

Learning Paradigms for Surgical Action Prediction: Comprehensive Comparison

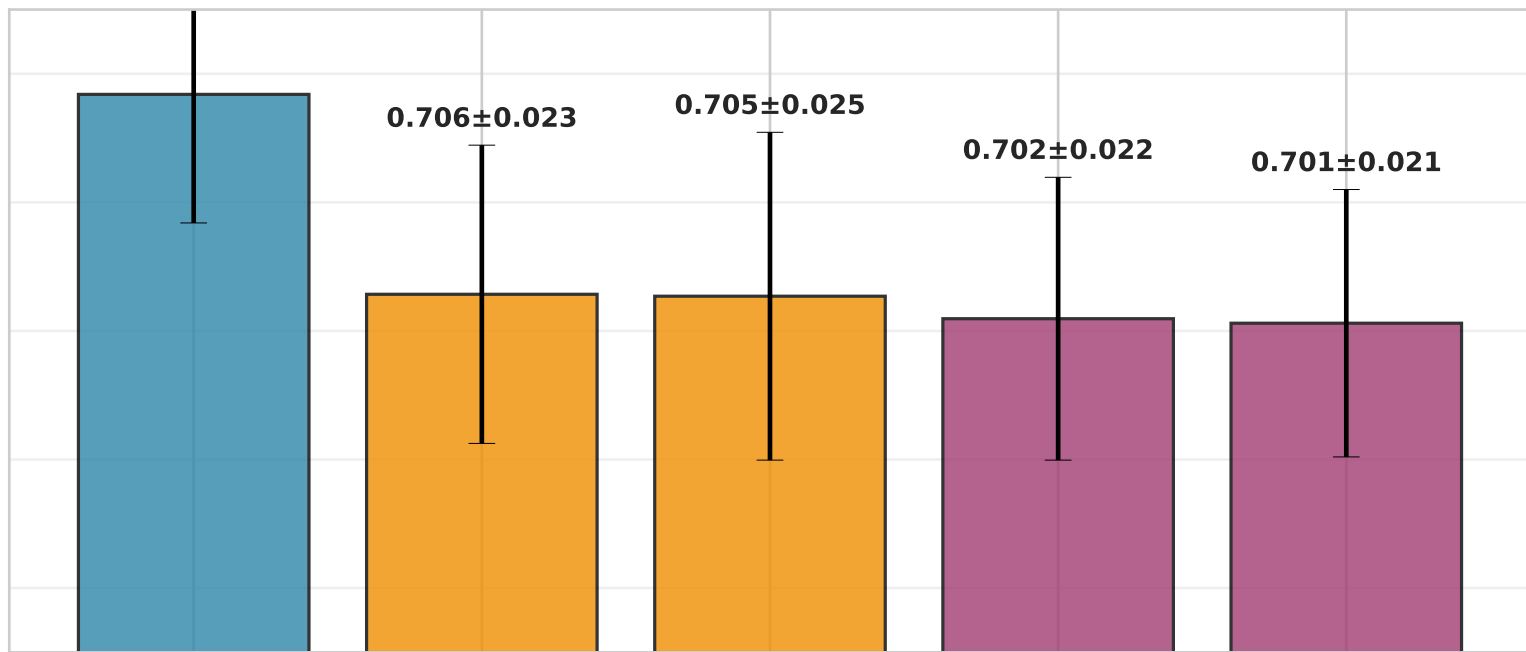
0.737±0.020

(Single-step Action Prediction)

