



# Computational Resources Part I

## Google Colab

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# Google Colab

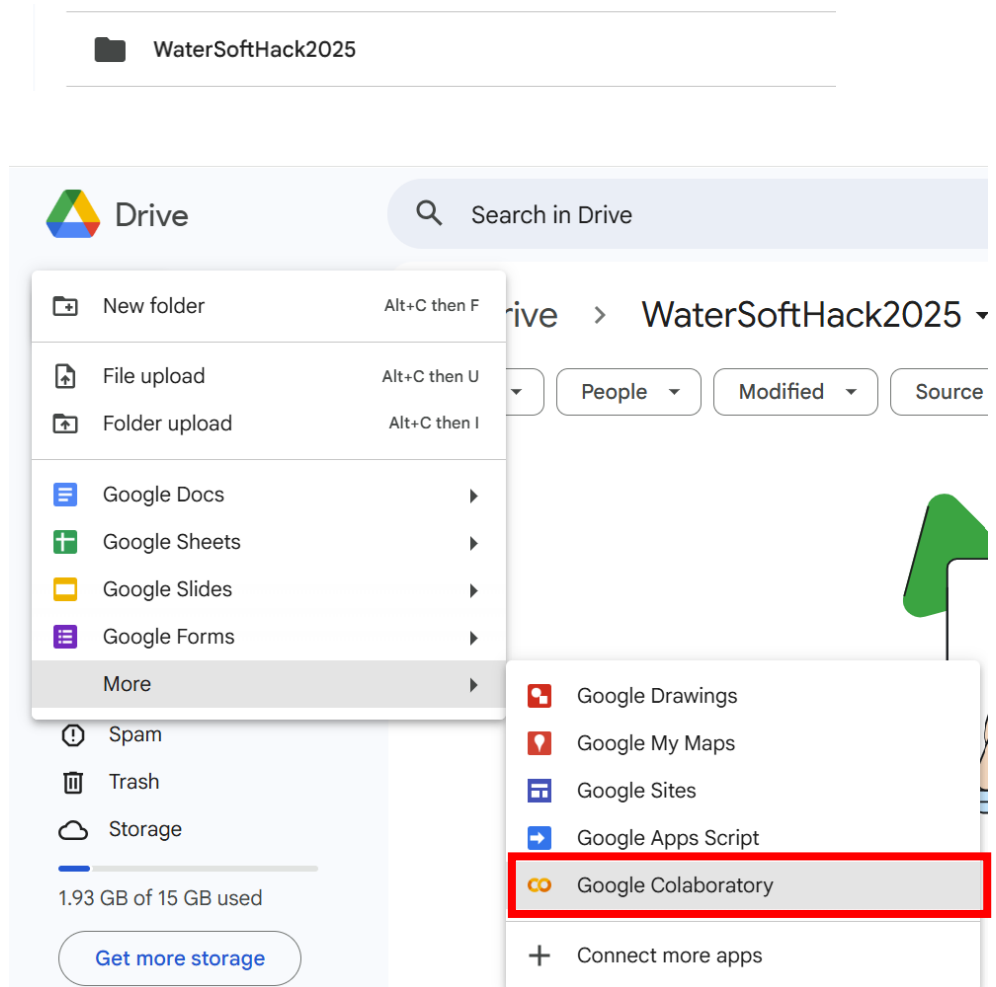
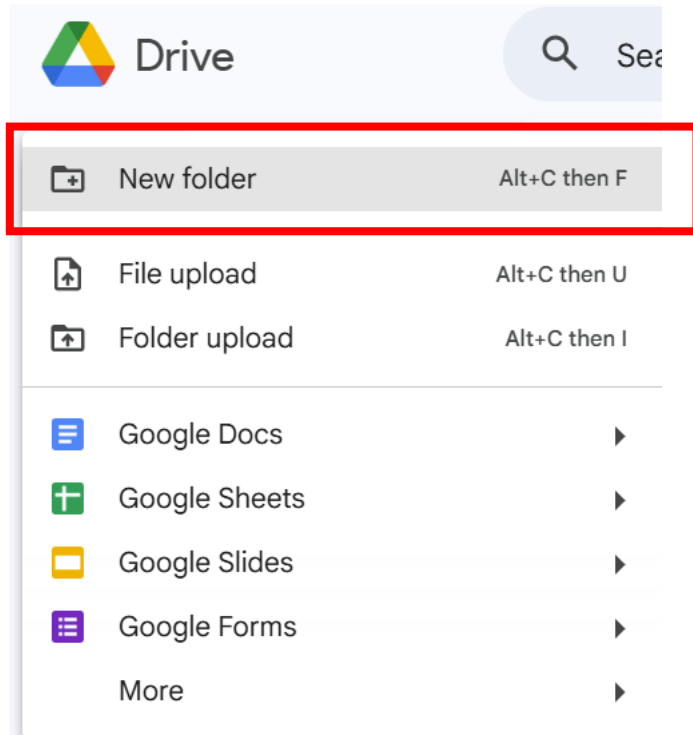


