

ShapeKit allows researchers to correct segmentation errors from AI-prediction

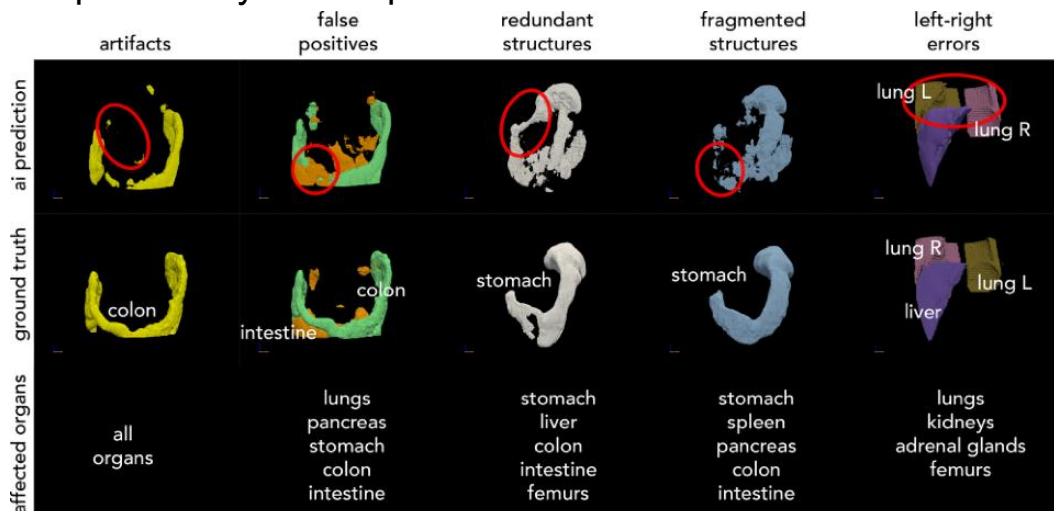
Background: while AI-powered segmentation tools have advanced considerably, they often produce masks with anatomical inaccuracies or missing structures, limiting their reliability in clinical and research applications.

Contributions: we present **ShapeKit**, a fast shape processing toolkit for various organs, allows researchers and clinics to correct segmentation errors in AI-predicted masks **without the need to retrain models**, and can be seamlessly integrated into existing pipelines.

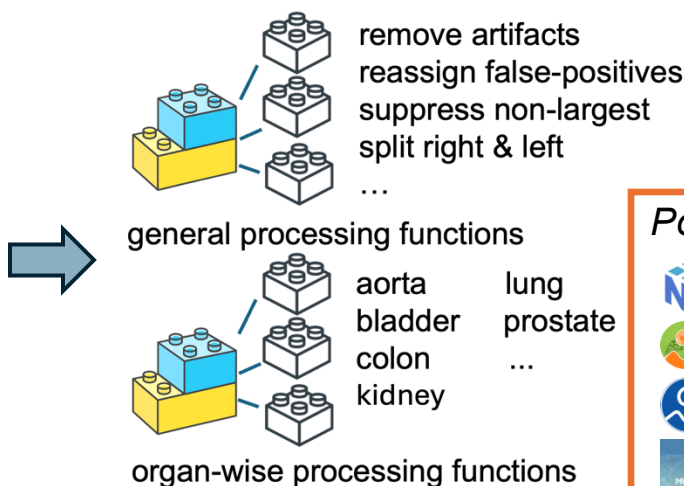
- Advantages:**
- ❑ Fixes errors efficiently from AI-segmentation
 - ❑ Effective across various organs and datasets
 - ❑ Requiring no further model training

Plug-in and play design, simple as playing Legos

step1: identify the shape errors



step2: choose necessary **ShapeKit** modules



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Results and Visualization

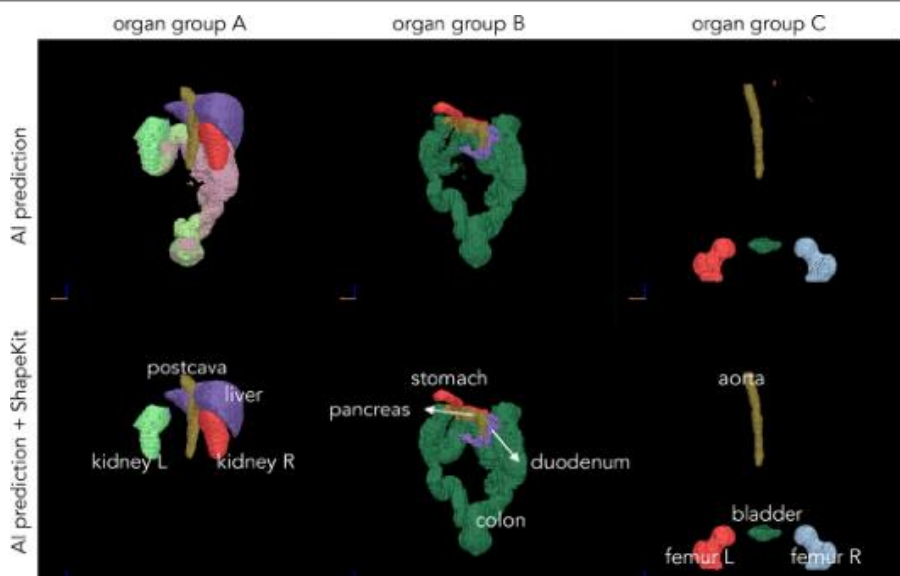
Table 1. Comparison of DSC scores before and after applying ShapeKit for multiple organs. Organs are ordered by the magnitude of improvement (Δ) in descending order.

Dataset A	gall bladder	pancreas	lung L	stomach	lung R	duodenum
VISTA3D [12]	71.7	79.3	87.5	91.4	89.0	72.9
VISTA3D+ShapeKit	79.7	84.5	91.0	93.7	91.2	75.0
Δ	+8.0	+5.2	+3.5	+2.3	+2.2	+2.1
Dataset B	gall bladder	pancreas	colon	lung R	lung L	stomach
VISTA3D [12]	68.1	73.5	80.1	88.6	87.8	91.3
VISTA3D+ShapeKit	76.9	79.0	84.2	91.7	90.5	93.6
Δ	+8.8	+5.5	+4.1	+3.1	+2.7	+2.3

Table: the most improved organs

Figures: visualization of the improvement by ShapeKit

ShapeKit example 1



ShapeKit example 2

