



# Google Colaboratory 사용법

Fast Campus  
Start Deep Learning with TensorFlow

# Github Address

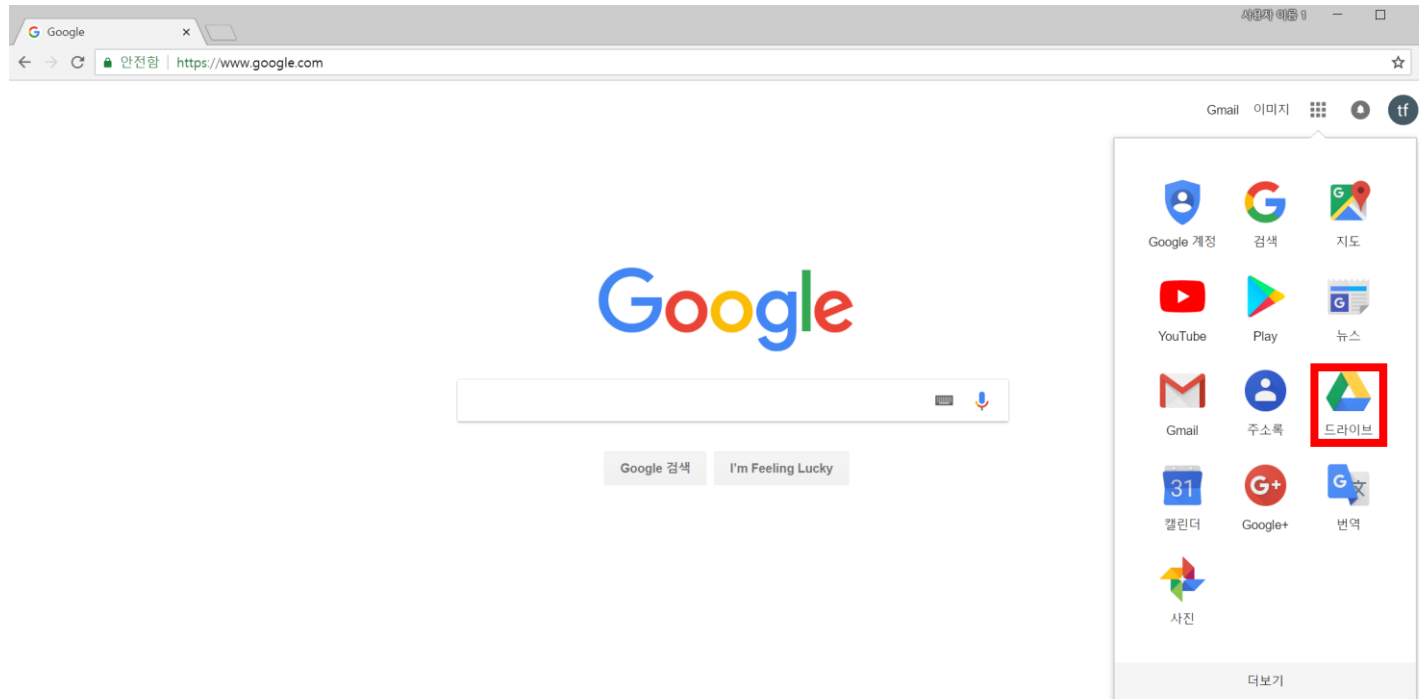
- [https://github.com/jwlee-ml/TensorFlow\\_Training\\_12th](https://github.com/jwlee-ml/TensorFlow_Training_12th)

# Colaboratory

- Colaboratory is a research tool for machine learning education and research.
- It's a Jupyter notebook environment that requires no setup to use.
- Up to 12 hours continuous use.
- FAQ : <https://research.google.com/colaboratory/faq.html>

