

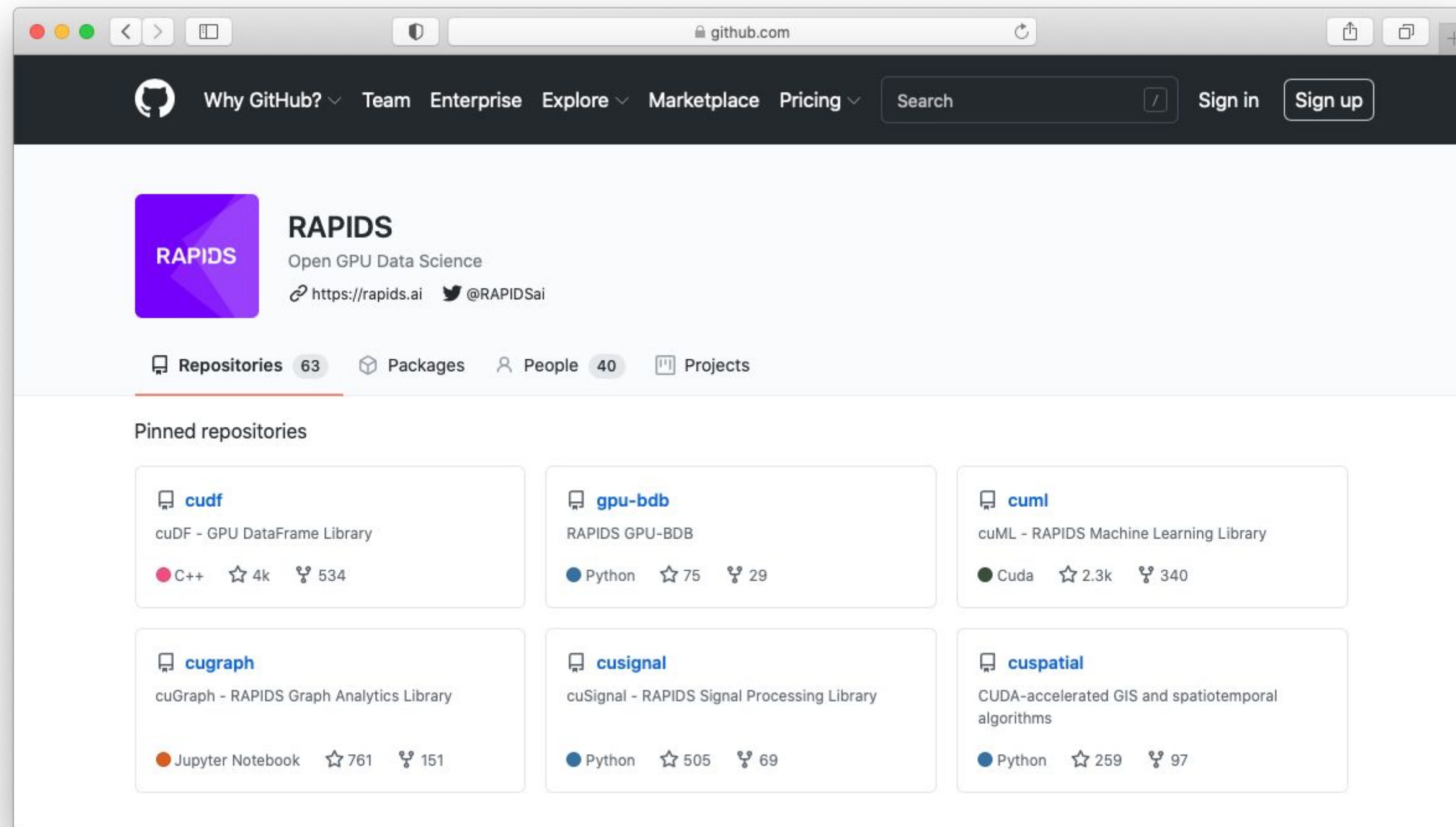
RAPIDS

