



NYU

TANDON SCHOOL OF ENGINEERING

Contrastive Spatial Reasoning on Multi-View Line Drawings

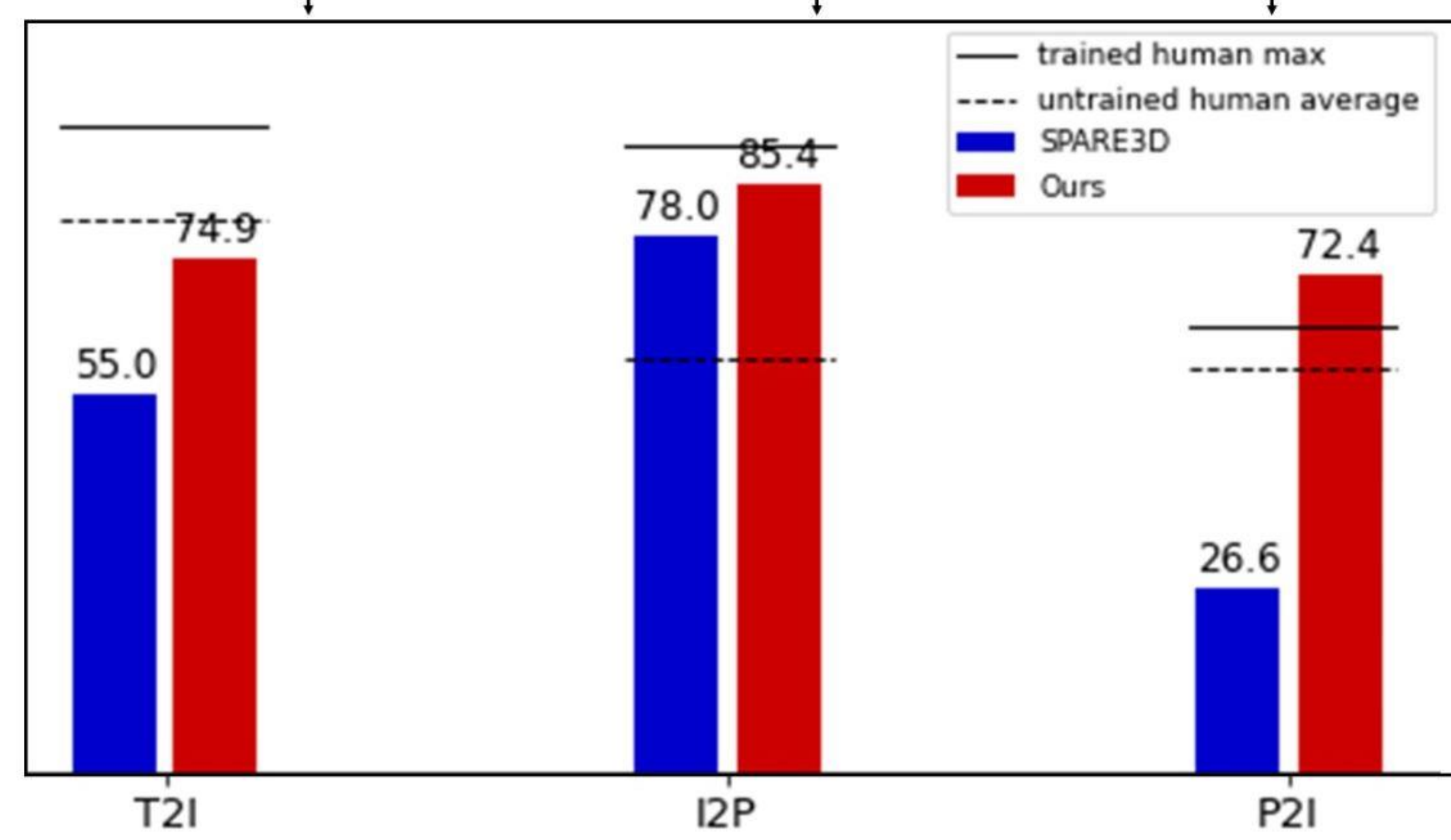
