

Sealed Experiment Record

Sealed 2026-10-11 · Signed by the K-Veritas server
Session a4ca4542 · Data hash 9c32...ec1b

Abstract

This record seals 1 run (kv_run.sh) executed on Intel(R) Xeon(R) W-2145 CPU @ 3.70GHz between 2026-10-11 19:20 and 19:28 UTC. Reported results: yolov9_s_coco_map50_95 0.468, yolov9_s_coco_map50 0.634, yolov9_m_coco_map50_95 0.514, yolov9_m_coco_map50 0.681. 1 invocation in total, 0 failed. Produced with K-Veritas [1].

What this record proves

These numbers came from the sealed code at this time, unchanged since. Whether the experiment is sound is for the reader to judge.

Verify: kveritas verify <this file> or kveritas.org/verify

1 Setup

Item	Value
Session	a4ca4542-80d0-4c01-b0eb-0929ddd61891
Initialized	2026-10-11T19:20:00Z
Machine	167ec0d6dc9a8170
Operating system	linux / amd64
CPU	Intel(R) Xeon(R) W-2145 CPU @ 3.70GHz, 16 cores
Memory	31.0 GB
GPU	NVIDIA GeForce RTX 5060 Ti, 16311 MiB
Environment, run 1	0bc83c721229986775bc21b492d8c001f872713c12ed3b64108d727d33faf189
Disclosure	open
Source code, run 1	6a150c554d7696ffd93b32884c0cb7f5e98e495b64444fdebf8c766410b0da6b

2 Runs

#	Command	Duration	Exit	Anchored
1	bash kv_run.sh	8 minutes 56 seconds	0	at run end

1 invocation in total: 1 kept in this record, 0 failed, 0 interrupted. Every invocation is recorded by the server, including the ones not kept.

3 Results

Run 1: kv_run.sh

Metric	Final value	Step	Source
yolov9_s_coco_map50_95	0.468		explicit
yolov9_m_coco_map50_95	0.514		explicit
yolov9_c_coco_map50_95	0.53		explicit

Metric	Final value	Step	Source
yolov9_e_coco_map50_95	0.556		explicit

Inline claim	Value	Phase	Output line
yolov9_s_coco_map50_95	0.468		201
yolov9_s_coco_map50	0.634		202
yolov9_m_coco_map50_95	0.514		404
yolov9_m_coco_map50	0.681		405
yolov9_c_coco_map50_95	0.53		607
yolov9_c_coco_map50	0.703		608
yolov9_e_coco_map50_95	0.556		966
yolov9_e_coco_map50	0.728		967

4 Execution evidence

Coherence

Coherent (0.35): the telemetry channels move together, as one process.

Telemetry

Run	Samples	CPU time	Peak memory	Peak GPU
1	5145	215.0 s	15.66 GB	93%

5 Provenance

Run 1: kv_run.sh

Disclosure open. 114 tracked files, 6 snapshots. Every snapshot is bound into the signature.

#	Snapshot	Time	Root	Changed
0	run_start	19:20:00	5928cc92ee3b6db5	114
5	run_end	19:28:56	5928cc92ee3b6db5	0

4 snapshots with no file change omitted here; full timeline in Appendix B.

Activity: 115 files read, 0 files written, 51 subprocesses. Full list in Appendix B.

6 Verification

Field	Value
Signer	Signed by the K-Veritas server
Signed at	2026-10-11T19:28:58.051691+00:00
Algorithm	RSA-PSS-SHA256, 4096-bit key
Key fingerprint	eeac81653cf44ac029c4069cf2a06d9f
Data hash	9c3296aa8ff5c7aad23be9ab545b8b6df894c5507f876101f0dc569109aec1b
Code bundle hash	3ce346aed89bb05e97081602a0d8c66ad7fd35980ff3016a4a9b9997c18e61ab

Run anchors: 1 invocations were anchored at the server when they ended.

Checks a verifier runs

1. The stored canonical data hashes to the data hash above, and the signature verifies over data_hash:nonce:signed_at.
2. The signing key is the K-Veritas server key, not one supplied by the author.
3. Nothing was appended after the seal, and these pages hash to the value bound in the seal.
4. Each run matches the digest the server received when it ended.