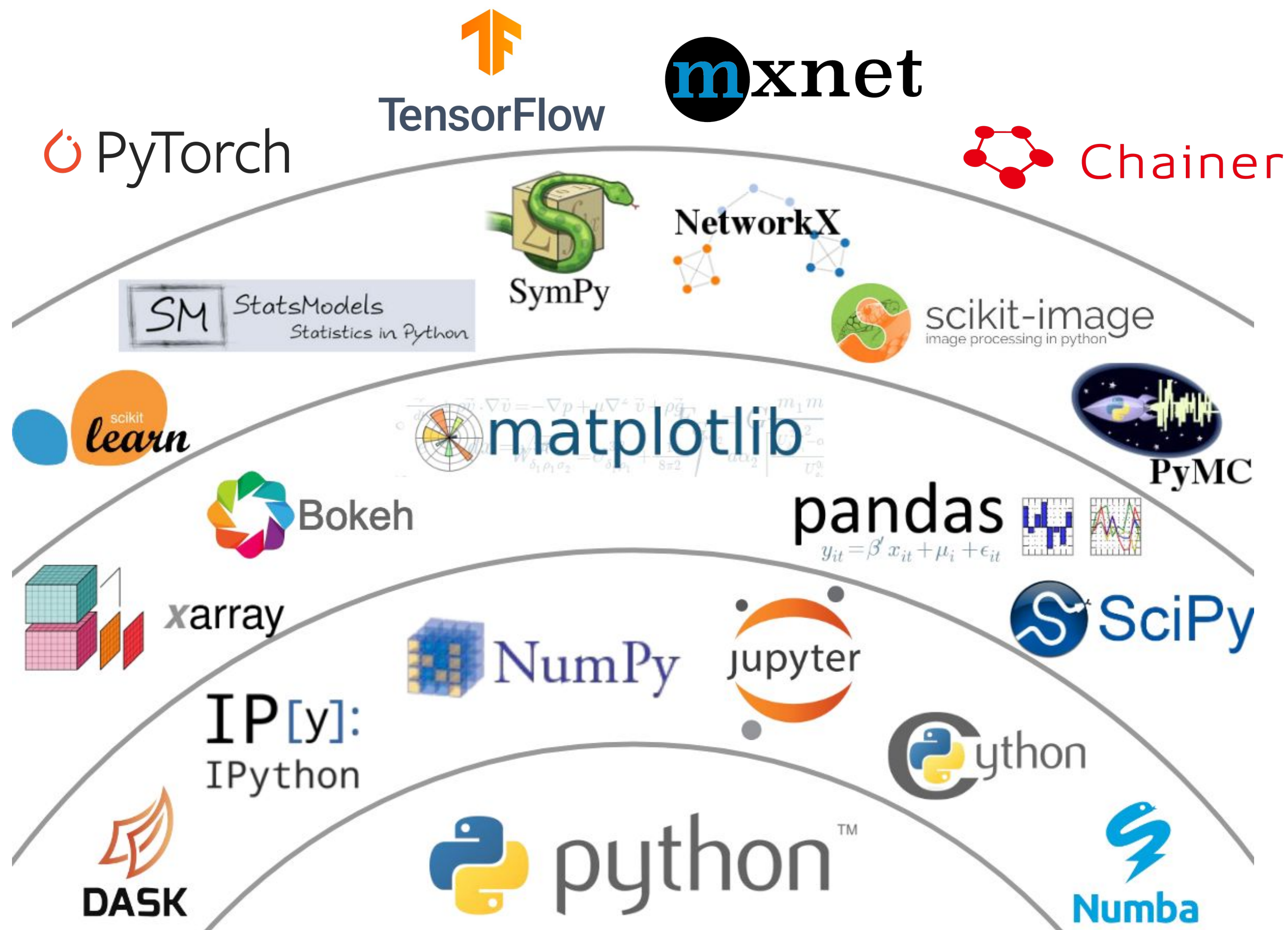
GPU accelerating your computation in Python

