TensorFlow Core ·

Introducing TensorBoard.dev: a new way to share your ML experiment results

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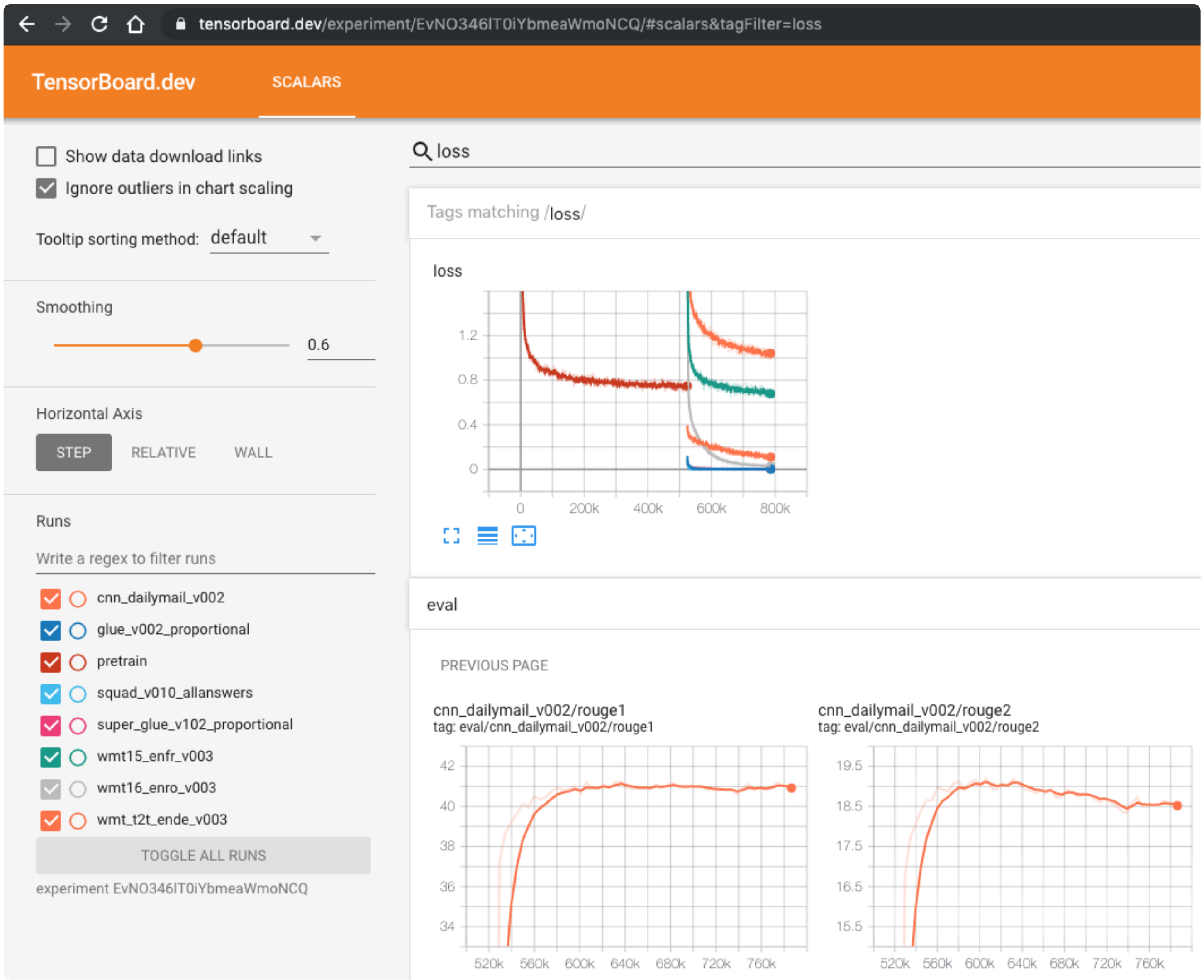
TensorBoard, TensorFlow's visualization toolkit, is often used by researchers and engineers to visualize and understand their ML experiments. It enables tracking experiment metrics, visualizing models, profiling ML programs, visualizing hyperparameter tuning experiments, and much more.

While TensorBoard makes it easy to visualize your own experiments, machine learning often involves collaboration. You might want to share your research about the effect of a hyperparameter, explain a complicated training procedure, or get help troubleshooting strange model behavior.