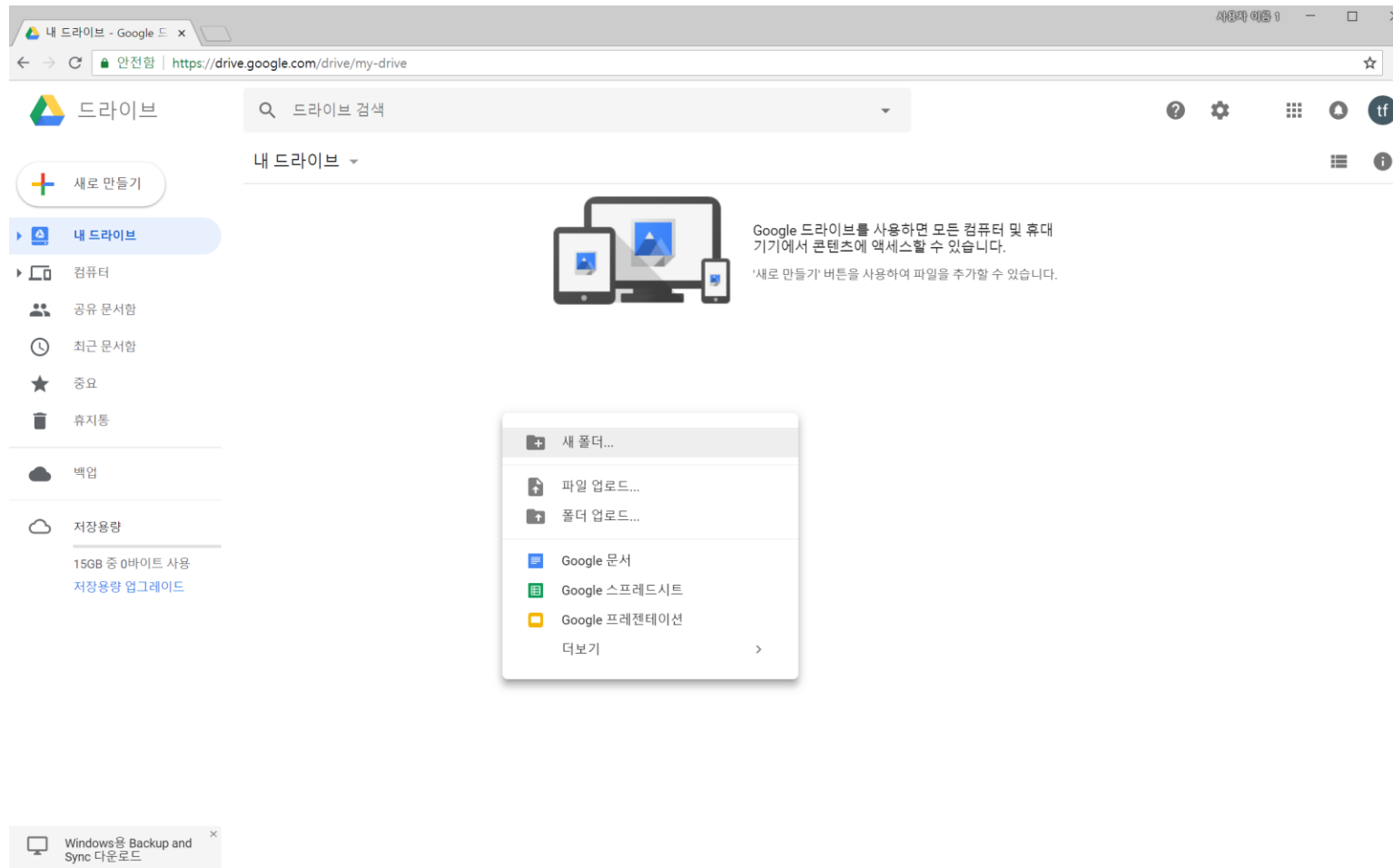
# Colaboratory 사용법

- Google 계정으로 login
- Google Drive로 들어갑니다



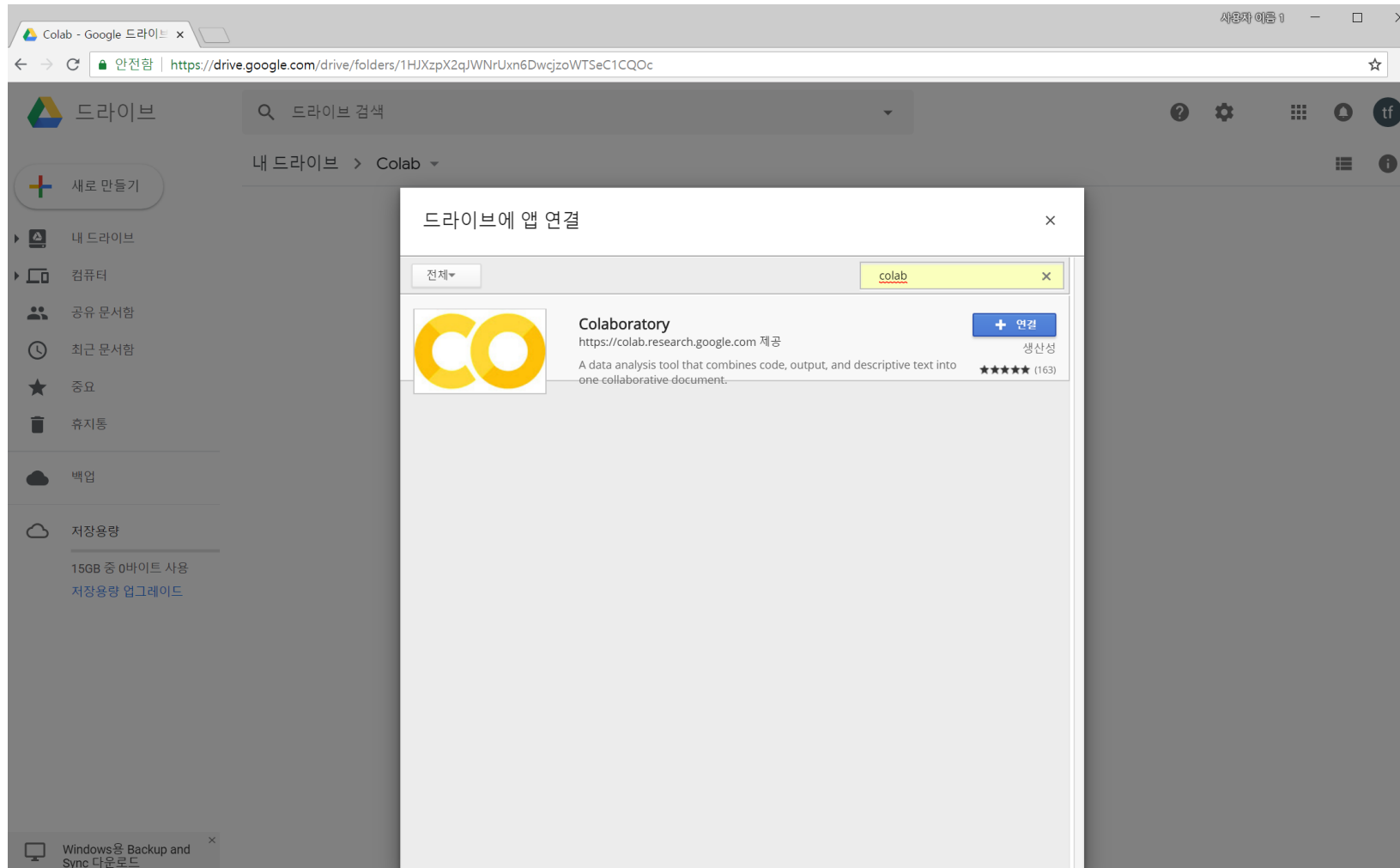
# Colaboratory 사용법

- 우클릭하여 새 폴더를 하나 만들고 들어갑니다



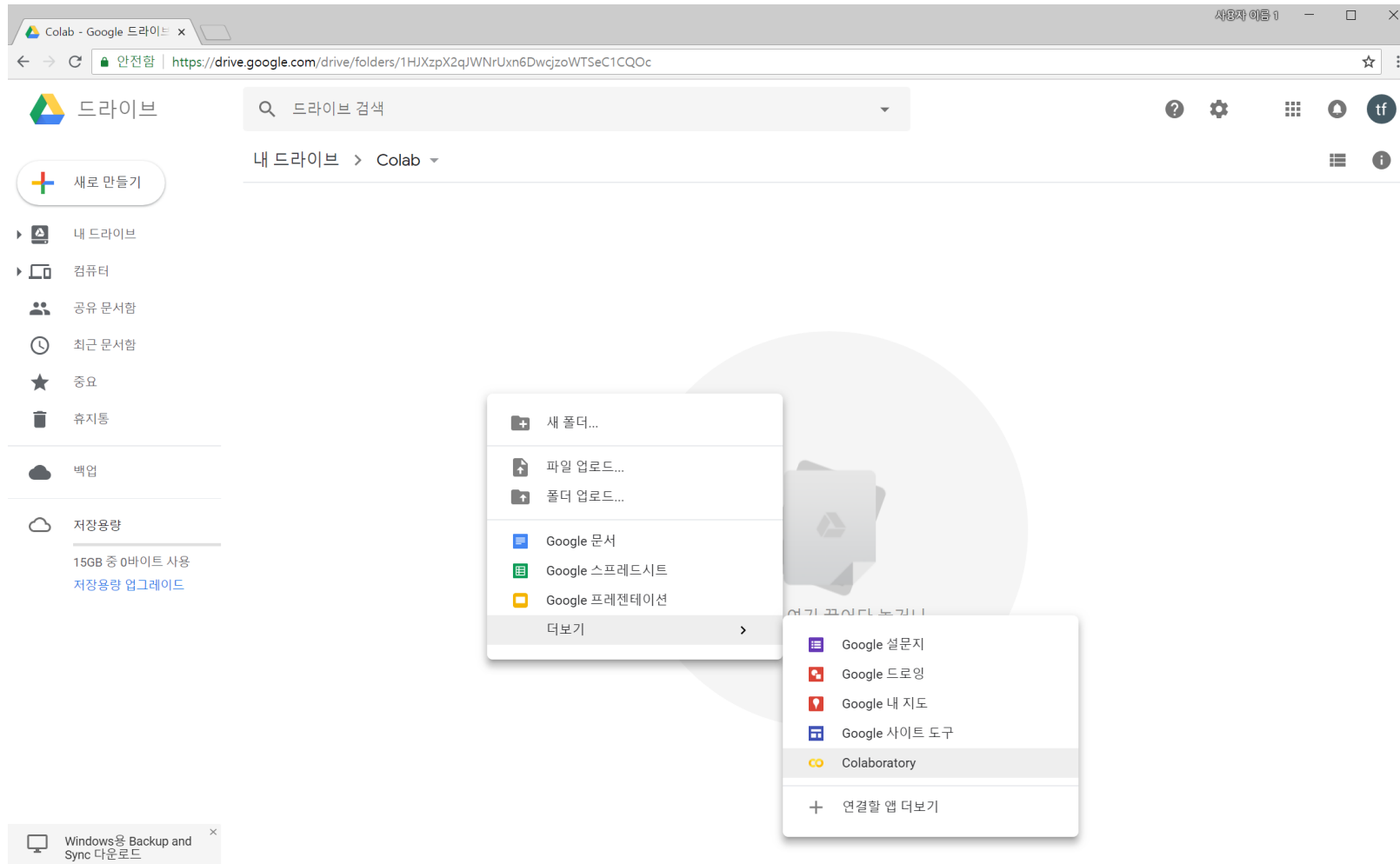
# Colaboratory 사용법

- 우클릭 후, 연결할 앱 더보기에서 Colaboratory를 연결(or 설치)합니다



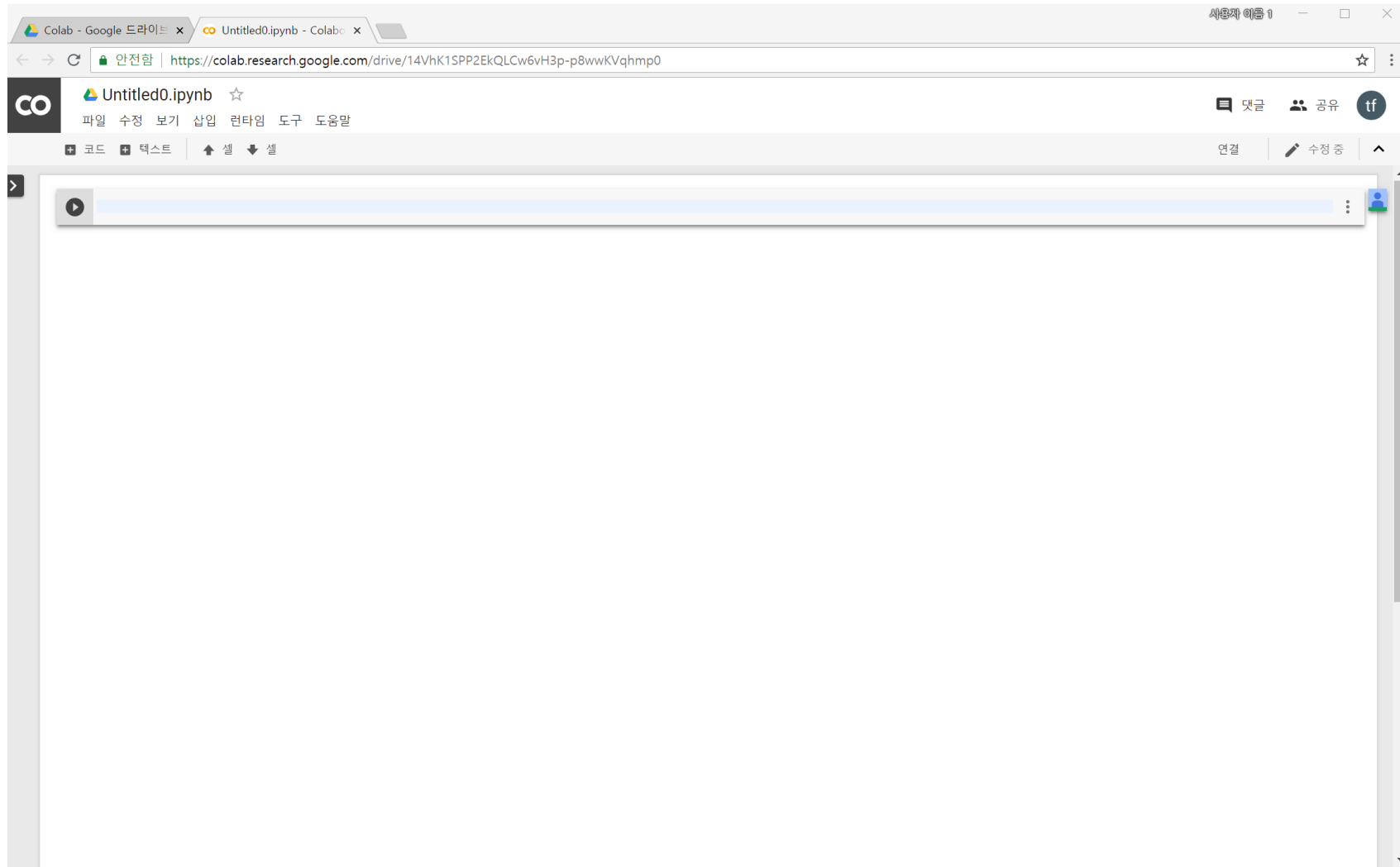
# Colaboratory 사용법

- 다시 우클릭 후, Colab을 하나 생성합니다



