

# Setting up a remote machine

# Outline

- Why
- Where
  - Don't use remote desktop software
- How

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- Probably are not running linux (OS for almost all deep and machine learning)
- **SOLUTION- Rent a remote machine!**

# Where

- There are a lot to choose from:



*Paperspace*



**Cloud Clusters**



Google Cloud

# Where

- We are going to use Paperspace



Cloud Clusters



***Paperspace***



# Why Paperspace?

- Affordable (free, pro and growth)
- Decent machines
- Has jupyter lab (unlike Google colab or kaggle)
- And a terminal window
- Easy session limiting(defaults to 6 hours)
- Setup steps will apply to other cloud providers



***Paperspace***

# Why Paperspace?

- Please signup for an account
- They have free, but a pro account (\$8/month) gives you more options



***Paperspace***

# Why you don't use remote desktop software with cloud compute

- You connect to a remote machine over a network, which is **much** slower than doing everything locally
- Network speed and latency are concerns
  - If you try to use a remote desktop solution (x2go, GoToMyPC, etc..) you are sending each video frame multiple times per second.
  - On this machine  $1920 \times 1080 \times 32 \text{bits} = 8.3 \text{Mbytes/frame}$ , sent 60 times per second
  - **YOU WILL NOTICE LAG AND DROPPED FRAMES!**

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# Why you don't use remote desktop software with cloud compute

- Plus you have to waste GPU resources on your remote machine to produce a desktop to send over the network to your local machine.
- Finally, it's probably not supported by the cloud provider anyway

# Solution: don't have a desktop

Use Jupyter Lab and terminal instead: they send just a few characters only when they are produced. Much, much lower bandwidth requirements.

# How

- Demo configuring a vanilla linux machine to ensure that changes persists across sessions (aliases, packages, config files, data directories etc..)
- I'll show you how to do this manually, then port this process to a script(s), then port the script(s) and setup data to a git repo.
- The git repo will serve as a guide for easily setting up a custom machine.

# Stuff to cover

- A little on the linux boot sequence
- .bashrc file
- Script files
- Some linux commands (du, pwd, cd, which, whereis, mv etc.)
- Permanent verses ephemeral storage
- Symbolic links
- A little vim
- Universal ctags and code navigation
- CLI apis (for Paperspace and Kaggle)



# Format

- Live video session so you can ask questions.
- Recording will be posted online.