EGU General Assembly 2022

RAPIDS

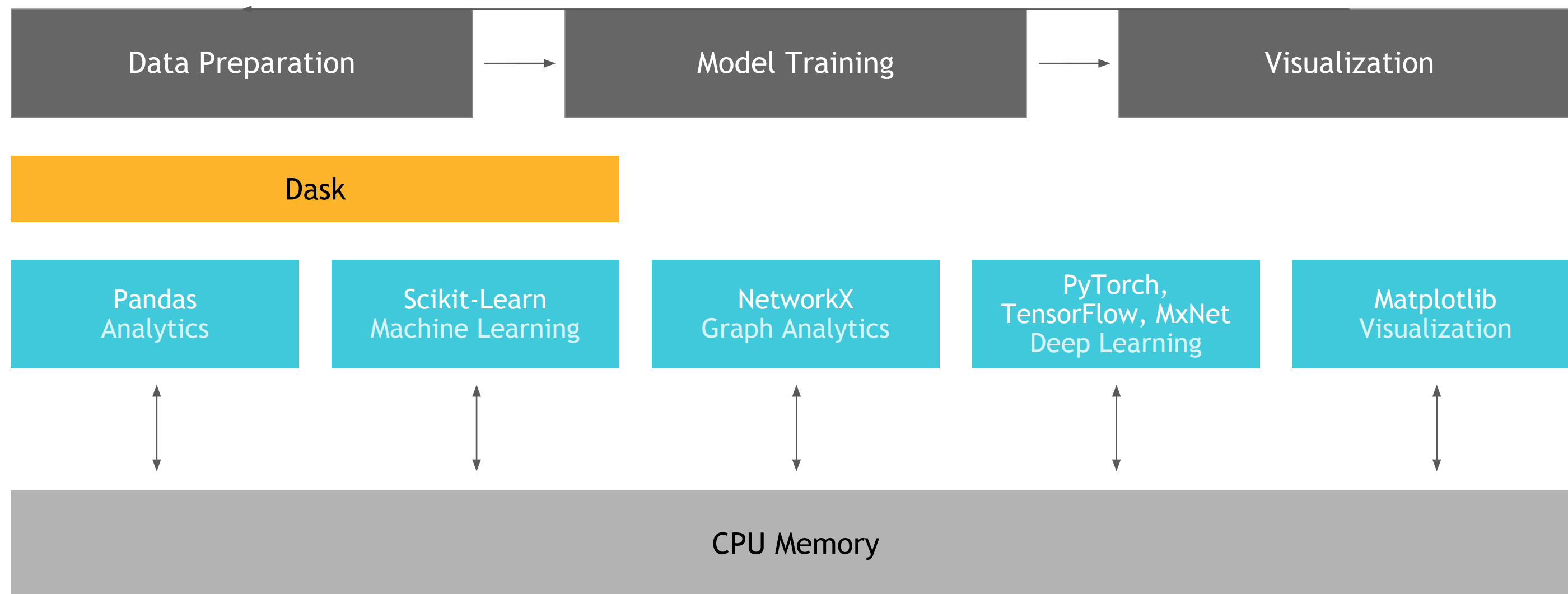
<https://github.com/rapidsai>





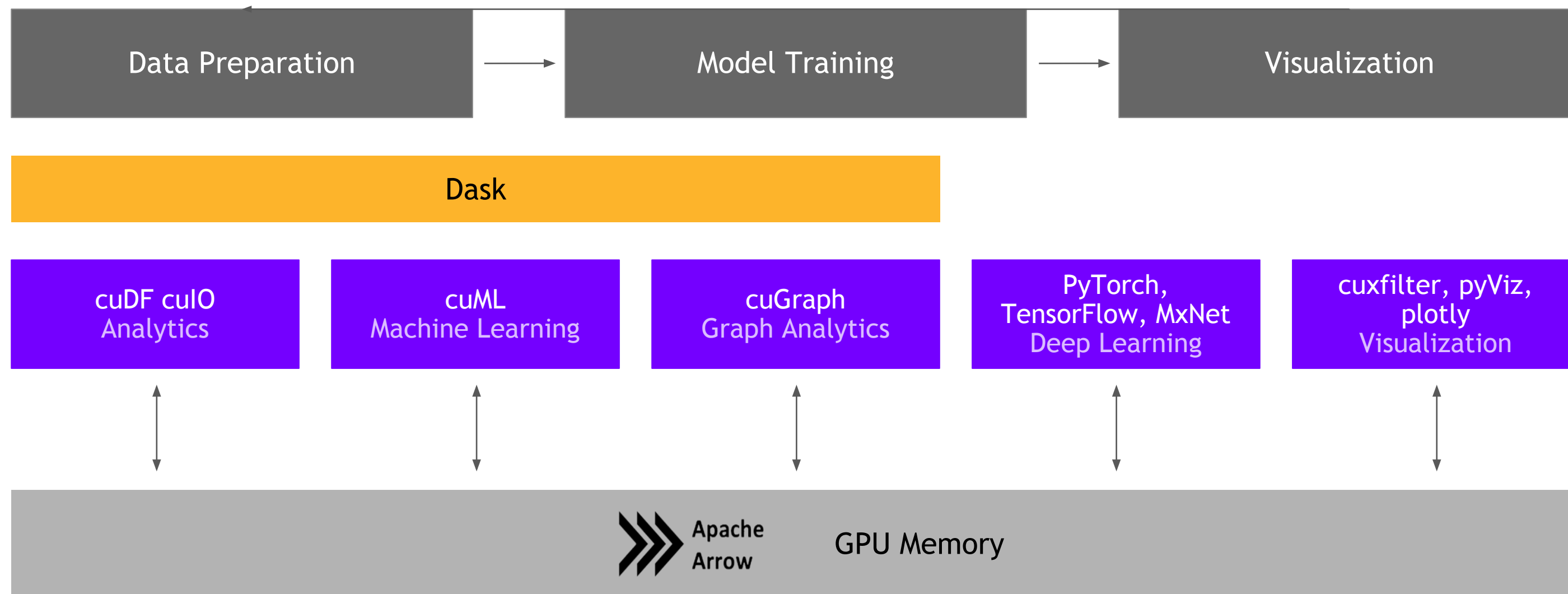
Open Source Data Science Ecosystem

Familiar Python APIs



