

CS5284 : Graph Machine Learning

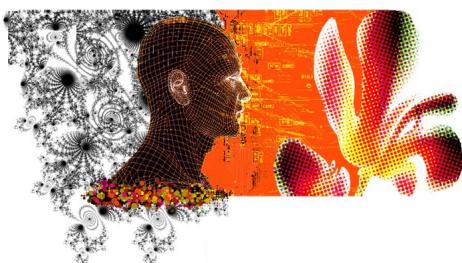
Running Course Notebooks with
GitHub & Google Colab

Semester 1 2025/26

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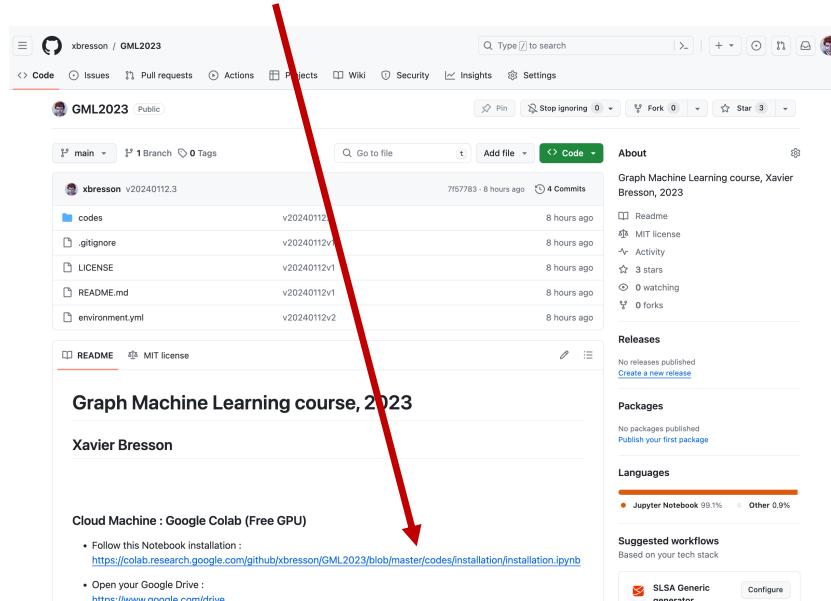
Department of Computer Science
National University of Singapore (NUS)



Google Colab

- Follow these instructions :
 - Go to the GitHub folder of the course :
https://github.com/xbresson/CS5284_2025

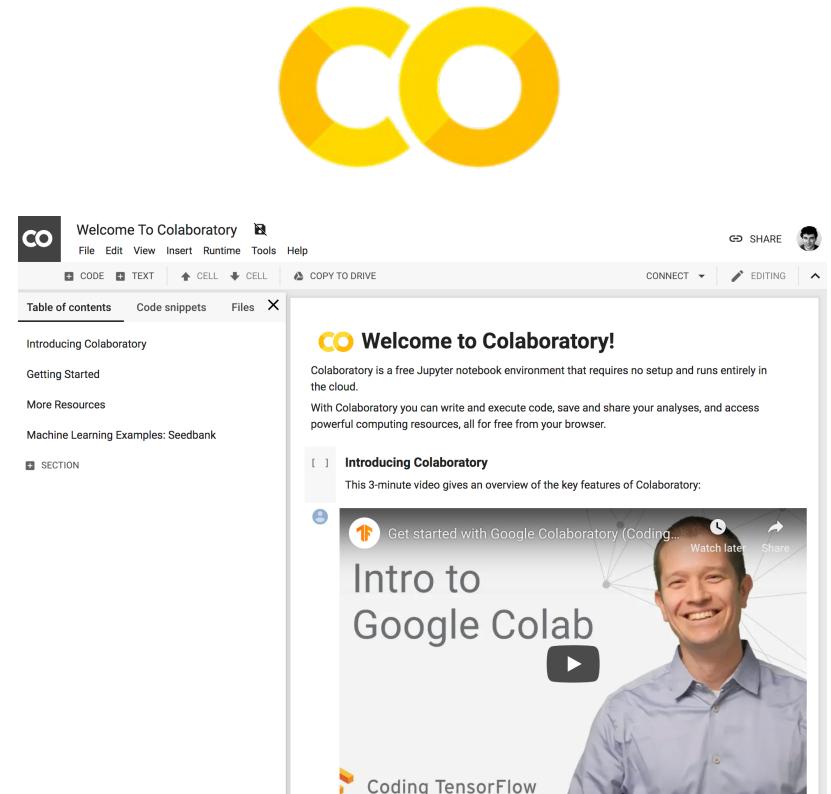
Click on this link.