# Colaboratory 사용법

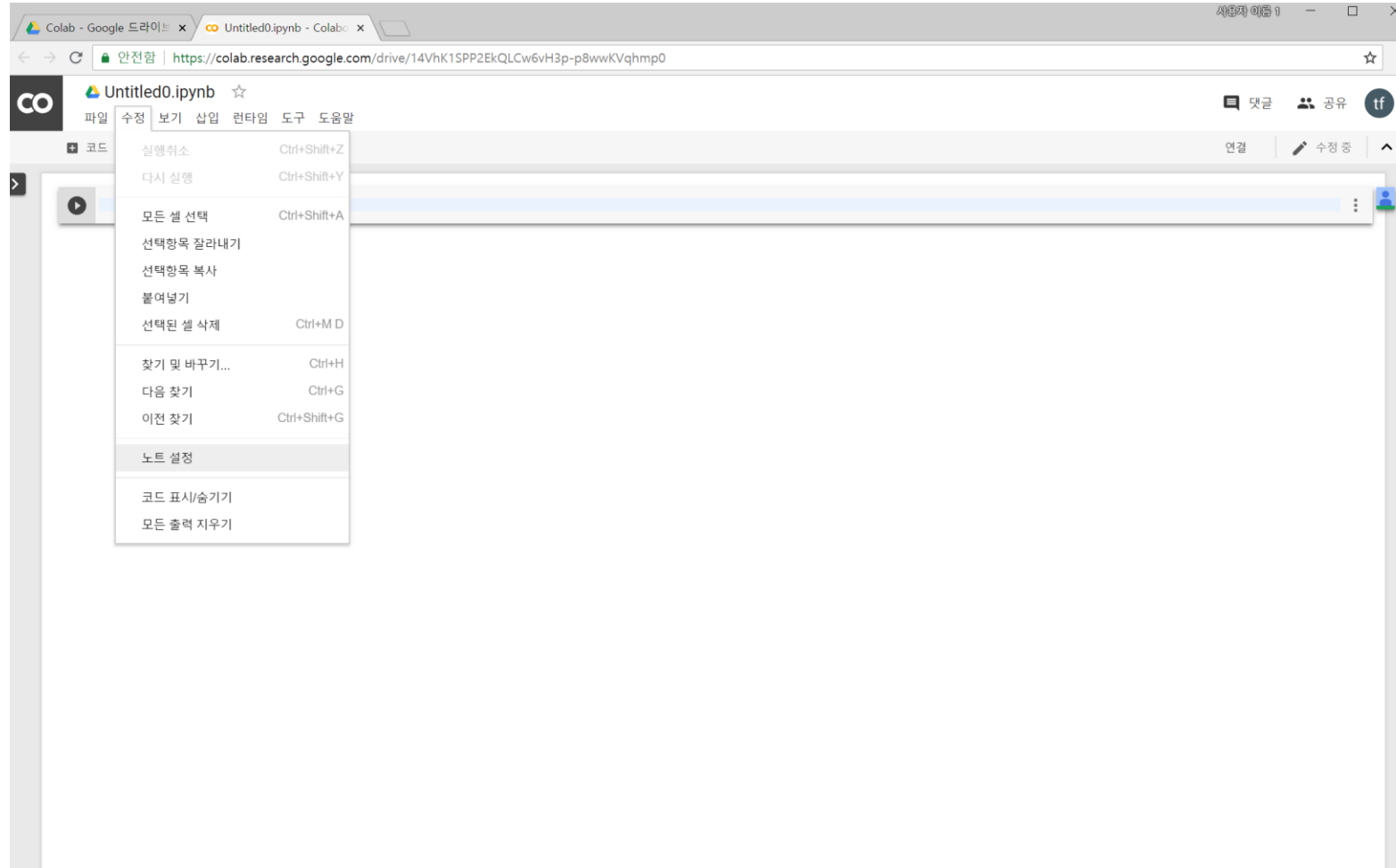
- 사용할 준비완료





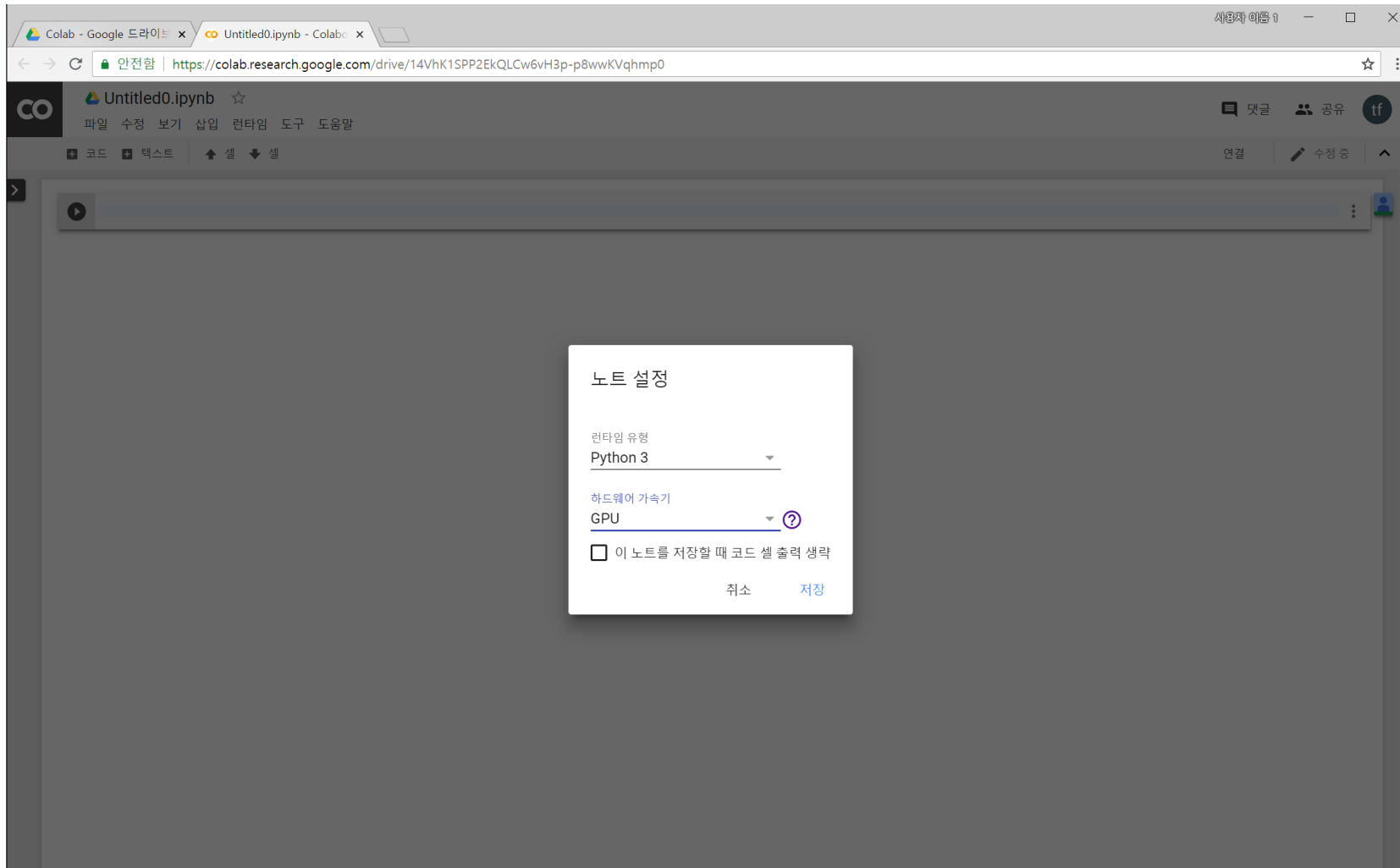
# Colaboratory 사용법

- GPU를 사용하고 싶으면 '수정' → '노트설정' 에서 GPU를 선택하면 됩니다



# Colaboratory 사용법

- 런타임유형 : Python 3, 하드웨어 가속기 : GPU 선택



# Colaboratory 사용법

- TensorFlow가 깔려있는지 확인해봅시다 – 실행은 Shift + Enter

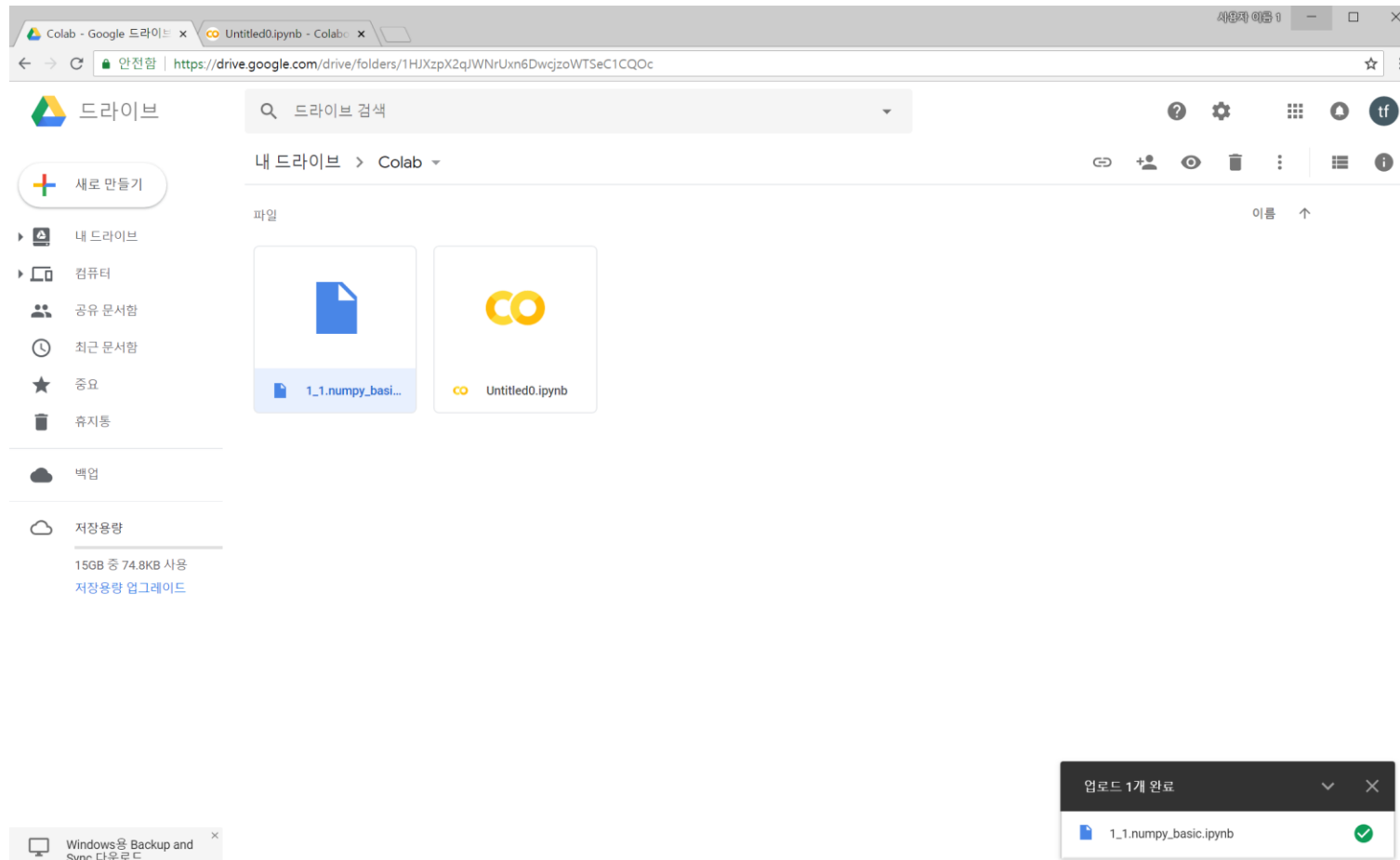


# Colaboratory 사용법

- 셀 실행은 Shift + Enter 혹은 Ctrl + Enter
- 아래에 셀 추가는 Ctrl + M + B