RAPIDS

End-to-End Accelerated GPU Data Science



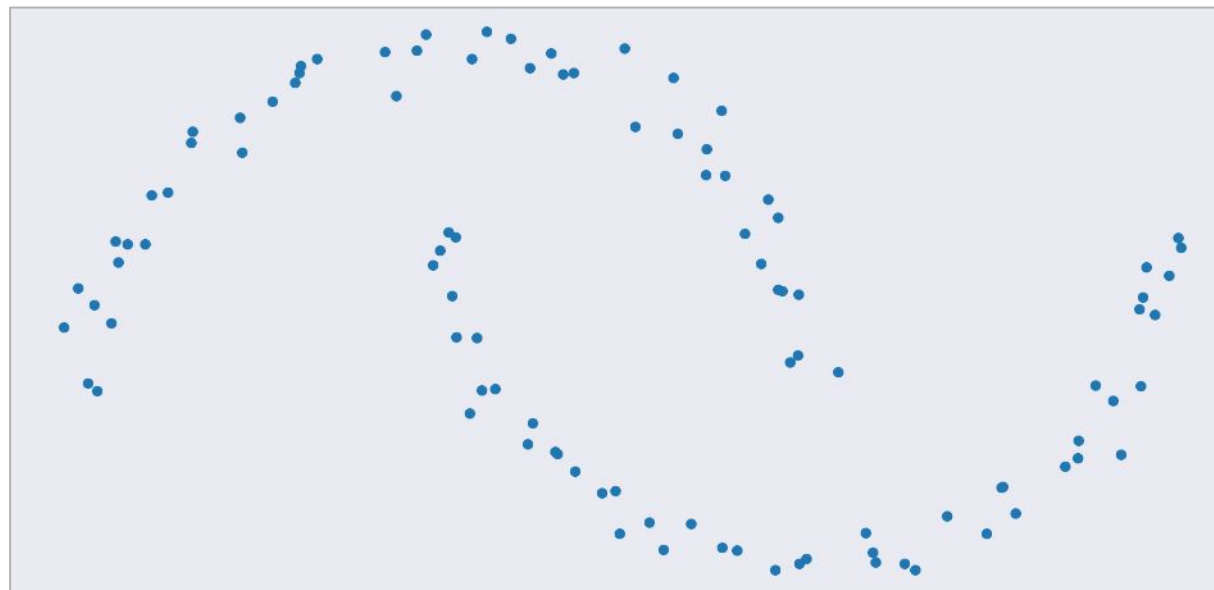
RAPIDS Matches Common Python APIs

CPU-based Clustering

```
from sklearn.datasets import make_moons
import pandas
```