The screenshot shows the GitHub repository page for 'GML2023'. The 'codes' branch is selected. A red arrow points from the 'codes' branch to the 'Graph Machine Learning course, 2023' section, which contains a link to 'Cloud Machine : Google Colab (Free GPU)'.

[Cloud Machine : Google Colab \(Free GPU\)](#)

- Follow this Notebook installation : <https://colab.research.google.com/github/xbresson/GML2023/blob/master/codes/installation/installation.ipynb>
- Open your Google Drive : <https://www.google.com/drive>



The screenshot shows the Google Colaboratory interface. It features a large yellow 'co' logo at the top. Below it is the 'Welcome To Colaboratory' page with sections like 'Introducing Colaboratory', 'Getting Started', and 'More Resources'. On the right, there is a video player for 'Intro to Google Colab' featuring a smiling man and the text 'Coding TensorFlow'.

Google Colab

- Click on CONNECT.
- It will ask you to sign-in with your Gmail account.

The screenshot shows a Google Colab notebook titled "installation.ipynb". The code cell contains the following Python script:

```
[ ] # Git pull the codes from github to your colab machine
# You will have this message:
# Warning: This notebook was not authored by Google.
# Click RUN ANYWAY
!git clone https://github.com/xbresson/CE7454_2019.git

[ ] # Mount Google Drive to the colab machine
# You will have this message:
# Go to this URL in a browser: ---
# Follow the URL, sign-in to Google login
# ALLOW google drive to access to your google account
# Copy-paste the code to the notebook
# Enter your authorization code: ---
from google.colab import drive
drive.mount('/content/gdrive')

# Copy github folder from colab machine to your google drive
!mkdir /content/gdrive/My\ Drive/CE7454_2019
!cp -R /content/CE7454_2019 /content/gdrive/My\ Drive
!rm -R /content/CE7454_2019

[ ] # Installation is done.
# You can close this notebook.
```

A red arrow points from the "CONNECT" button in the Colab header to the "Sign in" button in the Google sign-in dialog. Another red arrow points from the "SIGN IN" button in the sign-in dialog back to the "SIGN IN" button in the Colab header.

Google Sign-in Dialog:

Google
Sign in
with your Google Account

Email or phone →

Forgot email?

Not your computer? Use a Private Window to sign in.
[Learn more](#)

Create account Next

English (United States) ▾ Help Privacy Terms

Google sign-in required

You must be logged in to a Google account to continue.

CANCEL SIGN IN

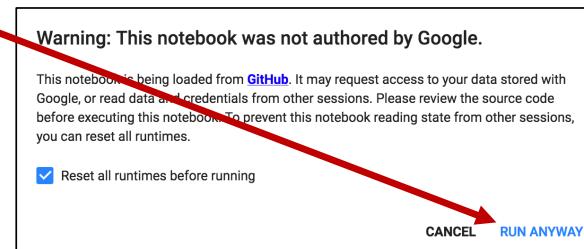
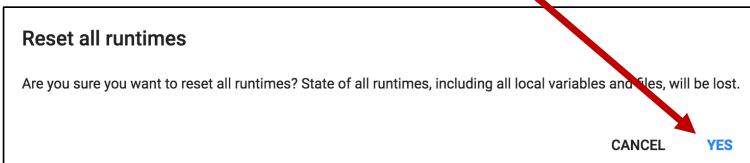
Google Colab

- Click on CONNECT again to start the Google Cloud machine.

