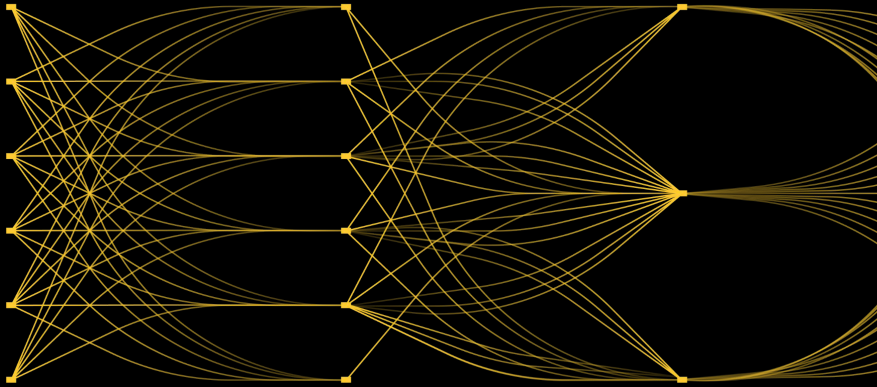
Weights & Biases

# Iterative, Multiplayer Research



January 2023

# Accounts Needed for Pt. 2, Competition

kaggle.com

wandb.ai

colab.research.google.com

Weights & Biases

# The W&B Course

**www.wandb.courses**

# The Goal

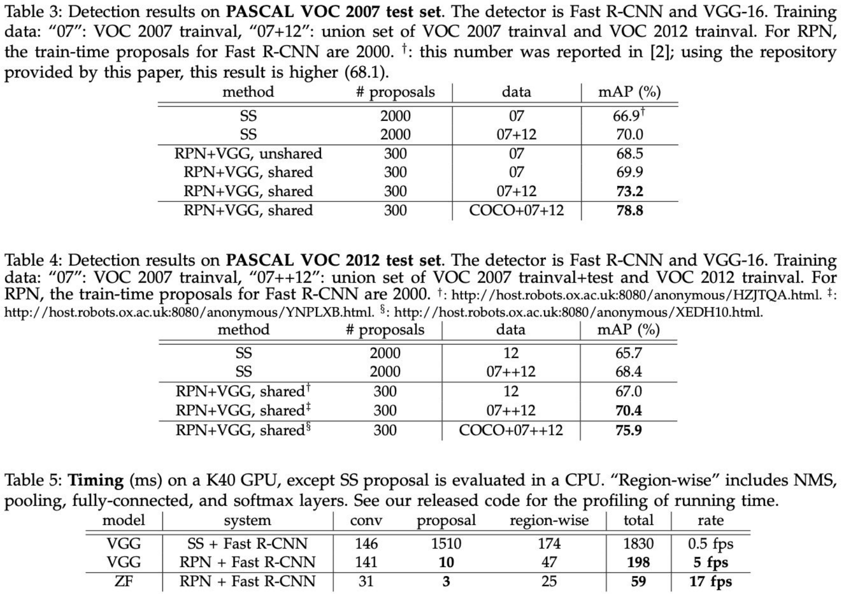


Table 3: Detection results on **PASCAL VOC 2007 test set**. The detector is Fast R-CNN and VGG-16. Training data: "07": VOC 2007 trainval, "07+12": union set of VOC 2007 trainval and VOC 2012 trainval. For RPN, the train-time proposals for Fast R-CNN are 2000. †: this number was reported in [2]; using the repository provided by this paper, this result is higher (68.1).

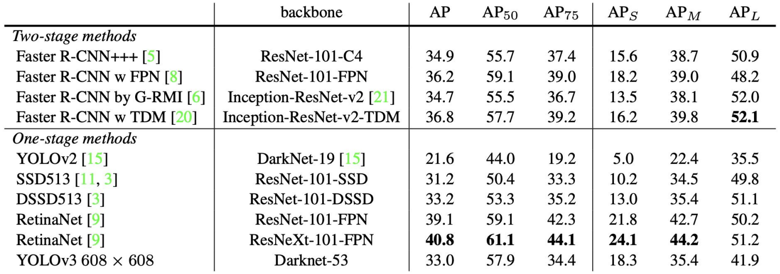
| method | # proposals | data | mAP (%) |
|---|---|---|---|
| SS | 2000 | 07 | 66.9[†] |
| SS | 2000 | 07+12 | 70.0 |
| RPN+VGG, unshared | 300 | 07 | 68.5 |
| RPN+VGG, shared | 300 | 07 | 69.9 |
| RPN+VGG, shared | 300 | 07+12 | **73.2** |
| RPN+VGG, shared | 300 | COCO+07+12 | **78.8** |

Table 4: Detection results on **PASCAL VOC 2012 test set**. The detector is Fast R-CNN and VGG-16. Training data: "07": VOC 2007 trainval, "07++12": union set of VOC 2007 trainval+test and VOC 2012 trainval. For RPN, the train-time proposals for Fast R-CNN are 2000. †: http://host.robots.ox.ac.uk:8080/anonymous/HZJTQA.html. ‡: http://host.robots.ox.ac.uk:8080/anonymous/YNPLXB.html. §: http://host.robots.ox.ac.uk:8080/anonymous/XEDH10.html.

| method | # proposals | data | mAP (%) |
|---|---|---|---|
| SS | 2000 | 12 | 65.7 |
| SS | 2000 | 07++12 | 68.4 |
| RPN+VGG, shared[†] | 300 | 12 | 67.0 |
| RPN+VGG, shared[‡] | 300 | 07++12 | **70.4** |
| RPN+VGG, shared[§] | 300 | COCO+07++12 | **75.9** |

Table 5: **Timing** (ms) on a K40 GPU, except SS proposal is evaluated in a CPU. "Region-wise" includes NMS, pooling, fully-connected, and softmax layers. See our released code for the profiling of running time.

| model | system | conv | proposal | region-wise | total | rate |
|---|---|---|---|---|---|---|
| VGG | SS + Fast R-CNN | 146 | 1510 | 174 | 1830 | 0.5 fps |
| VGG | RPN + Fast R-CNN | 141 | **10** | 47 | **198** | **5 fps** |
| ZF | RPN + Fast R-CNN | 31 | **3** | 25 | **59** | **17 fps** |



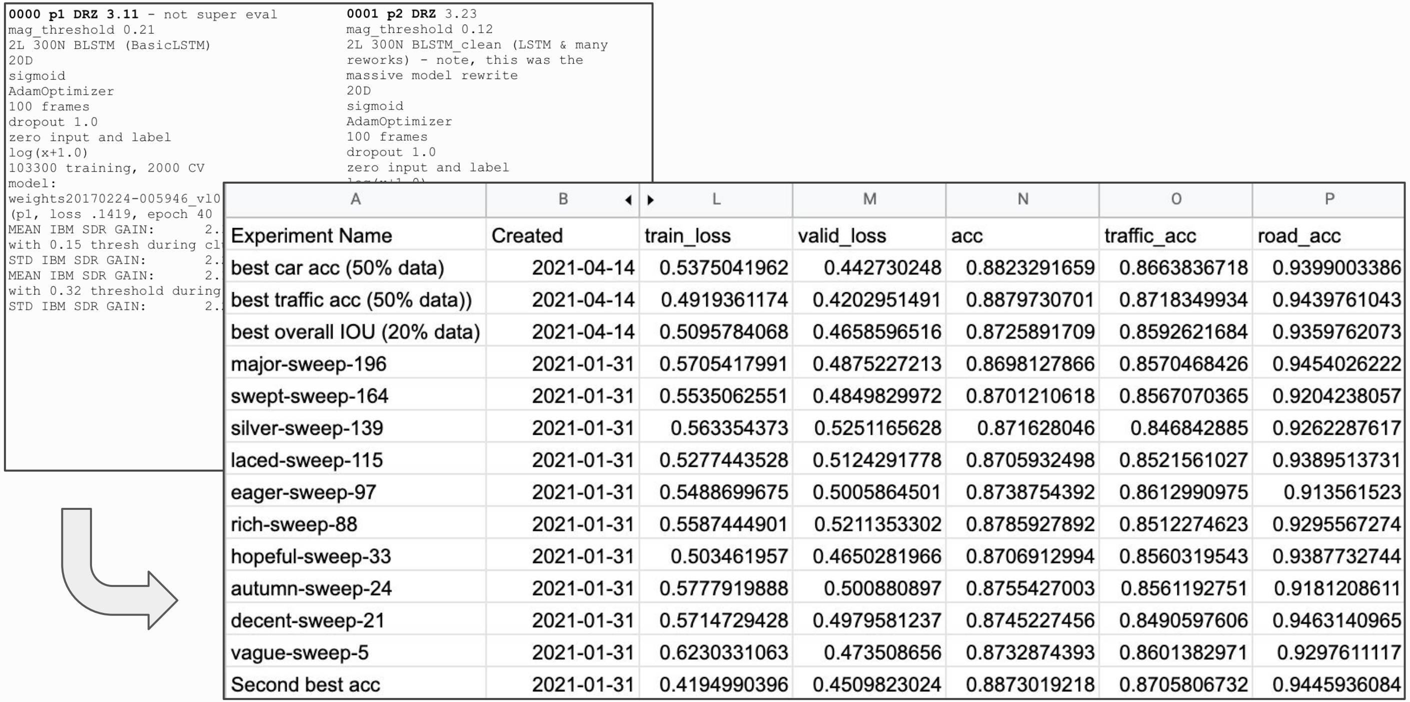
| | backbone | AP | $AP_{50}$ | $AP_{75}$ | $AP_S$ | $AP_M$ | $AP_L$ |
|---|---|---|---|---|---|---|---|
| *Two-stage methods* | | | | | | | |
| Faster R-CNN+++ [5] | ResNet-101-C4 | 34.9 | 55.7 | 37.4 | 15.6 | 38.7 | 50.9 |
| Faster R-CNN w FPN [8] | ResNet-101-FPN | 36.2 | 59.1 | 39.0 | 18.2 | 39.0 | 48.2 |
| Faster R-CNN by G-RMI [6] | Inception-ResNet-v2 [21] | 34.7 | 55.5 | 36.7 | 13.5 | 38.1 | 52.0 |
| Faster R-CNN w TDM [20] | Inception-ResNet-v2-TDM | 36.8 | 57.7 | 39.2 | 16.2 | 39.8 | **52.1** |
| *One-stage methods* | | | | | | | |
| YOLOv2 [15] | DarkNet-19 [15] | 21.6 | 44.0 | 19.2 | 5.0 | 22.4 | 35.5 |
| SSD513 [11, 3] | ResNet-101-SSD | 31.2 | 50.4 | 33.3 | 10.2 | 34.5 | 49.8 |
| DSSD513 [3] | ResNet-101-DSSD | 33.2 | 53.3 | 35.2 | 13.0 | 35.4 | 51.1 |
| RetinaNet [9] | ResNet-101-FPN | 39.1 | 59.1 | 42.3 | 21.8 | 42.7 | 50.2 |
| RetinaNet [9] | ResNeXt-101-FPN | **40.8** | **61.1** | **44.1** | **24.1** | **44.2** | 51.2 |
| YOLOv3 608 × 608 | Darknet-53 | 33.0 | 57.9 | 34.4 | 18.3 | 35.4 | 41.9 |

**0000 p1 DRZ 3.11** - not super eval

```
mag_threshold 0.21
2L 300N BLSTM (BasicLSTM)
20D
sigmoid
AdamOptimizer
100 frames
dropout 1.0
zero input and label
log(x+1.0)
103300 training, 2000 CV
model:
weights20170224-005946_vl0.1419
(p1, loss .1419, epoch 40 [task0])
MEAN IBM SDR GAIN:      2.324 -
with 0.15 thresh during cluster
STD IBM SDR GAIN:       2.276
MEAN IBM SDR GAIN:      2.110 -
with 0.32 threshold during cluster
STD IBM SDR GAIN:       2.254
```

**0001 p2 DRZ** 3.23

```
mag_threshold 0.12
2L 300N BLSTM_clean (LSTM & many
reworks) - note, this was the
massive model rewrite
20D
sigmoid
AdamOptimizer
100 frames
dropout 1.0
zero input and label
log(x+1.0)
10330 training, 2000 CV
model:
weights20170224-032054_vl0.1418
(p2, loss .1418, epoch 40 [task0])
MEAN IBM SDR GAIN:      2.056 -
with 0.15 thresh during cluster
STD IBM SDR GAIN:       2.214
MEAN IBM SDR GAIN:      2.068 -
with 0.32 threshold during cluster
STD IBM SDR GAIN:       2.205
MEAN IBM SDR GAIN:  2.108 - with
fancy best SDR of the two system
(eval_sdr2.py)
STD IBM SDR GAIN:   4.114
MEAN IBM SDR GAIN:      5.915 -
using EXACT script measuring both
voices gain (SUPER_EVAL)
STD IBM SDR GAIN:       4.349
```



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MEAN IBM SDR GAIN:      2.
with 0.15 thresh during cl
STD IBM SDR GAIN:       2.
MEAN IBM SDR GAIN:      2.
with 0.32 threshold during
STD IBM SDR GAIN:       2.
```

```
0001 p2 DRZ 3.23
mag_threshold 0.12
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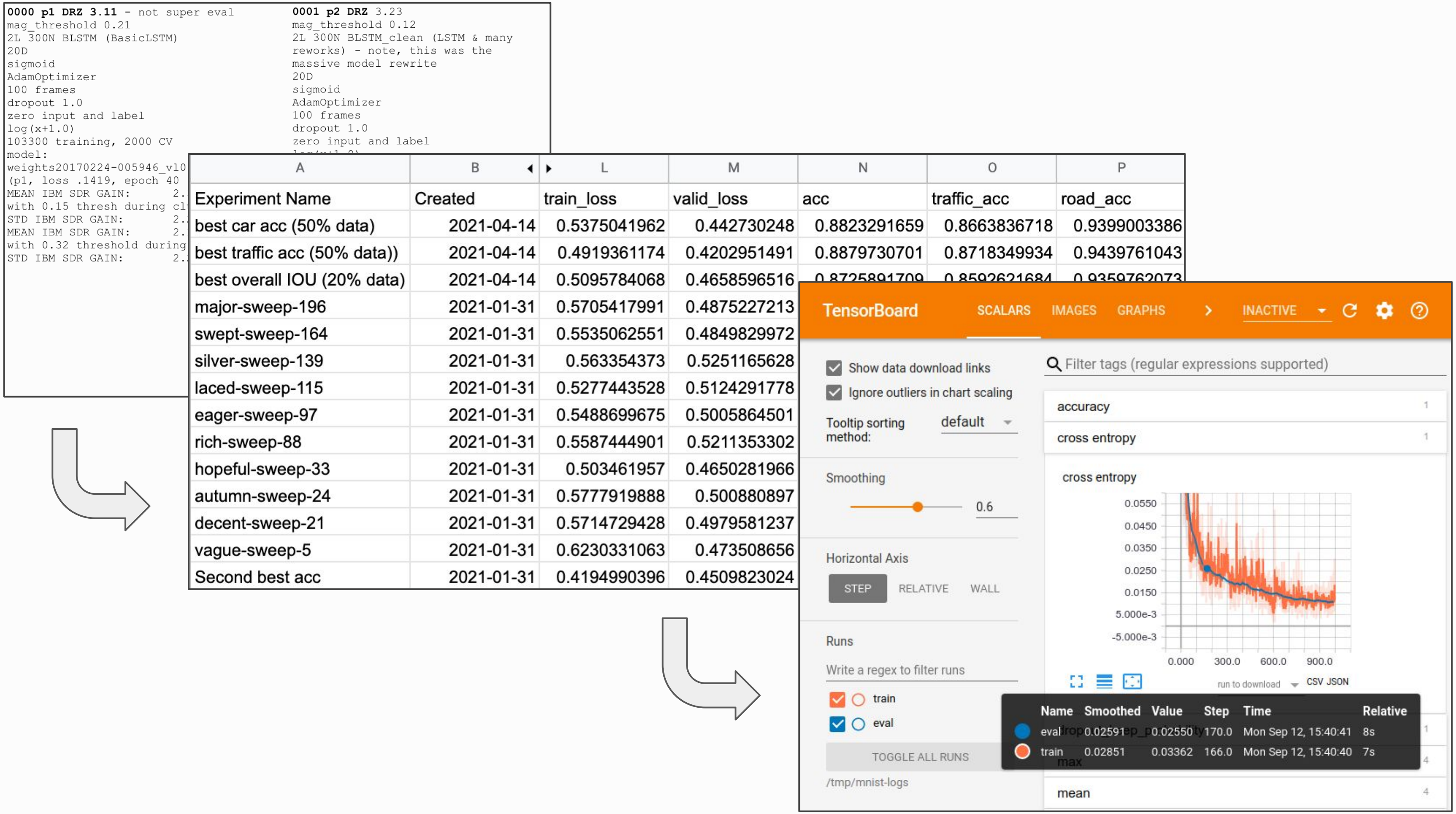
20D
sigmoid
AdamOptimizer
100 frames
dropout 1.0
zero input and label
log(x+1.0)
```

| A | B | L | M | N | O | P |
|---|---|---|---|---|---|---|
| Experiment Name | Created | train_loss | valid_loss | acc | traffic_acc | road_acc |
| best car acc (50% data) | 2021-04-14 | 0.5375041962 | 0.442730248 | 0.8823291659 | 0.8663836718 | 0.9399003386 |
| best traffic acc (50% data)) | 2021-04-14 | 0.4919361174 | 0.4202951491 | 0.8879730701 | 0.8718349934 | 0.9439761043 |
| best overall IOU (20% data) | 2021-04-14 | 0.5095784068 | 0.4658596516 | 0.8725891709 | 0.8592621684 | 0.9359762073 |
| major-sweep-196 | 2021-01-31 | 0.5705417991 | 0.4875227213 | 0.8698127866 | 0.8570468426 | 0.9454026222 |
| swept-sweep-164 | 2021-01-31 | 0.5535062551 | 0.4849829972 | 0.8701210618 | 0.8567070365 | 0.9204238057 |
| silver-sweep-139 | 2021-01-31 | 0.563354373 | 0.5251165628 | 0.871628046 | 0.846842885 | 0.9262287617 |
| laced-sweep-115 | 2021-01-31 | 0.5277443528 | 0.5124291778 | 0.8705932498 | 0.8521561027 | 0.9389513731 |
| eager-sweep-97 | 2021-01-31 | 0.5488699675 | 0.5005864501 | 0.8738754392 | 0.8612990975 | 0.913561523 |
| rich-sweep-88 | 2021-01-31 | 0.5587444901 | 0.5211353302 | 0.8785927892 | 0.8512274623 | 0.9295567274 |
| hopeful-sweep-33 | 2021-01-31 | 0.503461957 | 0.4650281966 | 0.8706912994 | 0.8560319543 | 0.9387732744 |
| autumn-sweep-24 | 2021-01-31 | 0.5777919888 | 0.500880897 | 0.8755427003 | 0.8561192751 | 0.9181208611 |
| decent-sweep-21 | 2021-01-31 | 0.5714729428 | 0.4979581237 | 0.8745227456 | 0.8490597606 | 0.9463140965 |
| vague-sweep-5 | 2021-01-31 | 0.6230331063 | 0.473508656 | 0.8732874393 | 0.8601382971 | 0.9297611117 |
| Second best acc | 2021-01-31 | 0.4194990396 | 0.4509823024 | 0.8873019218 | 0.8705806732 | 0.9445936084 |



```
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STD IBM SDR GAIN:       2.
MEAN IBM SDR GAIN:      2.
with 0.32 threshold during
STD IBM SDR GAIN:       2.
```

```
0001 p2 DRZ 3.23
mag_threshold 0.12
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sigmoid
AdamOptimizer
100 frames
dropout 1.0
zero input and label
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| best overall IOU (20% data) | 2021-04-14 | 0.5095784068 | 0.4658596516 | 0.8725891709 | 0.8592621684 | 0.9359762073 |
| major-sweep-196 | 2021-01-31 | 0.5705417991 | 0.4875227213 | | | |
| swept-sweep-164 | 2021-01-31 | 0.5535062551 | 0.4849829972 | | | |
| silver-sweep-139 | 2021-01-31 | 0.563354373 | 0.5251165628 | | | |
| laced-sweep-115 | 2021-01-31 | 0.5277443528 | 0.5124291778 | | | |
| eager-sweep-97 | 2021-01-31 | 0.5488699675 | 0.5005864501 | | | |
| rich-sweep-88 | 2021-01-31 | 0.5587444901 | 0.5211353302 | | | |
| hopeful-sweep-33 | 2021-01-31 | 0.503461957 | 0.4650281966 | | | |
| autumn-sweep-24 | 2021-01-31 | 0.5777919888 | 0.500880897 | | | |
| decent-sweep-21 | 2021-01-31 | 0.5714729428 | 0.4979581237 | | | |
| vague-sweep-5 | 2021-01-31 | 0.6230331063 | 0.473508656 | | | |
| Second best acc | 2021-01-31 | 0.4194990396 | 0.4509823024 | | | |

☑ Show data download links

☑ Ignore outliers in chart scaling

Tooltip sorting method: default

Smoothing 0.6

Horizontal Axis: STEP RELATIVE WALL

Runs

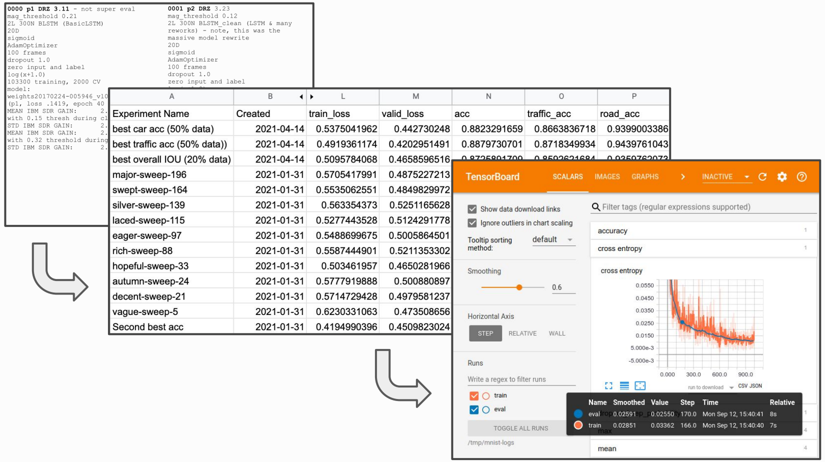
Write a regex to filter runs

☑ ○ train

☑ ○ eval

/tmp/mnist-logs

| | Name | Smoothed | Value | Step | Time | Relative |
|---|---|---|---|---|---|---|
| ● | eval | 0.02591 | 0.02550 | 170.0 | Mon Sep 12, 15:40:41 | 8s |
| ● | train | 0.02851 | 0.03362 | 166.0 | Mon Sep 12, 15:40:40 | 7s |