5. A supplied code bundle hashes to the code bundle hash above.

References

[1] M. K. Keita and C. Homan. Computer Science Conferences Should Require Nonrepudiable Experimental Results. NeurIPS 2026 Position Paper Track. arXiv:2605.08586.

Appendix

A Full metric series

Run 1: kv_run.sh

Metric	Value	Step	Line	Source
yolov9_s_coco_map50_95	0.468		200	explicit
yolov9_m_coco_map50_95	0.514		403	explicit
yolov9_c_coco_map50_95	0.53		606	explicit
yolov9_e_coco_map50_95	0.556		965	explicit

Phase	Line	Time	CPU time	Memory	GPU
yolov9_s	1	19:20:00	1.3 s	0.36 GB	
yolov9_m	203	19:21:49	0.1 s	0.01 GB	
yolov9_c	406	19:23:51	0.1 s	0.01 GB	
yolov9_e	609	19:25:59	0.1 s	0.01 GB	

B Provenance timeline and activity map

Run 1: kv_run.sh

#	Snapshot	Time	Root	Changed
0	run_start	19:20:00	5928cc92ee3b6db5	114
1	phase yolov9_s	19:20:00	5928cc92ee3b6db5	0
2	phase yolov9_m	19:21:49	5928cc92ee3b6db5	0
3	phase yolov9_c	19:23:51	5928cc92ee3b6db5	0
4	phase yolov9_e	19:25:59	5928cc92ee3b6db5	0
5	run_end	19:28:56	5928cc92ee3b6db5	0

Event	Path or command	Hash
read	kv_run.sh	
read	val.py	
read	.kveritasignore	
read	benchmarks.py	
read	classify/predict.py	
read	classify/train.py	
read	classify/val.py	
read	data/coco.yaml	
read	data/hyps/hyp.scratch-high.yaml	
read	detect.py	
read	detect_dual.py	
read	export.py	
read	hubconf.py	
read	models/__init__.py	
read	models/common.py	
read	models/detect/gelan-c.yaml	
read	models/detect/gelan-e.yaml	
read	models/detect/gelan-m.yaml	
read	models/detect/gelan-s.yaml	
read	models/detect/gelan-t.yaml	

Event	Path or command	Hash
read	models/detect/gelan.yaml	
read	models/detect/yolov7-af.yaml	
read	models/detect/yolov9-c.yaml	
read	models/detect/yolov9-cf.yaml	
read	models/detect/yolov9-e.yaml	
read	models/detect/yolov9-m.yaml	
read	models/detect/yolov9-s.yaml	
read	models/detect/yolov9-t.yaml	
read	models/detect/yolov9.yaml	
read	models/experimental.py	
read	models/hub/anchors.yaml	
read	models/hub/yolov3-spp.yaml	
read	models/hub/yolov3-tiny.yaml	
read	models/hub/yolov3.yaml	
read	models/panoptic/gelan-c-pan.yaml	
read	models/panoptic/yolov7-af-pan.yaml	
read	models/segment/gelan-c-dseg.yaml	
read	models/segment/gelan-c-seg.yaml	
read	models/segment/yolov7-af-seg.yaml	
read	models/segment/yolov9-c-dseg.yaml	
read	models/tf.py	
read	models/yolo.py	
read	panoptic/predict.py	
read	panoptic/train.py	
read	panoptic/val.py	
read	scripts/get_coco.sh	
read	segment/predict.py	
read	segment/train.py	
read	segment/train_dual.py	
read	segment/val.py	
read	segment/val_dual.py	
read	tools/reparameterization.ipynb	
read	train.py	
read	train_dual.py	
read	train_triple.py	
read	utils/__init__.py	
read	utils/activations.py	
read	utils/augmentations.py	
read	utils/autoanchor.py	
read	utils/autobatch.py	
read	utils/callbacks.py	
read	utils/coco_utils.py	
read	utils/dataloaders.py	
read	utils/downloads.py	
read	utils/general.py	
read	utils/lion.py	
read	utils/loggers/__init__.py	
read	utils/loggers/clearml/__init__.py	
read	utils/loggers/clearml/clearml_utils.py	
read	utils/loggers/clearml/hpo.py	