- 위에 셀 추가는 Ctrl + M + A
- 셀 삭제는 Ctrl + M + D
- 행번호 출력(출력상태에서는 감춤)은 Ctrl + M + L
- 기타 단축키가 보고 싶거나 추가로 설정하고 싶으면 Ctrl + M + H

# Colaboratory 사용법

- Jupyter notebook file을 외부에서 가져오고 싶으면 Google Drive로 upload(drag and drop)한 후에 실행하면 자동으로 colab과 연결됩니다



# Lab Setup

- Github에서 실습 file download

The screenshot shows the GitHub interface for the repository 'jwlee-ml / TensorFlow\_Training\_12th'. The repository has 3 commits, 1 branch, 0 releases, and 1 contributor. The main content area lists several files: '0\_1.GoogleDriveMount\_GitClone.ipynb', '1\_1.python\_numpy\_basic.ipynb', '1\_2.Tensorflow\_Basic.ipynb', and 'README.md'. A 'Clone or download' button is highlighted with a red box, and a dropdown menu is open showing options to 'Clone with HTTPS', 'Open in Desktop', and 'Download ZIP'.

Tensorflow로 시작하는 딥러닝 Camp 12기 실습

Manage topics

3 commits 1 branch 0 releases 1 contributor

Branch: master New pull request Create new file Upload files Find File Clone or download

Clone with HTTPS ? Use SSH

Use Git or checkout with SVN using the web URL.

https://github.com/jwlee-ml/TensorFlow\_T

Open in Desktop Download ZIP

README.md

## TensorFlow\_Training\_12th

Tensorflow로 시작하는 딥러닝 Camp 12기 실습

# Lab Setup

- o\_1.GoogleDriveMount\_GitClone.ipynb 을 google drive에 올린 후 실행

← → ↻ https://colab.research.google.com/drive/1OR5XUAHCi0p-XuxsB3HK9gkbtwr9d-xi

co

0\_1.GoogleDriveMount\_GitClone.ipynb ☆

파일 수정 보기 삽입 런타임 도구 도움말

코드 텍스트 셀 셀

>

▶ from google.colab import drive

아래 명령 실행 후, URL이 나오면 click한 후 나오는 authorization code를 아래 입력칸에 입력후 enter

```
[ ] import os
    if not os.path.exists('/content/gdrive'):
        drive.mount('/content/gdrive')
```