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20D                                             reworks) - note, this was the
sigmoid                                         massive model rewrite
AdamOptimizer                                   20D
100 frames                                      sigmoid
dropout 1.0                                     AdamOptimizer
zero input and label                            100 frames
log(x+1.0)                                      dropout 1.0
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weights20170224-005946_vl0
(p1, loss .1419, epoch 40
MEAN IBM SDR GAIN:        2.
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STD IBM SDR GAIN:         2.
```

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| best overall IOU (20% data) | 2021-04-14 | 0.5095784068 | 0.4658596516 | 0.8725891709 | 0.8592621684 | 0.9359762073 |
| major-sweep-196 | 2021-01-31 | 0.5705417991 | 0.4875227213 | | | |
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TensorBoard SCALARS IMAGES GRAPHS > INACTIVE

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Tooltip sorting method: default

Smoothing 0.6

Horizontal Axis: STEP RELATIVE WALL

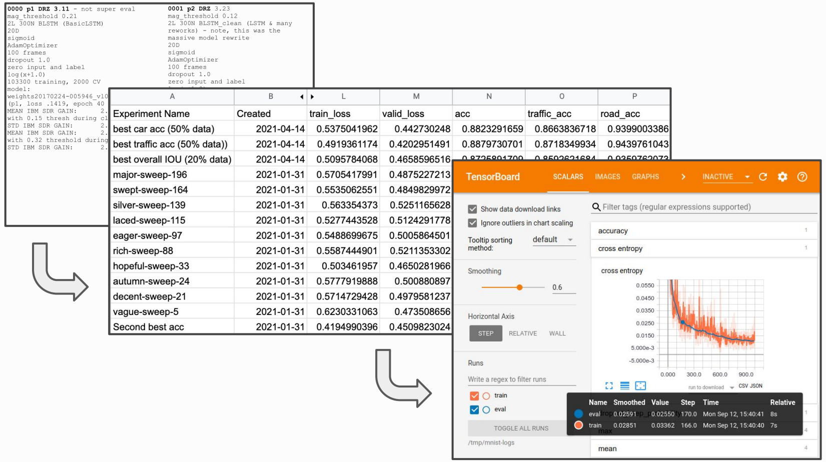
Runs
Write a regex to filter runs
☑ ○ train
☑ ○ eval
TOGGLE ALL RUNS
/tmp/mnist-logs

Filter tags (regular expressions supported)
accuracy 1
cross entropy 1

cross entropy

| | Name | Smoothed | Value | Step | Time | Relative |
|---|---|---|---|---|---|---|
| ● | eval | 0.02591 | 0.02550 | 170.0 | Mon Sep 12, 15:40:41 | 8s |
| ● | train | 0.02851 | 0.03362 | 166.0 | Mon Sep 12, 15:40:40 | 7s |

max 4
mean 4



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sigmoid                                         massive model rewrite
AdamOptimizer                                   20D
100 frames                                      sigmoid
dropout 1.0                                     AdamOptimizer
zero input and label                            100 frames
log(x+1.0)                                      dropout 1.0
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(p1, loss .1419, epoch 40
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with 0.15 thresh during cl
STD IBM SDR GAIN:         2.
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| swept-sweep-164 | 2021-01-31 | 0.5535062551 | 0.4849829972 | | | |
| silver-sweep-139 | 2021-01-31 | 0.563354373 | 0.5251165628 | | | |
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| rich-sweep-88 | 2021-01-31 | 0.5587444901 | 0.5211353302 | | | |
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| autumn-sweep-24 | 2021-01-31 | 0.5777919888 | 0.500880897 | | | |
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Smoothing 0.6

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☑ ○ train
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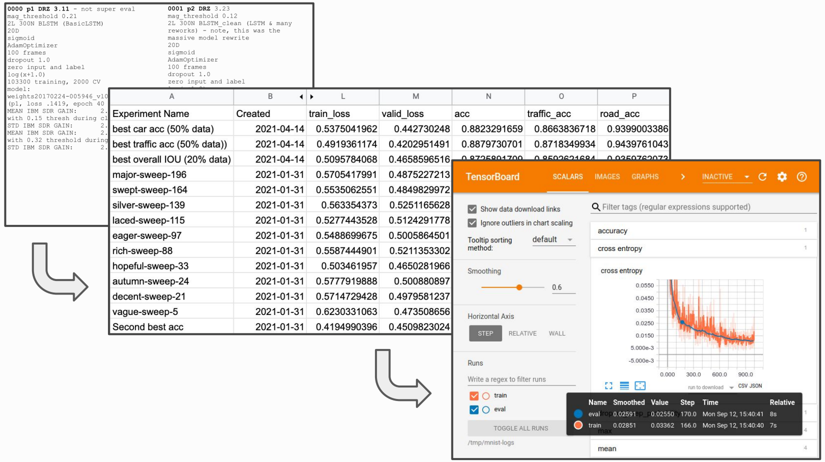
TOGGLE ALL RUNS
/tmp/mnist-logs

Filter tags (regular expressions supported)
accuracy 1
cross entropy 1

cross entropy

| | Name | Smoothed | Value | Step | Time | Relative |
|---|---|---|---|---|---|---|
| ● | eval | 0.02591 | 0.02550 | 170.0 | Mon Sep 12, 15:40:41 | 8s |
| ● | train | 0.02851 | 0.03362 | 166.0 | Mon Sep 12, 15:40:40 | 7s |

max 4
mean 4



```
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AdamOptimizer
100 frames
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```

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mag_threshold 0.12
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100 frames
dropout 1.0
zero input and label
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| swept-sweep-164 | 2021-01-31 | 0.5535062551 | 0.4849829972 | | | |
| silver-sweep-139 | 2021-01-31 | 0.563354373 | 0.5251165628 | | | |
| laced-sweep-115 | 2021-01-31 | 0.5277443528 | 0.5124291778 | | | |
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| Second best acc | 2021-01-31 | 0.4194990396 | 0.4509823024 | | | |

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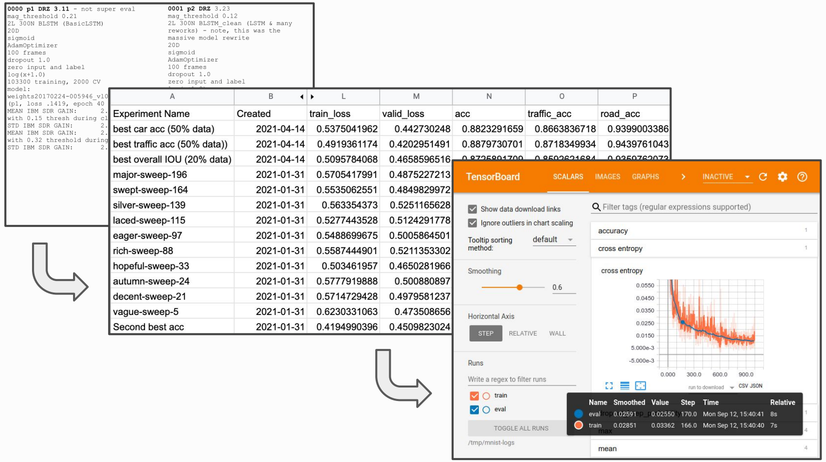
accuracy 1
cross entropy 1
max 4
mean 4

| Name | Smoothed | Value | Step | Time | Relative |
|---|---|---|---|---|---|
| ● eval | 0.02591 | 0.02550 | 170.0 | Mon Sep 12, 15:40:41 | 8s |
| ● train | 0.02851 | 0.03362 | 166.0 | Mon Sep 12, 15:40:40 | 7s |



0000 p1 DRZ 3.11 - not super eval
mag_threshold 0.21
2L 300N BLSTM (BasicLSTM)
20D
sigmoid
AdamOptimizer
100 frames
dropout 1.0
zero input and label
log(x+1.0)
103300 training, 2000 CV
model:
weights20170224-005946_v10
(p1, loss .1419, epoch 40
MEAN IBM SDR GAIN: 2.
with 0.15 thresh during cl
STD IBM SDR GAIN: 2.
MEAN IBM SDR GAIN: 2.
with 0.32 threshold during
STD IBM SDR GAIN: 2.

0001 p2 DRZ 3.23
mag_threshold 0.12
2L 300N BLSTM_clean (LSTM & many
reworks) - note, this was the
massive model rewrite
20D
sigmoid
AdamOptimizer
100 frames
dropout 1.0
zero input and label

| A | B | L | M | N | O | P |
|---|---|---|---|---|---|---|
| Experiment Name | Created | train_loss | valid_loss | acc | traffic_acc | road_acc |
| best car acc (50% data) | 2021-04-14 | 0.5375041962 | 0.442730248 | 0.8823291659 | 0.8663836718 | 0.9399003386 |
| best traffic acc (50% data)) | 2021-04-14 | 0.4919361174 | 0.4202951491 | 0.8879730701 | 0.8718349934 | 0.9439761043 |
| best overall IOU (20% data) | 2021-04-14 | 0.5095784068 | 0.4658596516 | 0.8725891709 | 0.8592621684 | 0.9359762073 |
| major-sweep-196 | 2021-01-31 | 0.5705417991 | 0.4875227213 | | | |
| swept-sweep-164 | 2021-01-31 | 0.5535062551 | 0.4849829972 | | | |
| silver-sweep-139 | 2021-01-31 | 0.563354373 | 0.5251165628 | | | |
| laced-sweep-115 | 2021-01-31 | 0.5277443528 | 0.5124291778 | | | |
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| decent-sweep-21 | 2021-01-31 | 0.5714729428 | 0.4979581237 | | | |
| vague-sweep-5 | 2021-01-31 | 0.6230331063 | 0.473508656 | | | |
| Second best acc | 2021-01-31 | 0.4194990396 | 0.4509823024 | | | |

☑ Show data download links
☑ Ignore outliers in chart scaling
Tooltip sorting method: default
Smoothing 0.6
Horizontal Axis: STEP RELATIVE WALL
Runs
Write a regex to filter runs
☑ ○ train
☑ ○ eval
/tmp/mnist-logs

Filter tags (regular expressions supported)
accuracy 1
cross entropy 1
max 4
mean 4

| Name | Smoothed | Value | Step | Time | Relative |
|---|---|---|---|---|---|
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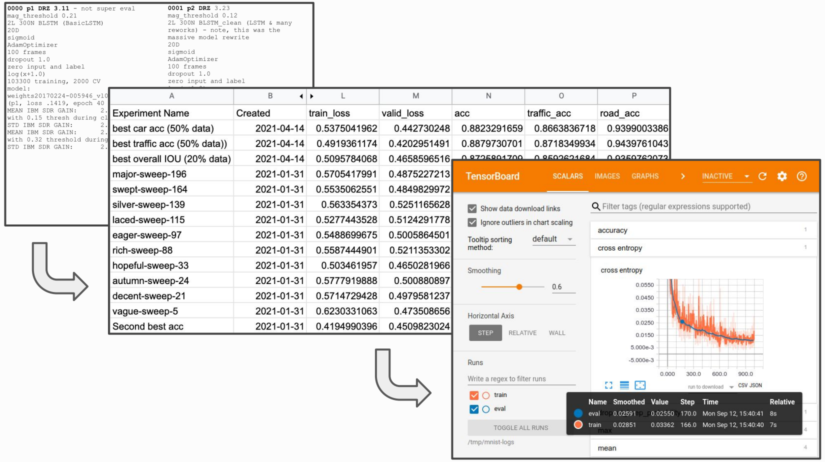

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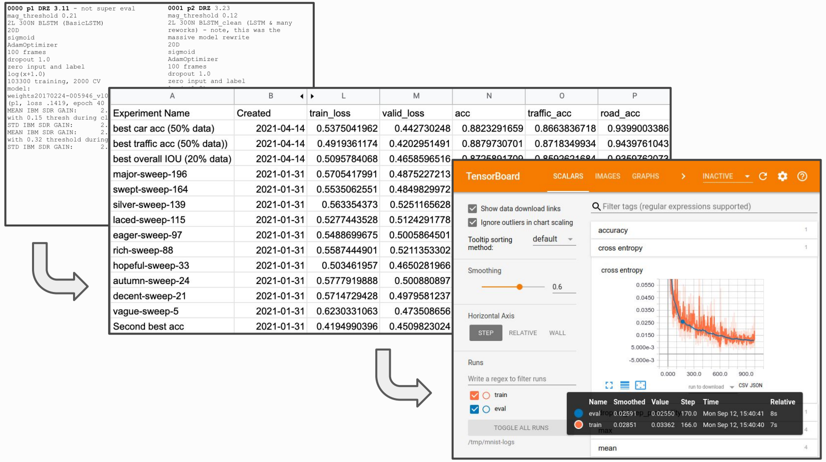

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Horizontal Axis: STEP RELATIVE WALL
Runs
Write a regex to filter runs
☑ ○ train
☑ ○ eval
/tmp/mnist-logs

Filter tags (regular expressions supported)
accuracy 1
cross entropy 1
max 4
mean 4

| Name | Smoothed | Value | Step | Time | Relative |
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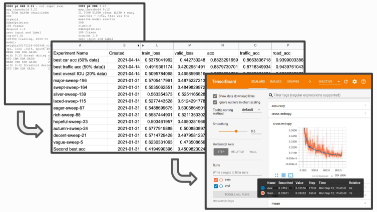
| ● eval | 0.02591 | 0.02550 | 170.0 | Mon Sep 12, 15:40:41 | 8s |
| ● train | 0.02851 | 0.03362 | 166.0 | Mon Sep 12, 15:40:40 | 7s |



```
0000 p1 DRZ 3.11 - not super eval        0001 p2 DRZ 3.23
mag_threshold 0.21                        mag_threshold 0.12
2L 300N BLSTM (BasicLSTM)                 2L 300N BLSTM_clean (LSTM & many
20D                                       reworks) - note, this was the
sigmoid                                   massive model rewrite
AdamOptimizer                             20D
100 frames                                sigmoid
dropout 1.0                               AdamOptimizer
zero input and label                      100 frames
log(x+1.0)                                dropout 1.0
103300 training, 2000 CV                  zero input and label
model:
weights20170224-005946_v1
(p1, loss .1419, epoch 40
MEAN IBM SDR GAIN:      2
with 0.15 thresh during c
STD IBM SDR GAIN:       2
MEAN IBM SDR GAIN:      2
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STD IBM SDR GAIN:       2
```

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| Second best acc | 2021-01-31 | 0.4194990396 | 0.4509823024 | | | |

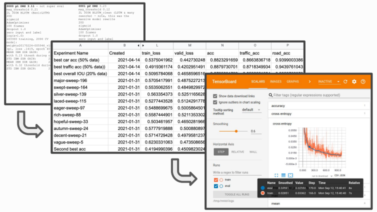
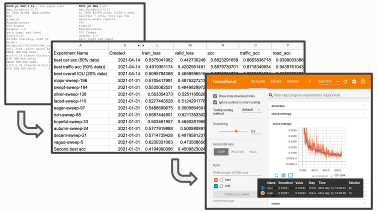
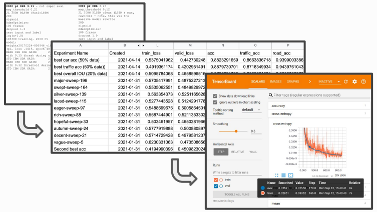
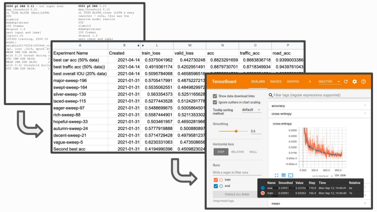
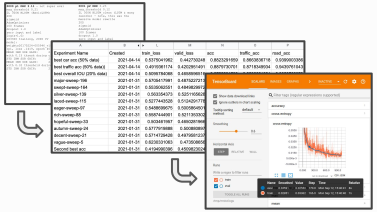
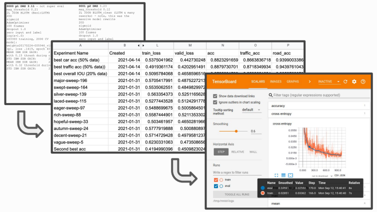
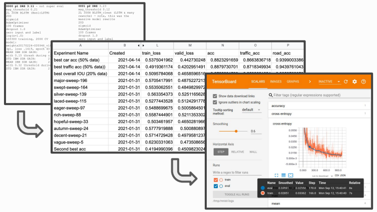
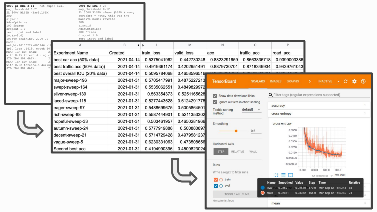
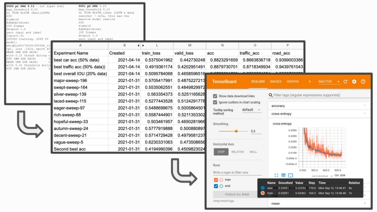
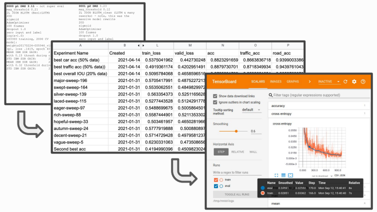
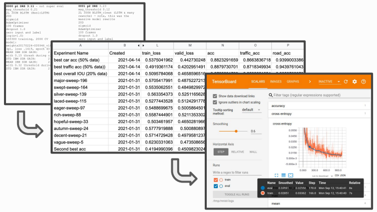
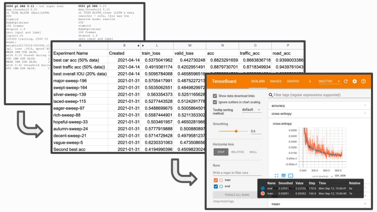
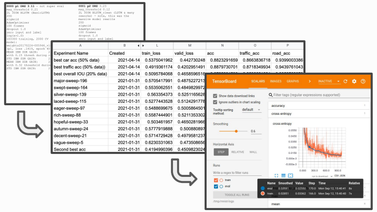
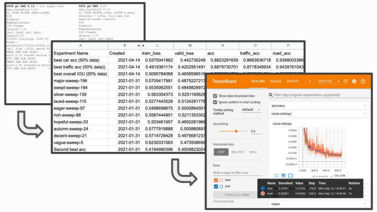
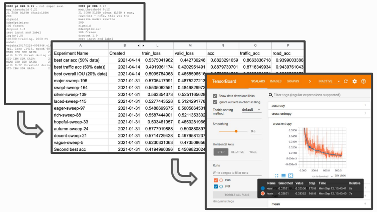
TensorBoard SCALARS IMAGES GRAPHS INACTIVE

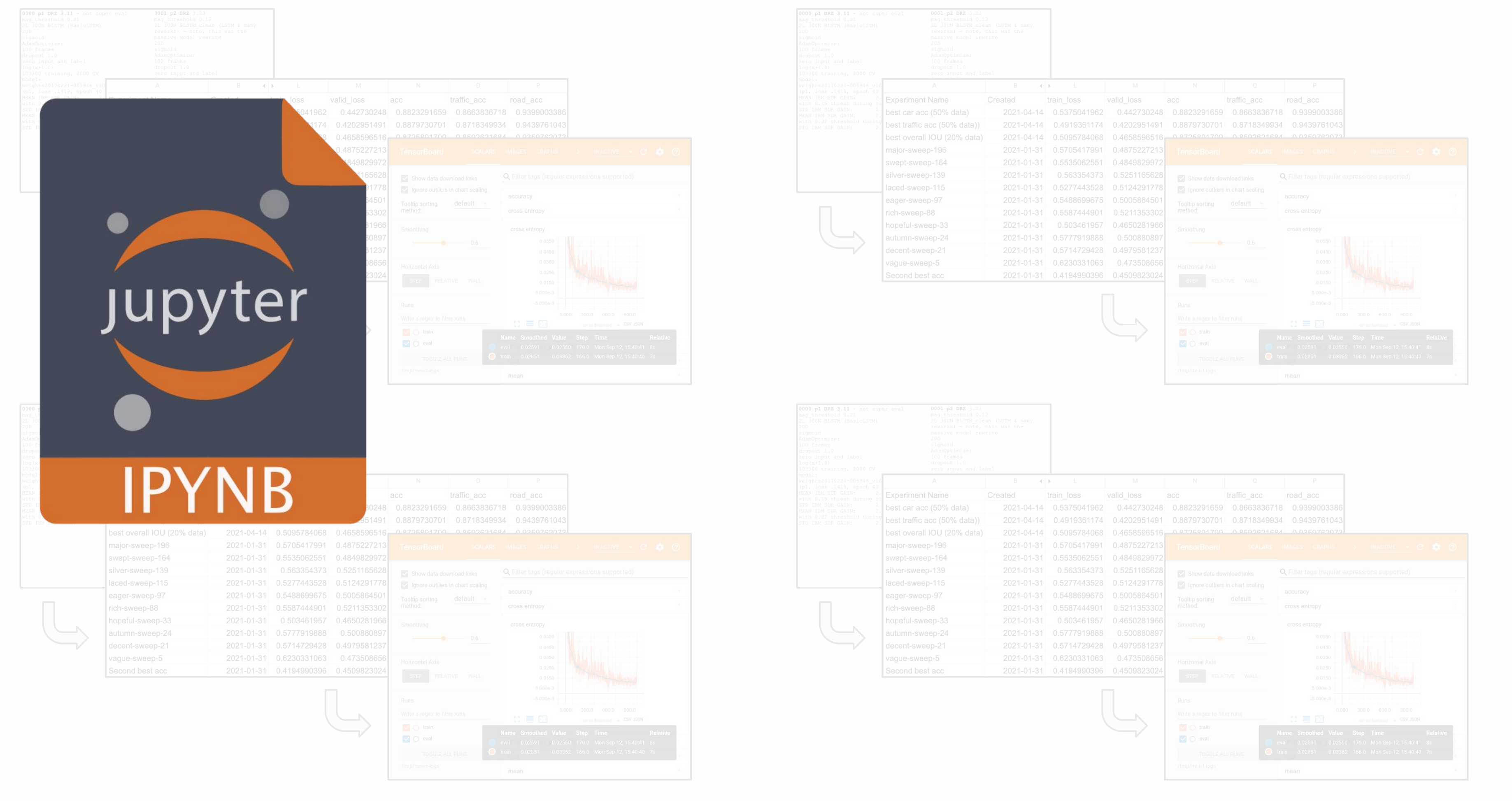
☑ Show data download links
☑ Ignore outliers in chart scaling
Tooltip sorting method: default
Smoothing 0.6
Horizontal Axis: STEP RELATIVE WALL
Runs
Write a regex to filter runs
☑ train
☑ eval
TOGGLE ALL RUNS
/tmp/mnist-logs