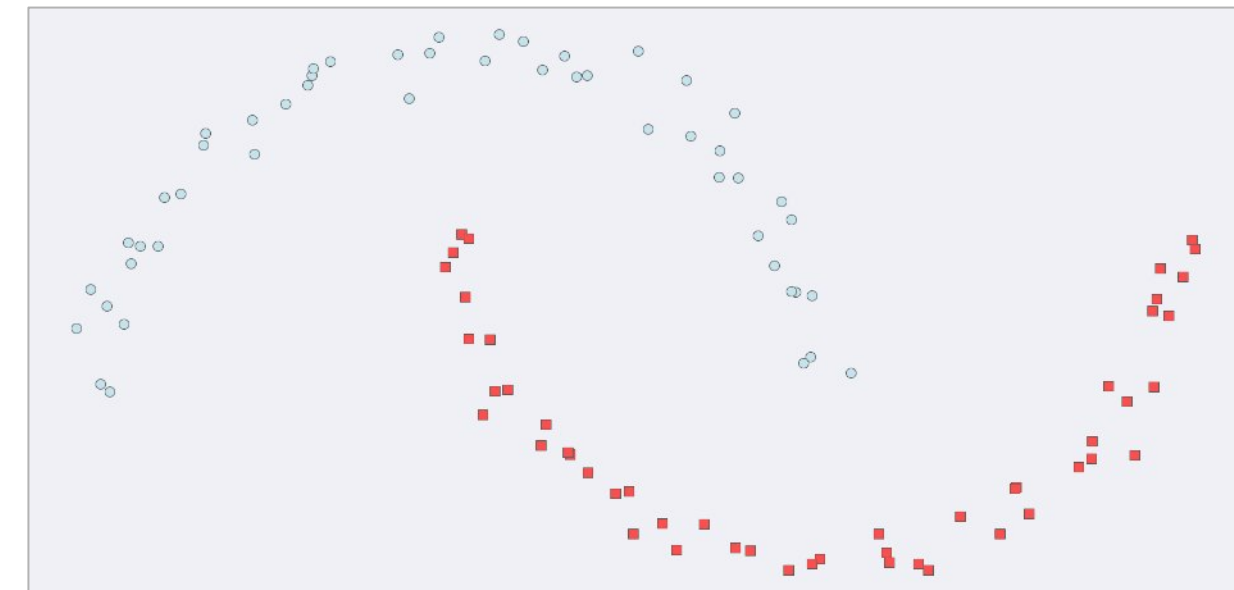
```
X, y = make_moons(n_samples=int(1e2),
                  noise=0.05, random_state=0)
```

```
X = pandas.DataFrame({'fea%d'%i: X[:, i]
                      for i in range(X.shape[1])})
```



```
from sklearn.cluster import DBSCAN
dbscan = DBSCAN(eps = 0.3, min_samples = 5)
```

```
y_hat = dbscan.fit_predict(X)
```