The screenshot shows a Google Colab notebook titled "installation.ipynb". The "Connect" button is highlighted with a red arrow. Below it, the "Installation Instructions" section contains code for cloning a GitHub repository and mounting Google Drive. A red arrow points to the first cell of this code. At the bottom of the notebook, a warning message is displayed: "Warning: This notebook was not authored by Google." It explains that the notebook is being loaded from GitHub and may request access to Google data. A checkbox labeled "Reset all runtimes before running" is checked, and a red arrow points to the "RUN ANYWAY" button.

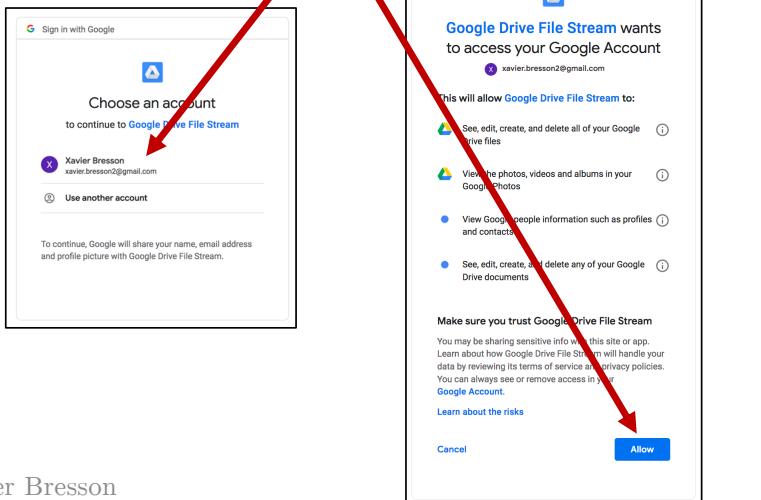
- Run the first cell to clone the codes from GitHub to the Google Cloud machine.

- It will give a warning, click on RUN ANYWAY.
- Answer YES to the next question RESET ALL RUNTIMES



Google Colab

- Run the second cell to mount your Google Drive to the Google Cloud machine (all your codes will be saved in Google Drive).
 - Click on the provided URL.
 - Select your Gmail account.
 - ALLOW Google Drive File Stream.
 - Copy-paste the code to the notebook (Enter your authorization code) and press Return.



```
[1] # Git pull the codes from github to your colab machine
# You will have this message:
# Warning: This notebook was not authored by Google.
!git clone https://github.com/xbresson/CE7454_2019.git

Cloning into 'CE7454_2019'...
remote: Enumerating objects: 223, done.
remote: Counting objects: 100% (223/223), done.
remote: Compressing objects: 100% (135/135), done.
remote: Total 223 (delta 100), reused 191 (delta 72), pack-reused 0
Receiving objects: 100% (223/223), 2.63 MiB | 6.68 MiB/s, done.
Resolving deltas: 100% (100/100), done.

# Mount Google Drive to the colab machine
# You will have this message:
# Go to this URL in a browser: ---
# Follow the URL, sign-in to Google login
# ALLOW google drive to access to your google account
# Copy-paste the code to the notebook
# Enter your authorization code: ---

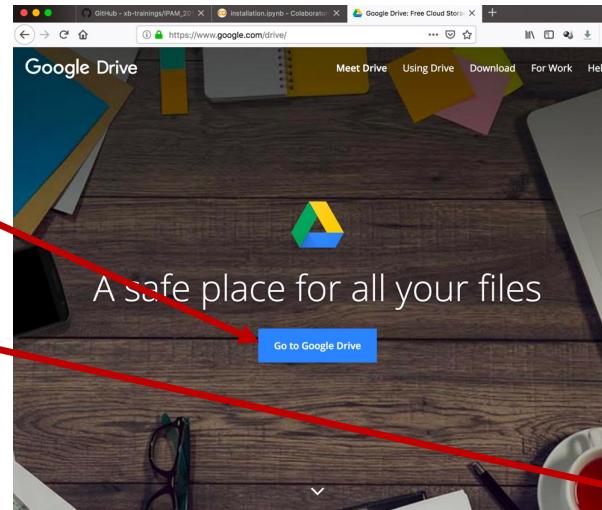
from google.colab import drive
drive.mount('/content/gdrive')

# Copy github folder from colab machine to your google drive
!mkdir /content/gdrive/My\ Drive/CE7454_2019
!cp -R /content/CE7454_2019 /content/gdrive/My\ Drive/CE7454_2019

... Go to this URL in a browser: https://accounts.google.com/o/oauth2/auth?client\_id=947318989803-6bn6qk8g
Enter your authorization code:
```

