

TAVA: Template-free Animatable Volumetric Actors

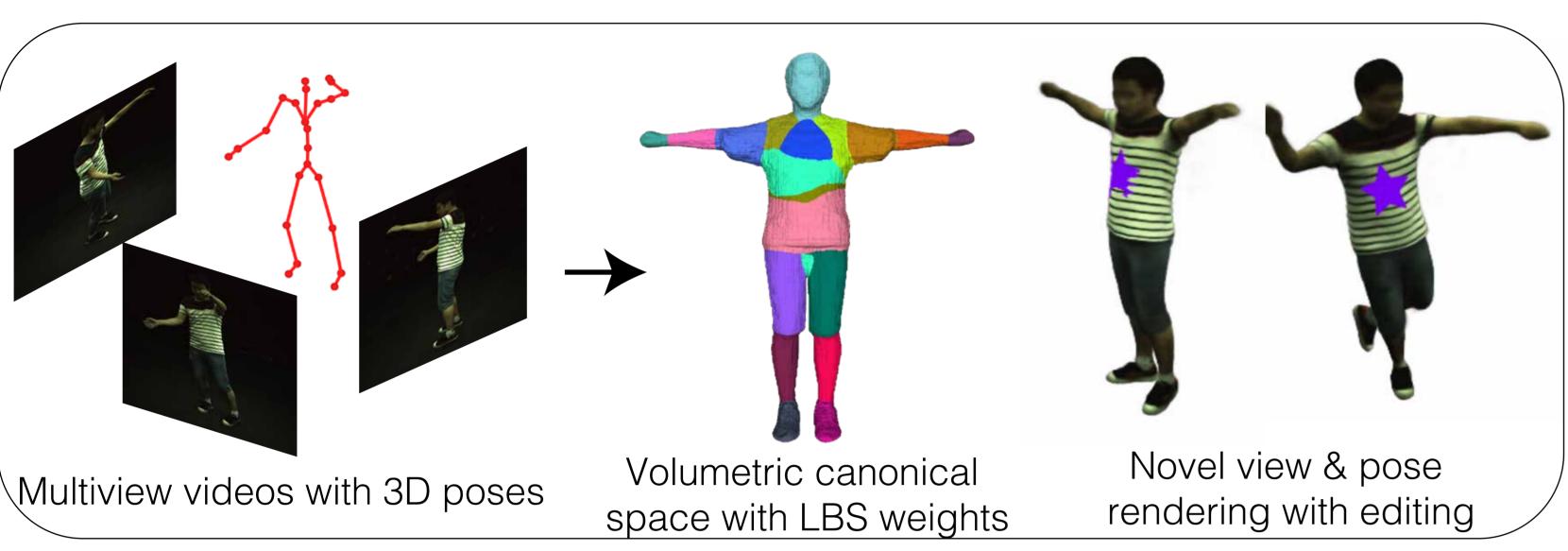
Michael Zollhofer³ Jurgen Gall² Angjoo Kanazawa¹ Christoph Lassner³ ³Meta Reality Labs Research ²University of Bonn







