

Hero for Zero: Train Epic ML Models Without Breaking the Bank!



curs-mi.com
Machine Learning Course



Machine Learning cost \$\$\$



Machine Learning cost \$\$\$



Machine Learning cost \$\$\$

- According to Jim Fan, senior AI scientist at Nvidia, Llama 2 is likely to cost a little over \$20 million to train. He believes that Meta has done "an incredible service to the community" by releasing the model with a commercially-friendly license.



Machine Learning cost \$\$\$

Here are hours spent/gpu:

- 7B: 184 320 (21 years)
- 13B: 368 640
- 70B: 1 720 320

- Total: 3311616

If you were to rent a100 80gb at \$1.5/hr*, that's \$5M USD.

* assuming you buy upfront, amortised over 3 years!!



You can train ML too!



Local

There's no place like
127.0.0.1

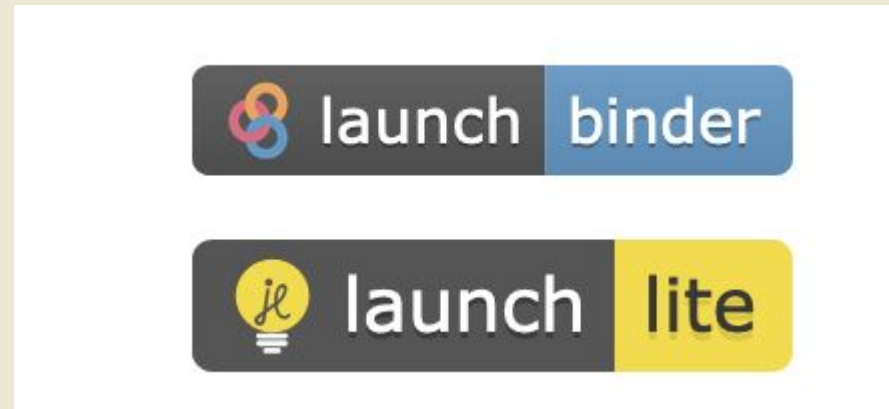


Local

```
> docker pull pytorch/pytorch  
> docker run -rm -it -p 8888:8888 pytorch bash  
# jupyter notebook
```

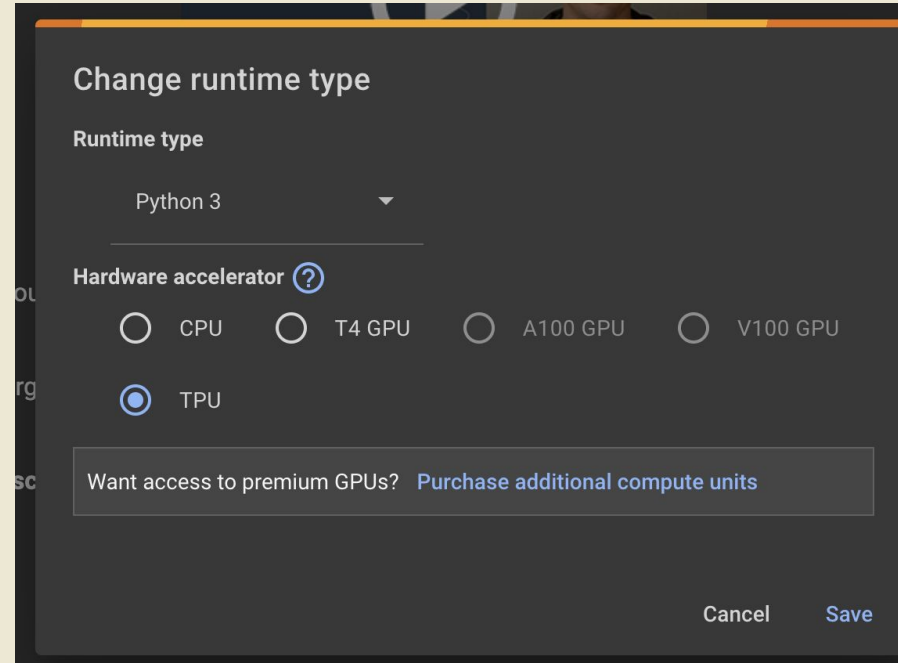


[MyBinder](#) [[demo](#)]



Google Colab

- CPU
- GPU (!)
- TPU (!)



The screenshot shows the 'Change runtime type' dialog box in Google Colab. It features a dark gray background with white text. At the top, the title 'Change runtime type' is displayed. Below it, the 'Runtime type' is set to 'Python 3'. The 'Hardware accelerator' section is highlighted with a blue circle and a question mark icon. It contains five radio button options: 'CPU', 'T4 GPU', 'A100 GPU', 'V100 GPU', and 'TPU'. The 'TPU' option is currently selected. At the bottom of the dialog, there are 'Cancel' and 'Save' buttons. A small text box at the bottom left of the dialog asks 'Want access to premium GPUs?' and provides a link to 'Purchase additional compute units'.

Change runtime type

Runtime type

Python 3

Hardware accelerator ?