Google Colab

- Open your Google Drive :
<https://www.google.com/drive>
- Go folder CS5284_2025_codes/



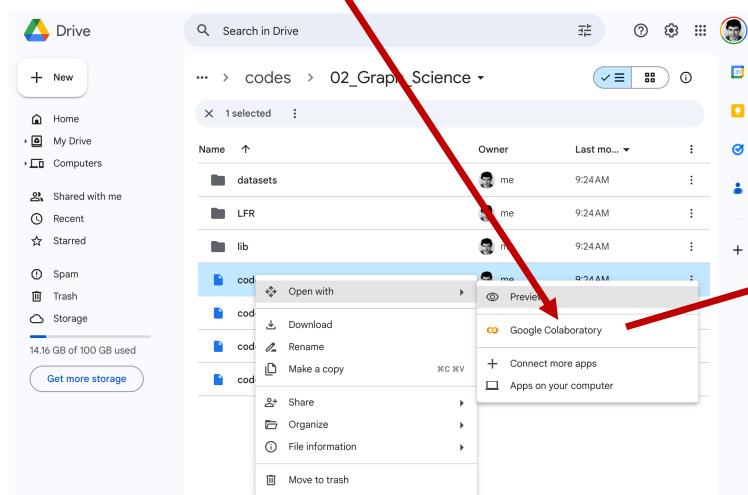
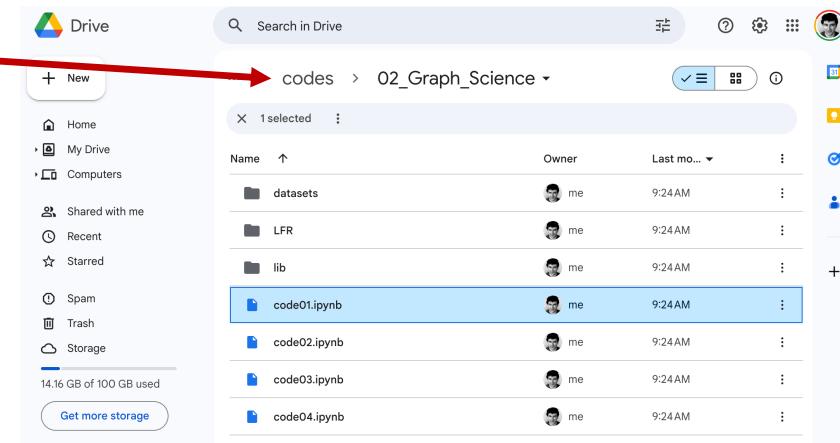
A screenshot of the Google Drive list view. The left sidebar shows navigation options like "New", "My Drive", "Shared with me", "Recent", "Starred", "Trash", "Backups", and "Storage". The main area shows a list of files in the folder "GML2023_codes". The files listed are ".git", "codes", ".gitignore", "environment.yml", "LICENSE", and "README.md". Each file entry includes its name, owner (me), and last modified time (10:16 AM me). A red arrow points to the breadcrumb path "My Drive > GML2023_codes". Another red arrow points to the list icon in the toolbar at the top right.

A screenshot of the Google Drive list view. The left sidebar is similar to the previous one. The main area shows a single folder entry named "GML2023_codes". A red arrow points to this folder entry. Below the list, there is a section for "Shared with me", "Recent", "Starred", "Trash", "Backups", and "Storage".