Problem

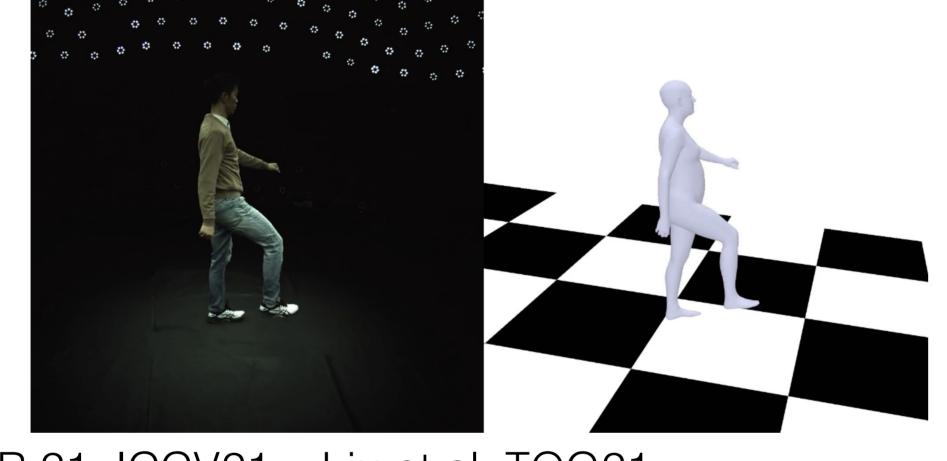


Ruilong Li^{1,3}

Previous Approaches

1. Rely on body template such as SMPL

Not generalizable to other creatures beyond human



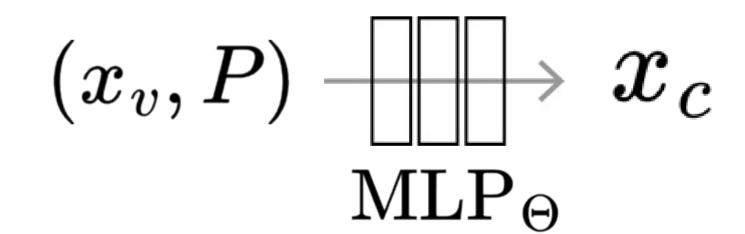
Julian Tanke^{2,3}

Minh Vo³

¹UC Berkeley

e.g. Peng et al. CVPR 21, ICCV21, Liu et al. TOG21

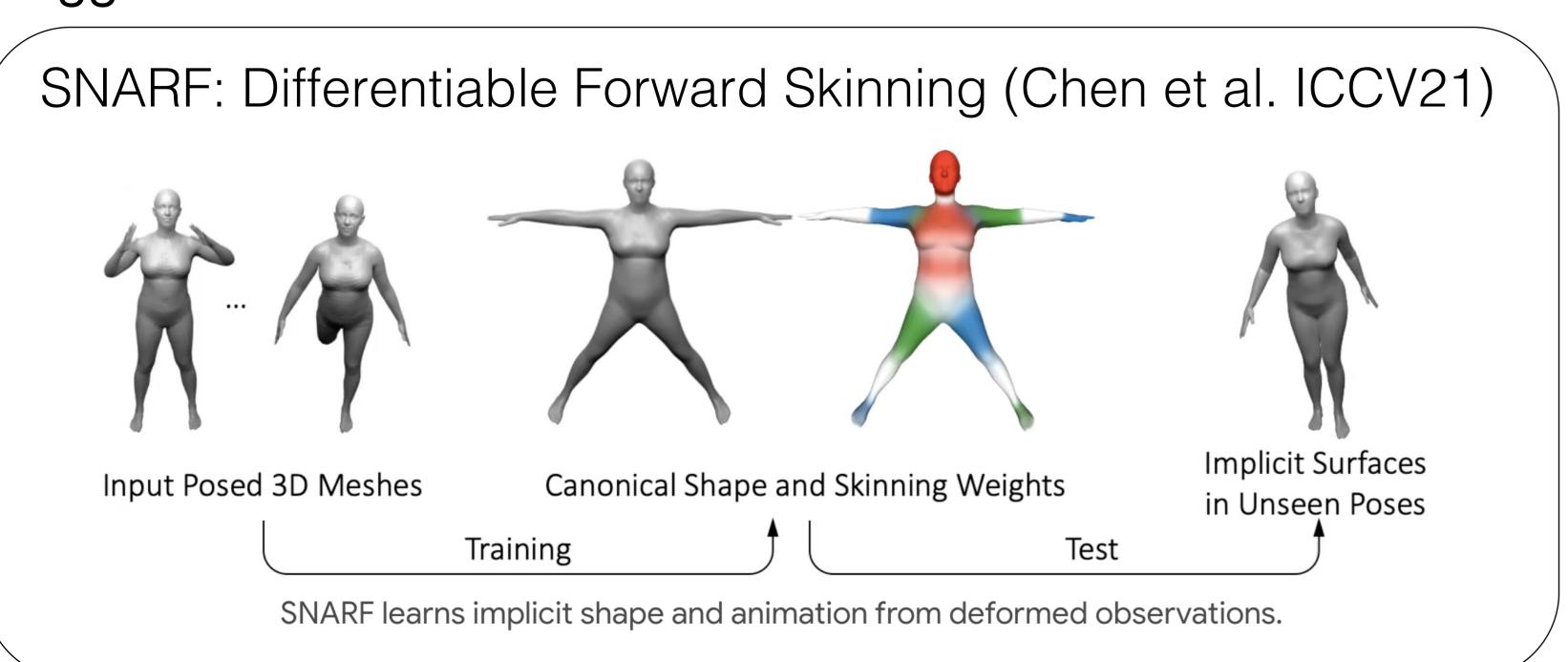
2. Formulate deformation as pose-conditioned inverse warping



