

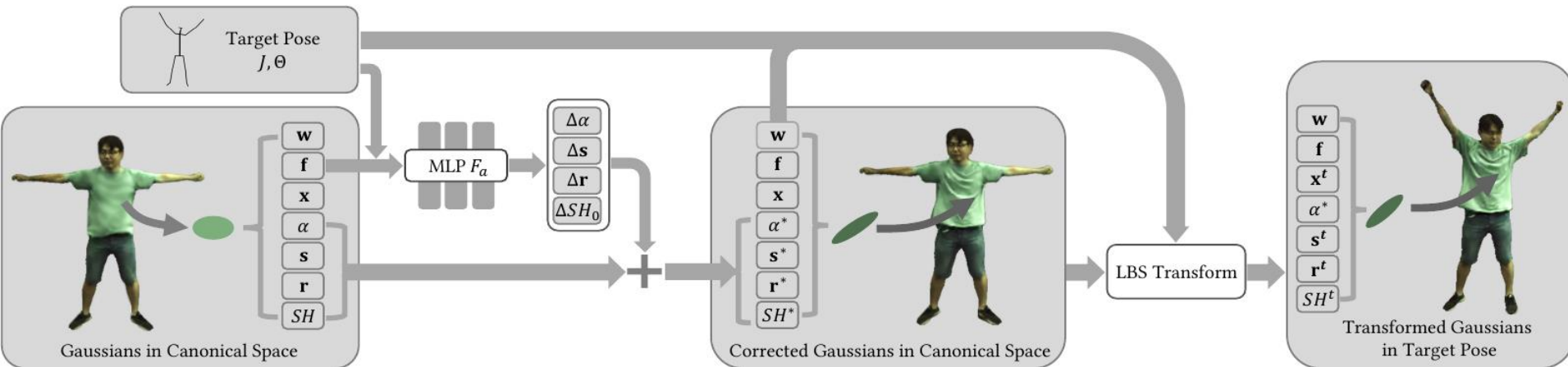
Animatable 3D Gaussians for Modeling Dynamic Humans

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Problems & Ideas

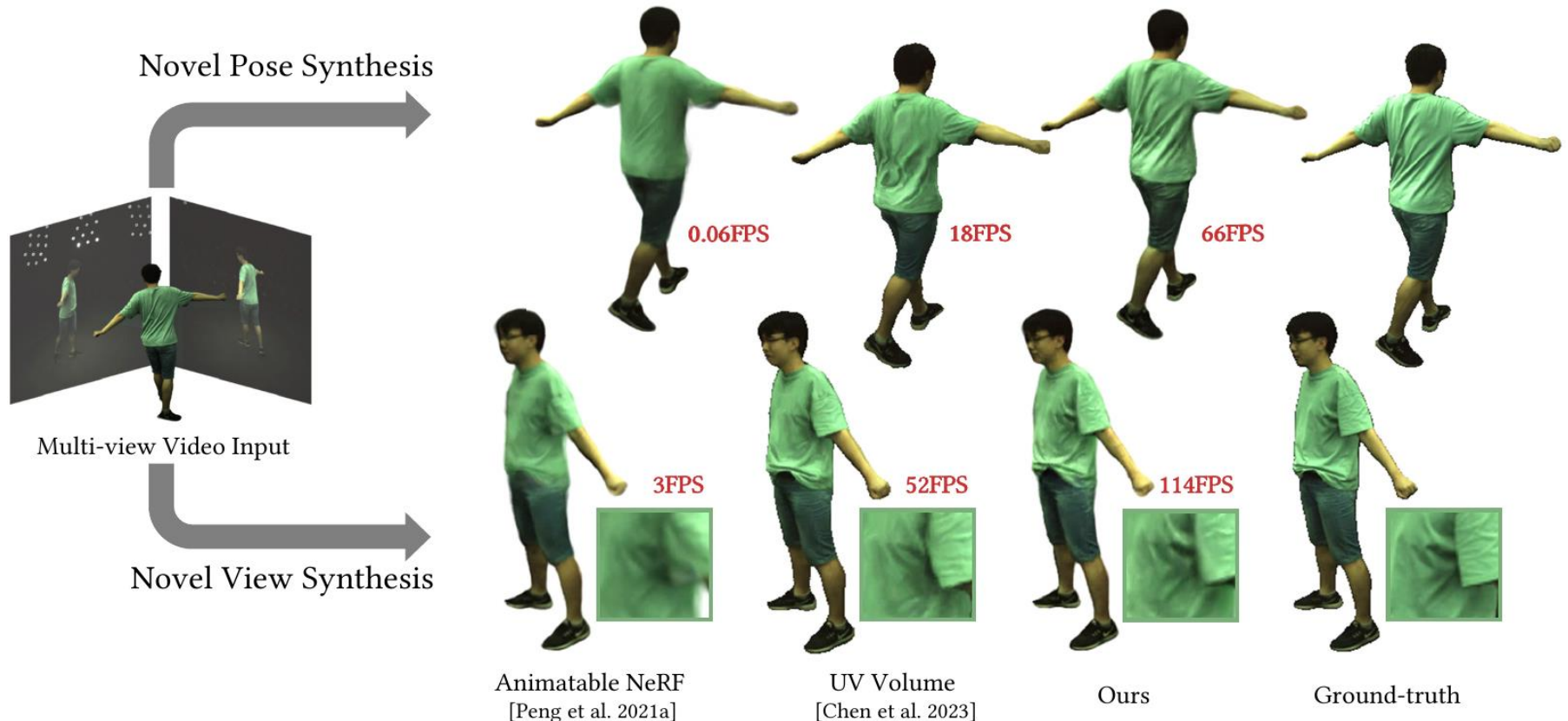
- Problems of conventional reconstruction approaches:
 - Mesh-based methods may not capture complex geometry details well, leading to degradation in visual quality.
 - NeRF-based methods have high computational costs, and often cannot capture high-frequency details.
- Ideas: 3D Gaussian splatting (3DGS) provides a competitive real-time solution to high-resolution novel view synthesis . There is great potential in extending it to dynamic human modeling.



The animatable 3D Gaussian representation learns a collection of 3D Gaussians in the canonical space of the rest pose from multi-view human videos. For a given target pose, the Gaussians are corrected by an MLP to capture the appearance changes under the target pose, and then transformed to the target pose using LBS with their blend weights.

Main Contributions

- Contributions:
 - A novel method based on animatable 3D Gaussian model for rendering high-quality free-view human motions in real time;
 - A novel pose-conditioned dynamic 3D Gaussian representation for capturing pose-aware appearance changes.



Our animatable 3D Gaussian representation is able to capture high-frequency details and achieve superior rendering performance