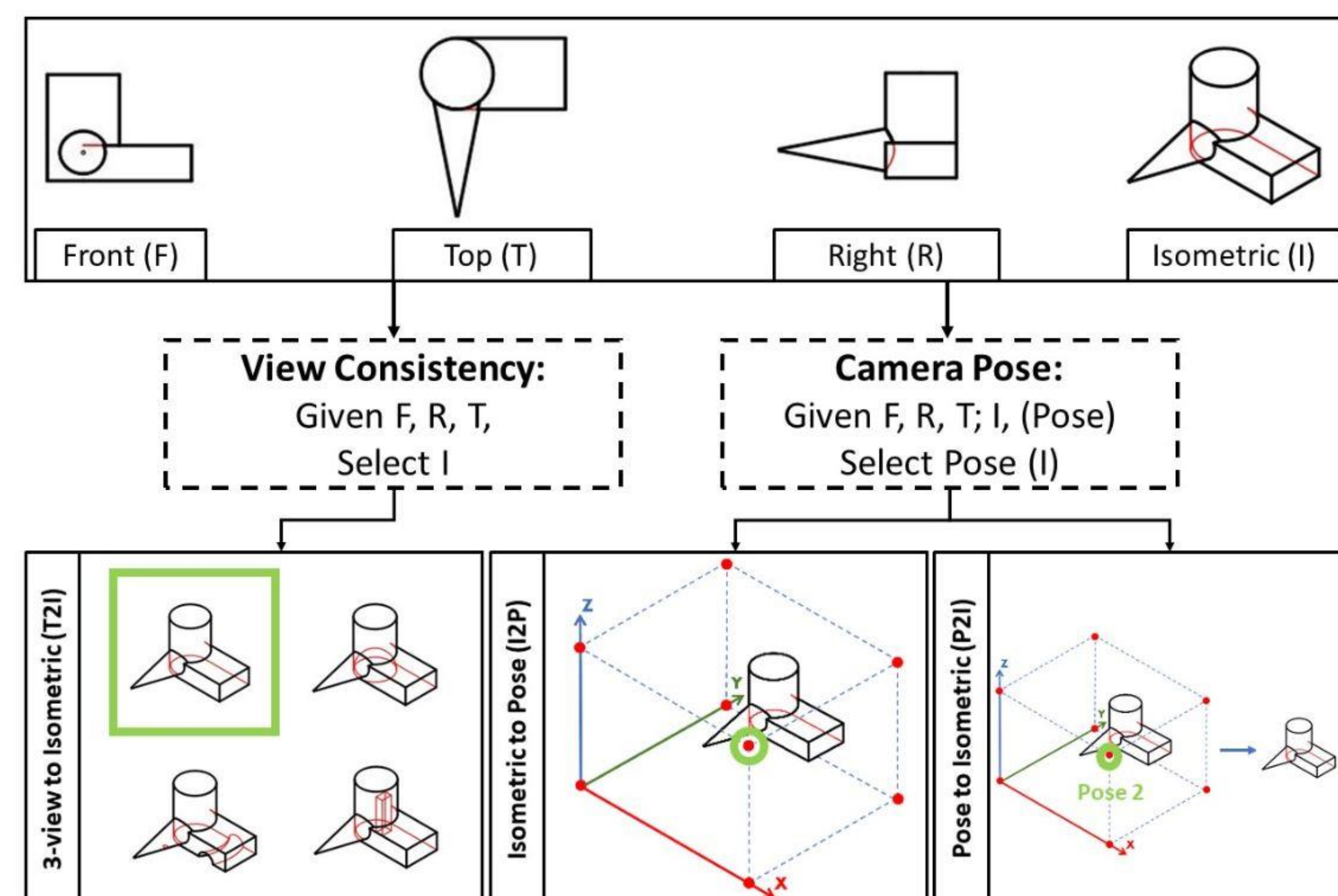
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Introduction and Main Contributions

