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Comparison of Basic Deep Learning Cloud Platforms

Guide to choosing a Jupyter notebook cloud environment for personal use

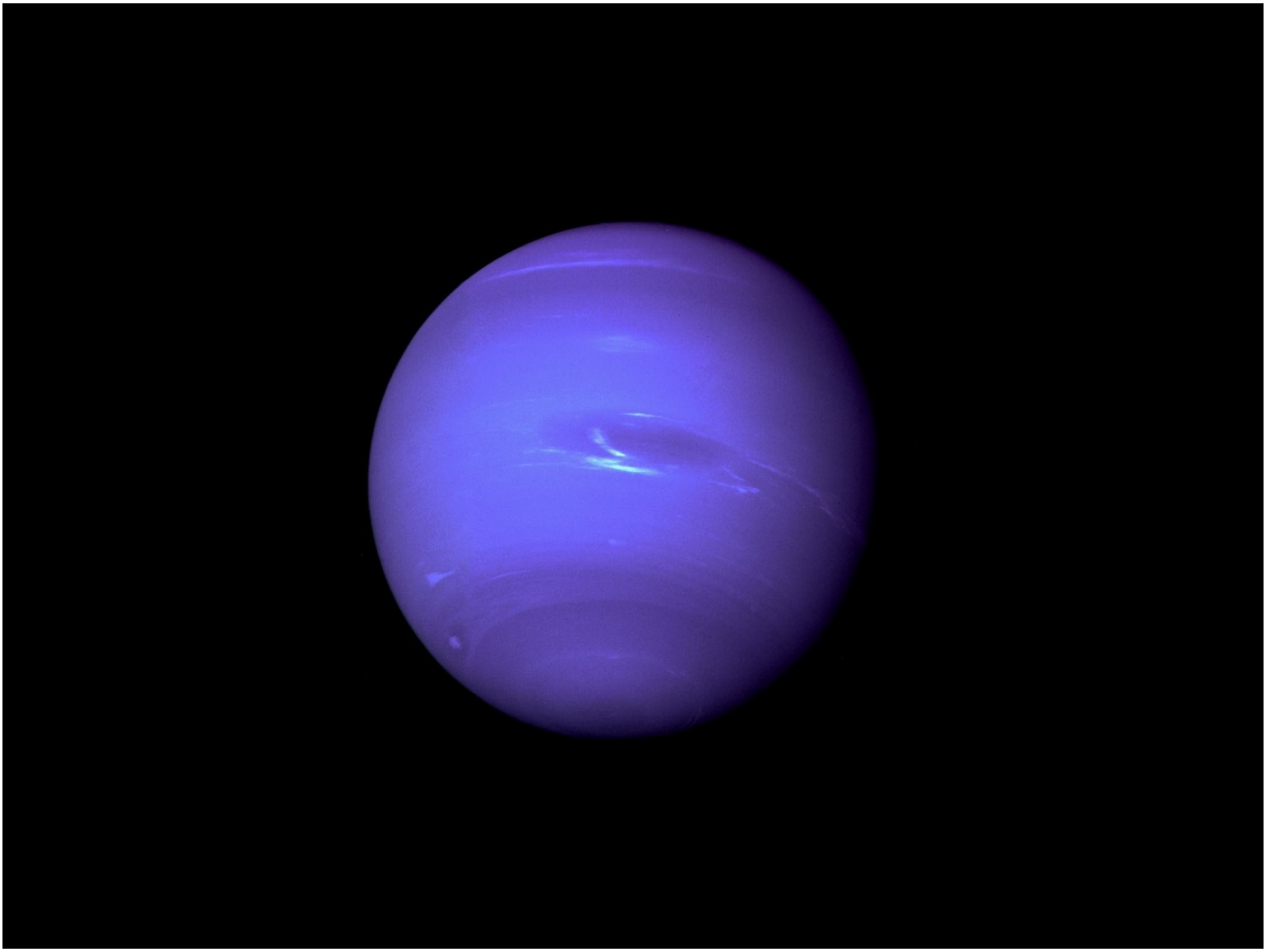

Photo by NASA on Unsplash

Keep in mind that Google owns both Kaggle and Colab, so it is doubtful that one platform will consistently outperform the other on the free tier.

