

OMNIRAS PRETRAINING CORPUS

18-SOURCE SURGICAL MIX · 14 ENTRIES · 12 LARGEST NAMED



ROBOTIC 51% 5 · 1,348 h
ours · private · 427 h
surgvu24 · surgtoolloc2022 ·
surgenet_robotic · grasp

MIXED SURGICAL 34% 1 · 902 h
lemon · YouTube-scraped

LAPAROSCOPIC 15% 6 · 388 h
cholec80 · multibypass140 · surgenet_lap ·
gynsurg · lapgyn6_events · heichole

~30+ pretraining runs

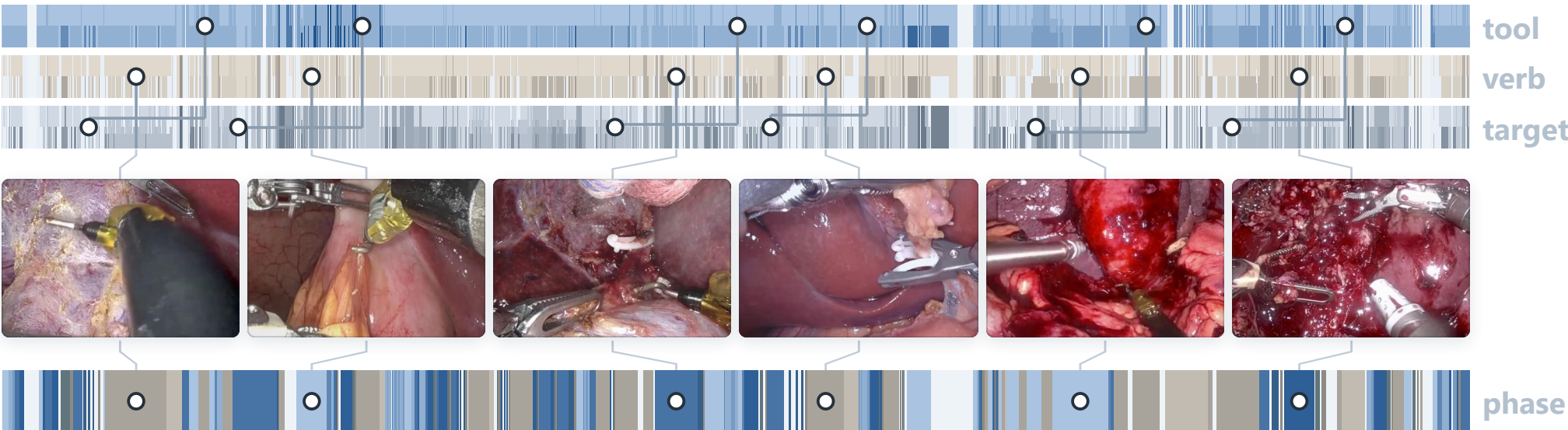
254 probe-finetune runs
includes 109 partial-FT

TWO DENSELY-ANNOTATED BENCHMARKS RELEASED WITH THIS WORK

YT-Chole Triplets

Dataset 02 · Public · re-annotated · Action ⟨tool, verb, target⟩ · multi-label

10 procedures · 5-6-12 classes · ~6.4 h



OmniRAS-PR

Dataset 01 · Our released private collection, plus phase annotation of public SurgeNet video

51 procedures · 11 phases · ~11.1 h

PUBLICLY AVAILABLE CHECKPOINT · EVALUATED ON PUBLIC SURGICAL BENCHMARKS

SAR-RARP50

Frame-wise action · F1@10 (full FT · test)

91.6

F1@10 %

^ +16.6

OmniRAS

FT full

91.6

LemonFM

75.0

EndoViT

69.8

SurgeNet-XL

68.1

GraSP Phases

Surgical phase · mAP (full FT)

85.3

mAP %

^ +8.6

OmniRAS

FT full

85.3

TAPIS

76.7

LemonFM

FT4

75.4

SurgeNet-XL

67.6

GraSP Steps

Surgical step · mAP (last-4 FT)

57.9

mAP %

^ +5.8

OmniRAS

FT4

57.9

TAPIS

52.0

LemonFM

FT4

48.6

SurgeNet-XL

45.4

SARAS-ESAD

Detection · AP_m (one population · last-4 FT + aug)

23.2

AP %

^ +3.9

OmniRAS

FT4

23.2

Challenge best

19.3

LemonFM

FT4

15.9

SurgeNet-XL

FT4

12.6

OmniRAS-PR

Surgical phase · frame-F1 (last-4 FT)

47.9

frame-F1 %

^ +11.3

OmniRAS

FT4

47.9

SurgeNet-XL

36.6

LemonFM

34.9

EndoViT

25.6

YT-Chole Triplets

Action ⟨i,v,t⟩ · IVT mAP (last-8 FT)

39.9

IVT mAP %

^ +13.9

OmniRAS

FT8

39.9

SurgeNet-XL

26.0

LemonFM

FT4

21.4

EndoViT

9.1