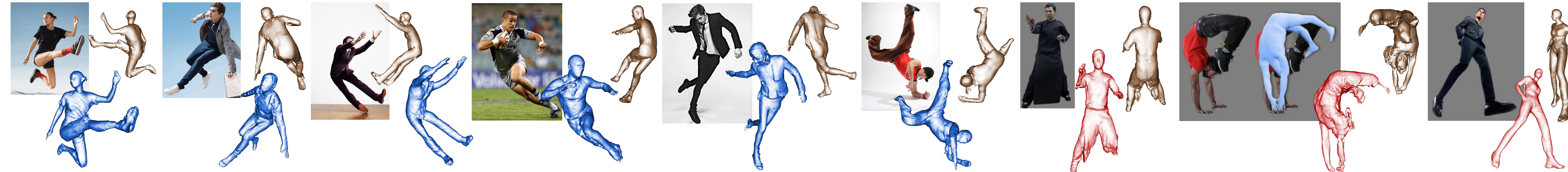
**Problem:** Current implicit human reconstructors are not robust to challenging poses and often produce 3D surfaces with **broken or disembodied limbs, missing details, or non-human shapes**

## Key Insights

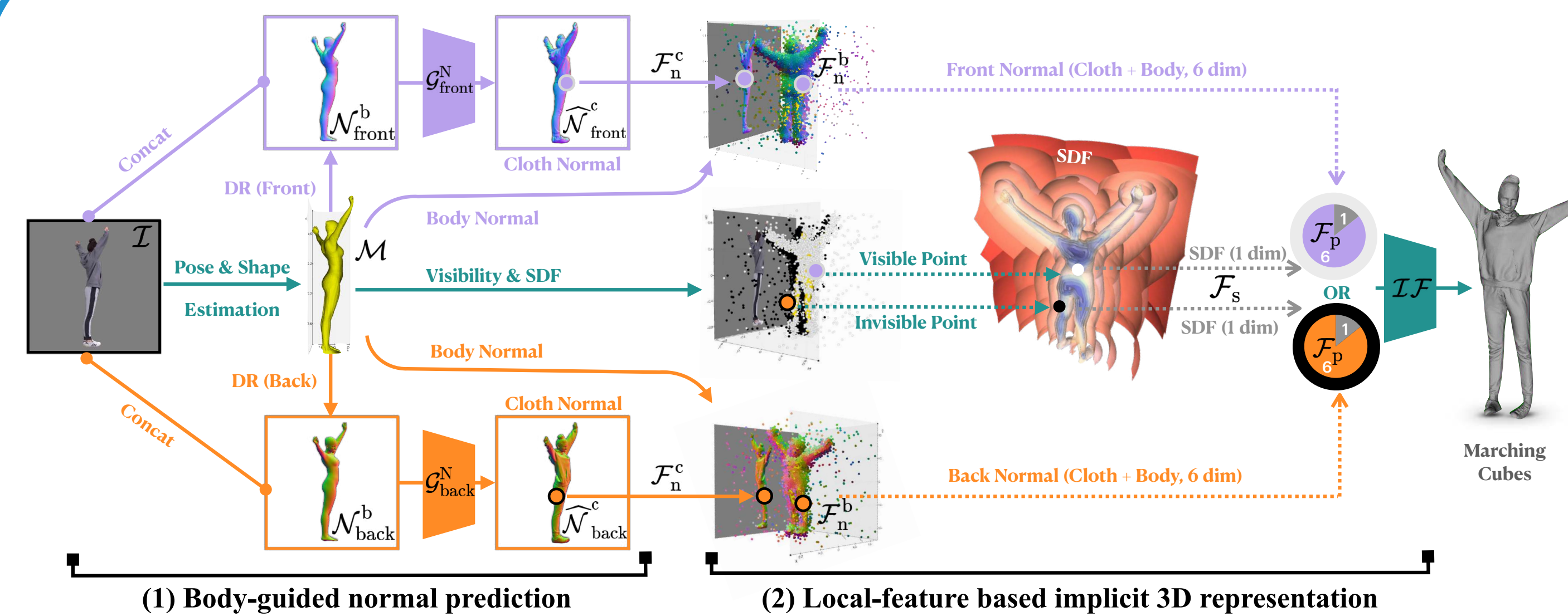
- The pixel/voxel-aligned features extracted from **global encoder** are pose sensitive
- SDF (Body) + Normals (Body, Cloth) + Visibility, these **locally queried features** are adequate to recover the details of 3D clothed human

