https://www.tensorflow.org/

The TensorFlow tutorials are written as Jupyter notebooks and run directly in Google Colab—a hosted notebook environment that requires no setup. Click the *Run in Google Colab* button.

For beginners

The best place to start is with the user-friendly Keras sequential API. Build models by plugging together building blocks. After these tutorials, read the Keras guide.

Beginner quickstart

This "Hello, World!" notebook shows the Keras Sequential API and `model.fit`.

Keras basics

This notebook collection demonstrates basic machine learning tasks using Keras.

Load data

These tutorials use `tf.data` to load various data formats and build input pipelines.

For experts

The Keras functional and subclassing APIs provide a define-by-run interface for customization and advanced research. Build your model, then write the forward and backward pass. Create custom layers, activations, and training loops.

Advanced quickstart

This "Hello, World!" notebook uses the Keras subclassing API and a custom training loop.

Customization

This notebook collection shows how to build custom layers and training loops in TensorFlow.

Distributed training

Distribute your model training across multiple GPUs, multiple machines or TPUs.

The Advanced section has many instructive notebooks examples, including Neural machine translation, Transformers, and CycleGAN.

https://www.tensorflow.org/tutorials

Video and blog updates

Subscribe to the TensorFlow blog, YouTube channel, and Twitter for the latest updates.

Intro to Machine Learning

TensorFlow 2.0 and Keras

Looking Back at 2019

Read on the TensorFlow blog

TensorFlow 2 is now available

Read on the TensorFlow blog

Standardizing on Keras: Guidance on High-level APIs in TensorFlow 2

Read on the TensorFlow blog

Libraries and extensions

Explore libraries to build advanced models or methods using TensorFlow, and access domain-specific application packages that extend TensorFlow. This is a *sample* of the tutorials available for these projects.

TensorBoard

- Get started with TensorBoard
- Logging training metrics in Keras

TensorFlow Hub

- Object detection
- Arbitrary style transfer

TFX

- TFX developer tutorial
- Serve a model with TensorFlow Serving

Datasets

- Using TensorFlow Datasets

Model Optimization

- Magnitude-based weight pruning with Keras
- Post-training quantization

XLA

- Classifying CIFAR-10 with XLA
- Use XLA with tf.function

TensorFlow Ranking

- TF-Ranking Keras user guide
- TF Ranking for sparse features

Probability

- TensorFlow distributions introduction
- Probabilistic regression

TensorFlow Graphics

- Object pose alignment
- Mesh segmentation

Neural Structured Learning

- Natural graph regularization for document classification
- Synthetic graph regularization for sentiment classification

Magenta

- Generating Piano music with Transformer
- GANSynth

TensorFlow Agents

- Train a deep-Q network with TF Agents
- Reinforcement learning environments

TensorFlow Federated

- Federated learning for image classification
- Federated learning for text generation

