



Introduction

This repository is a collection of programs written as examples in Tensorflow V2. Programs are combined into following three sections-

- Example scripts
- Short tutorials
- Collaborative projects

Motivation

Primary objective of the project is to gain an in-depth understanding of functional and operational characteristics of Tensorflow V2. These include Tensorflow syntax, Keras API, control flow and dynamic computation of graphs. Example scripts will build the understanding of writing programs in the basic Tensorflow structure. Short tutorials aim to serve as notes and reference materials for future application development. And finally, collaborative projects will lead to the development of practical Tensorflow applications for solving a challenging problem.

Study Material

- ☐ [Tensorflow Documentation](#) (primary resource)
- ☐ [Repository of Tensorflow v2 Examples](#) (primary resource)
- ☐ [Tensorflow for Beginners](#) (secondary resource)
- ☐ [Old Tensorflow repository](#) (just in case)

Agenda

Following is the tentative agenda-

| Date | Topic | Programs | Reading | Remarks (weak points) |
|------|-------|----------|---------|--------------------------|
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| Date | Topic | Programs | Reading | Remarks (weak points) |
|------------|-----------------------------|--------------------------|--|----------------------------|
| 21/12/2020 | Introduction | ANN, CNN, Autograph, LR | new features | use tf.float32 from now on |
| 22/12/2020 | Deep Convolutional Models-1 | Inception | tf.Module() | |
| 23/12/2020 | Deep Convolutional Models-2 | VGG, ResNet | tf.GradientTape() | |
| 24/12/2020 | Memory-based Models | RNN, LSTM | RNNs in Keras | |
| 25/12/2020 | Adversarial Learning | GAN, Pix2Pix, CycleGAN | DCGAN | |
| 26/12/2020 | Distributed Training | DistGPU | Distributed Training in TF | |
| 27/12/2020 | Test-1 | implement 2 programs | - | |
| 28/12/2020 | Language Models | BERT, GPT3 | Transformers in Tensorflow | |
| 29/12/2020 | Case Study | Chinese->English in BERT | BERT for classification, Fine-tuning BERT, Solving GLUE tasks using BERT | |
| 30/12/2020 | Reinforcement Learning | A2C, Dreamer | DreamerV2 | |
| 31/01/2021 | Test-2 | implement 2 programs | - | |
| 01/01/2021 | Project Day | project | - | |
| 02/01/2021 | Project Day | project | - | |
| 03/01/2021 | Project Day | project | - | |

Potential Project Topics

- ☐ [CycleGAN](#)
- ☐ [DeepDream](#)
- ☐ [DCGAN](#)
- ☐ [Pix2Pix](#)

- ☐ [Adversarial FGSM](#)
- ☐ [VAE](#)