Filter tags (regular expressions supported)
accuracy
cross entropy

| Name | Smoothed | Value | Step | Time | Relative |
|---|---|---|---|---|---|
| eval | 0.02591 | 0.02550 | 170.0 | Mon Sep 12, 15:40:41 | 8s |
| train | 0.02851 | 0.03362 | 166.0 | Mon Sep 12, 15:40:40 | 7s |

max
mean



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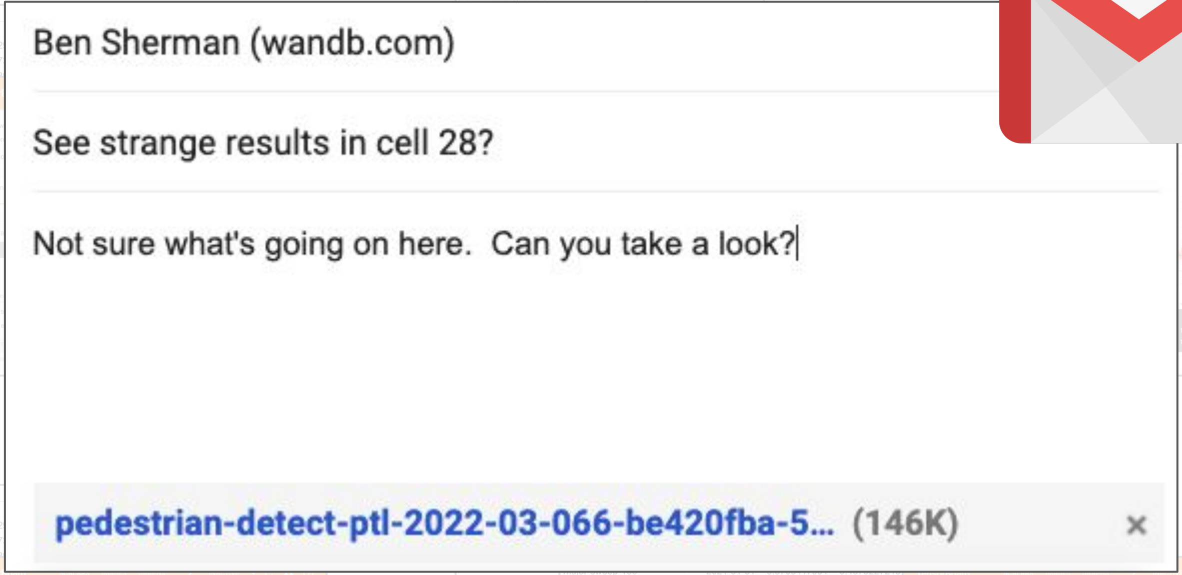
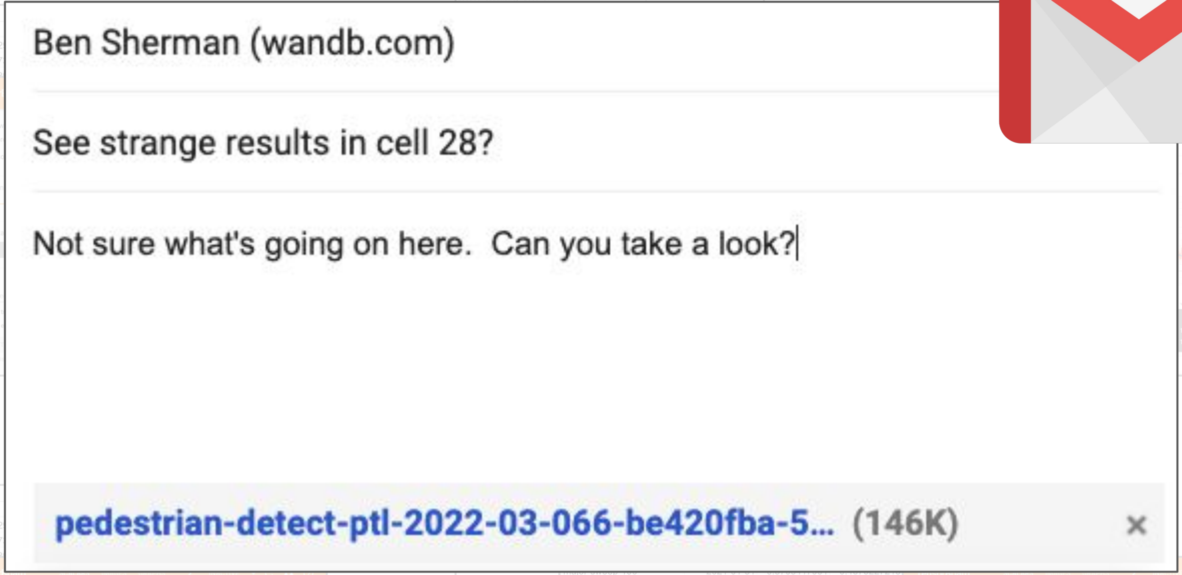


Ben Sherman (wandb.com)

See strange results in cell 28?

Not sure what's going on here.  Can you take a look?

pedestrian-detect-ptl-2022-03-066-be420fba-5... (146K) ×



Ben Sherman (wandb.com)

See strange results in cell 28?

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pedestrian-detect-ptl-2022-03-066-be420fba-5... (146K) ×

com)

cell 2

going on here. Ca ake a look?

fba-5... (146K) ×

|  |  |  |
|---|---|---|
| loss | valid_loss | acc |
| 041962 | 0.442730248 | 0.88232 |
| 1174 | 0.4202951491 | 0.88797 |
|  | 0.4658596516 | 0.87258 |
|  | 0.4875227213 |  |
|  | 4849829972 |  |
|  | 5165628 |  |
|  | 91778 |  |

|  |  |  |
|---|---|---|
| -01-31 | 0.5535062551 | 0.4849829972 |
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| 21-01-31 | 0.6230331063 | 0.473508656 |
| 2021-01-31 | 0.4194990396 | 0.4509823024 |

PrtSc
P
com)
?|
-5... (146K)
×
loss
valid_loss
acc

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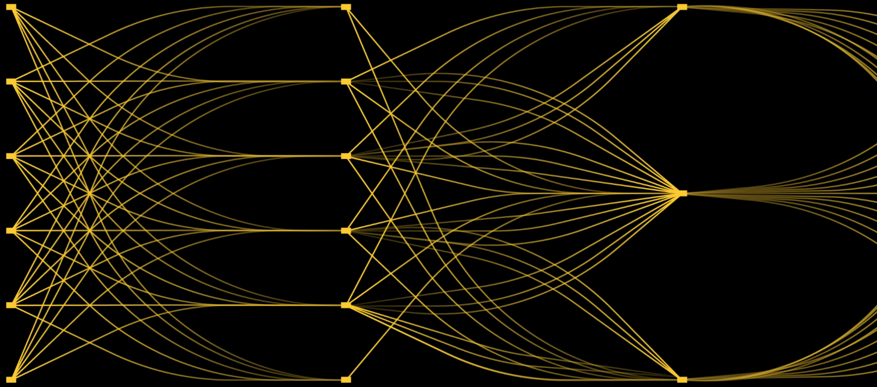
THIS IS FINE.

Weights & Biases

# Just Stop



October 2022

# Three principles of an ideal ML workflow

### Rapidly iterate

to continuously refine and optimize models

### Reproduce

to reduce key-person dependencies

### Collaborate

to ensure knowledge transfer across the organization

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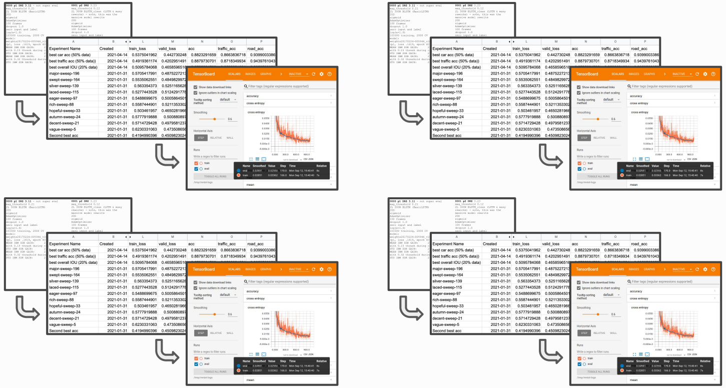
# A system of record for all ML workflows



```
0000 p1 DRZ 3.11 - not super eval          0001 p2 DRZ 3.23
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20D                                        reworks) - note, this was the
sigmoid                                    massive model rewrite
AdamOptimizer                              20D
100 frames                                 sigmoid
dropout 1.0                                AdamOptimizer
zero input and label                       100 frames
log(x+1.0)                                 dropout 1.0
103300 training, 2000 CV                   zero input and label
model:
weights20170224-005946_v1
(p1, loss .1419, epoch 40
MEAN IBM SDR GAIN:        2
with 0.15 thresh during c
STD IBM SDR GAIN:         2
MEAN IBM SDR GAIN:        2
with 0.32 threshold durin
STD IBM SDR GAIN:         2
```

| A | B | L | M | N | O | P |
|---|---|---|---|---|---|---|
| Experiment Name | Created | train_loss | valid_loss | acc | traffic_acc | road_acc |
| best car acc (50% data) | 2021-04-14 | 0.5375041962 | 0.442730248 | 0.8823291659 | 0.8663836718 | 0.9399003386 |
| best traffic acc (50% data)) | 2021-04-14 | 0.4919361174 | 0.4202951491 | 0.8879730701 | 0.8718349934 | 0.9439761043 |
| best overall IOU (20% data) | 2021-04-14 | 0.5095784068 | 0.465859651 | | | |
| major-sweep-196 | 2021-01-31 | 0.5705417991 | 0.487522721 | | | |
| swept-sweep-164 | 2021-01-31 | 0.5535062551 | 0.484982997 | | | |
| silver-sweep-139 | 2021-01-31 | 0.563354373 | 0.525116562 | | | |
| laced-sweep-115 | 2021-01-31 | 0.5277443528 | 0.512429177 | | | |
| eager-sweep-97 | 2021-01-31 | 0.5488699675 | 0.500586450 | | | |
| rich-sweep-88 | 2021-01-31 | 0.5587444901 | 0.521135330 | | | |
| hopeful-sweep-33 | 2021-01-31 | 0.503461957 | 0.465028196 | | | |
| autumn-sweep-24 | 2021-01-31 | 0.5777919888 | 0.50088089 | | | |
| decent-sweep-21 | 2021-01-31 | 0.5714729428 | 0.497958123 | | | |
| vague-sweep-5 | 2021-01-31 | 0.6230331063 | 0.47350865 | | | |
| Second best acc | 2021-01-31 | 0.4194990396 | 0.450982302 | | | |

☑ Show data download links

☑ Ignore outliers in chart scaling

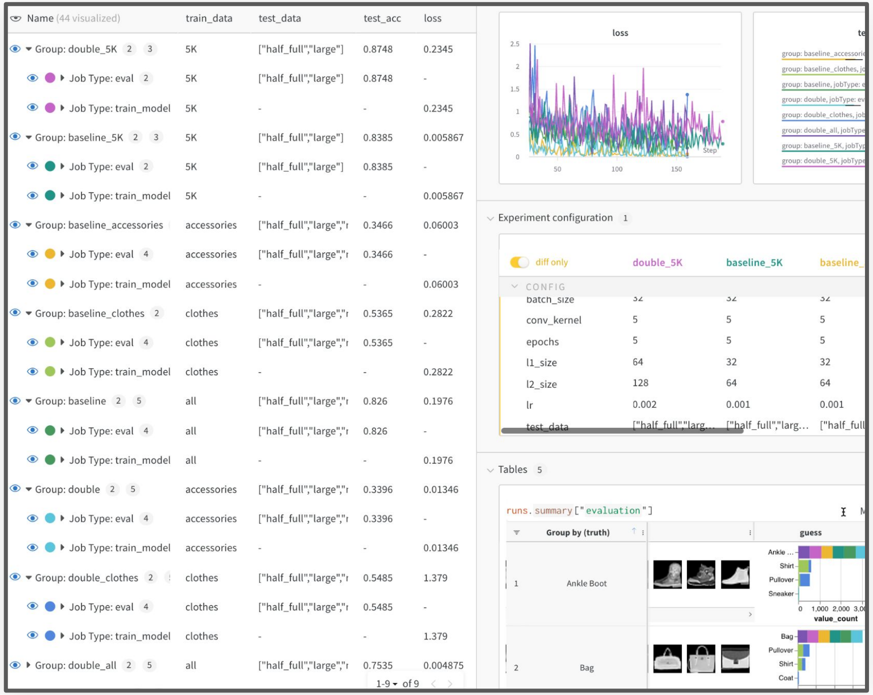
Tooltip sorting method: default

☑ ○ train

☑ ○ eval

| | Name | Smoothed | Value | Step | Time | Relative |
|---|---|---|---|---|---|---|
| ● | eval | 0.02591 | 0.02550 | 170.0 | Mon Sep 12, 15:40:41 | 8s |
| ● | train | 0.02851 | 0.03362 | 166.0 | Mon Sep 12, 15:40:40 | 7s |

# A system of record for all ML workflows



| Name (44 visualized) | train_data | test_data | test_acc | loss |
|---|---|---|---|---|
| Group: double_5K 2 3 | 5K | ["half_full","large"] | 0.8748 | 0.2345 |
| Job Type: eval 2 | 5K | ["half_full","large"] | 0.8748 | - |
| Job Type: train_model | 5K | - | - | 0.2345 |
| Group: baseline_5K 2 3 | 5K | ["half_full","large"] | 0.8385 | 0.005867 |
| Job Type: eval 2 | 5K | ["half_full","large"] | 0.8385 | - |
| Job Type: train_model | 5K | - | - | 0.005867 |
| Group: baseline_accessories | accessories | ["half_full","large","r | 0.3466 | 0.06003 |
| Job Type: eval 4 | accessories | ["half_full","large","r | 0.3466 | - |
| Job Type: train_model | accessories | - | - | 0.06003 |
| Group: baseline_clothes 2 | clothes | ["half_full","large","r | 0.5365 | 0.2822 |
| Job Type: eval 4 | clothes | ["half_full","large","r | 0.5365 | - |
| Job Type: train_model | clothes | - | - | 0.2822 |
| Group: baseline 2 5 | all | ["half_full","large","r | 0.826 | 0.1976 |
| Job Type: eval 4 | all | ["half_full","large","r | 0.826 | - |
| Job Type: train_model | all | - | - | 0.1976 |
| Group: double 2 5 | accessories | ["half_full","large","r | 0.3396 | 0.01346 |
| Job Type: eval 4 | accessories | ["half_full","large","r | 0.3396 | - |
| Job Type: train_model | accessories | - | - | 0.01346 |
| Group: double_clothes 2 | clothes | ["half_full","large","r | 0.5485 | 1.379 |
| Job Type: eval 4 | clothes | ["half_full","large","r | 0.5485 | - |
| Job Type: train_model | clothes | - | - | 1.379 |
| Group: double_all 2 5 | all | ["half_full","large","r | 0.7535 | 0.004875 |

1-9 of 9

loss
2.5
2
1.5
1
0.5
0
50
100
150
Step
te
group: baseline_accessorie
group: baseline_clothes, jo
group: baseline, jobType: e
group: double, jobType: ev
group: double_clothes, job
group: double_all, jobType
group: baseline_5K, jobTyp
group: double_5K, jobType

Experiment configuration 1

diff only

| CONFIG | double_5K | baseline_5K | baseline_ |
|---|---|---|---|
| batch_size | 32 | 32 | 32 |
| conv_kernel | 5 | 5 | 5 |
| epochs | 5 | 5 | 5 |
| l1_size | 64 | 32 | 32 |
| l2_size | 128 | 64 | 64 |
| lr | 0.002 | 0.001 | 0.001 |
| test_data | ["half_full","larg… | ["half_full","larg… | ["half_full |

Tables 5

```
runs.summary["evaluation"]
```

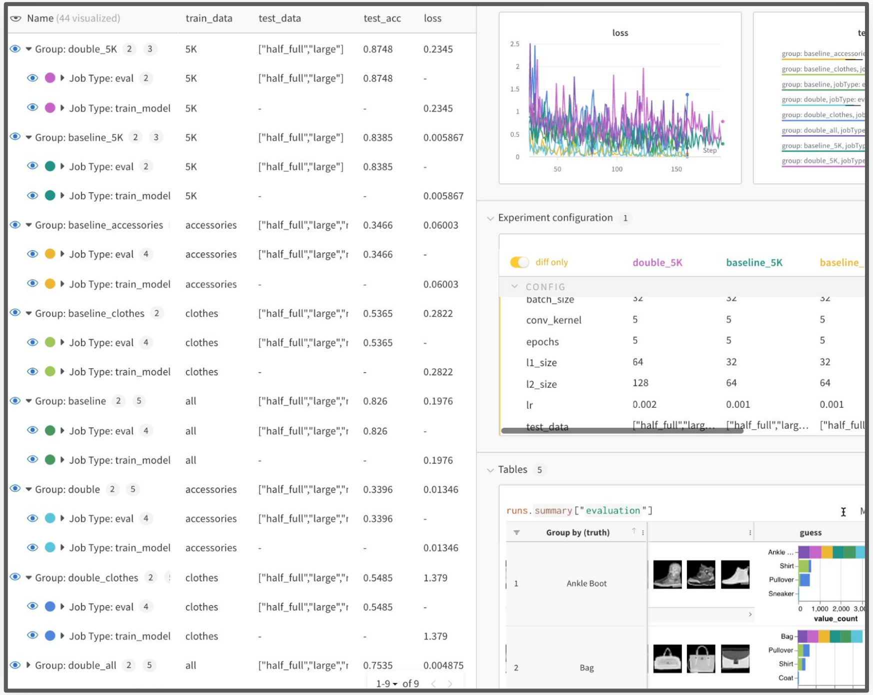
| | Group by (truth) | | guess |
|---|---|---|---|
| 1 | Ankle Boot | | |
| 2 | Bag | | |

# A system of record for all ML workflows

Get started in 60 seconds

```
!pip install wandb    # Install W&B

wandb.init()          # Start experiment
wandb.log(metrics)    # Log metrics + more!
```



| Name (44 visualized) | train_data | test_data | test_acc | loss |
|---|---|---|---|---|
| Group: double_5K 2 3 | 5K | ["half_full","large"] | 0.8748 | 0.2345 |
| Job Type: eval 2 | 5K | ["half_full","large"] | 0.8748 | - |
| Job Type: train_model | 5K | - | - | 0.2345 |
| Group: baseline_5K 2 3 | 5K | ["half_full","large"] | 0.8385 | 0.005867 |
| Job Type: eval 2 | 5K | ["half_full","large"] | 0.8385 | - |
| Job Type: train_model | 5K | - | - | 0.005867 |
| Group: baseline_accessories | accessories | ["half_full","large","r | 0.3466 | 0.06003 |
| Job Type: eval 4 | accessories | ["half_full","large","r | 0.3466 | - |
| Job Type: train_model | accessories | - | - | 0.06003 |
| Group: baseline_clothes 2 | clothes | ["half_full","large","r | 0.5365 | 0.2822 |
| Job Type: eval 4 | clothes | ["half_full","large","r | 0.5365 | - |
| Job Type: train_model | clothes | - | - | 0.2822 |
| Group: baseline 2 5 | all | ["half_full","large","r | 0.826 | 0.1976 |
| Job Type: eval 4 | all | ["half_full","large","r | 0.826 | - |
| Job Type: train_model | all | - | - | 0.1976 |
| Group: double 2 5 | accessories | ["half_full","large","r | 0.3396 | 0.01346 |
| Job Type: eval 4 | accessories | ["half_full","large","r | 0.3396 | - |
| Job Type: train_model | accessories | - | - | 0.01346 |
| Group: double_clothes 2 | clothes | ["half_full","large","r | 0.5485 | 1.379 |
| Job Type: eval 4 | clothes | ["half_full","large","r | 0.5485 | - |
| Job Type: train_model | clothes | - | - | 1.379 |
| Group: double_all 2 5 | all | ["half_full","large","r | 0.7535 | 0.004875 |

1-9 of 9

loss
2.5
2
1.5
1
0.5
0
Step
50
100
150
group: baseline_accessorie
group: baseline_clothes, jo
group: baseline, jobType: e
group: double, jobType: ev
group: double_clothes, job
group: double_all, jobType
group: baseline_5K, jobTyp
group: double_5K, jobType

Experiment configuration 1

| diff only | double_5K | baseline_5K | baseline_ |
|---|---|---|---|
| CONFIG | | | |
| batch_size | 32 | 32 | 32 |
| conv_kernel | 5 | 5 | 5 |
| epochs | 5 | 5 | 5 |
| l1_size | 64 | 32 | 32 |
| l2_size | 128 | 64 | 64 |
| lr | 0.002 | 0.001 | 0.001 |
| test_data | ["half_full","larg... | ["half_full","larg... | ["half_full |

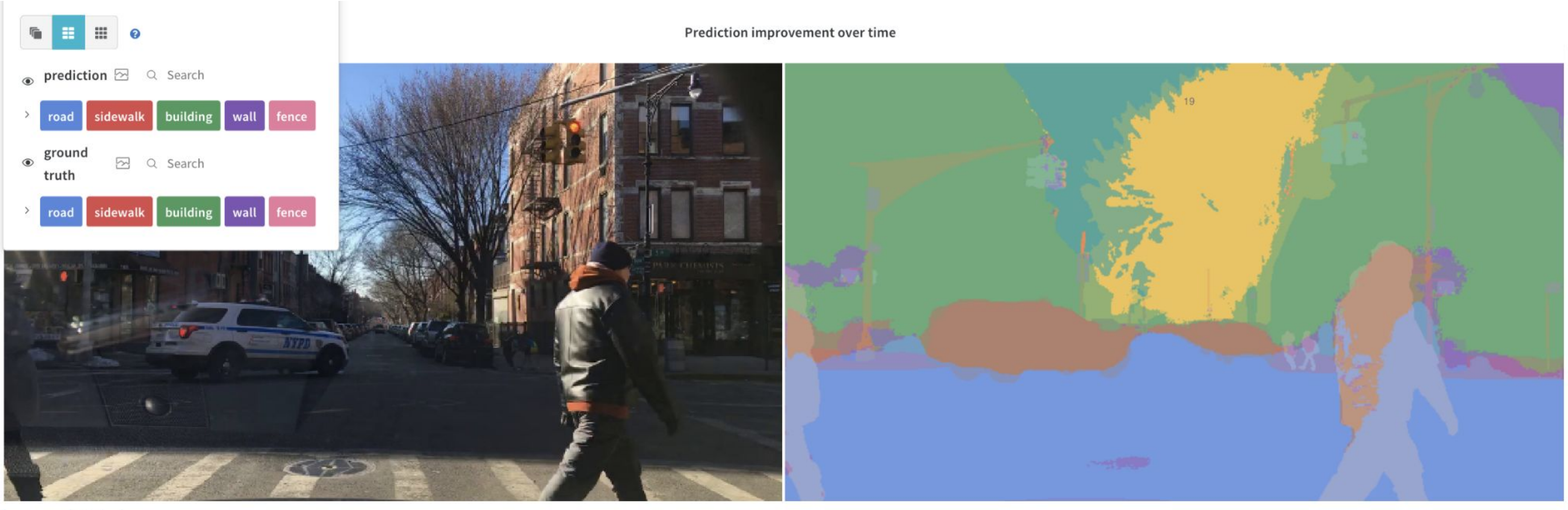
Tables 5

```
runs.summary["evaluation"]
```

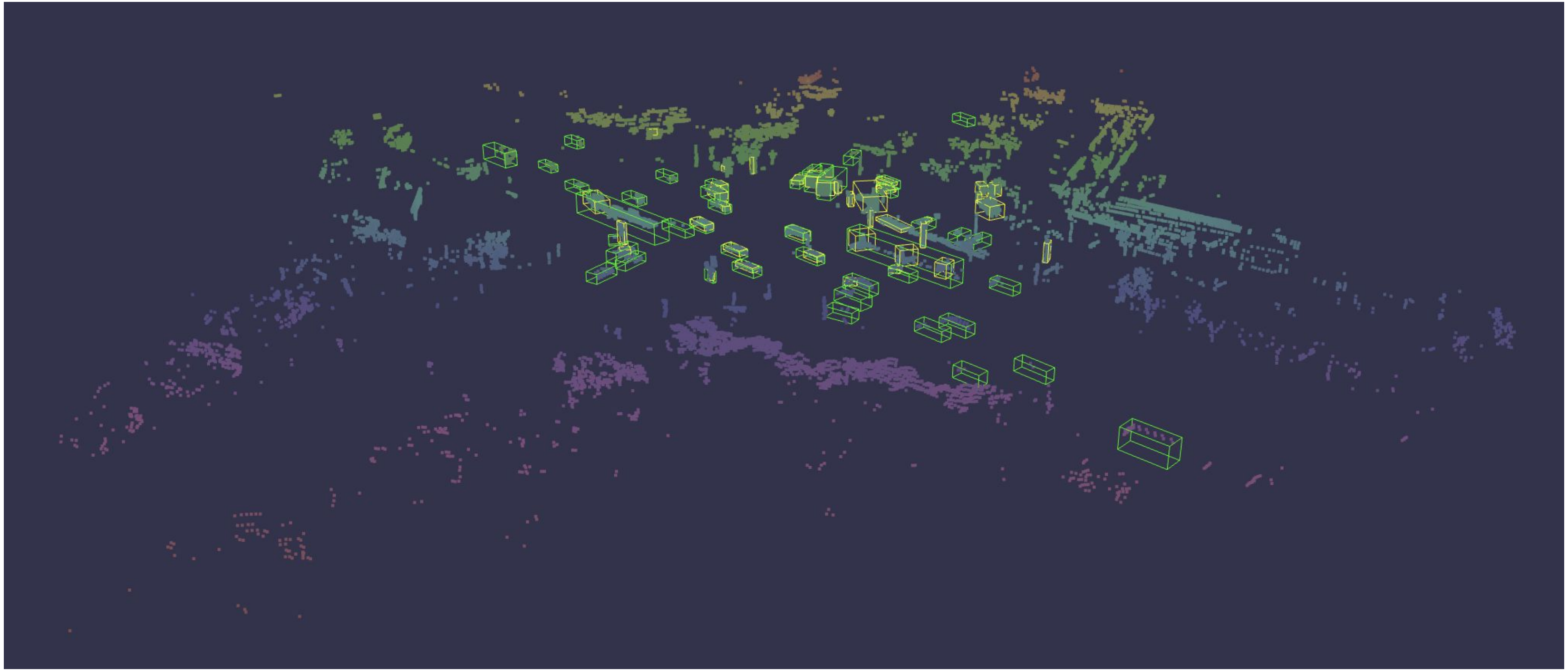
| | Group by (truth) | | guess |
|---|---|---|---|
| 1 | Ankle Boot | | |
| 2 | Bag | | |

Yes, you really can get started in 60 seconds.