We have seen people sharing screenshots of their TensorBoards to achieve this. However, screenshots aren't interactive and fail to capture all the details. At Google, researchers and engineers often communicate their insights about model behavior by sending their TensorBoard visualizations to teammates. Our goal is to provide this capability to the broader community.

TensorBoard logs and receive a link that can be viewed by everyone, with no installation or setup.

If a picture is worth a thousand words, we believe an interactive TensorBoard can be even more valuable.



tensorboard.dev/experiment/EvNO346lT0iYbmeaWmoNCQ/#scalars&tagFilter=loss

TensorBoard.dev SCALARS

☐ 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

☑ ○ cnn_dailymail_v002
☑ ○ glue_v002_proportional
☑ ○ pretrain
☑ ○ squad_v010_allanswers
☑ ○ super_glue_v102_proportional
☑ ○ wmt15_enfr_v003
☑ ○ wmt16_enro_v003
☑ ○ wmt_t2t_ende_v003

TOGGLE ALL RUNS

experiment EvNO346lT0iYbmeaWmoNCQ

loss

Tags matching /loss/

eval

PREVIOUS PAGE

cnn_dailymail_v002/rouge1
tag: eval/cnn_dailymail_v002/rouge1

cnn_dailymail_v002/rouge2
tag: eval/cnn_dailymail_v002/rouge2

TensorBoard.dev experiment for "Exploring the Limits of Transfer Learning with a Unified Text-to-Text Transformer"

We are excited to see how the community engages with TensorBoard.dev. Here are a few examples and ideas:

shows the training results of the baseline for the "pretraining dataset" exploration, corresponding to the first row of table 8 in the paper. The process of pretraining for ~520k steps followed by task-specific training is shown through the loss curve in TensorBoard.

- **Example models:** TensorBoard.dev can provide a point of reference for people who want to understand the training process used for example models, or make sure they are reproducing them correctly. For example:
  - The training for the BERT model pretraining task from the TensorFlow Models repository can be seen in this TensorBoard.
  - A TensorFlow.js reinforcement learning example includes a link to the corresponding TensorBoard.
  - The training for the multilingual Universal Sentence Encoder model on TF Hub can be visualized here.
- **Troubleshooting:** Suppose you encounter unexpected behavior during training. Sharing a link to the TensorBoard (instead of a screenshot) could help convey this quickly and aid troubleshooting.
- **Tutorials:** The TensorFlow.org tutorials on overfitting and underfitting and Pix2Pix now use TensorBoard.dev to help illustrate experiment results.

Getting Started

The first step is to identify the TensorBoard logs you want to share (you can download a sample from here). Note that the TensorBoard you upload will be publicly visible, so do not upload sensitive data.

Make sure you have the latest TensorBoard installed:

Then, simply use the upload command:

```
tensorboard dev upload --logdir {logs}
```

After following the instructions to authenticate with your Google Account, a TensorBoard.dev link will be provided. You can view the TensorBoard immediately, even during the upload. The uploader will continue running and uploading new logs that appear in the log directory until you stop the process.

The TensorBoard.dev link can be opened by everybody, so feel free to use it to share your research, ask for advice in a GitHub issue or Stack Overflow question, or simply track your experiments without opening TensorBoard locally. A Google Account is needed to upload logs, but not to view the TensorBoard.

Several other commands are available for listing, deleting, or exporting your experiments. You can learn more by using the `tensorboard dev --help` command. There is currently a limit of 10M data points per user. If you reach this limit (you will get an error during the upload), please reach out to us! For a quick fix, delete some of your existing experiments.

You can find an end-to-end tutorial that runs in Colab here. While the tutorial shows how to use TensorBoard logs created with Keras's `.fit()`, you can also use logs created with the GradientTape-based training loop (as shown in TensorBoard's Scalars tutorial) or any other valid TensorBoard logs.

What's next for TensorBoard.dev?

TensorBoard.dev is in preview and currently only includes TensorBoard's Scalars dashboard. We are adding more of TensorBoard's capabilities and expanding the sharing functionality. We are also exploring some ideas on how to make it easier to discover interesting love to hear about it at tensorboard.dev-support@google.com.

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