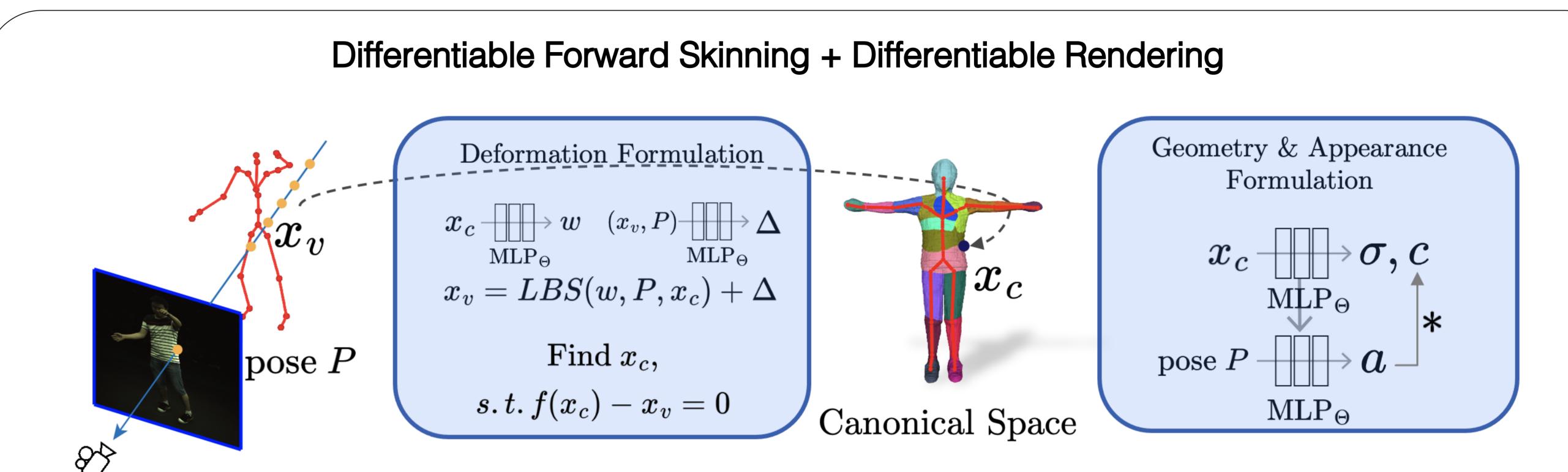
Not generalizable to novel poses

e.g. Peng et al. ICCV21, Noguchi et al. ICCV22, Su et al. NeurIPS21

Nugget



Our Approach



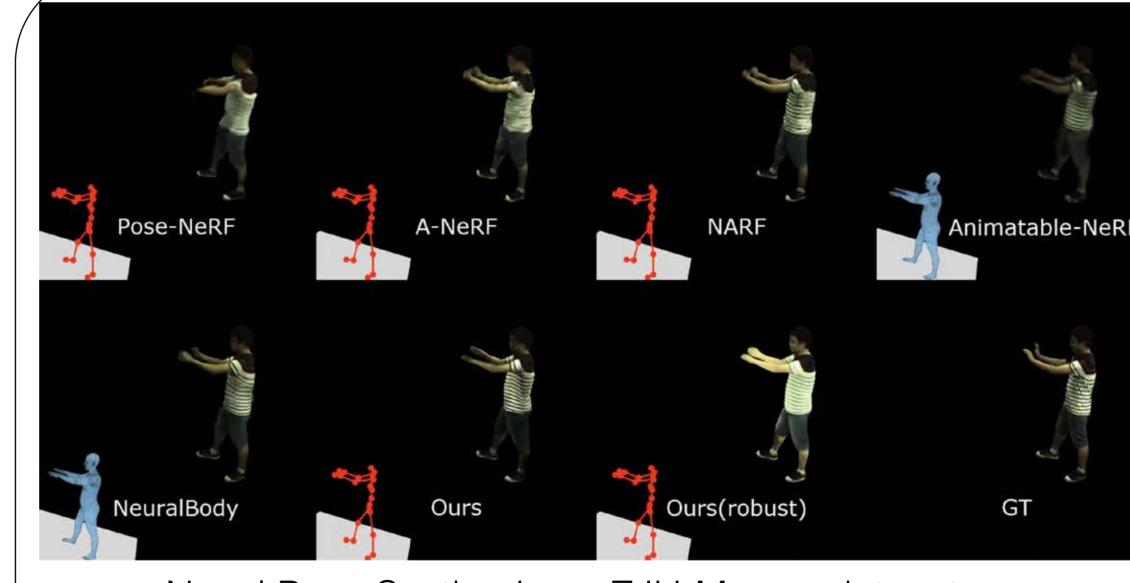


Volumetric rendering is consistent with RGB

Skinning weights on bones are one-hot

Delta deformation on bones are zero