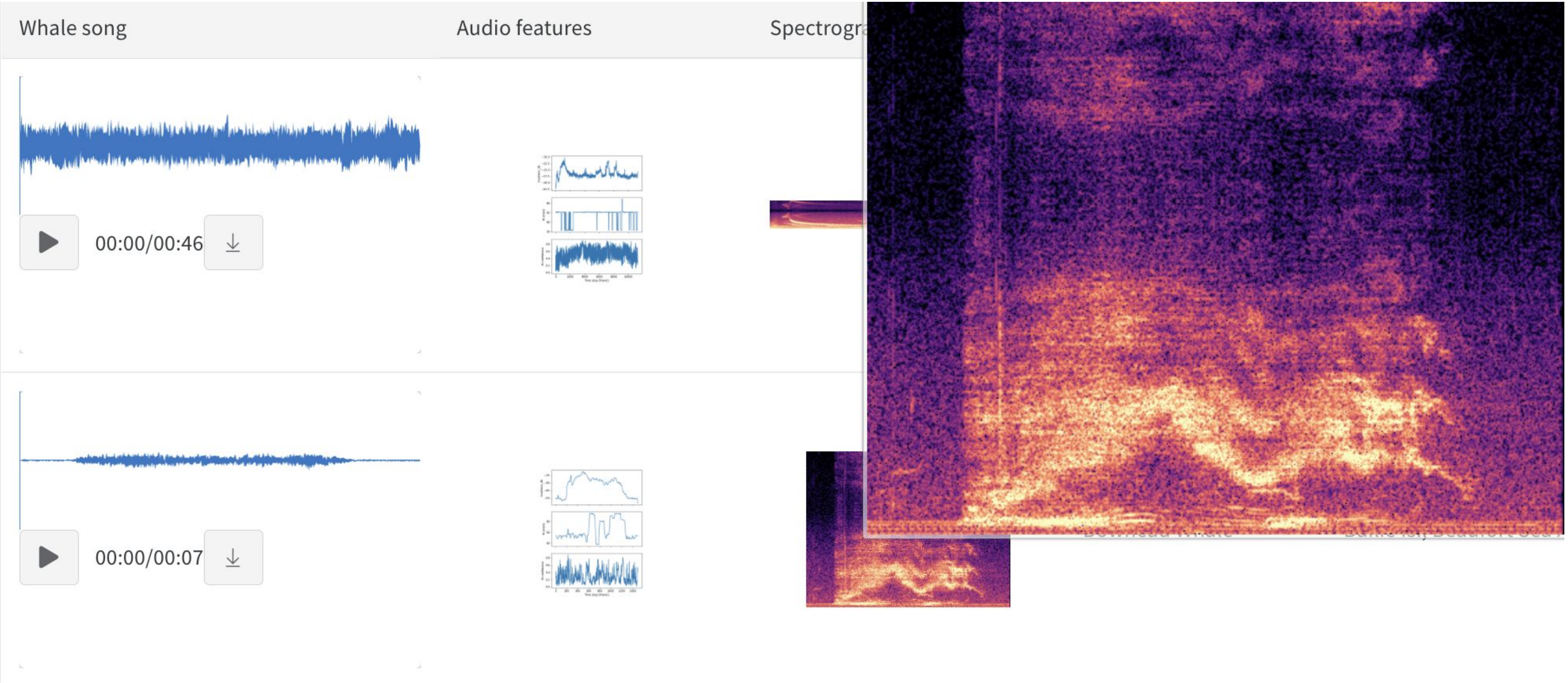
# A system of record for `wandb.Image`



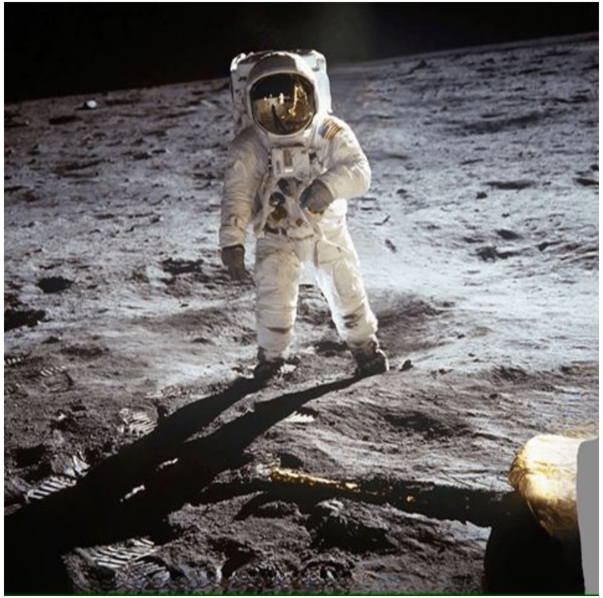
# A system of record for `wandb.Object3D`



# A system of record for wandb.Audio

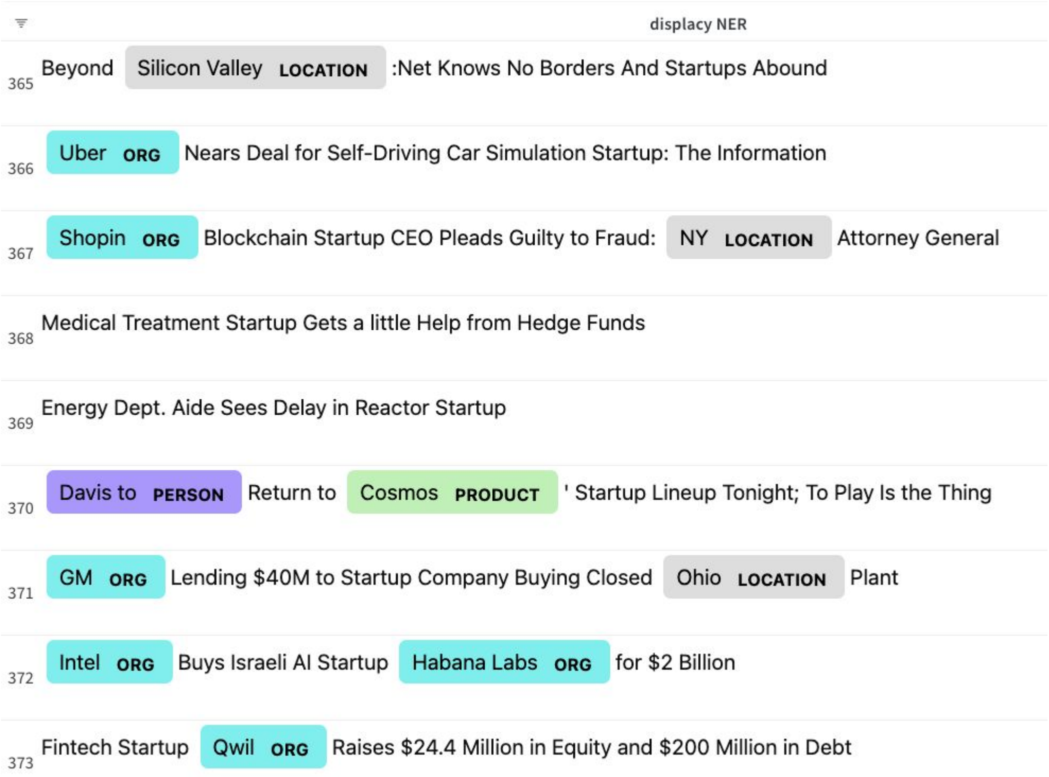


# A system of record for `wandb.Video`



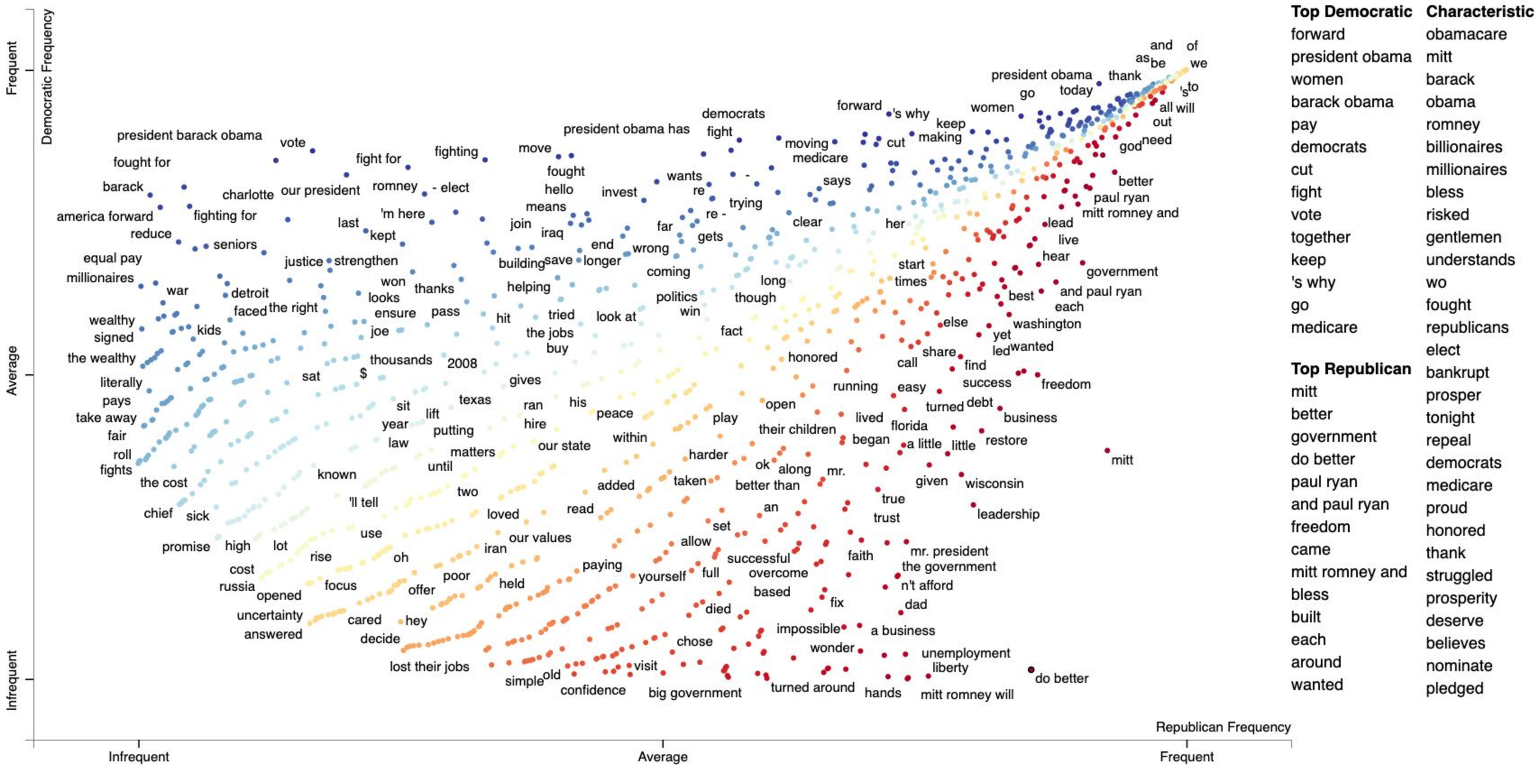
Experiment Tracking

# A system of record for wandb.plots.POS



| | displacy NER |
|---|---|
| 365 | Beyond Silicon Valley LOCATION :Net Knows No Borders And Startups Abound |
| 366 | Uber ORG Nears Deal for Self-Driving Car Simulation Startup: The Information |
| 367 | Shopin ORG Blockchain Startup CEO Pleads Guilty to Fraud: NY LOCATION Attorney General |
| 368 | Medical Treatment Startup Gets a little Help from Hedge Funds |
| 369 | Energy Dept. Aide Sees Delay in Reactor Startup |
| 370 | Davis to PERSON Return to Cosmos PRODUCT ' Startup Lineup Tonight; To Play Is the Thing |
| 371 | GM ORG Lending $40M to Startup Company Buying Closed Ohio LOCATION Plant |
| 372 | Intel ORG Buys Israeli AI Startup Habana Labs ORG for $2 Billion |
| 373 | Fintech Startup Qwil ORG Raises $24.4 Million in Equity and $200 Million in Debt |

# A system of record for `wandb.Html`



**Top Democratic**
forward
president obama
women
barack obama
pay
democrats
cut
fight
vote
together
keep
's why
go
medicare

**Top Republican**
mitt
better
government
do better
paul ryan
and paul ryan
freedom
came
mitt romney and
bless
built
each
around
wanted

**Characteristic**
obamacare
mitt
barack
obama
romney
billionaires
millionaires
bless
risked
gentlemen
understands
wo
fought
republicans
elect
bankrupt
prosper
tonight
repeal
democrats
medicare
proud
honored
thank
struggled
prosperity
deserve
believes
nominate
pledged

Experiment Tracking

# A system of record for all types of data!

```
          wandb.Image

          wandb.Object3D

wandb.log( wandb.Molecule )

          wandb.Video

          wandb.Html
```

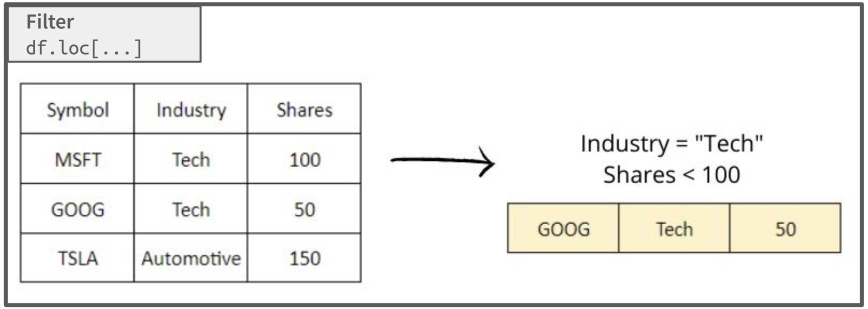
COVID-19 main protease in complex with Z31792168

For a complete set of types, visit docs.wandb.ai

# Ask questions about your data and models

jupyter
IPYNB
Flask
web development,
one drop at a time
uvicorn
gradio
Streamlit
plotly | Dash

# Ask questions about your data (and models)



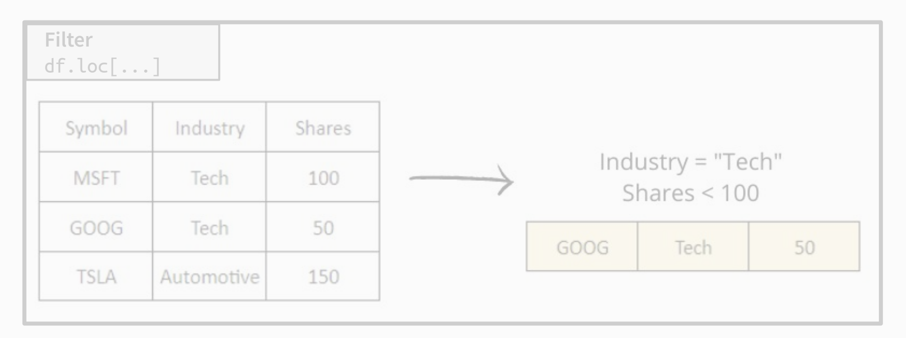
Filter
`df.loc[...]`

| Symbol | Industry | Shares |
|---|---|---|
| MSFT | Tech | 100 |
| GOOG | Tech | 50 |
| TSLA | Automotive | 150 |

Industry = "Tech"
Shares < 100

| | | |
|---|---|---|
| GOOG | Tech | 50 |

# Ask questions about your data (and models)

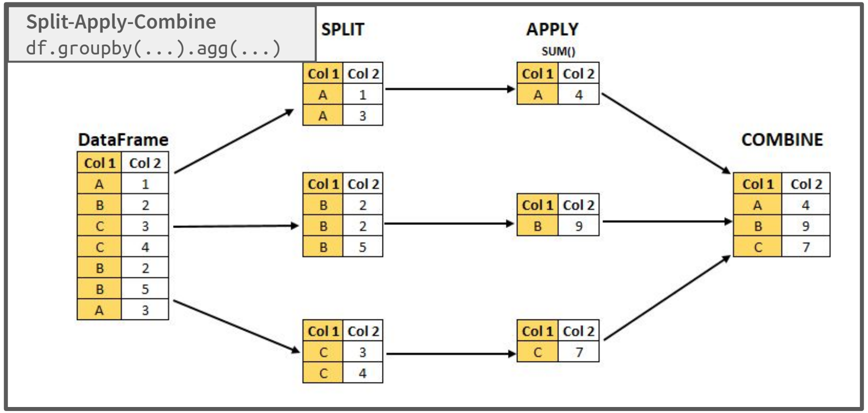


Filter
`df.loc[...]`

| Symbol | Industry | Shares |
|---|---|---|
| MSFT | Tech | 100 |
| GOOG | Tech | 50 |
| TSLA | Automotive | 150 |

Industry = "Tech"
Shares < 100

| | | |
|---|---|---|
| GOOG | Tech | 50 |



Split-Apply-Combine
`df.groupby(...).agg(...)`

DataFrame

| Col 1 | Col 2 |
|---|---|
| A | 1 |
| B | 2 |
| C | 3 |
| C | 4 |
| B | 2 |
| B | 5 |
| A | 3 |

SPLIT

| Col 1 | Col 2 |
|---|---|
| A | 1 |
| A | 3 |

| Col 1 | Col 2 |
|---|---|
| B | 2 |
| B | 2 |
| B | 5 |

| Col 1 | Col 2 |
|---|---|
| C | 3 |
| C | 4 |

APPLY
SUM()

| Col 1 | Col 2 |
|---|---|
| A | 4 |

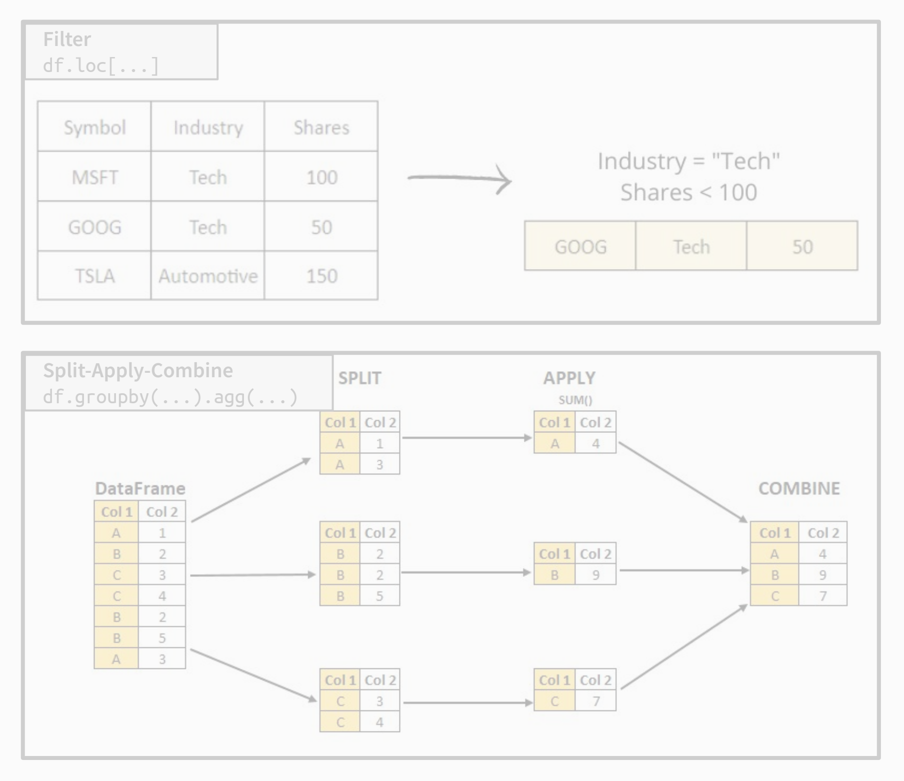
| Col 1 | Col 2 |
|---|---|
| B | 9 |

| Col 1 | Col 2 |
|---|---|
| C | 7 |

COMBINE

| Col 1 | Col 2 |
|---|---|
| A | 4 |
| B | 9 |
| C | 7 |

# Ask questions about your data (and models)



Filter
`df.loc[...]`

| Symbol | Industry | Shares |
|---|---|---|
| MSFT | Tech | 100 |
| GOOG | Tech | 50 |
| TSLA | Automotive | 150 |