Here are some quick summary tables for comparison:

	Colab Free	Colab Pro	Colab Pro +
Guarantee of resources	Low	High	Even Higher
GPU	K80	K80, T4 and P100	K80, T4 and P100
RAM	16 GB	32 GB	52 GB
Runtime	12 hours	24 hours	24 hours
Background execution	No	No	Yes
Costs	Free	9.99$ per month	49.99$ per month
Target group	Casual user	Regular user	Heavy user

Comparison of features [1]

	Platform		
	Gradient	**Colab**	**Kaggle**
Max Execution Time Per Session	6 hours	12 hours	9 hours
Idle Time	1-6hours	30 Minutes	20 Minutes
Usage Limit	Subjected to availability	No limit	30 hours per week
GPU Model	Quadro M4000	K80	P100
GPU Memory	8GB	12GB	16GB
CPU Model	Intel(R) Xeon(R)	Intel(R) Xeon(R)	Intel(R) Xeon(R)
CPU Clock Speed	2.6GHz	2.3GHz	2.0GHz
CPU RAM	30GB	13GB	13GB
Persistent Storage	5GB	15GB*	20GB
Private Notebooks	No	Yes	Yes
Background Execution	No	No	Yes

Comparison of Colab Subscription plans [2]

Kaggle states in their docs that you have 9 hours of execution time. However, one article noted that the kernel environment shows a max of 6 hours per session in their widget (restarting your kernel restarts the clock). Kaggle also restarts your session after 60 minutes of inactivity.

Colab gives you 12 hours of execution time but also has an idle timeour of 90 minutes.

Colab vs Kaggle

Here is a quick summary of the key differences between Kaggle and Colab:

- Kaggle has a GPU quota limit of 30 hours per week. Colab haa no usage limit.

- Colab has TPUs. TPUs are like GPUs, only faster.
- Colab has integration with GitHub — you can save notebooks directly to GitHub repos.

Colab

Google colab resource limits:

- Integration with Google Drive for data storage. However, working with Google Drive on Colab can be a difficult since you have to authenticate every session.
- No usage limit.
- The GPUs available in Colab include Nvidia K80s, T4s, P4s and P100s.
- Colab resources can vary over time to accommodate fluctuations in demand, as well as to accommodate overall growth and other factors. However, I suspect this is also true for Kaggle (just not documented).

Kaggle

Kaggle resource limits are not very well documented:

- 100 GB per public Dataset
- 100 GB across all your private Datasets
- 20 GB for output files (auto-saved disk space under /kaggle/working)
- Interactive sessions may run for up to 6 hours but will still time out after 1 hour of idle time.
- Batch sessions (using Commit & Run) may run for up to 6 hours.

Colab Pro

Colab Pro offers the following advantages over the Colab (free) version:

- Faster GPUs: Access to faster GPUs and TPUs.
- More memory: More RAM (up to 32 GB versus 16 GB for Colab free) and more disk space.
- Longer runtimes: Longer running notebooks (up to 24 hours versus 12 hours for Colab free) and


Deepnote is a somewhat new entry using Jupyterlab which I have found to perform better than Jupyter Notebook. Jupyterlab also has an improved interface for working with multiple files/notebooks.

Deepnote has a free tier with a monthly limit of 50 Standard machine hours, which can be extended up to 750 Standard machine hours by completing onboarding tasks found on your Dashboard. However, you can also create a free pro account using .edu email account. In addition, Deepnote has an FAQ that provides more information on the machine types available.

I think Deepnote is definitely worth a try.

References

[1] Free GPUs for Training Your Deep Learning Models

[2] Google Colab Pro+: Is it worth $49.99?

Top Cloud GPU Providers For Machine Learning in 2022

Kaggle vs. Colab Faceoff

Colaboratory FAQ