Event	Path or command	Hash
read	utils/loggers/comet/__init__.py	
read	utils/loggers/comet/comet_utils.py	
read	utils/loggers/comet/hpo.py	
read	utils/loggers/comet/optimizer_config.json	
read	utils/loggers/wandb/__init__.py	
read	utils/loggers/wandb/log_dataset.py	
read	utils/loggers/wandb/sweep.py	
read	utils/loggers/wandb/sweep.yaml	
read	utils/loggers/wandb/wandb_utils.py	
read	utils/loss.py	
read	utils/loss_tal.py	
read	utils/loss_tal_dual.py	
read	utils/loss_tal_triple.py	
read	utils/metrics.py	
read	utils/panoptic/__init__.py	
read	utils/panoptic/augmentations.py	
read	utils/panoptic/dataloaders.py	
read	utils/panoptic/general.py	
read	utils/panoptic/loss.py	
read	utils/panoptic/loss_tal.py	
read	utils/panoptic/metrics.py	
read	utils/panoptic/plots.py	
read	utils/panoptic/tal/__init__.py	
read	utils/panoptic/tal/anchor_generator.py	
read	utils/panoptic/tal/assigner.py	
read	utils/plots.py	
read	utils/segment/__init__.py	
read	utils/segment/augmentations.py	
read	utils/segment/dataloaders.py	
read	utils/segment/loss.py	
read	utils/segment/loss_tal.py	
read	utils/segment/loss_tal_dual.py	
read	utils/segment/metrics.py	
read	utils/segment/plots.py	
read	utils/segment/tal/__init__.py	
read	utils/segment/tal/anchor_generator.py	
read	utils/segment/tal/assigner.py	
read	utils/tal/__init__.py	
read	utils/tal/anchor_generator.py	
read	utils/tal/assigner.py	
read	utils/torch_utils.py	
read	utils/triton.py	
read	val_dual.py	
read	val_triple.py	
read	utils/segment/general.py	
process	python val.py --data data/coco.yaml --img 640 --batch 32 --conf 0.001 --iou 0....	
process	tr \r \n	
process	tee /var/tmp/kv-repro/044-WongKinYiu-yolov9/data/val-s.log	
process	grep -v it/s\]\s/it\]	
process	python val.py --data data/coco.yaml --img 640 --batch 32 --conf 0.001 --iou 0....	

[illegible]

C Run history

Invocation 1, OK, 8 minutes 56 seconds, 967 output lines, started 2026-10-11T19:20:00

```
metric_hash 324e5b92893eb3e342d2c291e4ae702ed0257f78c56e09e886f0ee6814521096
run_digest  bb1283dd43682efb0b8c240e8657d7416c3aaeebc42a081d650ba4fb8c62282c
anchored    at run end
```

D Raw seal fields and hashes

Seal

```
data_hash          9c3296aa8fff5c7aad23be9ab545b8b6df894c5507f876101f0dc569109aec1b
signed_message_hash c92e87bbbbc5d61f05f84faab68371b84cf4abcd015c8911b614a80f531b910f
nonce             ed207c93cf8c7618274bbbb83c34eb98
signed_at         2026-10-11T19:28:58.051691+00:00
sealed_at         2026-10-11T19:28:58.118813258Z
checkout_bundle   3ce346aed89bb05e97081602a0d8c66ad7fd35980ff3016a4a9b9997c18e61ab
```