Industry = "Tech"
Shares < 100

| | | |
|---|---|---|
| GOOG | Tech | 50 |

Split-Apply-Combine
`df.groupby(...).agg(...)`

DataFrame

| Col 1 | Col 2 |
|---|---|
| A | 1 |
| B | 2 |
| C | 3 |
| C | 4 |
| B | 2 |
| B | 5 |
| A | 3 |

SPLIT

| Col 1 | Col 2 |
|---|---|
| A | 1 |
| A | 3 |

| Col 1 | Col 2 |
|---|---|
| B | 2 |
| B | 2 |
| B | 5 |

| Col 1 | Col 2 |
|---|---|
| C | 3 |
| C | 4 |

APPLY
SUM()

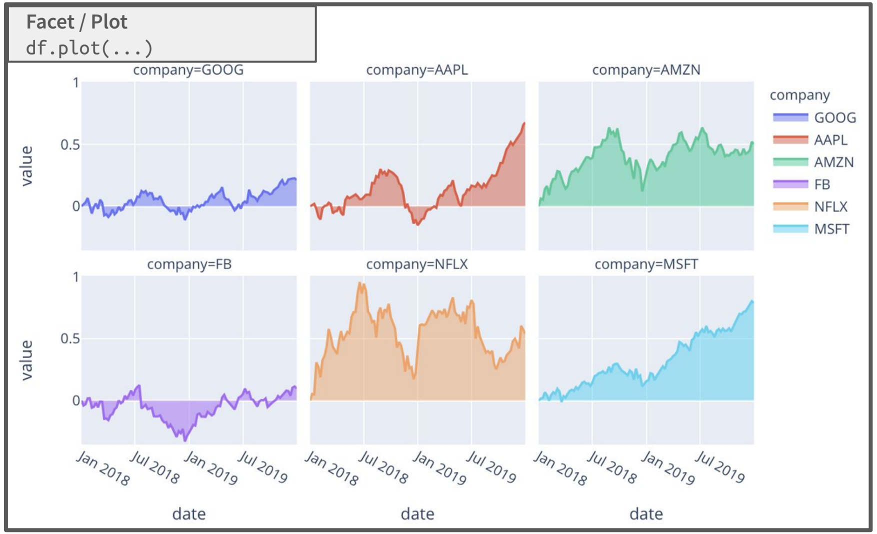
| Col 1 | Col 2 |
|---|---|
| A | 4 |

| Col 1 | Col 2 |
|---|---|
| B | 9 |

| Col 1 | Col 2 |
|---|---|
| C | 7 |

COMBINE

| Col 1 | Col 2 |
|---|---|
| A | 4 |
| B | 9 |
| C | 7 |



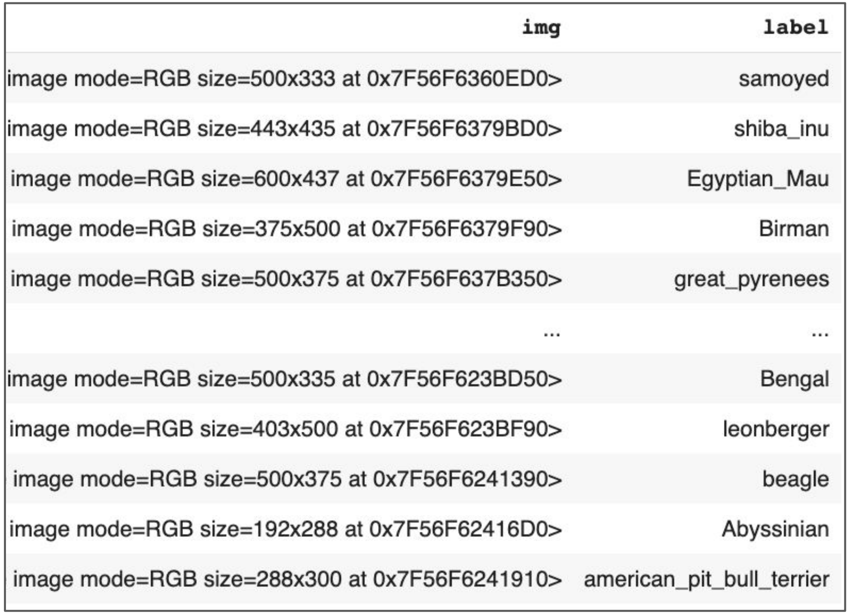
Facet / Plot
`df.plot(...)`

# How do I ask questions about non-tabular data?

Tables – DataFrames with rich media support

# Ask questions about your data (and models)

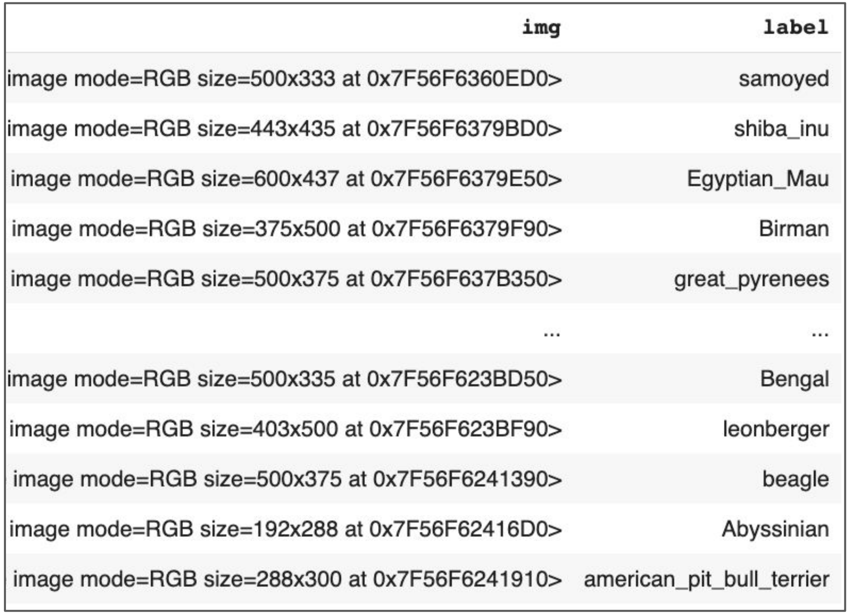
❌ Classic DataFrames



| img | label |
|---|---|
| image mode=RGB size=500x333 at 0x7F56F6360ED0> | samoyed |
| image mode=RGB size=443x435 at 0x7F56F6379BD0> | shiba_inu |
| image mode=RGB size=600x437 at 0x7F56F6379E50> | Egyptian_Mau |
| image mode=RGB size=375x500 at 0x7F56F6379F90> | Birman |
| image mode=RGB size=500x375 at 0x7F56F637B350> | great_pyrenees |
| ... | ... |
| image mode=RGB size=500x335 at 0x7F56F623BD50> | Bengal |
| image mode=RGB size=403x500 at 0x7F56F623BF90> | leonberger |
| image mode=RGB size=500x375 at 0x7F56F6241390> | beagle |
| image mode=RGB size=192x288 at 0x7F56F62416D0> | Abyssinian |
| image mode=RGB size=288x300 at 0x7F56F6241910> | american_pit_bull_terrier |

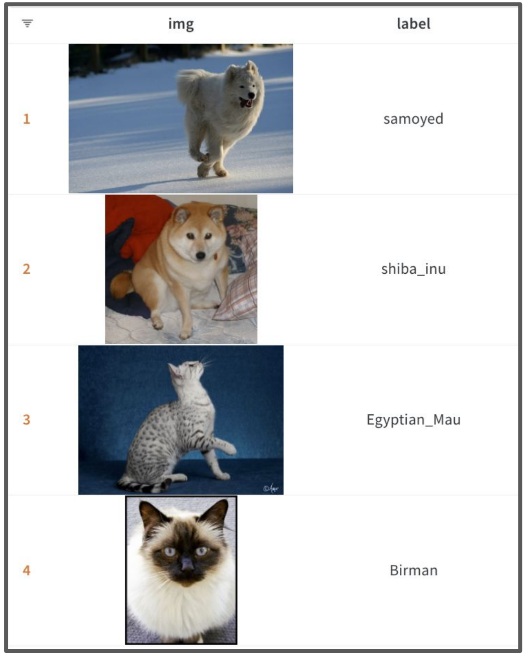
# Ask questions about your data (and models)

## ❌ Classic DataFrames



| img | label |
|---|---|
| image mode=RGB size=500x333 at 0x7F56F6360ED0> | samoyed |
| image mode=RGB size=443x435 at 0x7F56F6379BD0> | shiba_inu |
| image mode=RGB size=600x437 at 0x7F56F6379E50> | Egyptian_Mau |
| image mode=RGB size=375x500 at 0x7F56F6379F90> | Birman |
| image mode=RGB size=500x375 at 0x7F56F637B350> | great_pyrenees |
| ... | ... |
| image mode=RGB size=500x335 at 0x7F56F623BD50> | Bengal |
| image mode=RGB size=403x500 at 0x7F56F623BF90> | leonberger |
| image mode=RGB size=500x375 at 0x7F56F6241390> | beagle |
| image mode=RGB size=192x288 at 0x7F56F62416D0> | Abyssinian |
| image mode=RGB size=288x300 at 0x7F56F6241910> | american_pit_bull_terrier |

## ✅ wandb.Table

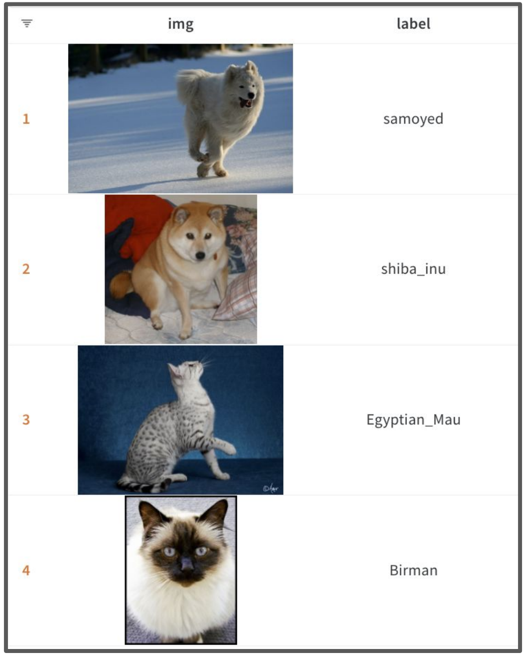


|  | img | label |
|---|---|---|
| 1 |  | samoyed |
| 2 |  | shiba_inu |
| 3 |  | Egyptian_Mau |
| 4 |  | Birman |

**Tables – DataFrames with rich media support**

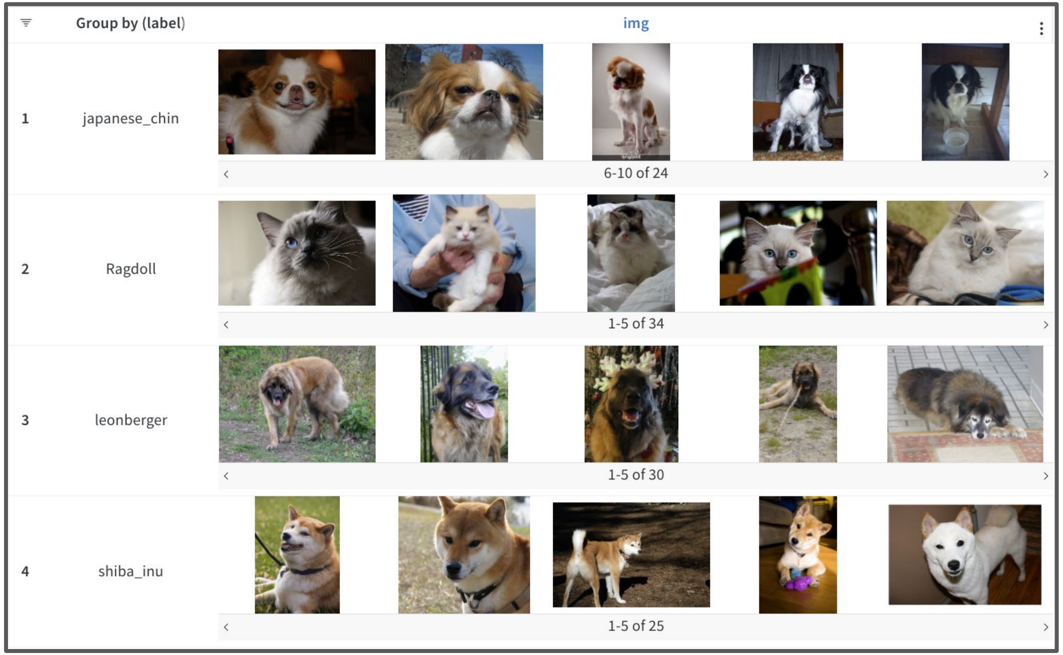
# Ask questions about your data (and models)

✅ **wandb.Table**



| | img | label |
|---|---|---|
| 1 | | samoyed |
| 2 | | shiba_inu |
| 3 | | Egyptian_Mau |
| 4 | | Birman |

`Table.groupby("label")`

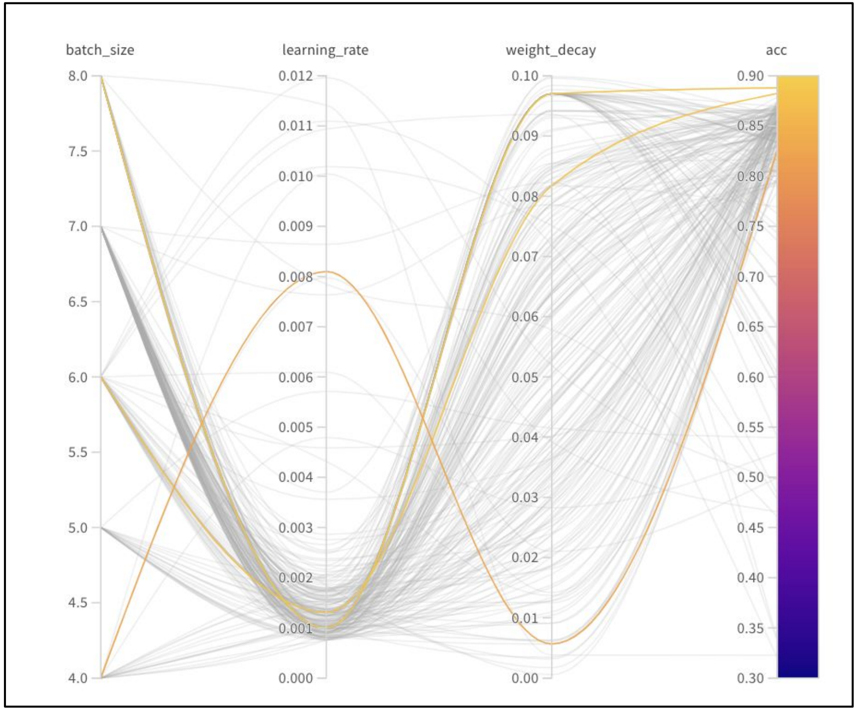


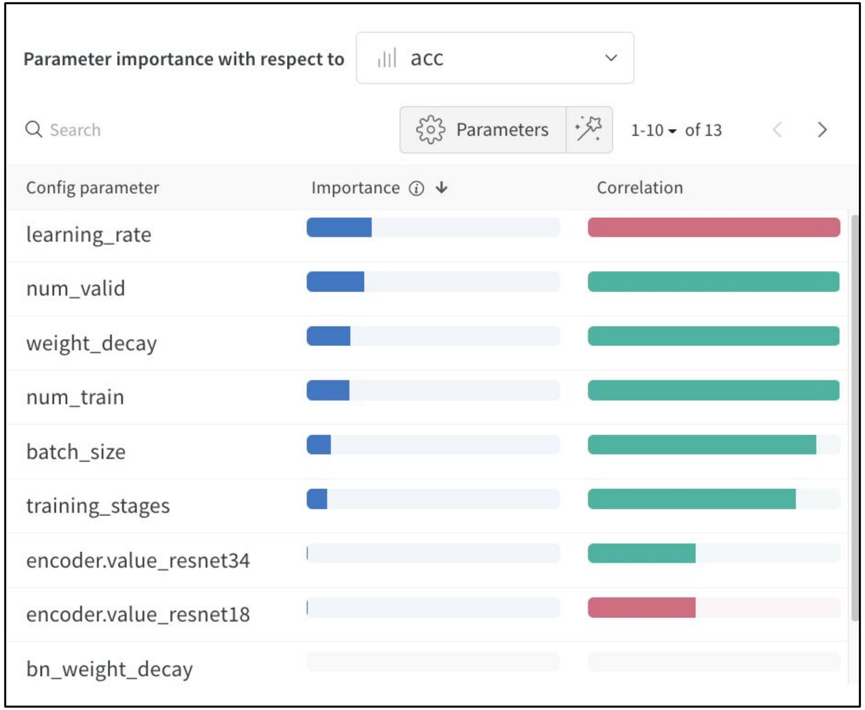
| | Group by (label) | img |
|---|---|---|
| 1 | japanese_chin | ‹ 6-10 of 24 › |
| 2 | Ragdoll | ‹ 1-5 of 34 › |
| 3 | leonberger | ‹ 1-5 of 30 › |
| 4 | shiba_inu | ‹ 1-5 of 25 › |

# How do I ask questions about training?

Sweeps

# Easily and systematically search hyperparameters




Parameter importance with respect to acc

Search

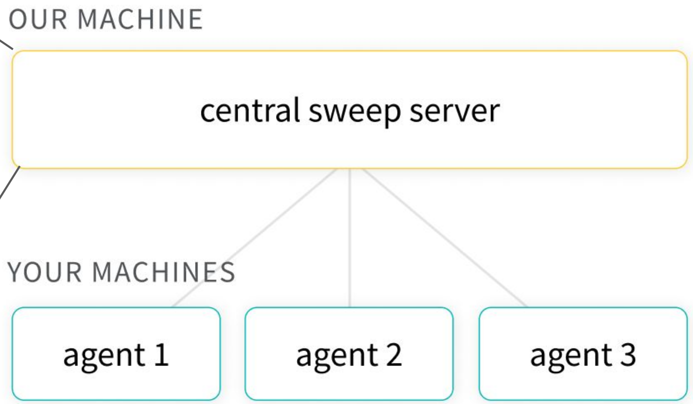
Parameters 1-10 of 13

| Config parameter | Importance ⓘ ↓ | Correlation |
|---|---|---|
| learning_rate | 🟦 | 🟥 |
| num_valid | 🟦 | 🟩 |
| weight_decay | 🟦 | 🟩 |
| num_train | 🟦 | 🟩 |
| batch_size | 🟦 | 🟩 |
| training_stages | 🟦 | 🟩 |
| encoder.value_resnet34 | 🟦 | 🟩 |
| encoder.value_resnet18 | 🟦 | 🟥 |
| bn_weight_decay |  |  |

Sweeps – Easily search hyperparameters

# Ask questions about your data (and models)

```
program: train.py
method: bayes
metric:
 name: valid_loss
 goal: minimize
parameters:
 batch_size:
   values: [32, 64]
 mixup_alpha:
   values: [0.2, 0.5, 0.8]
 optimizer:
   values: ["adam", "ranger"]
 encoder:
   values: ["resnet18", "resnet34", "resnet50", "resnet101"]
```