Click here for List View

Google Colab

- Go folder CS5284_2025_codes/
- Open notebook code01.ipynb in folder codes/02_Graph_Science
 - Select the notebook and open it using Control Click + Open With Colaboratory



A screenshot of a Google Colab notebook titled 'Introduction to Graph Science'. The notebook has a single code cell containing the following Python code:

```
[ ] # For Google Colab
import sys
if 'google.colab' in sys.modules:
    # mount google drive
    from google.colab import drive
    drive.mount('/content/gdrive')
path_to_file = '/content/gdrive/My Drive/GML2023_codes/codes/02_Graph_Science'
print(path_to_file)
# change current path to the folder containing "path_to_file"
os.chdir(path_to_file)
!pwd

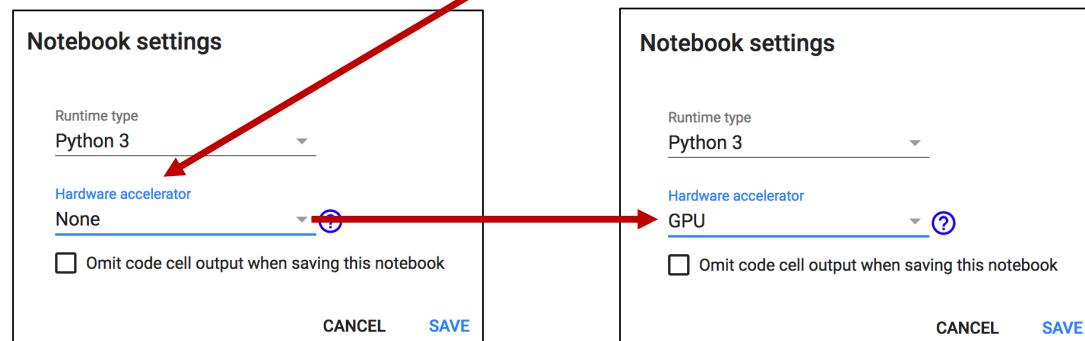
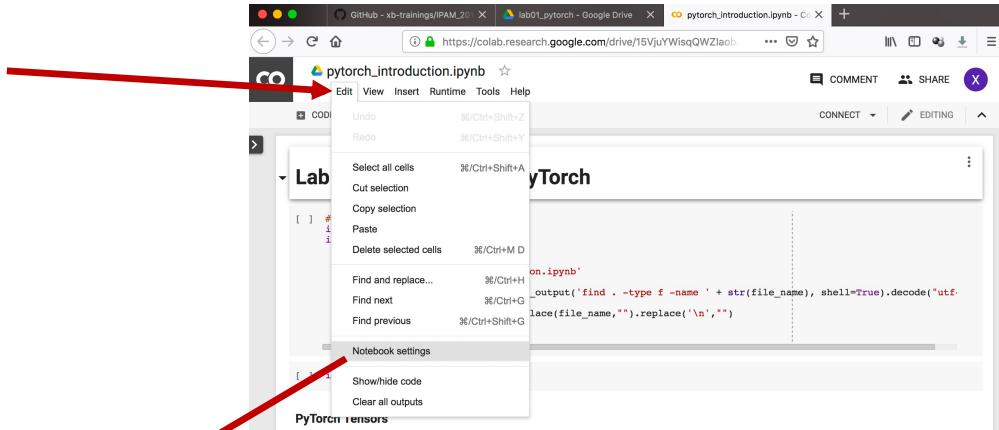
# Load libraries
# Math
import numpy as np

# Visualization
import matplotlib_inline
%matplotlib notebook
import matplotlib.pyplot as plt
plt.rcParams.update({'figure.max_open_warning': 0})
from mpl_toolkits.axes_grid1 import make_axes_locatable
from scipy import ndimage

# Print output of LFR code
import subprocess
```

Google Colab

- GPU acceleration :
 - Select Edit in the menu and Notebook settings.
 - Select GPU in Hardware accelerator.





Questions?