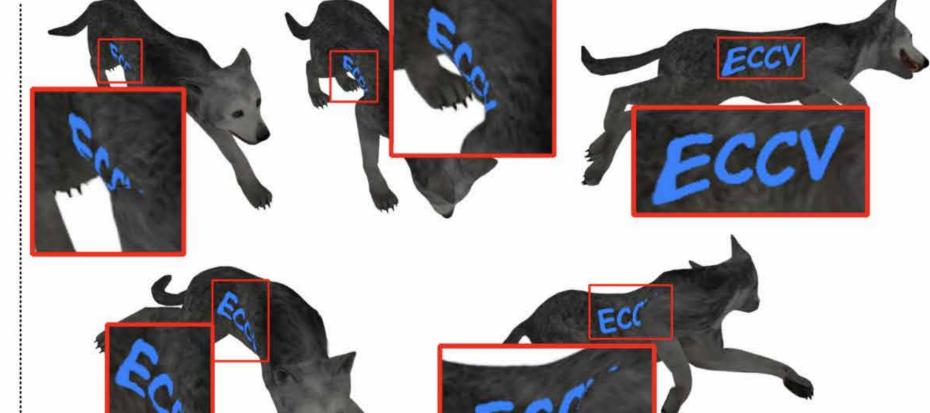
Results



Novel Pose Synthesis on ZJU-Mocap dataset



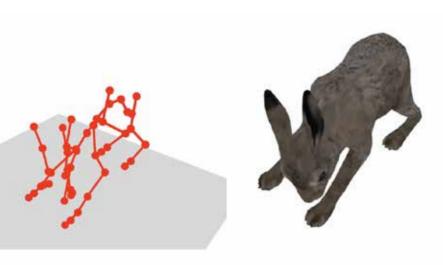
Dense Correspondence

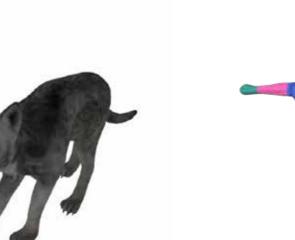


Automatic Propagation

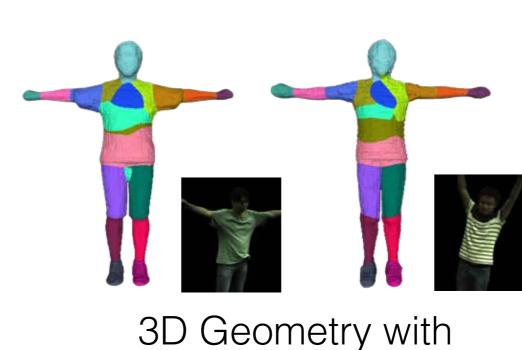
User Edits

Rendering with Content Editing





Novel Pose Synthesis on animal subjects



skinning weights