# Three principles of an ideal ML workflow

**Rapidly iterate**

to continuously refine and optimize models

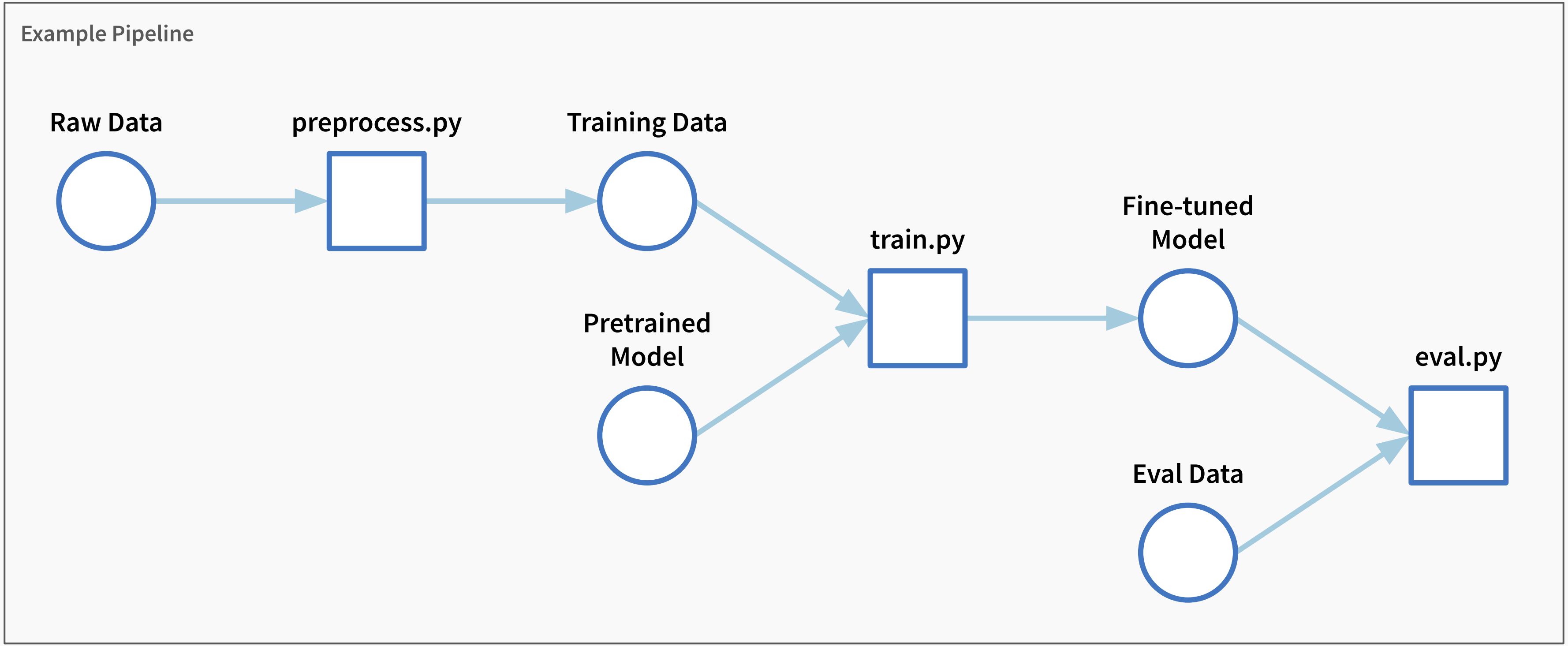
**Reproduce**

to reduce key-person dependencies

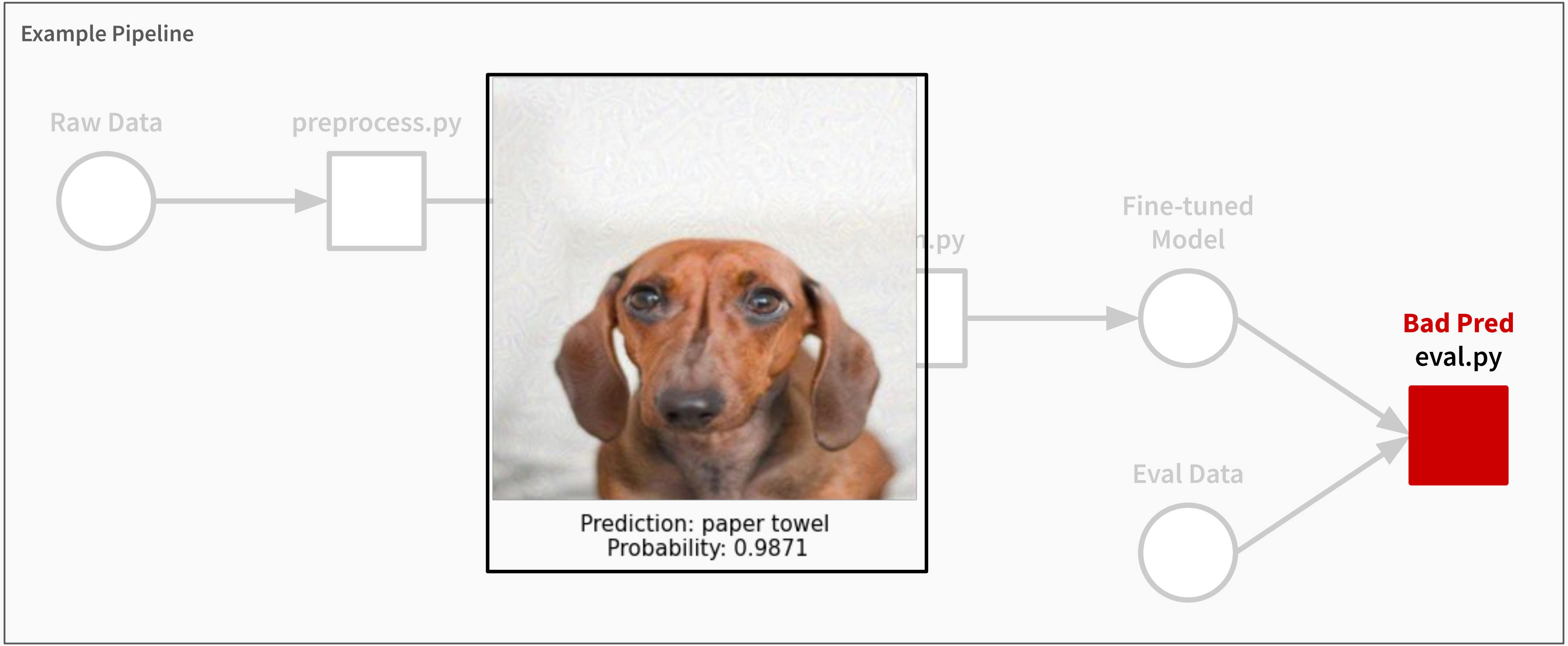
**Collaborate**

to ensure knowledge transfer across the organization

# Artifacts – Version data and models across your pipeline

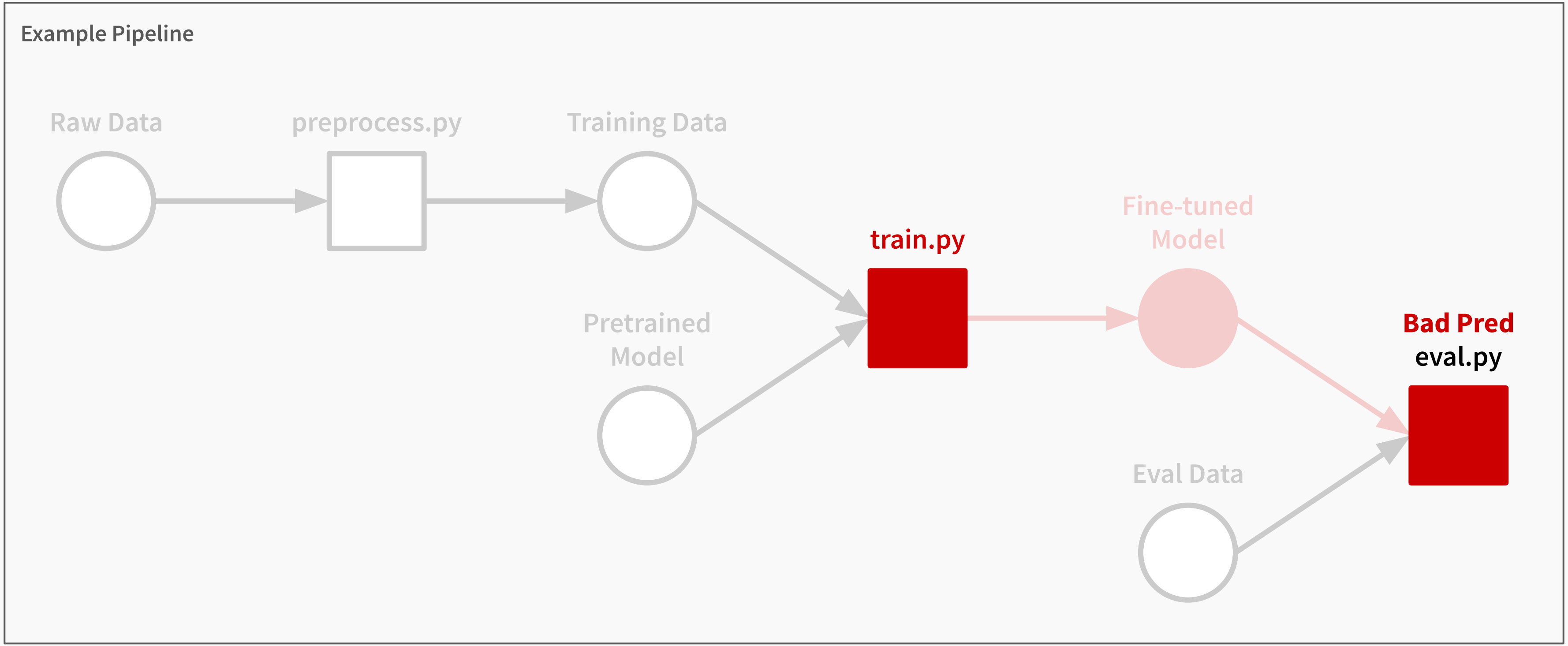


# Bad predictions!

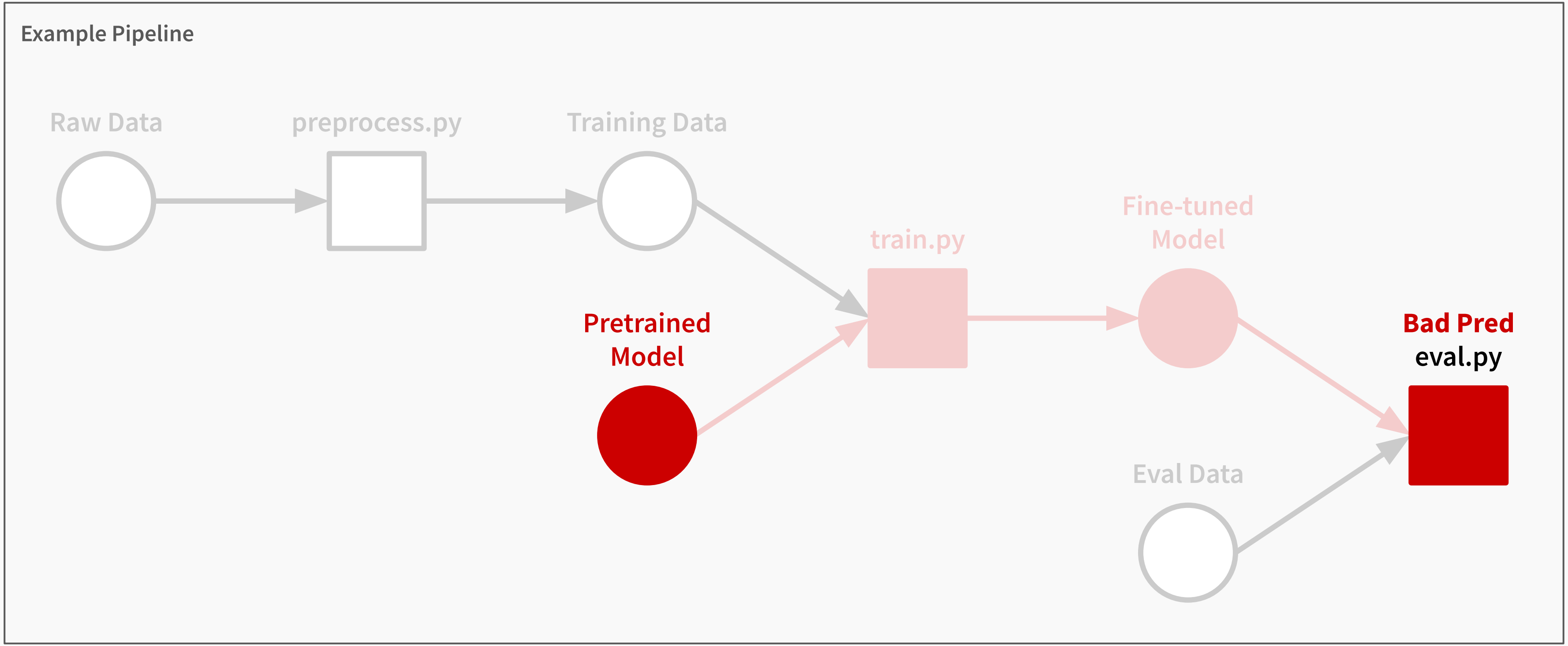


Prediction: paper towel
Probability: 0.9871

# Bad predictions because of **training?**

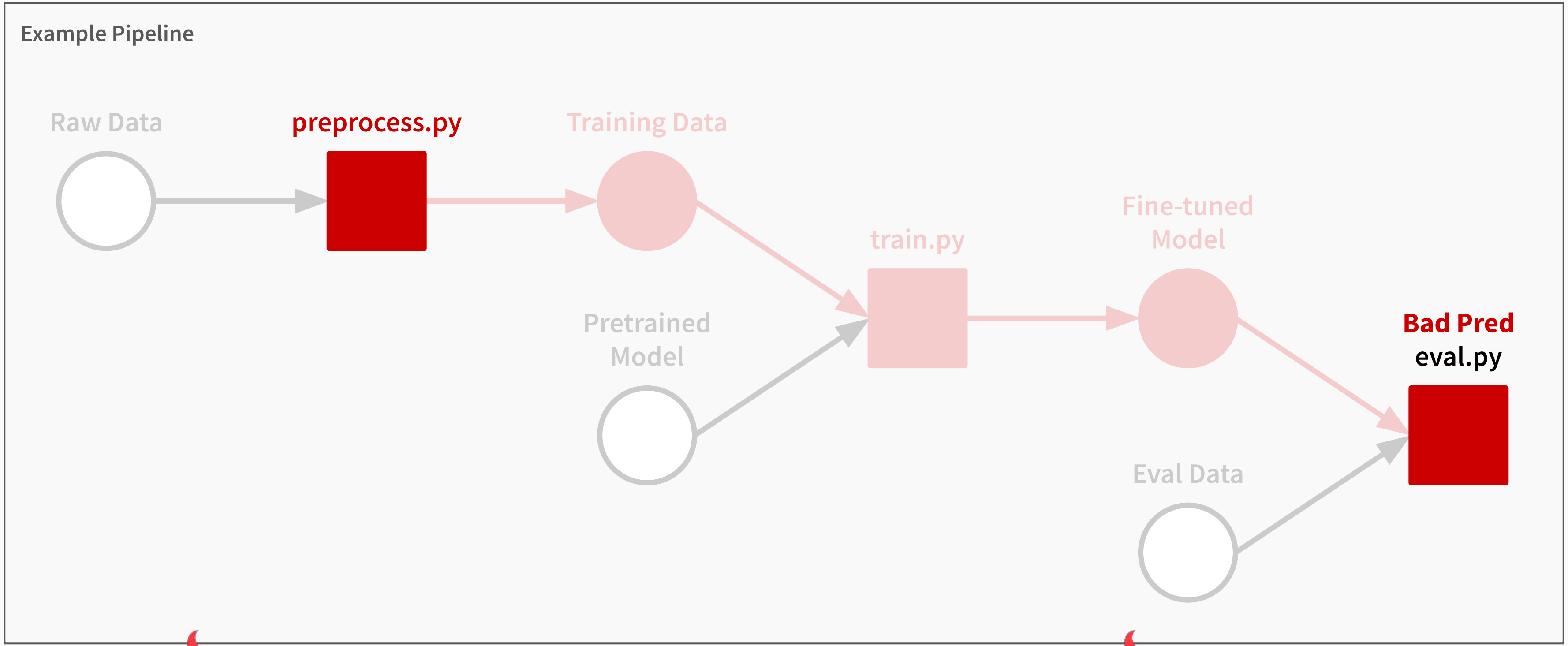


# Bad predictions because of **pretrained models?**



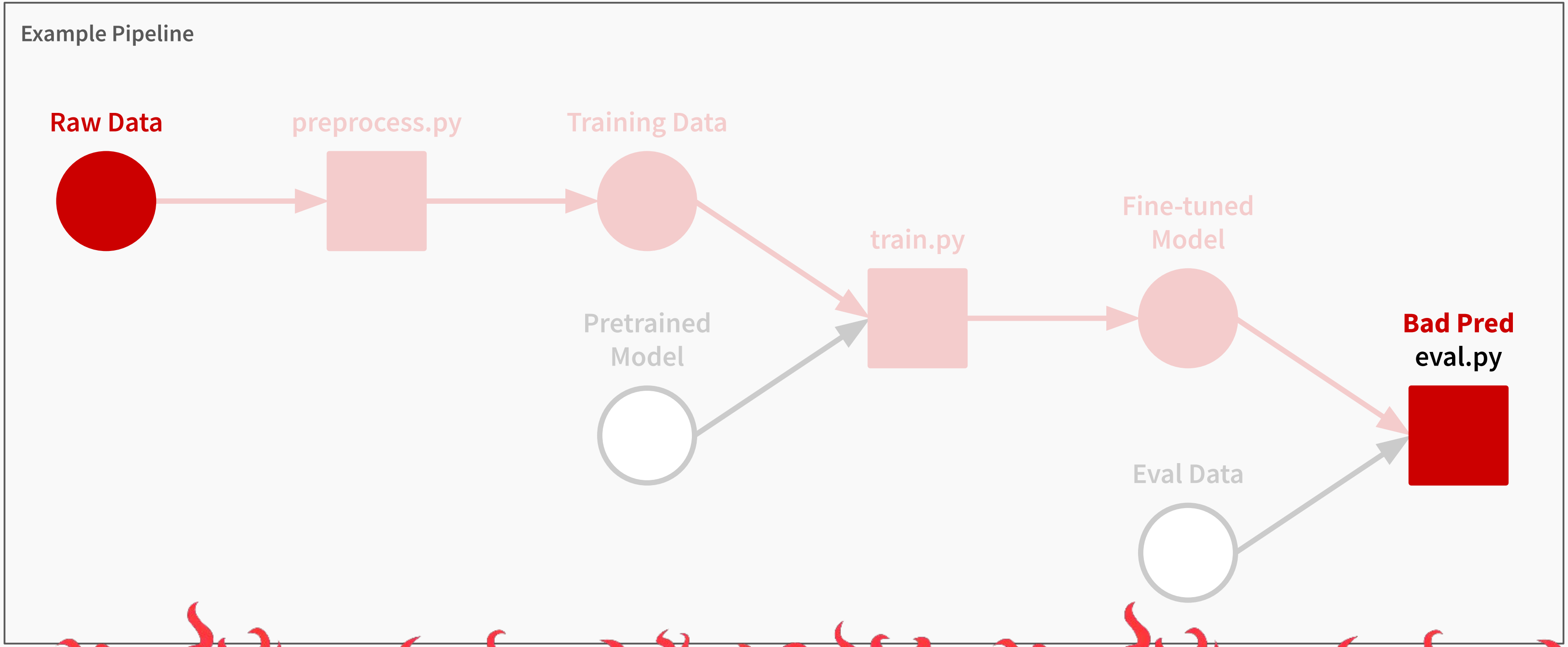
**Artifacts** – Version data and models across your pipeline