Go to this URL in a browser: [https://accounts.google.com/o/oauth2/auth?client\\_id=947318989803-6bn6qk8qdgf4n4g3pfee6491hc0brc4i.apps.googleusercontent.com&redirect\\_uri=urn:ietf:params:oauth:redirect:uri:https&response\\_type=code](https://accounts.google.com/o/oauth2/auth?client_id=947318989803-6bn6qk8qdgf4n4g3pfee6491hc0brc4i.apps.googleusercontent.com&redirect_uri=urn:ietf:params:oauth:redirect:uri:https&response_type=code)

Enter your authorization code:  
.....  
Mounted at /content/gdrive

```
[ ] cd /content/gdrive/'My Drive'
```

/content/gdrive/My Drive

```
[ ] if not os.path.exists('TensorFlow_Training_12th'):
    !git clone https://github.com/jwlee-ml/TensorFlow_Training_12th.git
```

Cloning into 'TensorFlow\_Training\_12th'...  
remote: Enumerating objects: 8, done.  
remote: Counting objects: 100% (8/8), done.  
remote: Compressing objects: 100% (7/7), done.  
remote: Total 8 (delta 1), reused 0 (delta 0), pack-reused 0  
Unpacking objects: 100% (8/8), done.

```
[ ] cd TensorFlow_Training_12th
```

/content/gdrive/My Drive/TensorFlow\_Training\_12th

```
[ ] !git pull
```

Already up to date.

[ ]

# Lab Setup

- Google Drive에서 TensorFlow\_Training\_12th director가 생성된 것을 확인
- 매 실습 시작 전에 이 Directory에서 o\_1.GoogleDriveMount\_GitClone.ipynb 을 실행하여 실습 file을 최신 상태로 update한 후에 실습 진행



# Appendix

- 내 PC에 있는 file을 upload하거나 download하는 방법
- <https://colab.research.google.com/notebooks/io.ipynb>

## ▼ Local file system

### ▼ Uploading files from your local file system

`files.upload` returns a dictionary of the files which were uploaded. The dictionary is keyed by the file name, the value is the data which was uploaded.

```
[ ] from google.colab import files
    uploaded = files.upload()

    for fn in uploaded.keys():
        print('User uploaded file "{name}" with length {length} bytes'.format(
            name=fn, length=len(uploaded[fn])))
```

### ▼ Downloading files to your local file system

`files.download` will invoke a browser download of the file to the user's local computer.

```
[ ] from google.colab import files

    with open('example.txt', 'w') as f:
        f.write('some content')

    files.download('example.txt')
```

# Appendix

- 현재 dir 내의 file들을 보고 싶으면 !ls
- Dir을 이동할 때는 cd 혹은 os.chdir()을 사용합니다

```
[5] import os
```

```
[6] !ls
```

```
↳ datalab
```

```
[7] !pwd
```

```
↳ /content
```

```
[8] os.chdir("/")
```

```
[9] !ls
```

```
↳ bin
    boot
    colabtools
    content
    datalab
    dev
    etc
    gpu-tensorflow-1.9.0-cp27-cp27mu-linux_x86_64.whl
    gpu-tensorflow-1.9.0-cp36-cp36m-linux_x86_64.whl
    home
```

# Appendix

- Github에 있는 file을 colab에서 바로 실행하는 방법
- <https://colab.research.google.com/github/> {github .ipynb 파일 경로}
  - github 주소 :  
[https://github.com/jwlee-ml/TensorFlow\\_Training\\_12th/blob/master/1\\_1.numpy\\_basic.ipynb](https://github.com/jwlee-ml/TensorFlow_Training_12th/blob/master/1_1.numpy_basic.ipynb)
  - Colab 주소 :  
[https://colab.research.google.com/github/jwlee-ml/Tensorflow\\_Training\\_12th/blob/master/1\\_1.numpy\\_basic.ipynb](https://colab.research.google.com/github/jwlee-ml/Tensorflow_Training_12th/blob/master/1_1.numpy_basic.ipynb)
- Chrome 웹스토어에서 Open in Colab 설치하면 편하게 사용가능

# Appendix

- 아래 명령어로 google drive mount

`!mkdir -p drive`

`!google-drive-ocamlfuse drive`

```
[13] !mkdir -p drive  
     !google-drive-ocamlfuse drive
```

```
[21] cd drive
```

```
↳ /drive
```

```
[23] cd Colab
```

```
↳ /drive/Colab
```

```
[24] !ls
```

```
↳ 1_1.numpy_basic.ipynb  Untitled0.ipynb
```