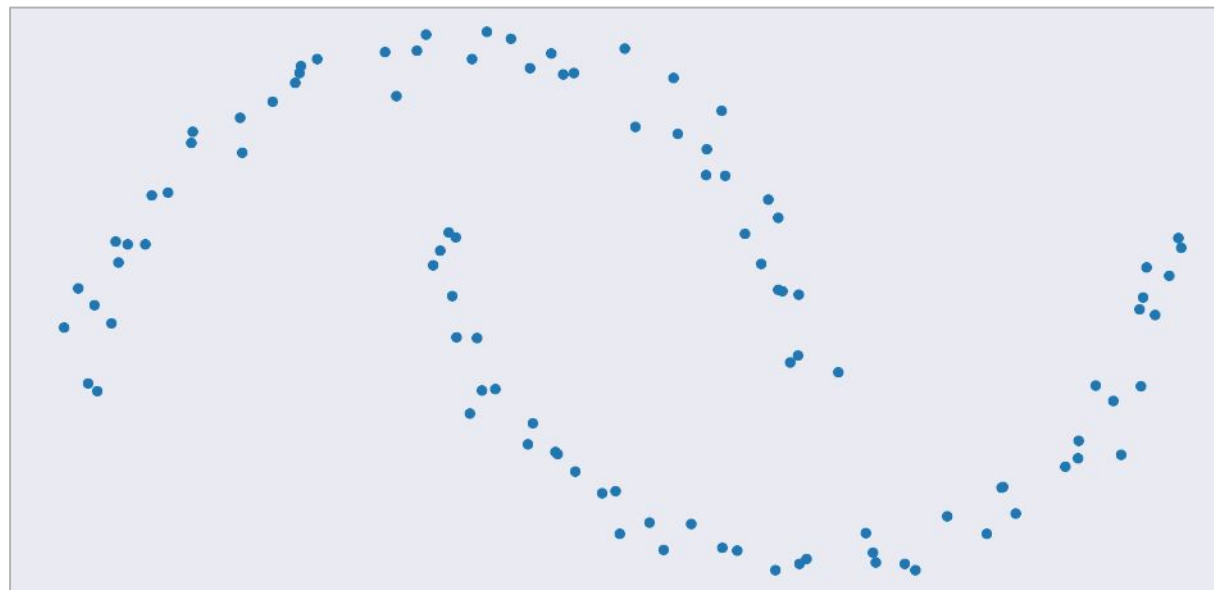
RAPIDS Matches Common Python APIs

GPU-accelerated Clustering

```
from sklearn.datasets import make_moons
import cudf

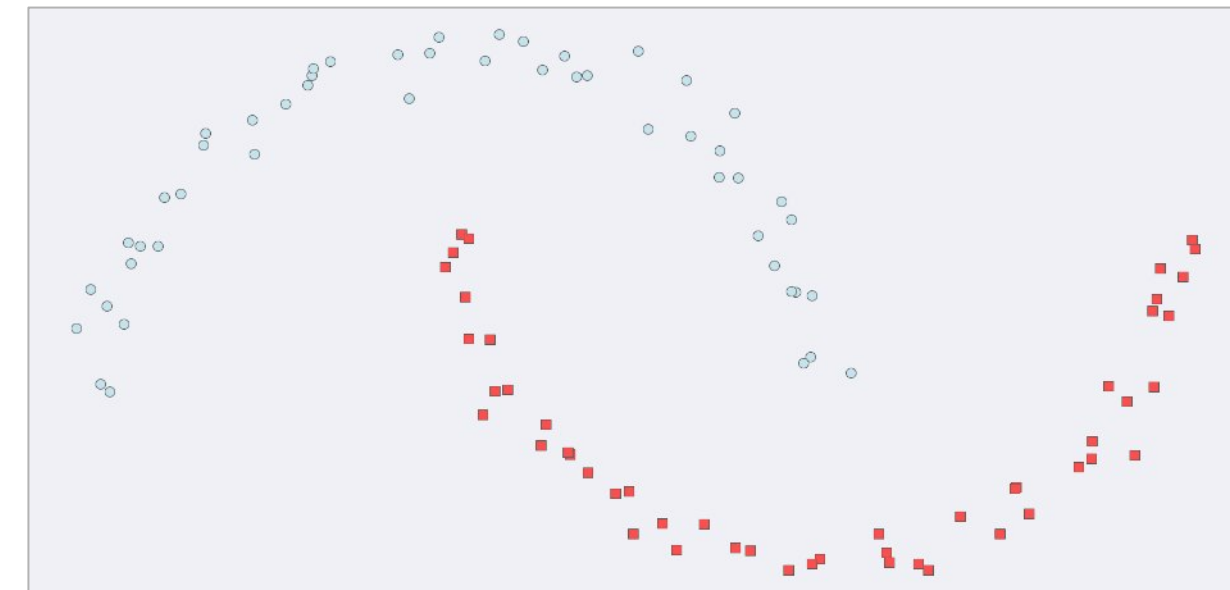
X, y = make_moons(n_samples=int(1e2),
                  noise=0.05, random_state=0)

X = cudf.DataFrame({'fea%d'%i: X[:, i]
                    for i in range(X.shape[1])})
```