# Bad predictions because of **preprocessing?**

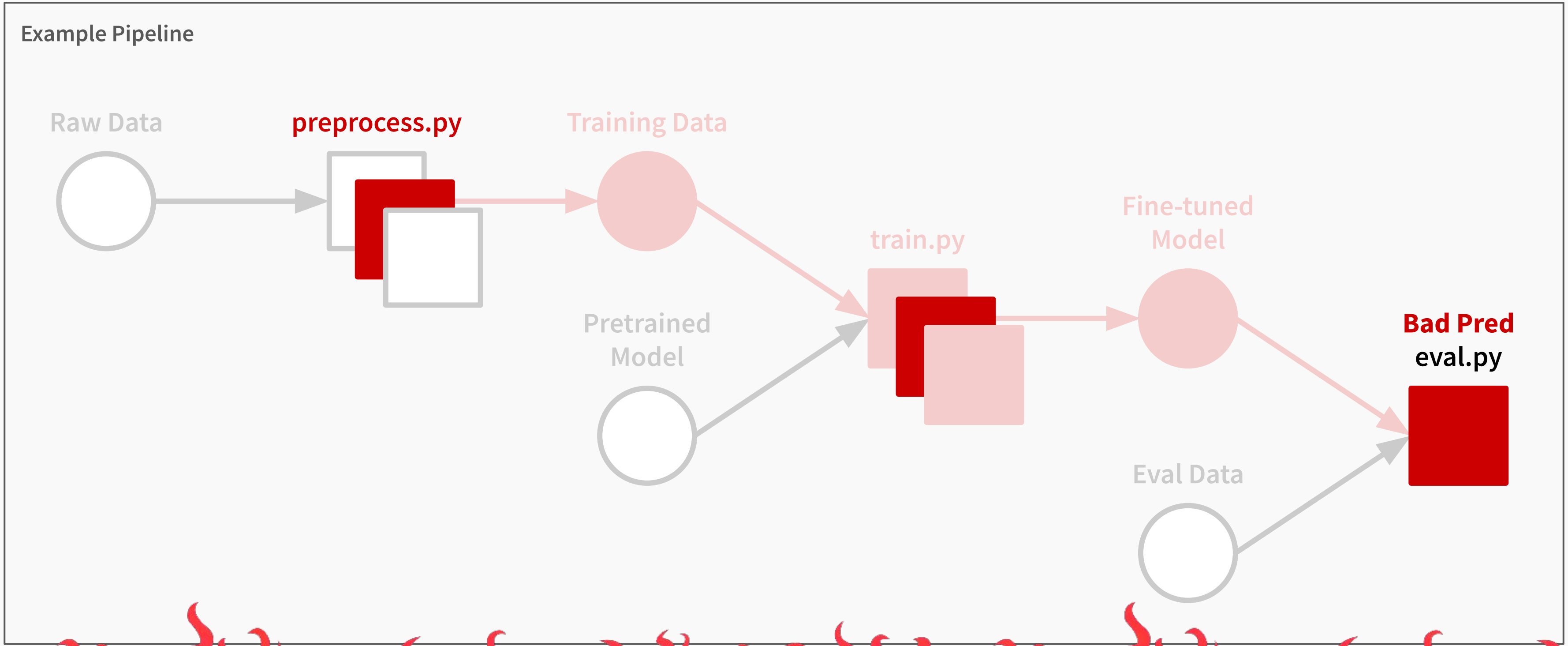


**Artifacts** – Version data and models across your pipeline

# Bad predictions because of **raw data?**



# Bad predictions because of **multiprocessing?**



# Bad predictions because of **multiprocessing?**

Example Pip

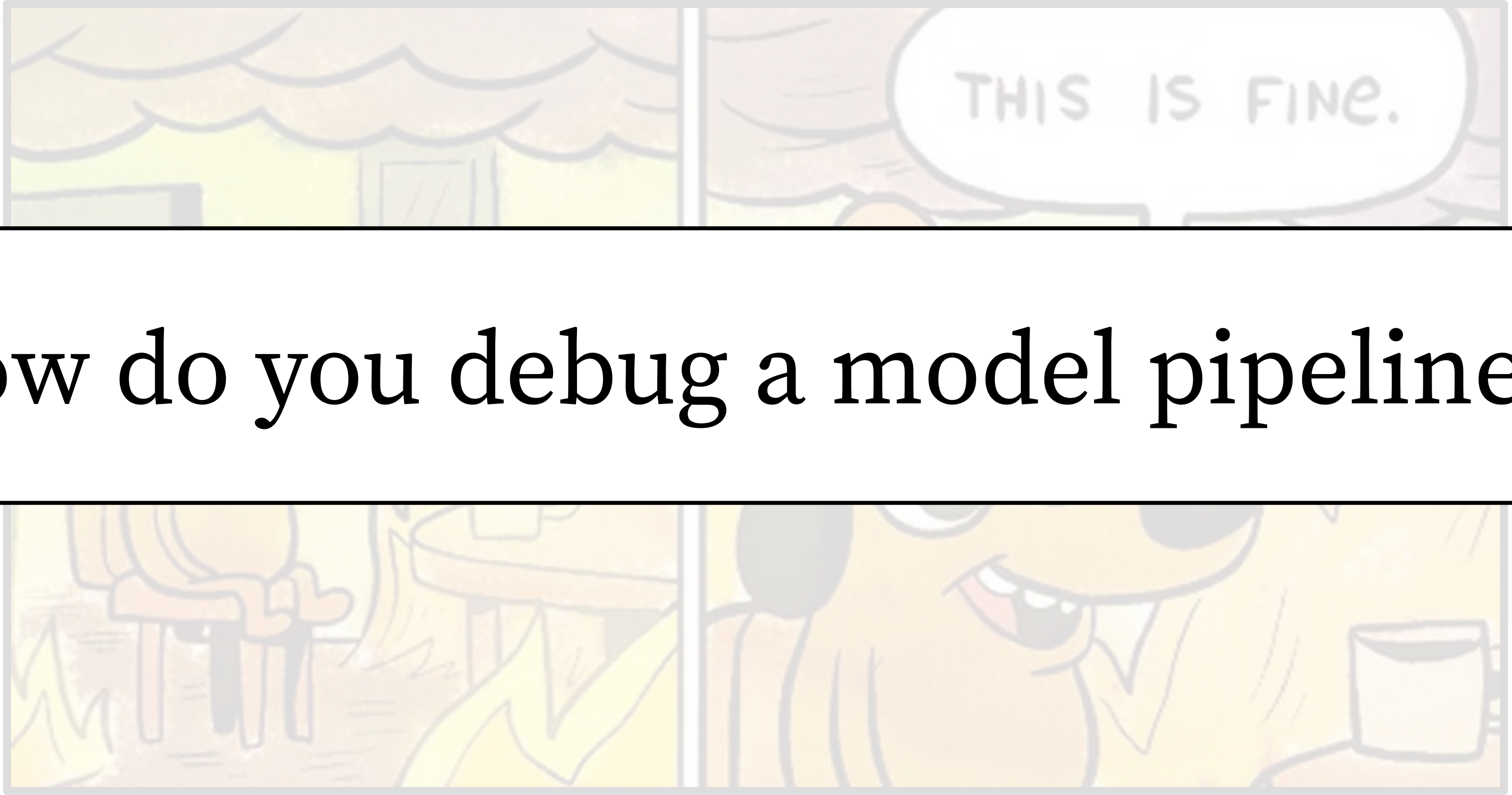
Raw Da

red

py

Bad predictions because of **multiprocessing?**

Example Pip

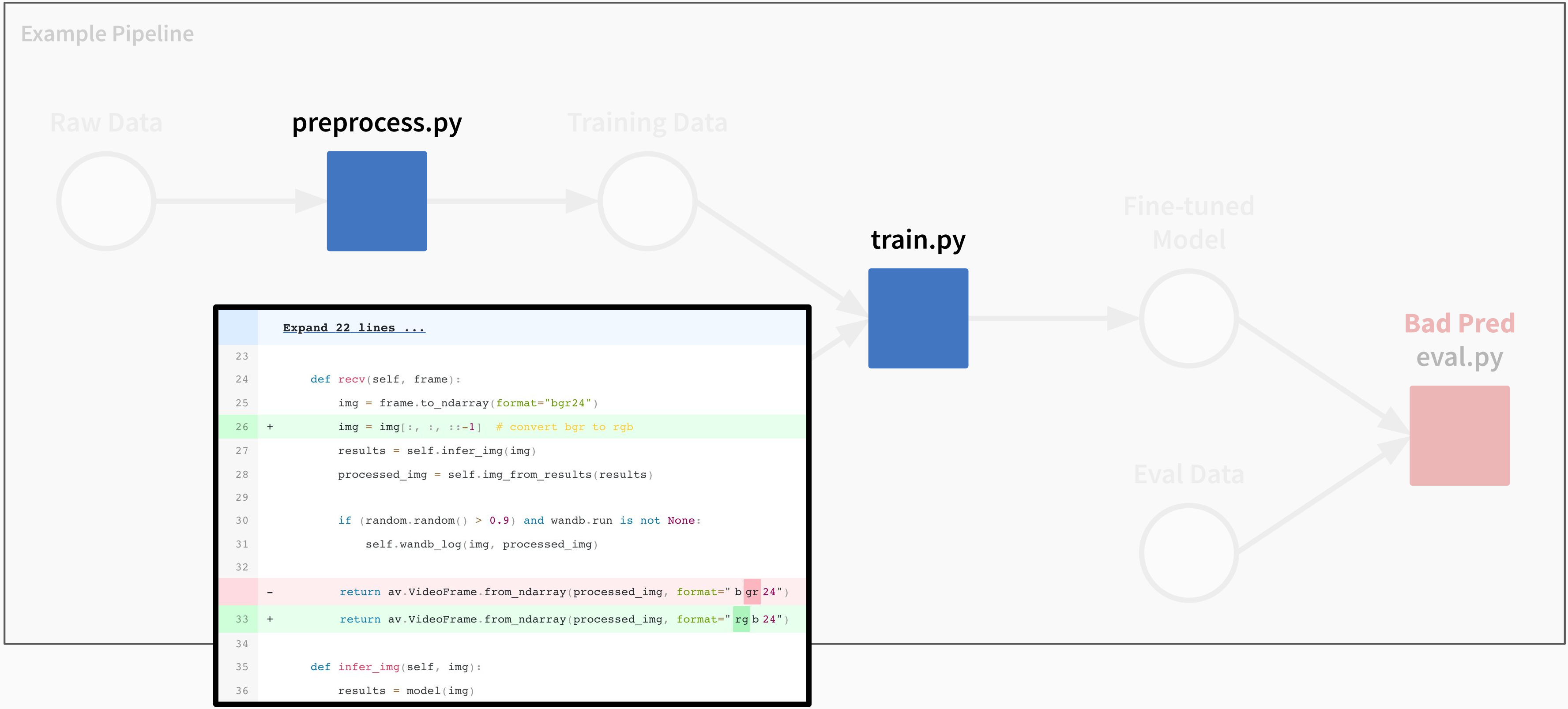


# How do you debug a model pipeline?

# Check the Code

**Artifacts – Version data and models across your pipeline**

# Problem with code?  More than `git diff`



Expand 22 lines ...

```
      def recv(self, frame):
          img = frame.to_ndarray(format="bgr24")
+         img = img[:, :, ::-1]  # convert bgr to rgb
          results = self.infer_img(img)
          processed_img = self.img_from_results(results)

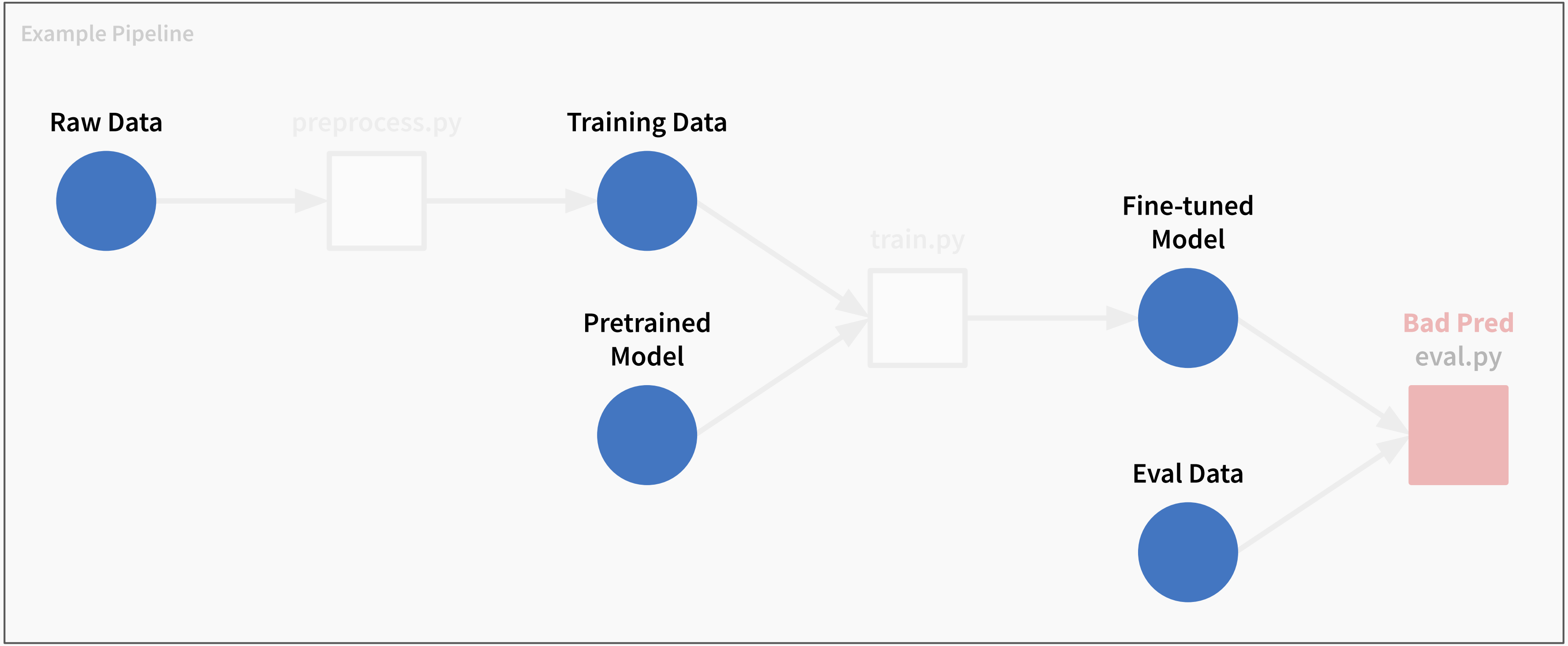
          if (random.random() > 0.9) and wandb.run is not None:
              self.wandb_log(img, processed_img)

-         return av.VideoFrame.from_ndarray(processed_img, format="bgr24")
+         return av.VideoFrame.from_ndarray(processed_img, format="rgb24")

      def infer_img(self, img):
          results = model(img)
```

**Artifacts** – Version data and models across your pipeline

# What about the input/output artifacts?



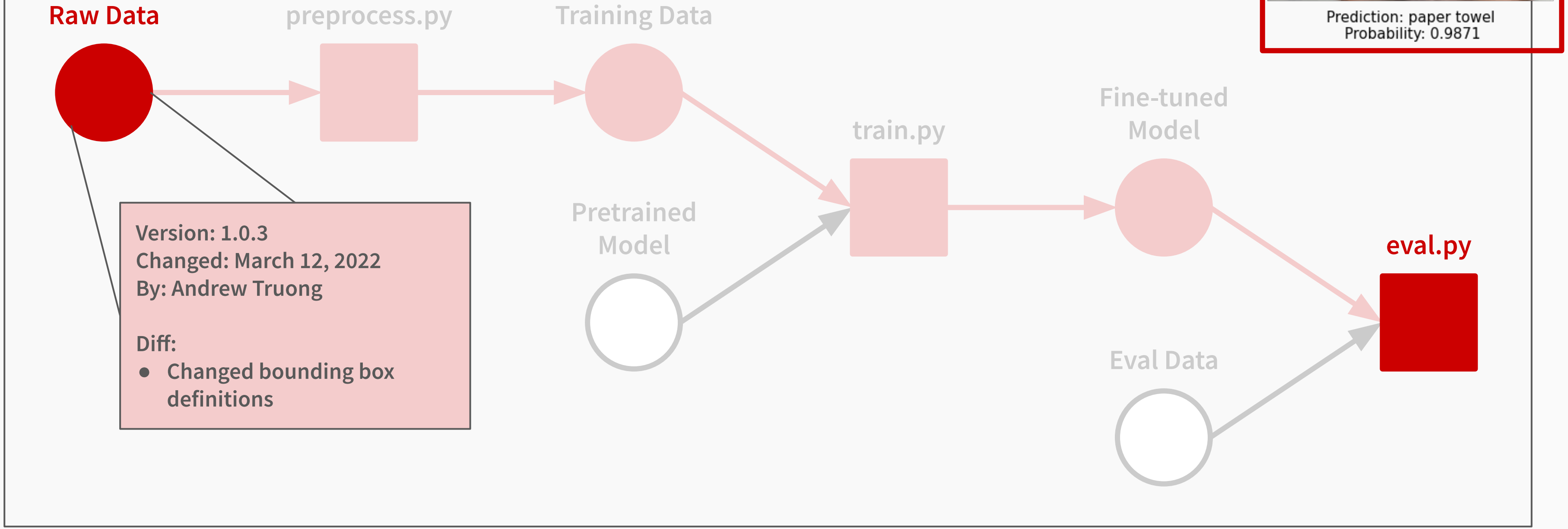
# Check the inputs

Artifacts – Version data and models across your pipeline

# Bad predictions because of **Raw Data**

Prediction: paper towel
Probability: 0.9871

Example Pipeline



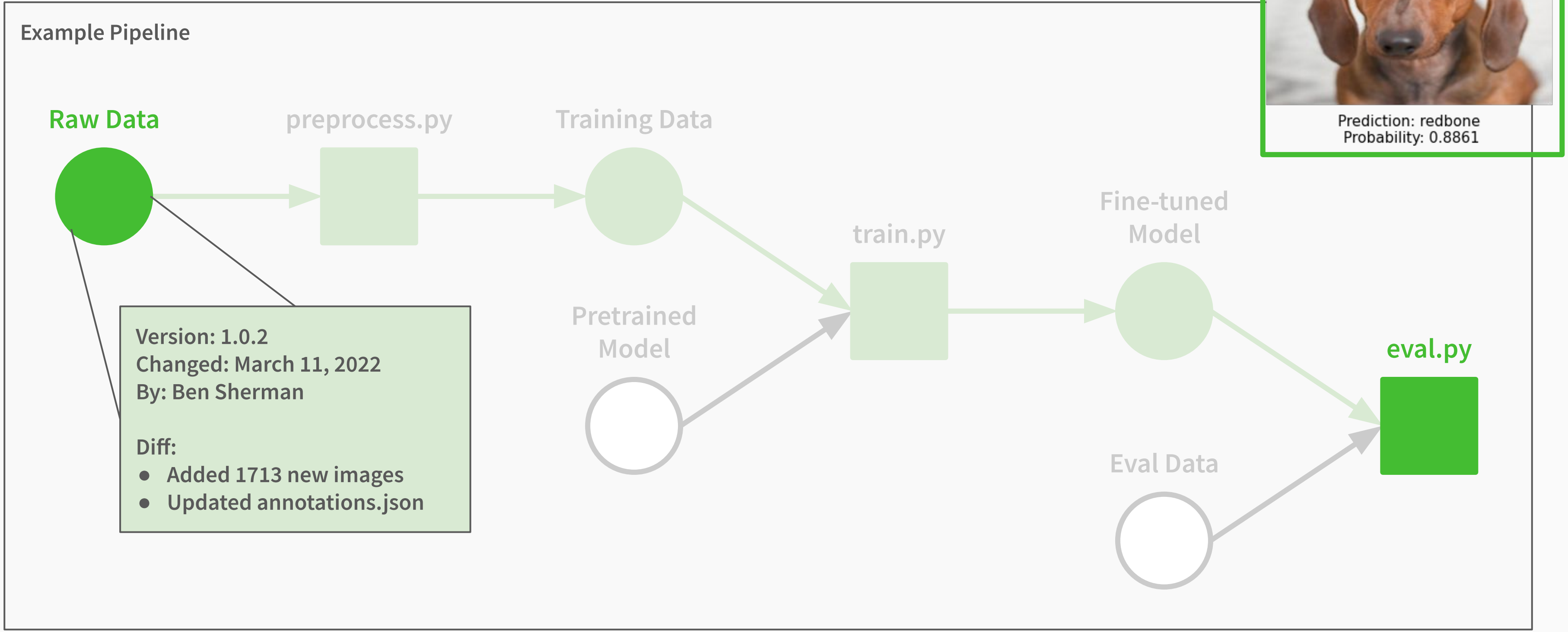
Version: 1.0.3
Changed: March 12, 2022
By: Andrew Truong

Diff:

- Changed bounding box definitions

Artifacts – Version data and models across your pipeline

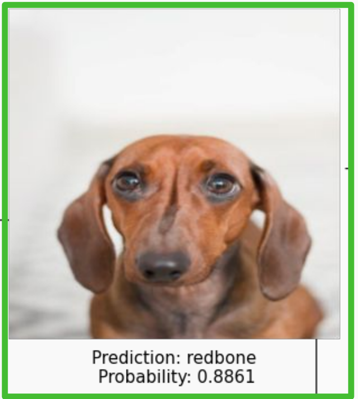
# Good predictions after reverting Raw Data



Version: 1.0.2
Changed: March 11, 2022
By: Ben Sherman

Diff:

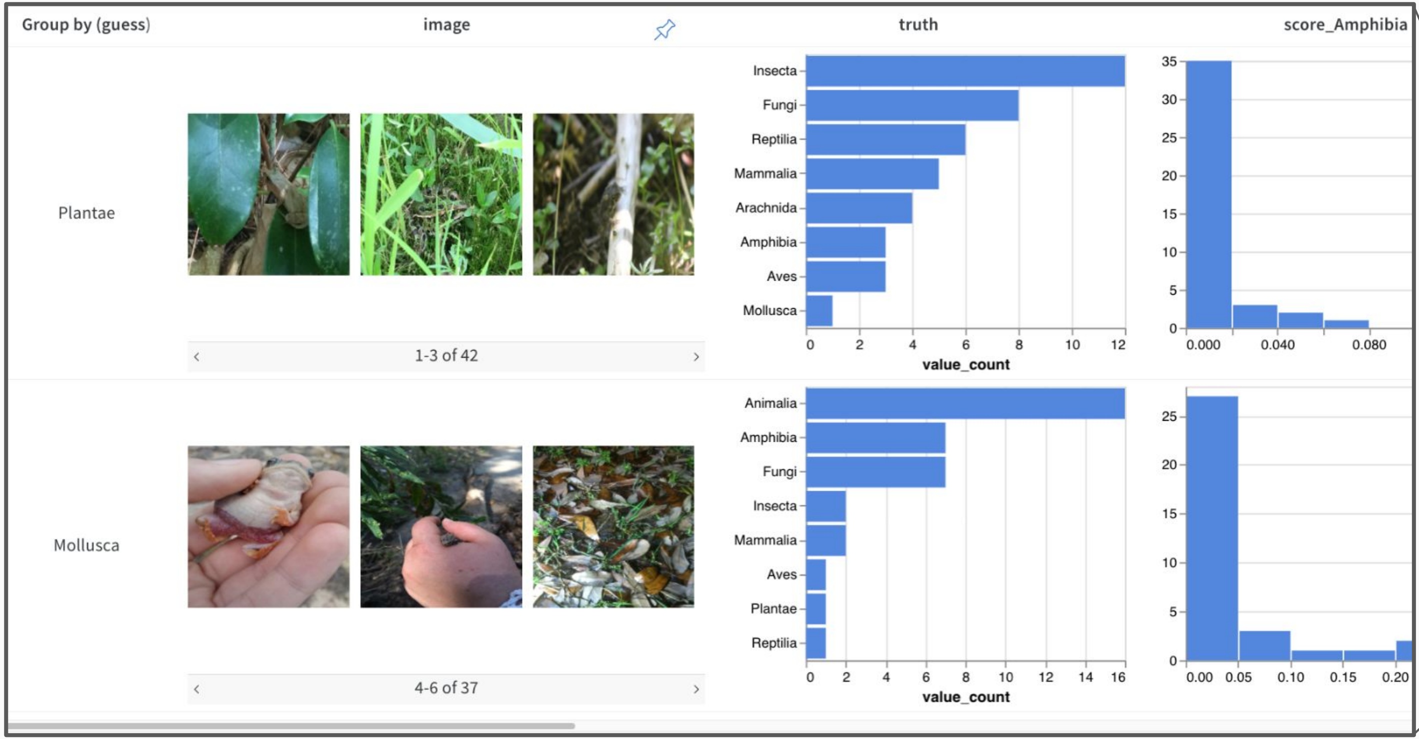
- Added 1713 new images
- Updated annotations.json



Prediction: redbone
Probability: 0.8861

# Check the outputs

# Tables – DataFrames with rich media support



eval.py

# Three principles of an ideal ML workflow

**Rapidly iterate**

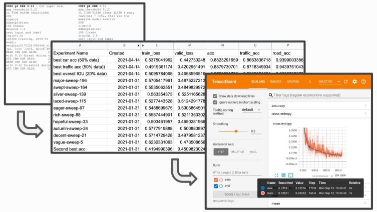
to continuously refine and optimize models

**Reproduce**

to reduce key-person dependencies

**Collaborate**

to ensure knowledge transfer across the organization



```
0000 p1 DRZ 3.11 - not super eval
mag_threshold 0.21
2L 300N BLSTM (BasicLSTM)
20D
sigmoid
AdamOptimizer
100 frames
dropout 1.0
zero input and label
log(x+1.0)
103300 training, 2000 CV
model:
weights20170224-005946_v1
(p1, loss .1419, epoch 40
MEAN IBM SDR GAIN:        2
with 0.15 thresh during c
STD IBM SDR GAIN:         2
MEAN IBM SDR GAIN:        2
with 0.32 threshold durin
STD IBM SDR GAIN:         2
```

```
0001 p2 DRZ 3.23
mag_threshold 0.12
2L 300N BLSTM_clean (LSTM & many
reworks) - note, this was the
massive model rewrite
20D
sigmoid
AdamOptimizer
100 frames
dropout 1.0
zero input and label
```

| A | B | L | M | N | O | P |
|---|---|---|---|---|---|---|
| Experiment Name | Created | train_loss | valid_loss | acc | traffic_acc | road_acc |
| best car acc (50% data) | 2021-04-14 | 0.5375041962 | 0.442730248 | 0.8823291659 | 0.8663836718 | 0.9399003386 |
| best traffic acc (50% data)) | 2021-04-14 | 0.4919361174 | 0.4202951491 | 0.8879730701 | 0.8718349934 | 0.9439761043 |
| best overall IOU (20% data) | 2021-04-14 | 0.5095784068 | 0.4658596516 | [illegible] | [illegible] | [illegible] |
| major-sweep-196 | 2021-01-31 | 0.5705417991 | 0.4875227213 | | | |
| swept-sweep-164 | 2021-01-31 | 0.5535062551 | 0.4849829972 | | | |
| silver-sweep-139 | 2021-01-31 | 0.563354373 | 0.5251165628 | | | |
| laced-sweep-115 | 2021-01-31 | 0.5277443528 | 0.5124291778 | | | |
| eager-sweep-97 | 2021-01-31 | 0.5488699675 | 0.5005864501 | | | |
| rich-sweep-88 | 2021-01-31 | 0.5587444901 | 0.5211353302 | | | |
| hopeful-sweep-33 | 2021-01-31 | 0.503461957 | 0.4650281966 | | | |
| autumn-sweep-24 | 2021-01-31 | 0.5777919888 | 0.500880897 | | | |
| decent-sweep-21 | 2021-01-31 | 0.5714729428 | 0.4979581237 | | | |
| vague-sweep-5 | 2021-01-31 | 0.6230331063 | 0.473508656 | | | |
| Second best acc | 2021-01-31 | 0.4194990396 | 0.4509823024 | | | |

☑ Show data download links

☑ Ignore outliers in chart scaling

Tooltip sorting method: default

Smoothing 0.6

Horizontal Axis: STEP RELATIVE WALL

Runs

Write a regex to filter runs

☑ train

☑ eval

TOGGLE ALL RUNS

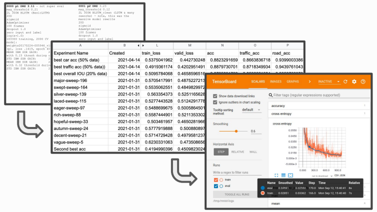
/tmp/mnist-logs

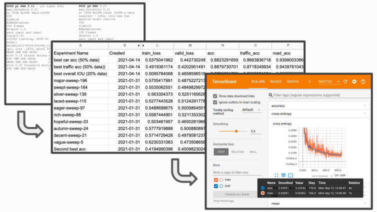
Filter tags (regular expressions supported)