## What is Colab?

- Collaboratory is a Google research project created to help disseminate machine learning education and research.
- Colab is a Jupyter notebook environment that requires no setup to use and runs entirely in the cloud
- Colab allows you to use free Tesla K80 GPU, which is a powerful hardware component useful for machine learning tasks.
- Colab provides 12GB of RAM, which is the memory available for your code and data.
- You can use it up to 12 hours in row (you need to restart the session after 12 hours).
- Let's experience Colab environment!



# Google Colab-cont.





# Google Colab-cont.

You can rename  
your notebook here

co **Untitled0.ipynb** ☆

File **Rename notebook** Runtime Tools Help

Q Commands + Code + Text ▶ Run all ▼

Connect ▼

Start coding or generate with AI.

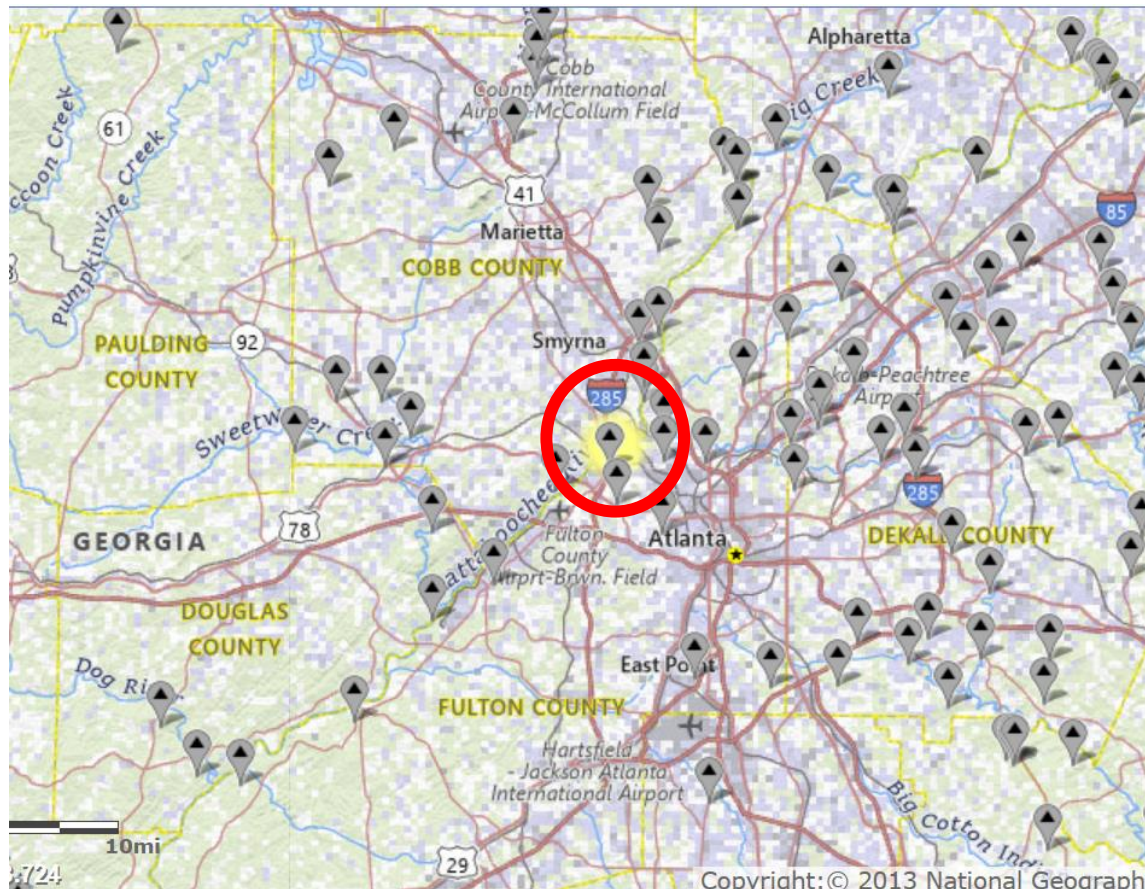
```
!pip install dataretrieval
```

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

```
!git clone
https://github.com/watersofthack/WaterSoft.git
```

# USGS Gauging Station

The Proctor Creek-Chattahoochee River watershed (USGS 02336490), Fulton County, Georgia.