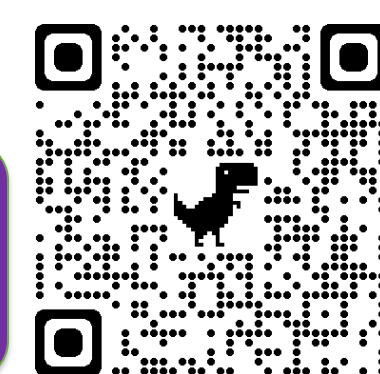
- A novel contrastive learning method by self-supervised binary classifications for *T2I* task in SPARE3D dataset, which enables deep networks to effectively learn **detail-sensitive** yet **view-invariant** multi-view line drawing representations
- Extensive controlled experiments to improve our empirical understandings of SPARE3D tasks, which further help us improve network design for these tasks



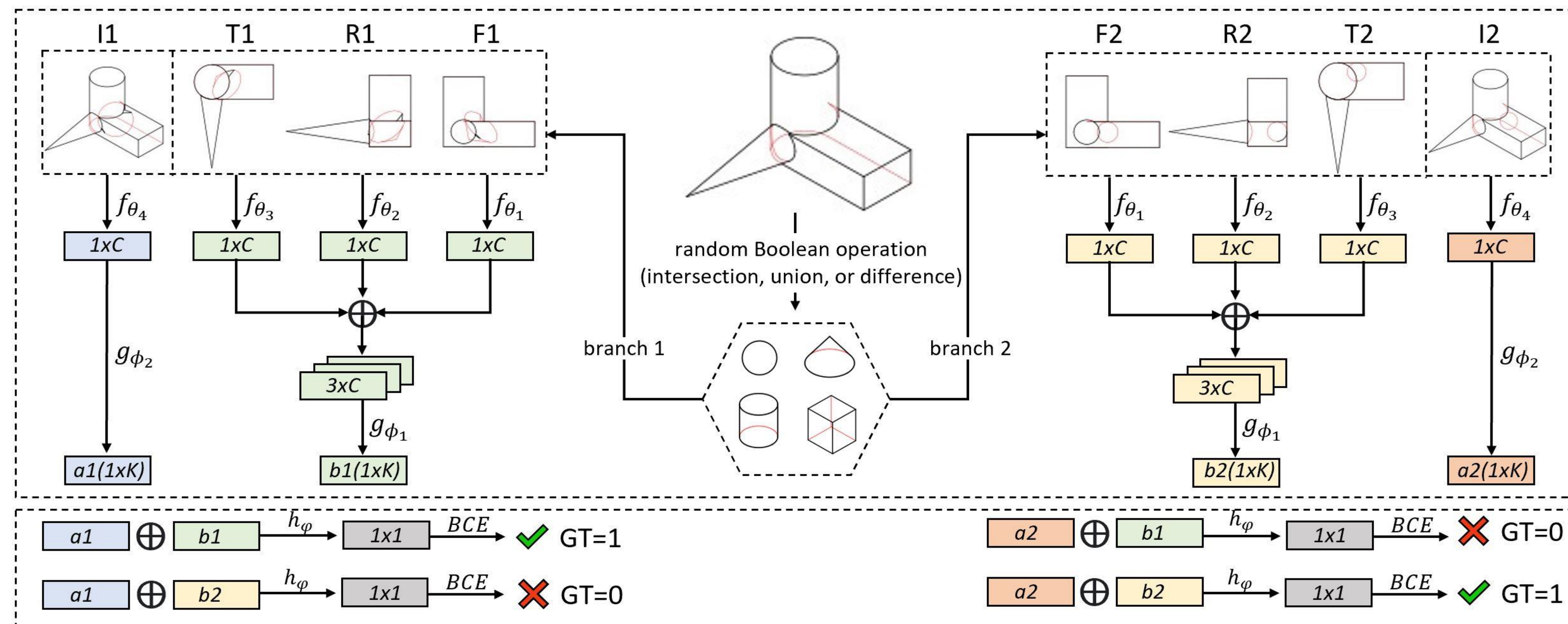
We significantly improves SPARE3D baselines.

Project webpage:

<https://ai4ce.github.io/Contrastive-SPARE3D/>



Contrastive spatial reasoning network architecture



Experiment results for our method vs. other methods

Supervised learning (5K)	14K	Jigsaw puzzle(Noroozi and Favaro, 2016)	Colorization(Zhang et al., 2016)	SimCLR(Chen et al., 2020)	Ours (direct)	Ours (fine-tuned)
25.2/30.6/55.0	27.4/51.4/63.6	27.4/54.8/-	23.4/30.6/-	31.0/-/-	71.4/-/-	74.9/-/-

Attention maps for our method vs. supervised learning