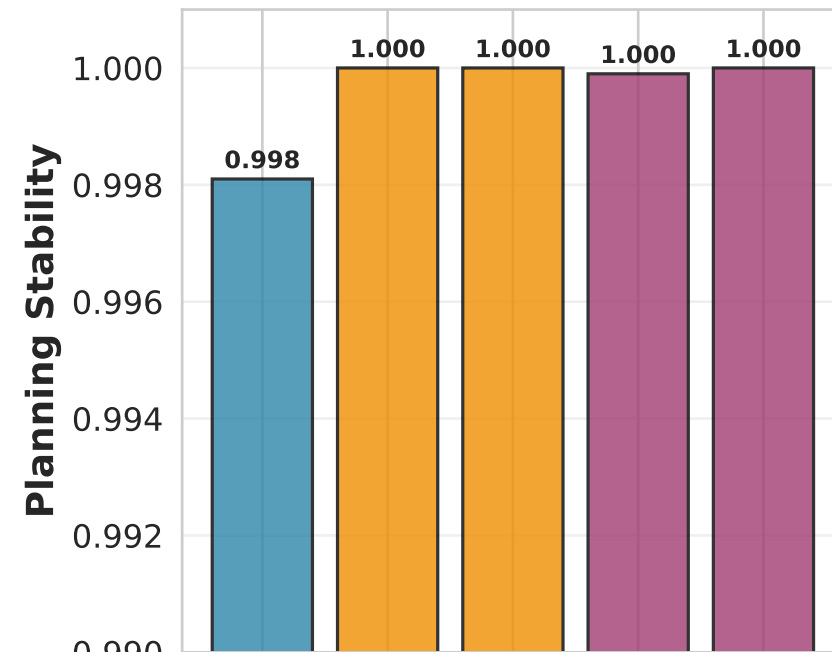
Stability

- Supervised Learning
- Model-Based RL
- Model-Free RL

Mean Average Precision (mAP)



Learning Paradigm



Planning Stability

IL

WM-PPO

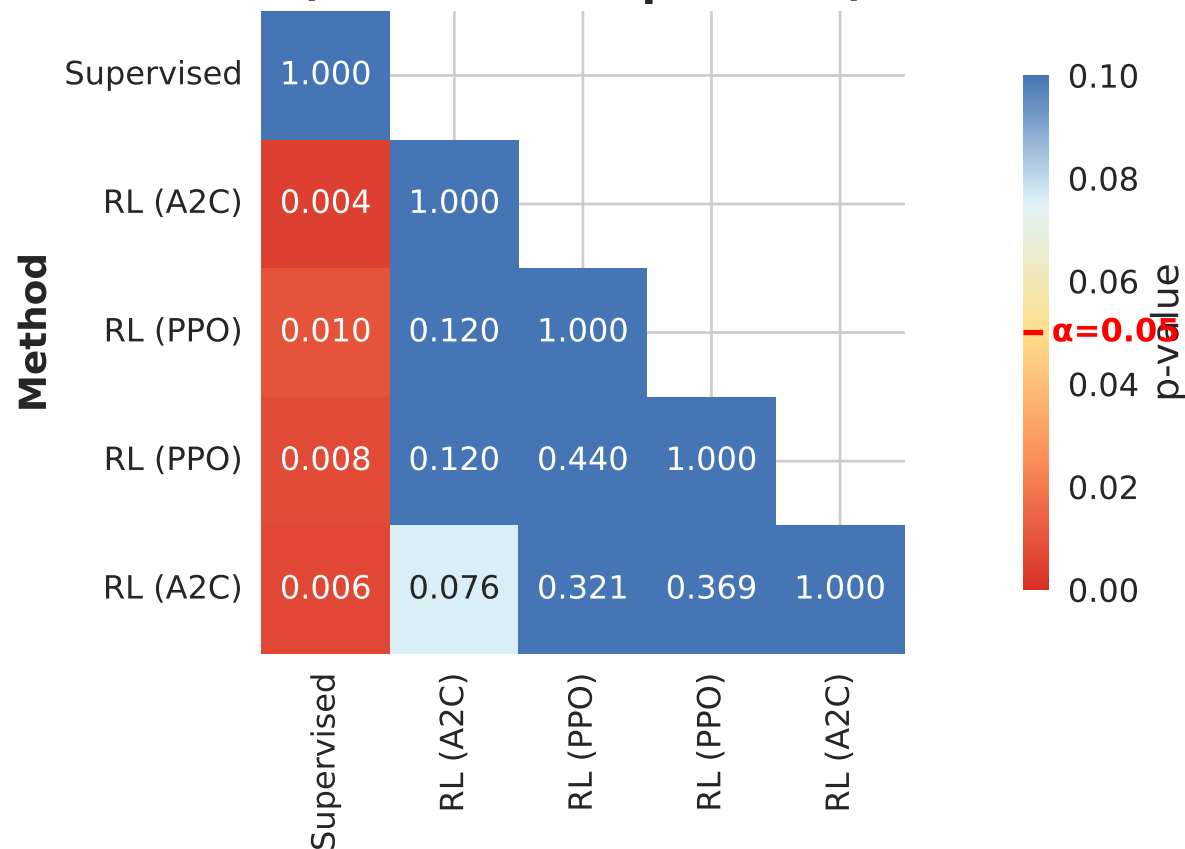
WM-A2C

DV-PPO

DV-A2C

Method

C) Statistical Significance Matrix (Pairwise Comparisons)



Method

Method

0.10

0.08

0.06

0.04

0.02

0.00

p-value

$\alpha = 0.05$