# **Computational Resources Part II NSF National Artificial Intelligence Research Resource (NAIRR) Pilot**

**Advancing US Innovation in Artificial Intelligence**

**Vidya Samadi, PhD. , M.ASCE**

**Clemson University**

**NAIRR Pilot** National Artificial Intelligence  
Research Resource Pilot



# NSF NAIRR Resources

## Computing Resources

**NAIRR Pilot** National Artificial Intelligence  
Research Resource Pilot

**High-Performance Computing (HPC) Systems:** Access to the DeltaAI at the National Center for Supercomputing Applications, Lonestar at the Texas Advanced Computing Center (TACC), and other systems.

**Cloud Computing Platforms:** Access to major cloud providers through dedicated programs, including AWS, Google Cloud, and Microsoft Azure, offering a wide range of services, compute instances (including GPUs and TPUs), and storage solutions.

**Specialized AI Accelerators:** Access to innovative computing hardware designed specifically for AI workloads, such as Cerebras Wafer-Scale Engine 2 (CS-2) AI Accelerator, SambaNova DataScale SN30 system, Graphcore Bow Pod 64, and Groq LPU Inference Engine, available through DOE's ALCF AI Testbed.

**Access to Models, Software, and Tools:** Access to pre-trained models, software tools, and privacy-enhancing technologies for various AI research needs.





# NSF NAIRR Resources-cont.

## Datasets

**NAIRR Pilot** National Artificial Intelligence  
Research Resource Pilot

**AI-ready Datasets:** Access to a growing collection of curated datasets suitable for AI training and research.

**Open Datasets:** Availability of publicly accessible datasets from various domains through cloud provider registries (e.g., AWS Registry of Open Data).

**Domain-specific Datasets:** Specialized datasets for areas like agriculture, environmental research, etc.





# NSF NAIRR Resources-cont.

## Training & Education Resources

**NAIRR Pilot** National Artificial Intelligence  
Research Resource Pilot

**Online Interactive Notebooks:** Resources for educators and instructors to use in classrooms or for student projects.

**Educational Platforms:** Platforms like Vocareum offer access to notebooks and cloud resources to support hands-on AI education.

**Training and Workshops:** Opportunities to participate in workshops and training sessions to learn about and utilize AI technologies and platforms effectively.

**Collaborations:** Opportunities to collaborate with researchers and experts from various partner organizations, including EleutherAI.



# Current NAIRR Opportunities

**NAIRR Pilot Portal:** A central website ([nairrpilot.org](http://nairrpilot.org)) to discover and apply for access to these resources and view descriptions of awarded projects.

New Opportunity

## START-UP PROJECTS RESOURCES

Request access to AI resources for start-up projects

Apply Now

Requires Application

## RESEARCH RESOURCES

Access high-performance computing platforms tailored for AI research.

Apply Now

Requires Application

## EDUCATIONAL RESOURCES

Request access to educational platforms (such as computational notebooks).

Apply Now

Freely Accessible

## DATA, MODELS, AND MORE

Browse curated datasets, pre-trained models, and additional tools for training and testing your AI systems.

View Resources



# NAIRR Resources Available for WaterSoftHack CyberTraining

.edu email address



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☐ Accept the NRP AUP

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The AUP can be found at <https://nrp.ai/NRP-AUP.pdf>. Please review the [cluster policies](#).

Continue

- NRP Deep Learning & Data Science Full, PyTorch
- NRP Deep Learning & Data Science Full, TensorFlow
- B-Data python scipy
- B-Data Julia



## Notebook Integration for Foundational AI Education (Assistant Professor/Postdoc)

**vocareum** Home Manage Help Inbox samadi@clemsun.edu

Clemson University (NAIRR) (Ends - Jan 01 2026) Edit Assignments Enrollment Submissions **Class** Sessions Dashboard Settings

Assignment: reum Notebook Search: (Student View) adarsh... X My Student View

(Student View) adarshn@clemsun.edu

Budget	Monthly	Total
Time (Min)	0	0
Spend	0	0





# Summary

- Google Colaboratory, or Google Colab, is a free, cloud-based platform provided by Google that offers a hosted Jupyter Notebook environment.
- While offering substantial benefits, the free tier of Colab has certain limitations, including resource usage limits...
- NAIRR pilot aims to democratize access to AI infrastructure and expertise, fostering innovation and training a diverse AI-savvy workforce.
- US-based researchers and educators affiliated with US-based institutions are eligible to apply.
- Note that individual resources may have specific eligibility requirements, and your institutional email must be used.
- Allocated resources to WaterSoftHack include CPU, GPU, and classroom notebook (Vocareum).

Email [NAIRR\\_Pilot@nsf.gov](mailto:NAIRR_Pilot@nsf.gov) with any questions!



# THANK YOU

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