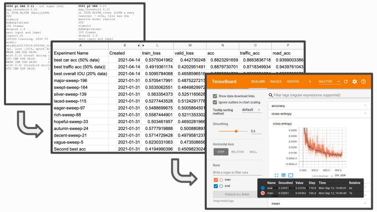
accuracy

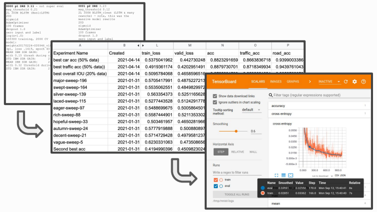
cross entropy

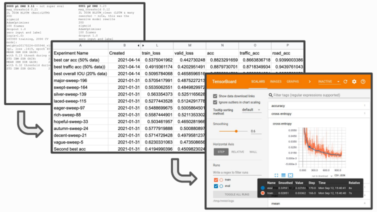
| | Name | Smoothed | Value | Step | Time | Relative |
|---|---|---|---|---|---|---|
| ● | eval | 0.02591 | 0.02550 | 170.0 | Mon Sep 12, 15:40:41 | 8s |
| ● | train | 0.02851 | 0.03362 | 166.0 | Mon Sep 12, 15:40:40 | 7s |

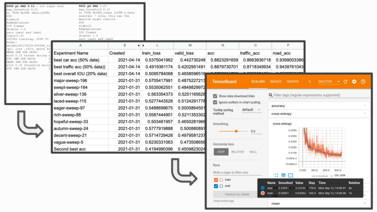


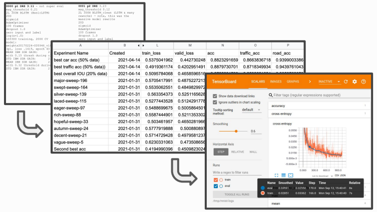


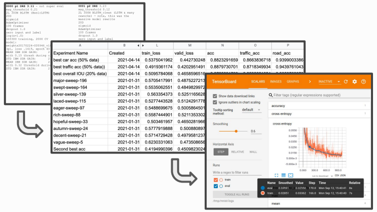


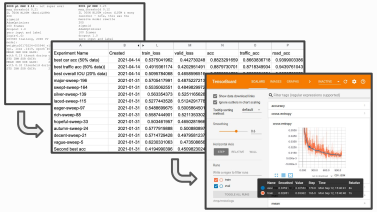


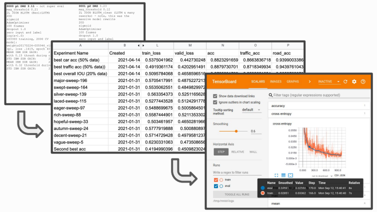


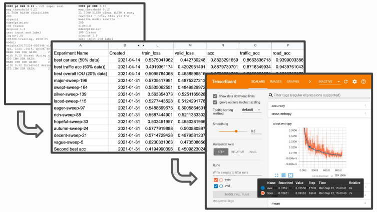


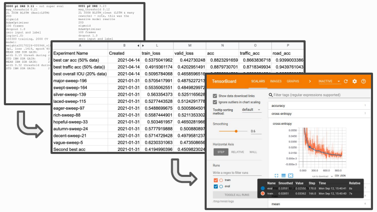


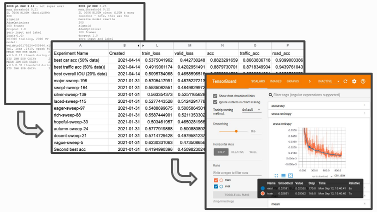


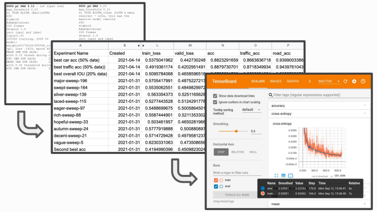


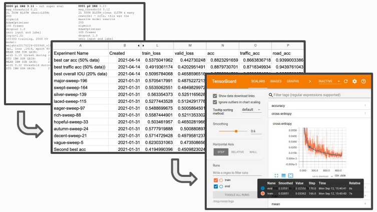


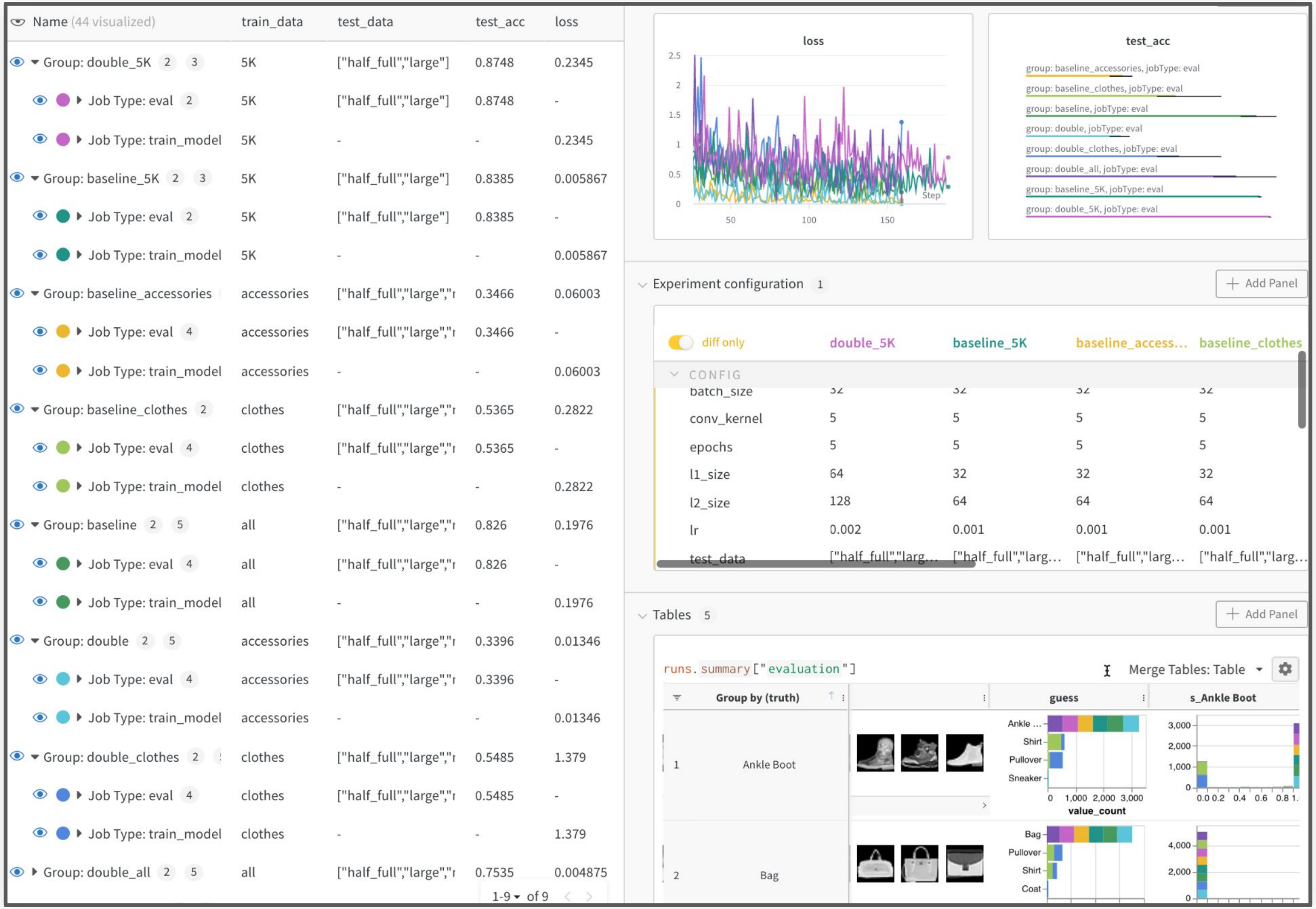












| Name (44 visualized) | train_data | test_data | test_acc | loss |
|---|---|---|---|---|
| ▾ Group: double_5K 2 3 | 5K | ["half_full","large"] | 0.8748 | 0.2345 |
| ▸ Job Type: eval 2 | 5K | ["half_full","large"] | 0.8748 | - |
| ▸ Job Type: train_model | 5K | - | - | 0.2345 |
| ▾ Group: baseline_5K 2 3 | 5K | ["half_full","large"] | 0.8385 | 0.005867 |
| ▸ Job Type: eval 2 | 5K | ["half_full","large"] | 0.8385 | - |
| ▸ Job Type: train_model | 5K | - | - | 0.005867 |
| ▾ Group: baseline_accessories | accessories | ["half_full","large","r | 0.3466 | 0.06003 |
| ▸ Job Type: eval 4 | accessories | ["half_full","large","r | 0.3466 | - |
| ▸ Job Type: train_model | accessories | - | - | 0.06003 |
| ▾ Group: baseline_clothes 2 | clothes | ["half_full","large","r | 0.5365 | 0.2822 |
| ▸ Job Type: eval 4 | clothes | ["half_full","large","r | 0.5365 | - |
| ▸ Job Type: train_model | clothes | - | - | 0.2822 |
| ▾ Group: baseline 2 5 | all | ["half_full","large","r | 0.826 | 0.1976 |
| ▸ Job Type: eval 4 | all | ["half_full","large","r | 0.826 | - |
| ▸ Job Type: train_model | all | - | - | 0.1976 |
| ▾ Group: double 2 5 | accessories | ["half_full","large","r | 0.3396 | 0.01346 |
| ▸ Job Type: eval 4 | accessories | ["half_full","large","r | 0.3396 | - |
| ▸ Job Type: train_model | accessories | - | - | 0.01346 |
| ▾ Group: double_clothes 2 | clothes | ["half_full","large","r | 0.5485 | 1.379 |
| ▸ Job Type: eval 4 | clothes | ["half_full","large","r | 0.5485 | - |
| ▸ Job Type: train_model | clothes | - | - | 1.379 |
| ▸ Group: double_all 2 5 | all | ["half_full","large","r | 0.7535 | 0.004875 |

1-9 ▾ of 9

loss
2.5
2
1.5
1
0.5
0
50
100
150
Step
test_acc
group: baseline_accessories, jobType: eval
group: baseline_clothes, jobType: eval
group: baseline, jobType: eval
group: double, jobType: eval
group: double_clothes, jobType: eval
group: double_all, jobType: eval
group: baseline_5K, jobType: eval
group: double_5K, jobType: eval

Experiment configuration 1

diff only

| CONFIG | double_5K | baseline_5K | baseline_access... | baseline_clothes |
|---|---|---|---|---|
| batch_size | 32 | 32 | 32 | 32 |
| conv_kernel | 5 | 5 | 5 | 5 |
| epochs | 5 | 5 | 5 | 5 |
| l1_size | 64 | 32 | 32 | 32 |
| l2_size | 128 | 64 | 64 | 64 |
| lr | 0.002 | 0.001 | 0.001 | 0.001 |
| test_data | ["half_full","larg... | ["half_full","larg... | ["half_full","larg... | ["half_full","larg... |

Tables 5

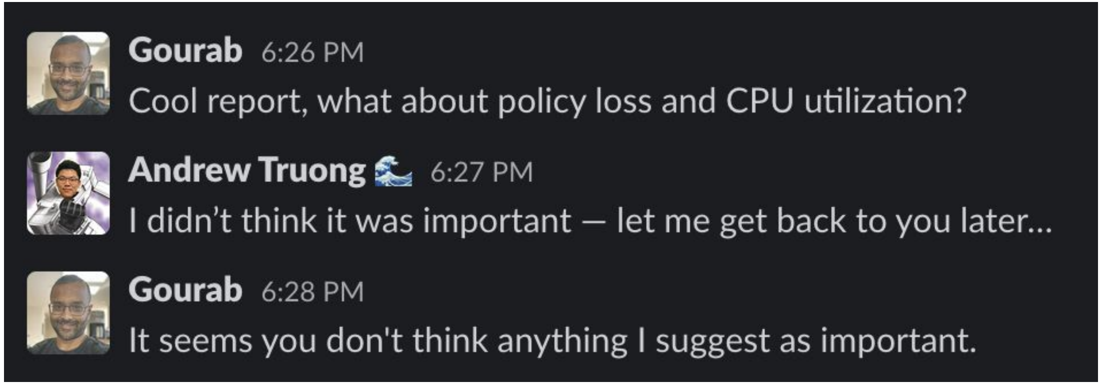
```
runs.summary["evaluation"]
```

Merge Tables: Table ▾

| Group by (truth) | | guess | s_Ankle Boot |
|---|---|---|---|
| 1 Ankle Boot | | | |
| 2 Bag | | | |

Interactive Dashboards

# Check any metrics



**Gourab** 6:26 PM

Cool report, what about policy loss and CPU utilization?

**Andrew Truong** 🌊 6:27 PM

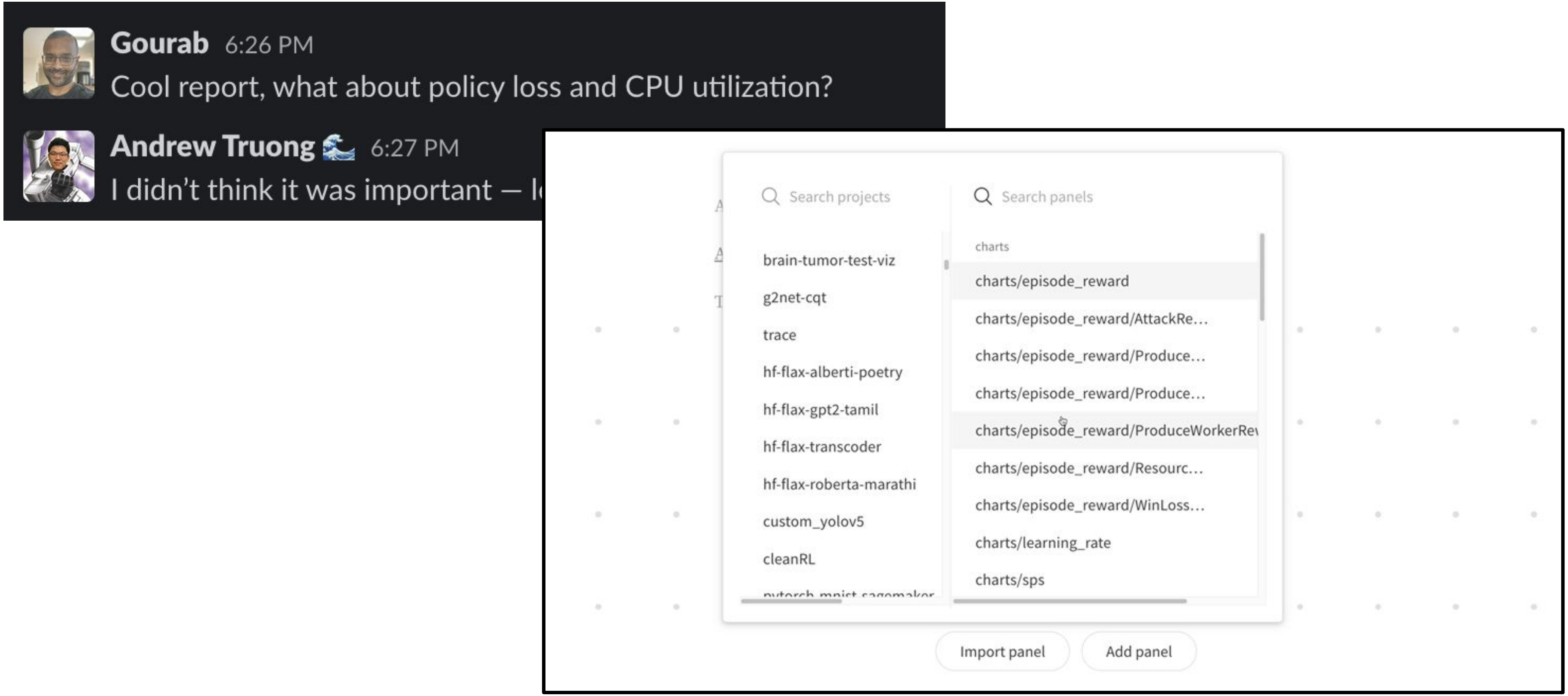
I didn't think it was important — let me get back to you later...

**Gourab** 6:28 PM

It seems you don't think anything I suggest as important.

Interactive Dashboards

# Check any metrics



**Gourab** 6:26 PM

Cool report, what about policy loss and CPU utilization?

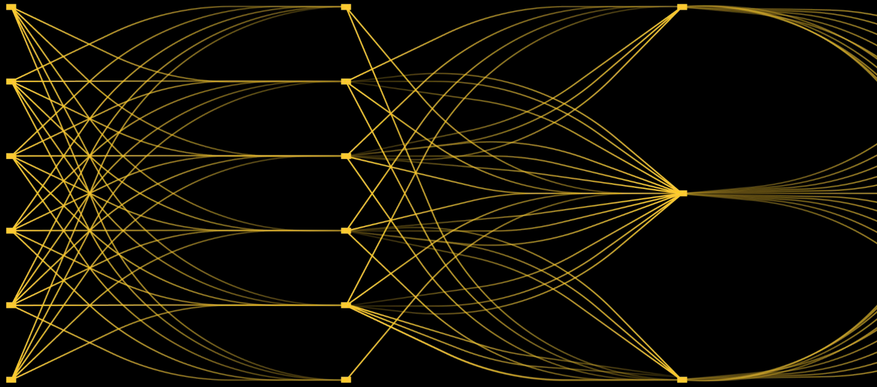
**Andrew Truong** 🌊 6:27 PM

I didn’t think it was important — l

# Unified Reporting and Dashboarding

Weights & Biases

# Open Source Research



# The world’s leading ML teams trust us

OpenAI Meta NVIDIA SAMSUNG JOHN DEERE Qualcomm lyft

FUJIFILM SonoSite magic leap Fidelity INVESTMENTS TOYOTA RESEARCH INSTITUTE Microsoft CISCO WarnerMedia

Genentech pwc COMCAST Pfizer BlueCross BlueShield Sandia National Laboratories Johnson&Johnson

COATUE INSIGHT BOND

figure eight Trinity VENTURES Felicis

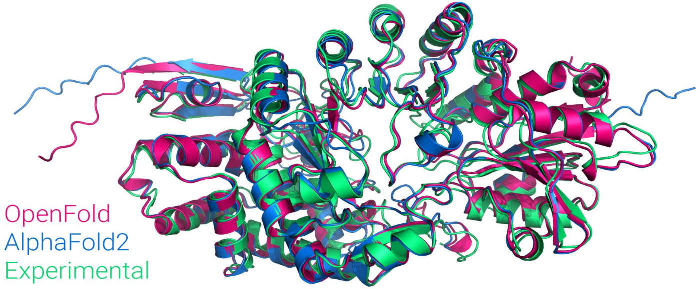
# The top open source research orgs use us

**EleutherAI**

**LAION**

**CarperAI**

**Harmonai**

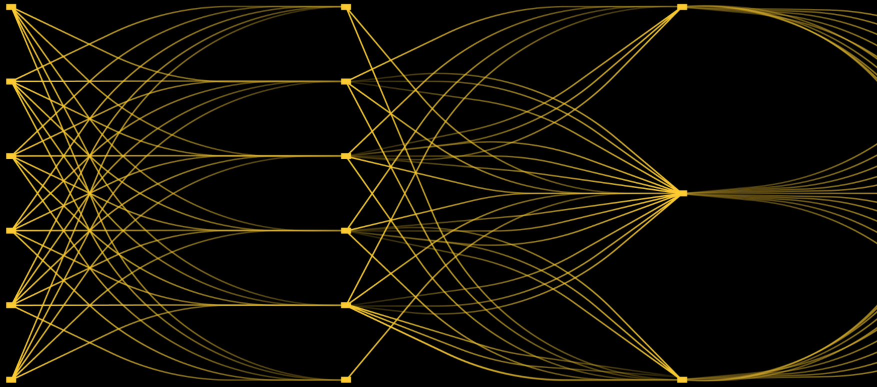


**OpenFold**

**Craiyon**

Weights & Biases

# Integrations



# Fits into your **workflow**

## Integrated into every popular ML framework

PyTorch

PyTorch Lightning

TensorFlow

K Keras

scikit learn

HUGGING FACE

dmlc XGBoost

spaCy

## Instrumented into over 6,000 popular ML repos

YOLO

deepchem

Detectron2

NVIDIA NEMO

FAIRSEQ

SpeechBrain

Catalyst

## Runs on every cloud or in your own infra

aws

Google Cloud

Microsoft Azure

NVIDIA

# Competition Time!

wandb.me/xx

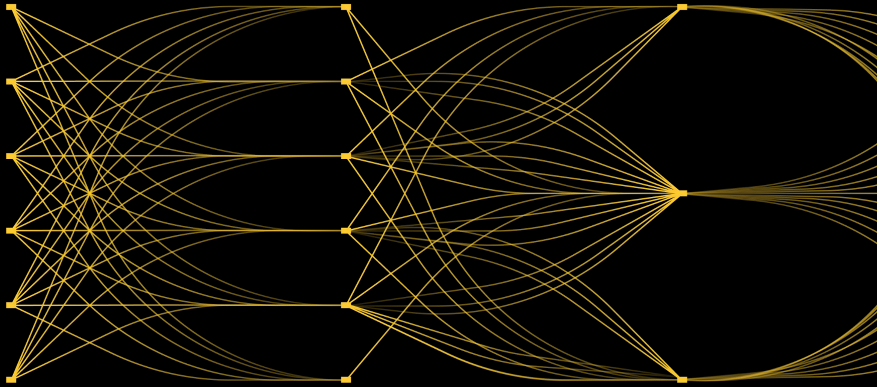
Weights & Biases

# The W&B Course

www.wandb.courses

Weights & Biases

# Thank You!

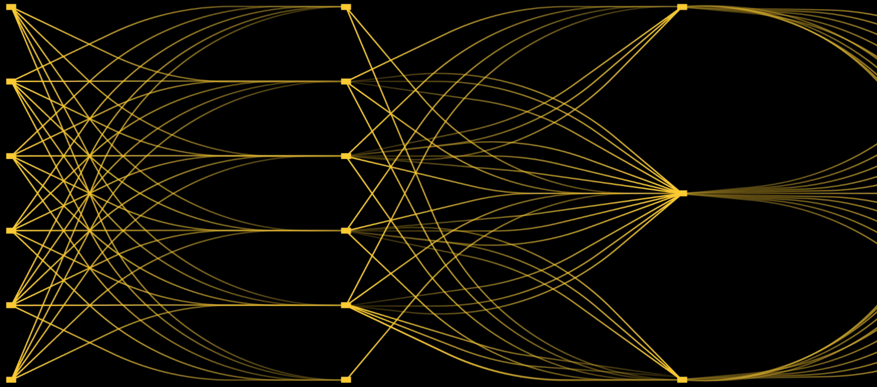


# Join us and our ML community!

- Fully Connected – wandb.me/fc
- YouTube – wandb.me/youtube
- Twitter – wandb.me/twitter

Weights & Biases

# Appendix



October 2022

# Andrew’s Presentation

https://www.youtube.com/watch?v=Se1HvbAM0O4&t=12s