Signature (base64)

```
Fx56/TIEdIm0zHPUCGgXmFSSpQEbLwEY0Eo1ToJheRfQ8BA0JGeMqRLcmFC7GoFmaZ9qcnuFkHfulflagwwkxVLS
6a4o1+FUb8BZT7Hjf/uEwIoTZYG/msXQ4ANX6iUQ5HrVaG68tL/sLC2TZ6llcXcCBPYcths+07SeE0GrtXML7zZ6
3api+M0KlPdM04hTyT0Uc9TcDjrkGrDcpgVJDzILlchwfIK/i4GoU3M05jPUv7dRuHiFPpPp/+fePulp5YtWAIky
5U11W2kn7NBHKe+YsY9kWuFH1sNa0hu8lH3T5DiNvEegINXQLY/1em1BL2h80V90p0+o+CalAMk2GjH05jmSh1C3
+gc5kJZdVx3zp3s8yFADu3+FdoA0IiTapauHEcoFwRrS1DEDKArRb056C20qNNVgUYZMwL7rHmRZatQQJhyA97vK
J4odUmBWXIIiUrKeDrNrR05/+Ae9vwi9VL2bpLhAHge3rF5ewpCp9uncbzcQJrQ9sIRXiJrIR96lzfS+cuwmQNGI
IcmS8UipxbX9DV3aCrjz7rJnpIJM9Q3gcoB0HLnb1XVH9p/wexZuoB0li6siolqAI2D30gx12euuNxnEGca/zn1k
Bh56JUDDfj4xFtx7ojiD3KZPi4oh5T0VDKUHz36TIjJm8+MLxYLBi7EXOPtLxiLfwc=
```

Public key

```
-----BEGIN PUBLIC KEY-----
MIICijANBgkqhkiG9w0BAQEFAAOCAg8AMIICCgKCAgEA1QL3YyMgeShx8IhTC7jb
sM0w2BnRXgsBn3+SMXKjtwHATqdekmlPlcjayJxD5fcPrOPPCqp/LouFz5CUZzRi
6+8FTv70dHuIz5A4LAT4vcgwP+iWscPc3HzpmjpsKbTmOemqgp6RB6GNNPpxYa5X
7qU95EfEisX/GfoS9ToxtgPBwCcVWSPBX8efec4TC58m96Fsp4mC8KICeAdbIbHN
av0JjdTJ//CM0WZSIbdzE6qvEbNFCqDB5tNU7oHfYvBeNlrvPU9TAqdbtozdHq+D
AhfTRuJNgWEkjdW5lb0Vhi4qlkweSOEMTKT3ye9Il5xEaJn4bku4eKqes7VSzt3o
XbUcmr2H5mKcKsvt6bXmX6ajAmgi900Cm9QJlaQkJM6z2iITnyvDMgueJtFxQpC9
HNBPgPZ242NH8JgE6CNF7ToL9syasS67u7UMgIcNgeNHNcy9bLgpU5annzP9gN2l
6HEMldkXNdKQRb1rDwyEJf3N/50YHnXXPmuf5sb8R/pxWNqtF04R5UGVV92qd2Mi
1GN7lE3mbQRbPsLL/JApDXMNzNikaFfBsQK7iKxr7vIaTeZckFZWfThcYNT7Hasg
+eE4bf/oLCHBCf1VIDCKDxoehdZ0WRRcgM9iK3I/0zZdaBsgdc8WuJRmb8LPP9v
8Jap/1PWjNcNku5cdW3gHLcCAwEAAQ==
-----END PUBLIC KEY-----
```

Run 1 outputs

```
stdout 5c260aedd41b5f0d09de23ddf93df3597ead1ec9ed9f2d2e42953ad4c67fc484
stderr e3b0c44298fc1c149afb4c8996fb92427ae41e4649b934ca495991b7852b855
metrics 324e5b92893eb3e342d2c291e4ae702ed0257f78c56e09e886f0ee6814521096
digest  bb1283dd43682efb0b8c240e8657d7416c3aaeebc42a081d650ba4fb8c62282c
kv_run.sh (unchanged)
pre def5b7ec92f98bac46b5e9a91f03085d071786b098ebad1220a1f367bfdb7647
post def5b7ec92f98bac46b5e9a91f03085d071786b098ebad1220a1f367bfdb7647
```

E BibTeX for [1]

```
@misc{keita2026computerscienceconferencesrequire,  
  title={Computer Science Conferences Should Require Nonrepudiable Experimental Results},  
  author={Mamadou K. Keita and Christopher Homan},  
  year={2026},  
  eprint={2605.08586},  
  archivePrefix={arXiv},  
  primaryClass={cs.CR},  
  url={https://arxiv.org/abs/2605.08586},  
}
```