Learning-Based Animation of Clothing for Virtual Try-On

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Motivation

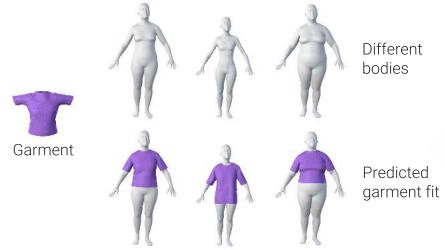
- Lack of realiable ways of shopping clothing online
- Physical try-on is time-consuming and tedious

Image from annasthoughtbubbles.wordpress.com Image from tinaban88.wordpress.com

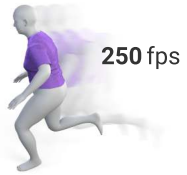
Contributions

A novel data-driven method that:

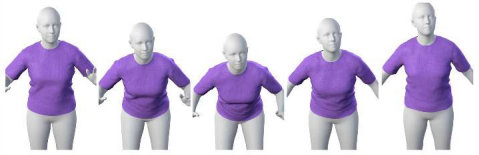
Generalizes to different body shapes:



Achieves very high frame rates:



Captures nonlinear clothing deformations:



Acknowledgments

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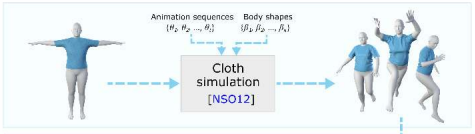
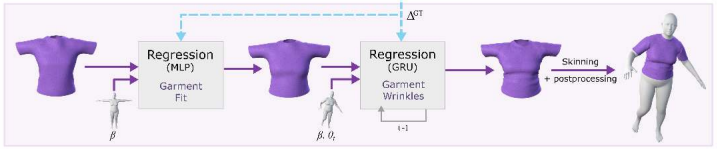
Dan Casas was supported by a Marie Curie Individual Fellowship (Grant agreement 707326)

Our method

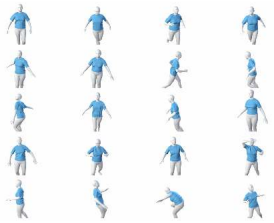
Preprocesing pipeline



Runtime pipeline



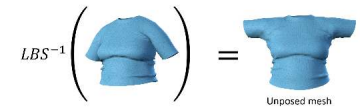
Data acquisition



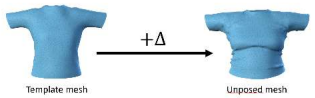
- Cloth simulation
  ARCSim [NSO12]
- 56 sequences
  CMU Motion Capture Database
- 17 body shapes
  SMPL [LMR*2015]

Data preprocesing

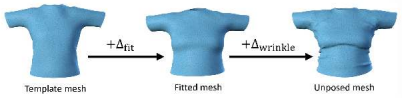
Deformations in pose-space



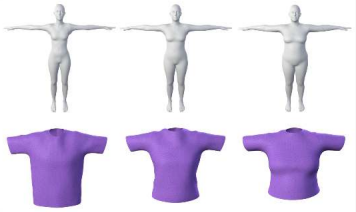
Naïve approach (single step)



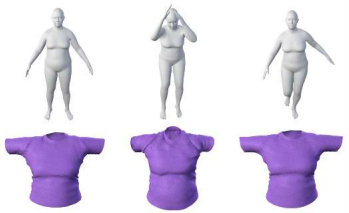
Our approach (two steps)



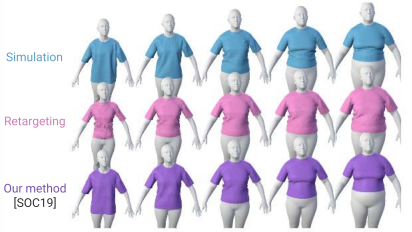
Fit regresion (Δ_{fit})

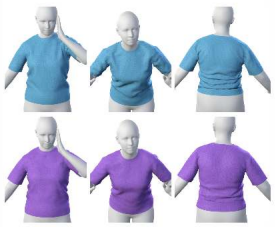


Wrinkle regression ($\Delta_{wrinkle}$)



Qualitative evaluation

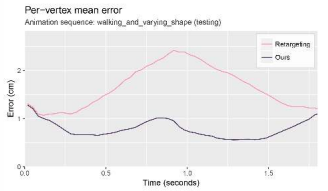




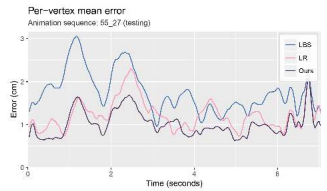
Comparison with cloth simulation (test sequence)

Quantitative evaluation

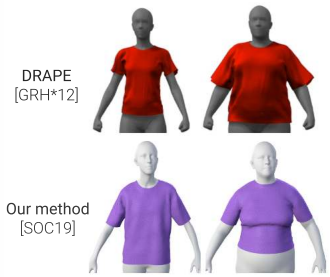
- Generalization to new shapes

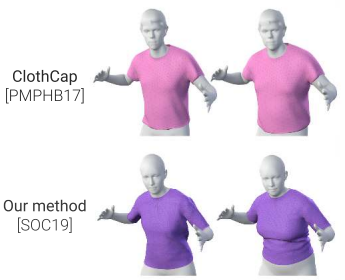


- Generalization to new motions



Comparison with other methods





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