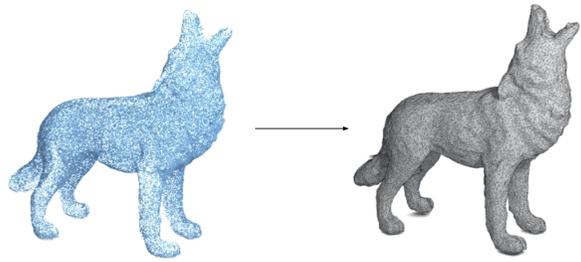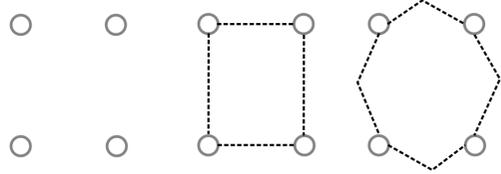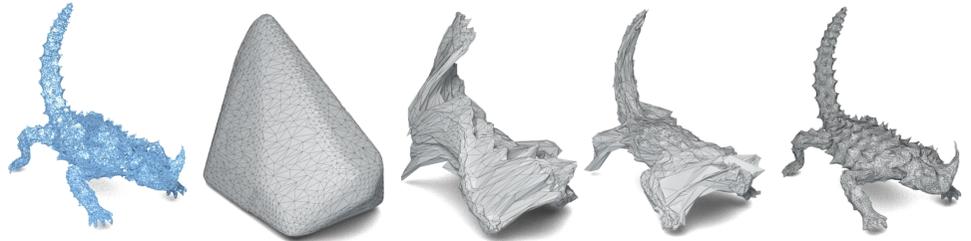# Surface **Reconstruction**

Ill-posed problem
Many solutions!

Relies on **Priors**

Learn Prior from a **Single** Point Cloud for Reconstruction
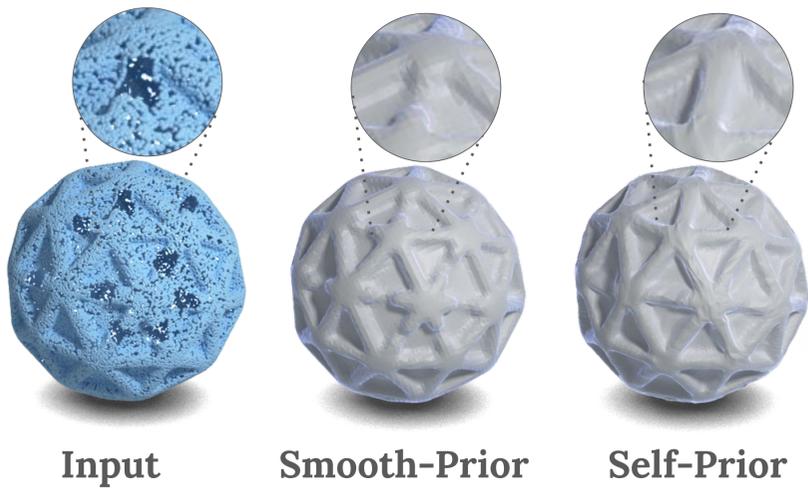
Shrink-Wrap

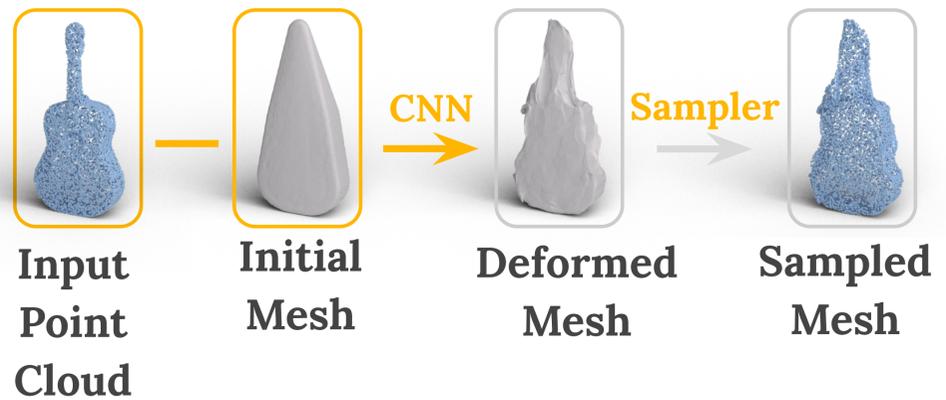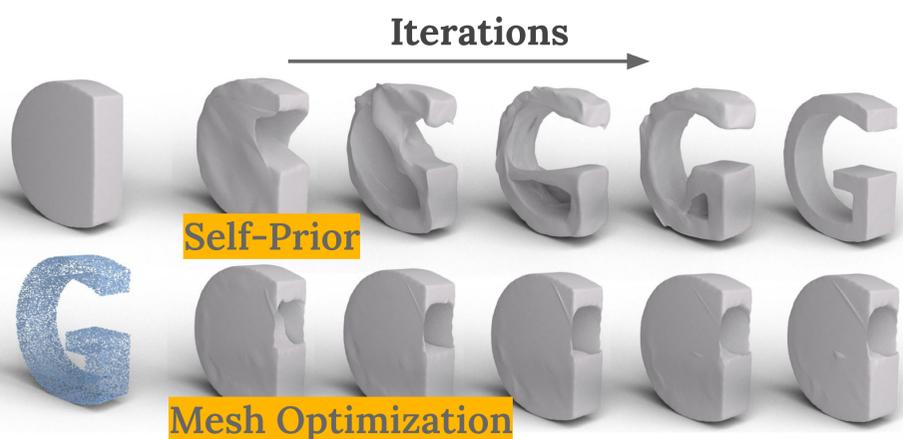Optimize CNN weights to displace vertices

Watertight

Self-Prior

Input Smooth-Prior Self-Prior

Shapes are not random!

CNN weights act as a prior

Shared weights are key to self-prior

Point2Mesh

Input Point Cloud — Initial Mesh → **CNN** Deformed Mesh → **Sampler** Sampled Mesh

Network is a **Prior**

Iterations

Self-Prior

Mesh Optimization

CNN **inductive bias** acts as a Prior!

Real **Scans**

Denoising **Missing** Parts

Project Page: bit.ly/point2mesh