✗ Global Features

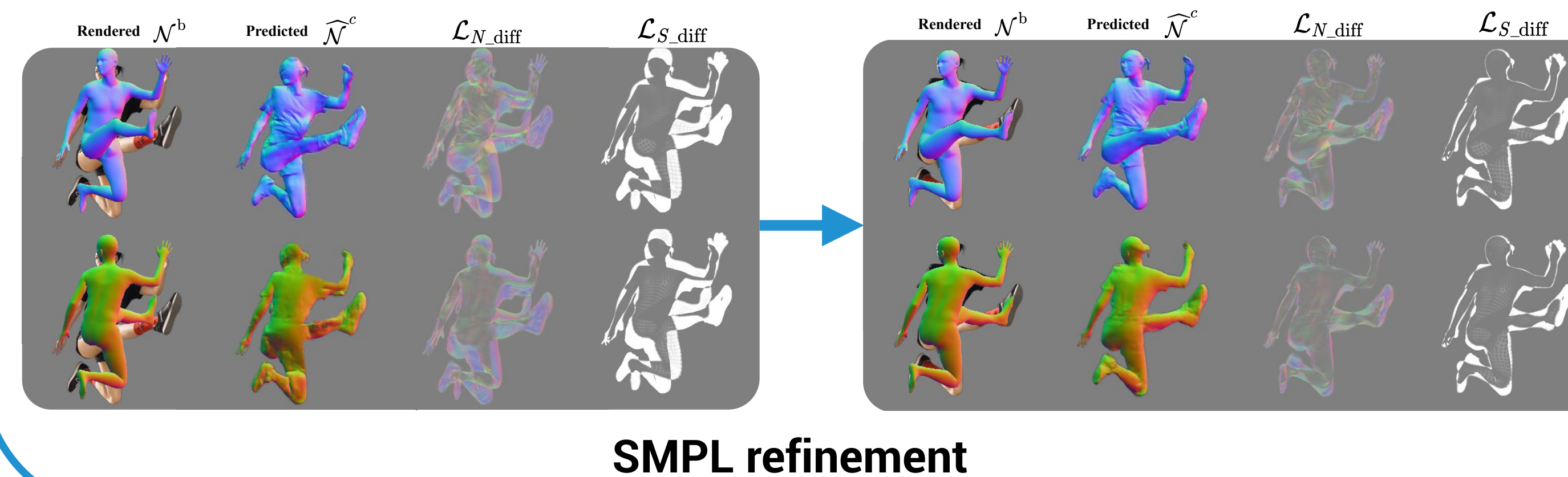
✓ Local Features



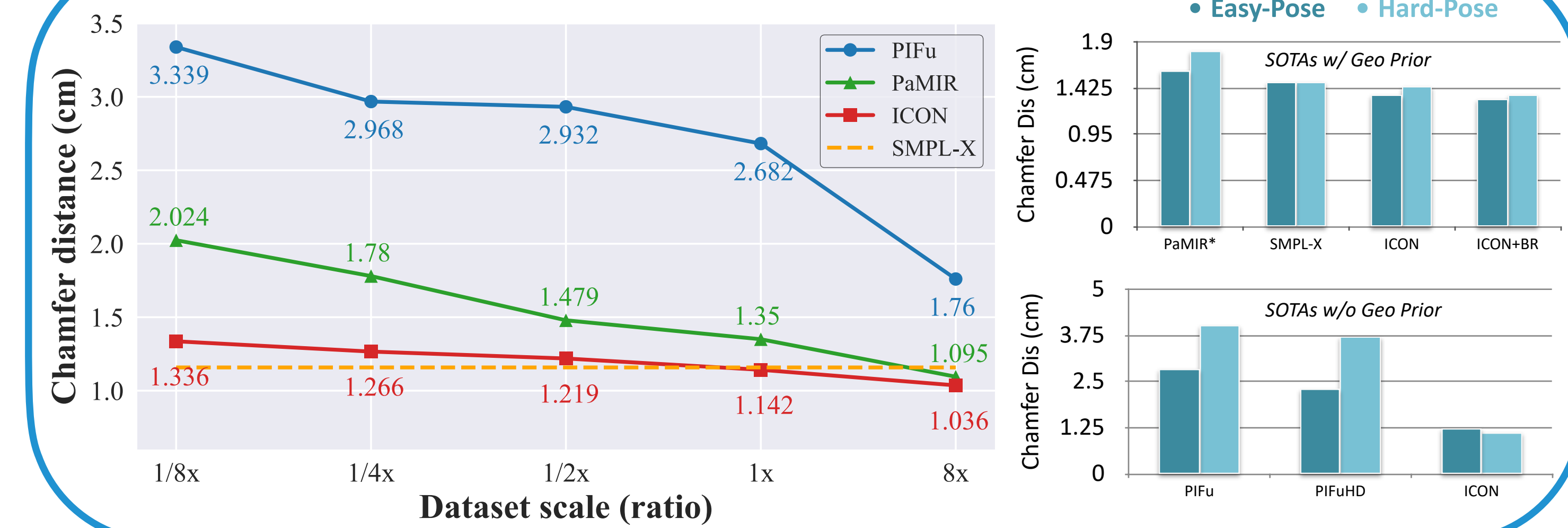
## Method



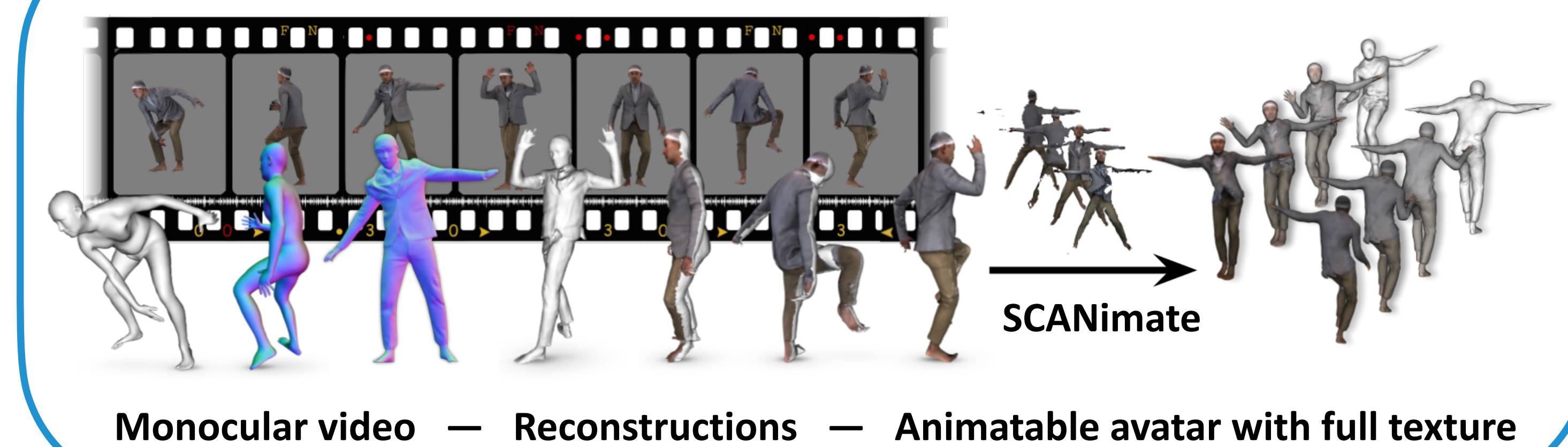
ICON's pipeline: (1) normal prediction (2) implicit reconstruction



## Quantitative Results



## Application



- [1] Saito, Shunsuke, et al. "PIFu: Pixel-aligned implicit function for high-resolution clothed human digitization." ICCV 2019
- [2] Zheng, Zerong, et al. "PaMIR: Parametric model-conditioned implicit representation for image-based human reconstruction." TPAMI 2021
- [3] He, Tong, et al. "ARCH++: Animation-ready clothed human reconstruction revisited." ICCV 2021
- [4] Saito, Shunsuke, et al. "SCANimate: Weakly supervised learning of skinned clothed avatar networks." CVPR 2021
- [5] Patel, Priyanka, et al. "AGORA: Avatars in geography optimized for regression analysis." CVPR 2021

