NANYANG TECHNOLOGICAL UNIVERSITY
SINGAPORE

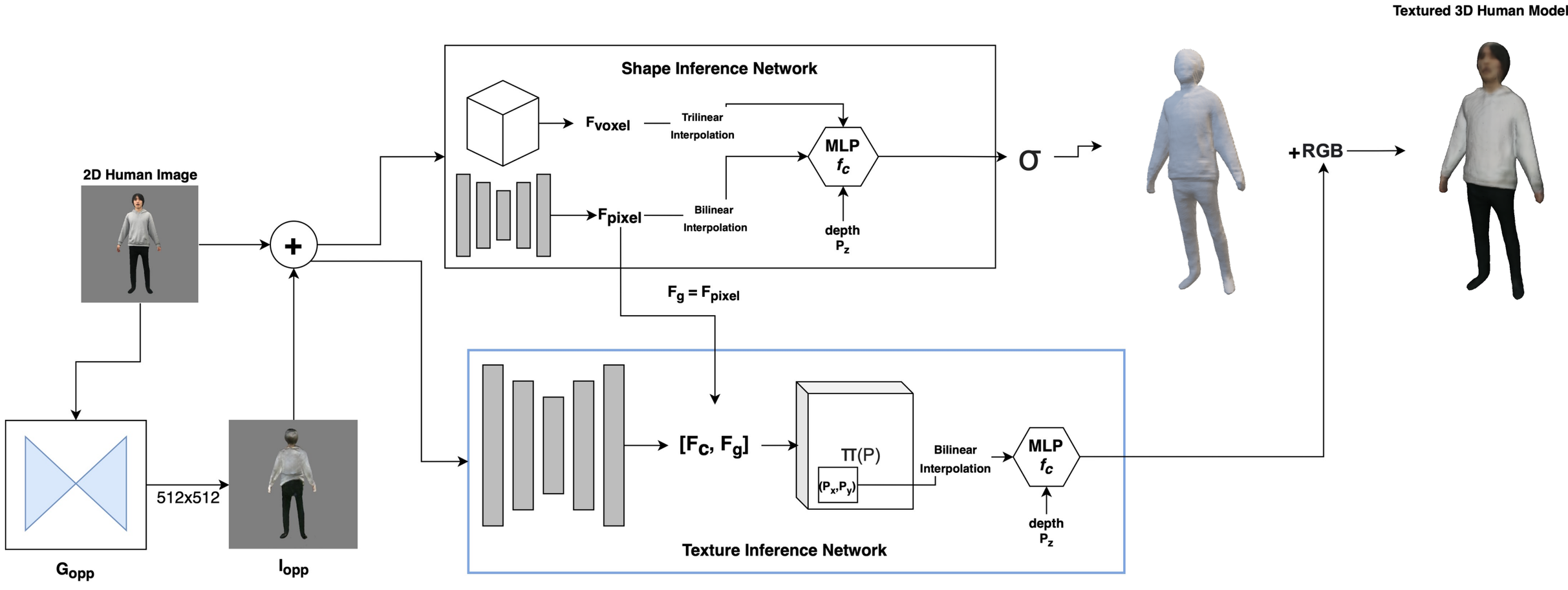
School of Computer Science and Engineering
College of Engineering

3D Human Modelling

Simulating a Multi-View Texture Inference Framework

Student: Tan Jia Le

Supervisor: A/P Loy Chen Change



Motivations

Acquisition of 3D human models is currently time-consuming, expensive and inaccessible to the general public. In contrast, deep neural network is easy to deploy and accessible to general public as only a single RGB image is required to generate a photo-realistic 3D human model.

Objectives

The objective of this project is to improve upon implicit function-based frameworks, specifically the texture inference network. In this study, we propose an architecture simulating a multi-view texture inference setting to generate the texture on the 3D human model. Our approach circumvents the need for an implicit function to hallucinate unseen and occluded regions, achieving better consistency and texture quality.

Results Comparisons

Models	PS	PSNR
PIFu	0.0731	38.883
Our Model (w/ Positional Encoding)	0.0728	38.979
Our Model (w/ Positional Encoding & G_{opp})	0.0726	39.01
Our Model (w/ G_{opp})	**0.0725**	**39.024**

PS: Perceptual Similarity (Lower is better)
PSNR: Peak Signal to Noise Ratio (Higher is better)

These results are averaged across 21744 reconstructed meshes and evaluations are done on four camera angles with respect to the ground truth mesh.