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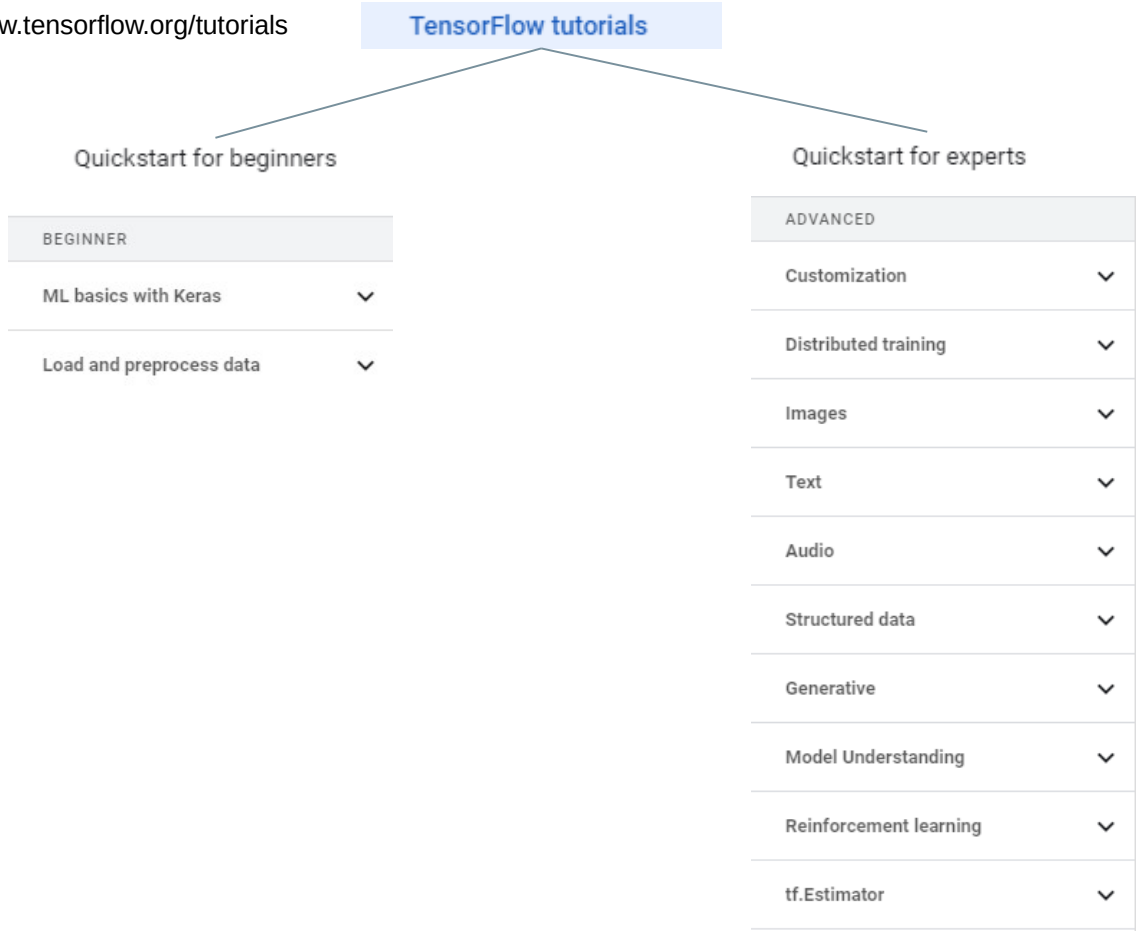

https://www.tensorflow.org/tutorials

TensorFlow tutorials

Quickstart for beginners

BEGINNER

ML basics with Keras

Load and preprocess data

Load and preprocess data
- Images
- CSV
- NumPy
- pandas.DataFrame
- Text
- Unicode
- TF.Text
- Subword Tokenization
- TFRecord and tf.Example
- Additional formats with tf.io

ML basics with Keras
- Basic image classification
- Basic text classification
- Text classification with TF Hub
- Regression
- Overfit and underfit
- Save and load
- Tune hyperparameters with the Keras Tuner
- More examples on keras.io

Quickstart for experts

ADVANCED

- Customization
- Distributed training
- Images
- Text
- Audio
- Structured data
- Generative
- Model Understanding
- Reinforcement learning
- tf.Estimator

Images
- Convolutional Neural Network
- Image classification
- Transfer learning and fine-tuning
- Transfer learning with TF Hub
- Data Augmentation
- Image segmentation
- Object detection with TF Hub

Text
- Word embeddings
- Word2Vec
- Text classification with an RNN
- Classify Text with BERT
- Solve GLUE tasks using BERT on TPU
- Fine tuning BERT

Generation
- Text generation with an RNN
- Neural machine translation with attention
- Image captioning
- Transformer model for language understanding

Audio
- Simple audio recognition
- Transfer learning for audio recognition

Quickstart for experts

ADVANCED

- Customization
- Distributed training
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Customization

- Tensors and operations
- Custom layers
- Custom training: walkthrough

Distributed training

- Distributed training with Keras
- Custom training loops
- Multi-worker training with Keras
- Multi-worker training with CTL
- Parameter Server Training
- Save and load
- Distributed input

Structured data

- Classify structured data with feature columns
- Classify structured data with preprocessing layers
- Classification on imbalanced data
- Time series forecasting
- Recommenders

tf.Estimator

- Premade estimator
- Linear model
- Boosted trees
- Boosted trees model understanding
- Keras model to Estimator
- Multi-worker training with Estimator

