TensorFlow Research

Introduction to TensorFlow:

- Tensorflow
  - Tutorials
    - tf.data API
      - Build TensorFlow Input Pipelines
        - Can create a dataset in 2 ways…
          1. Through a data source which constructs a `Dataset` through memory or files
             a. `tf.data.Dataset.from_tensors()`
             b. `tf.data.Dataset.from_tensor_slices()`
          2. Through data transformation which constructs a dataset through `tf.data.Dataset` objects
             a. `Dataset.map`
             b. `Dataset.batch`
    - Keras Guide
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      - ML basics (text)
          1. Download and explore dataset's directory structure
          2. Load the dataset
             a. Prepare it for training with `text_dataset_from_directory` utility
          3. Prepare the dataset for training
             a. Use `tf.keras.layers.TextVectorization` layer
          4. Configure dataset for performance
             a. Use…
                i. `.cache()`
                ii. `.prefetch()`
          5. Create the model
          6. Loss function and optimizer
          7. Train the model
          8. Evaluate the model
          9. Create a plot of accuracy and loss over time
          10. Export the model
          11. Inference on new data
              a. Call `model.predict()`
    - Set Up
      - Import tensor flow by typing `import tensorflow as tf`
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Google Colab Research

Google Colab

- Hosted Jupyter Notebook like setup that is free to use and requires no set up. Good alternative to downloading package or connecting to docker.
- TensorFlow is already installed on Google Colab. Just type `import tensorflow as tf` to use
- Setting up libraries
    - `!pip install`
    - `!apt-get`
    - Access shell
        - `!wget`
        - `!pwd`
- “To get in your training data, you can follow these tutorials for popular data sources: BigQuery, Drive, Sheets, or Google Cloud Storage.”
- Can easily save to GitHub through one of two ways…
    1. Add GitHub path to colab.research.google.com/github/
    2. File > Save a copy to GitHub…
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