☐ CPU ☐ T4 GPU ☐ A100 GPU ☐ V100 GPU

☒ TPU

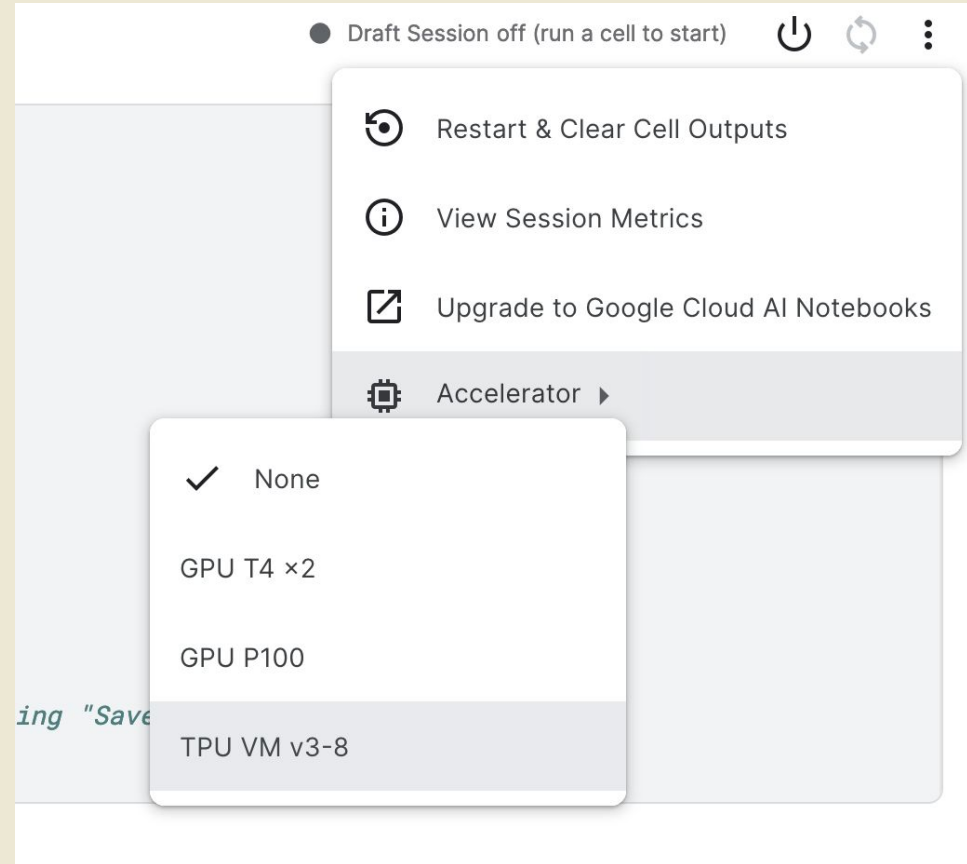
Want access to premium GPUs? [Purchase additional compute units](#)

Cancel Save



Kaggle

- CPU
- 2x GPU
- 8x TPUs



Free tiers ([AWS](#) or other)

MACHINE LEARNINGNEW

Free TierFREE TRIAL

Amazon SageMaker

2 Months

free trial

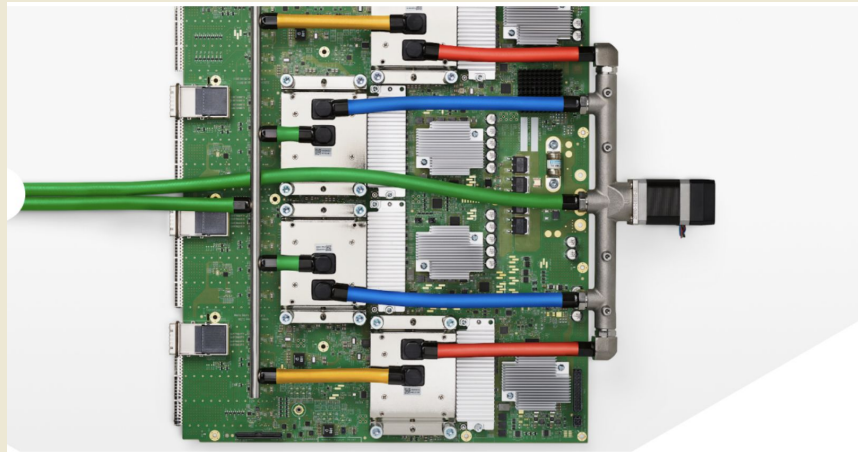
Machine learning for every data scientist and developer.

250 hours per month of ml.t3.medium on

ml.t3.medium, ml.t3.xlarge, ml.t3.2xlarge, ml.t3.xl, ml.t3.2xl, ml.t3.4xl, ml.t3.8xl, ml.t3.16xl, ml.t3.32xl, ml.t3.64xl, ml.t3.128xl, ml.t3.256xl, ml.t3.512xl, ml.t3.1024xl, ml.t3.2048xl, ml.t3.4096xl, ml.t3.8192xl, ml.t3.16384xl, ml.t3.32768xl, ml.t3.65536xl, ml.t3.131072xl, ml.t3.262144xl, ml.t3.524288xl, ml.t3.1048576xl, ml.t3.2097152xl, ml.t3.4194304xl, ml.t3.8388608xl, ml.t3.16777216xl, ml.t3.33554432xl, ml.t3.67108864xl, ml.t3.134217728xl, ml.t3.268435456xl, ml.t3.536870912xl, ml.t3.1073741824xl, ml.t3.2147483648xl, ml.t3.4294967296xl, ml.t3.8589934592xl, ml.t3.17179869184xl, ml.t3.34359738368xl, ml.t3.68719476736xl, ml.t3.137438953472xl, ml.t3.274877906944xl, ml.t3.549755813888xl, ml.t3.1099511627776xl, ml.t3.2199023255552xl, ml.t3.4398046511104xl, ml.t3.8796093022208xl, ml.t3.17592186044416xl, ml.t3.35184372088832xl, ml.t3.70368744177664xl, ml.t3.14073748835328xl, ml.t3.28147497670656xl, ml.t3.56294995341312xl, ml.t3.112589990682624xl, ml.t3.225179981365248xl, 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Grants (look around!)

- [TRC](#) Is a Google program that shares free TPUs in the cloud for researchers.



TPU Research Cloud

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Thank you!



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Machine Learning Course

TECH 'N TRADE