Generative

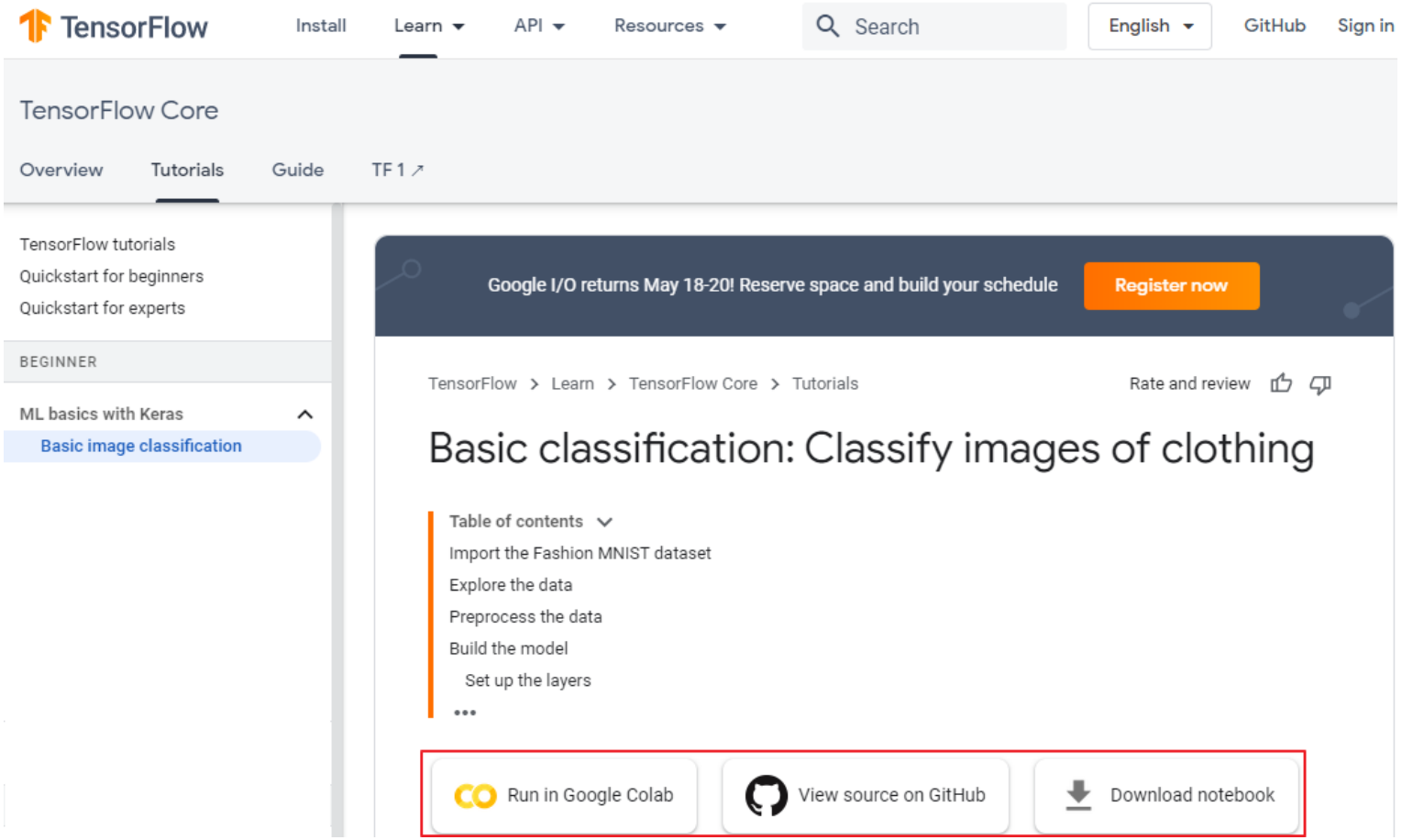
- Neural style transfer
- DeepDream
- DCGAN
- Pix2Pix
- CycleGAN
- Adversarial FGSM
- Intro to Autoencoders
- Variational Autoencoder

Model Understanding

- Integrated gradients
- Uncertainty quantification with SNGP
- Probabalistic regression

Reinforcement learning

- Actor-Critic method
- TensorFlow agents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Google I/O returns May 18-20! Reserve space and build your schedule
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Basic classification: Classify images of clothing
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Build the model
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