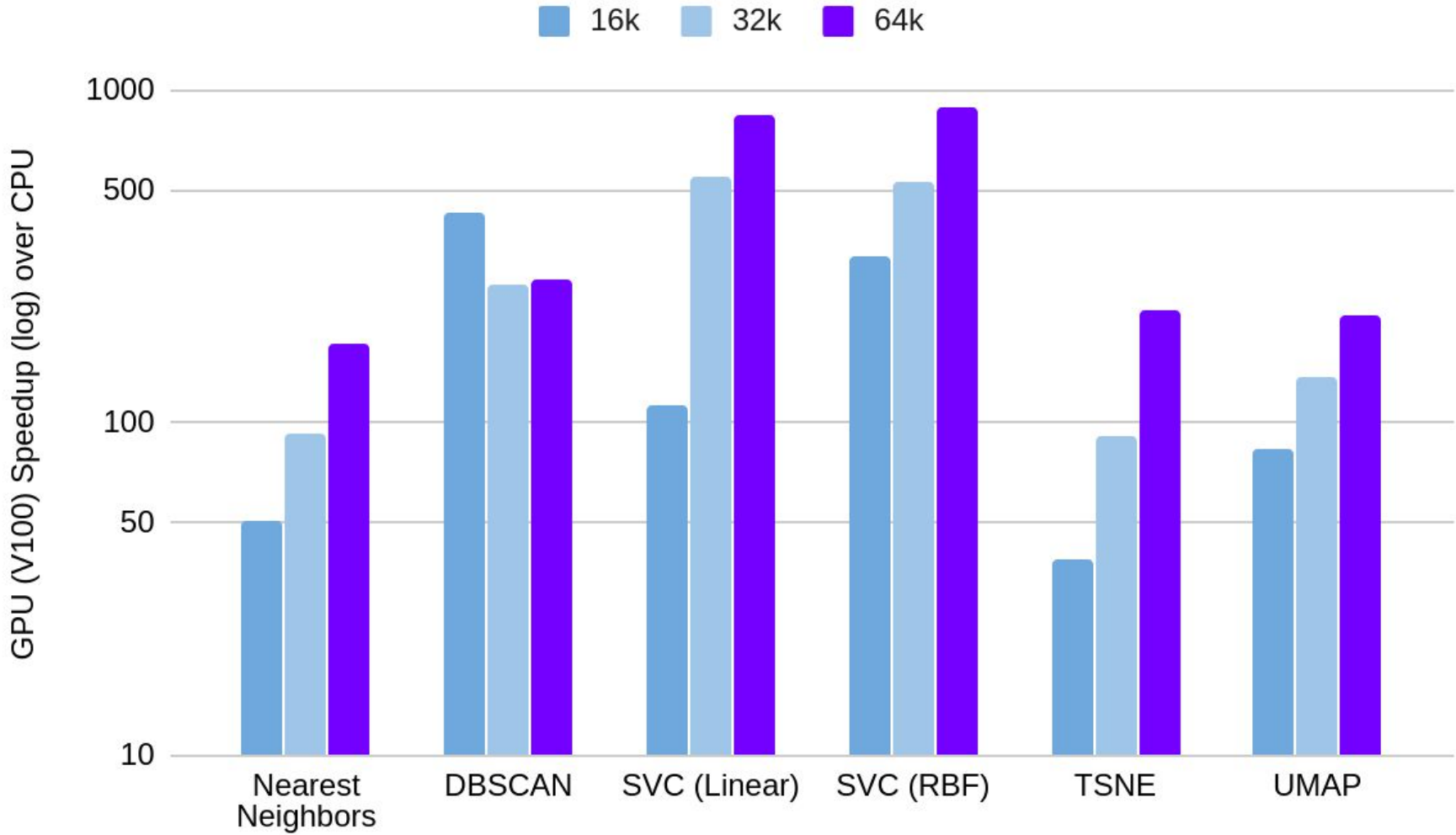
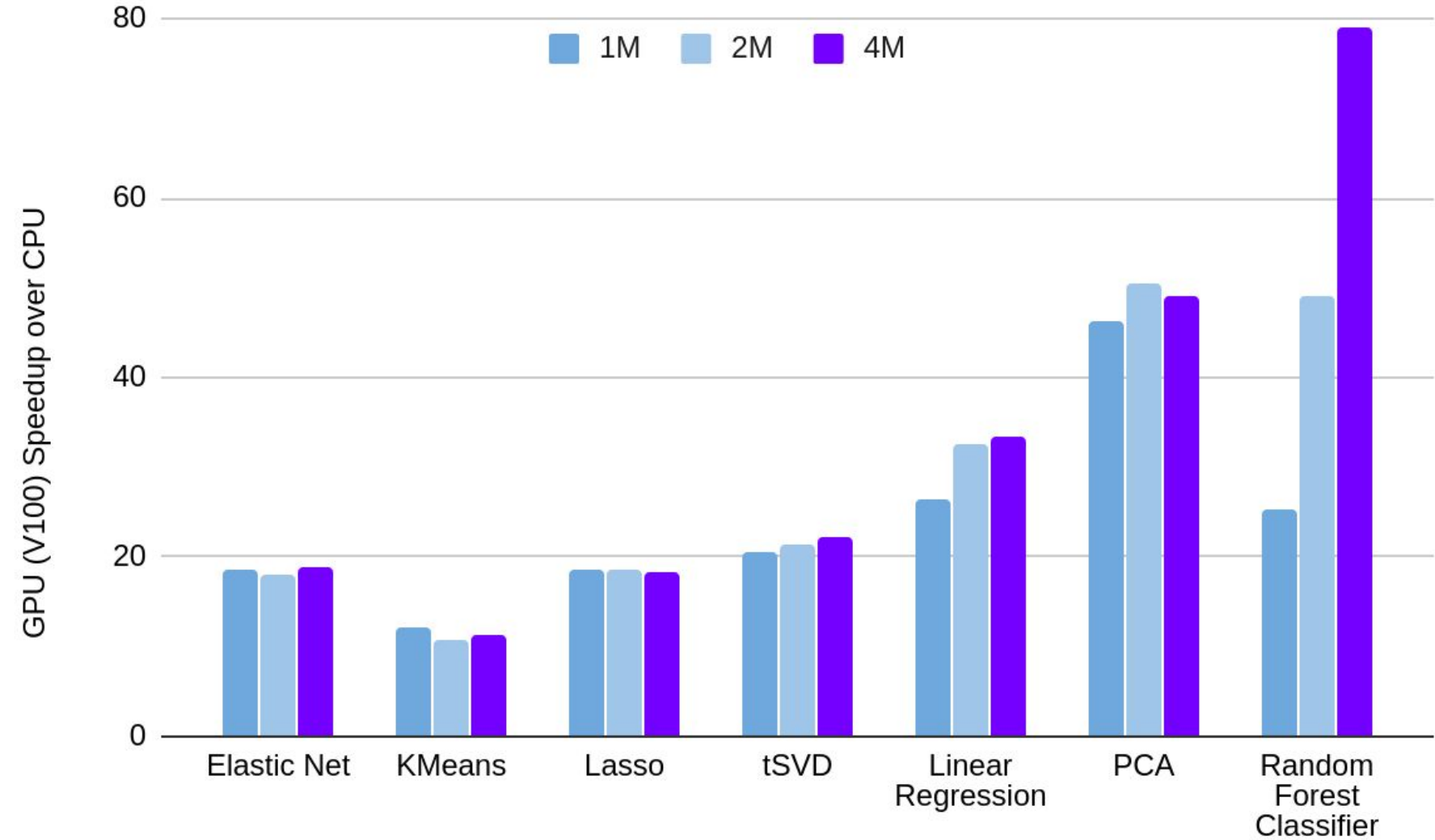


```
from cuml import DBSCAN
dbscan = DBSCAN(eps = 0.3, min_samples = 5)

y_hat = dbscan.fit_predict(X)
```



Benchmarks: Single-GPU cuML vs Scikit-learn

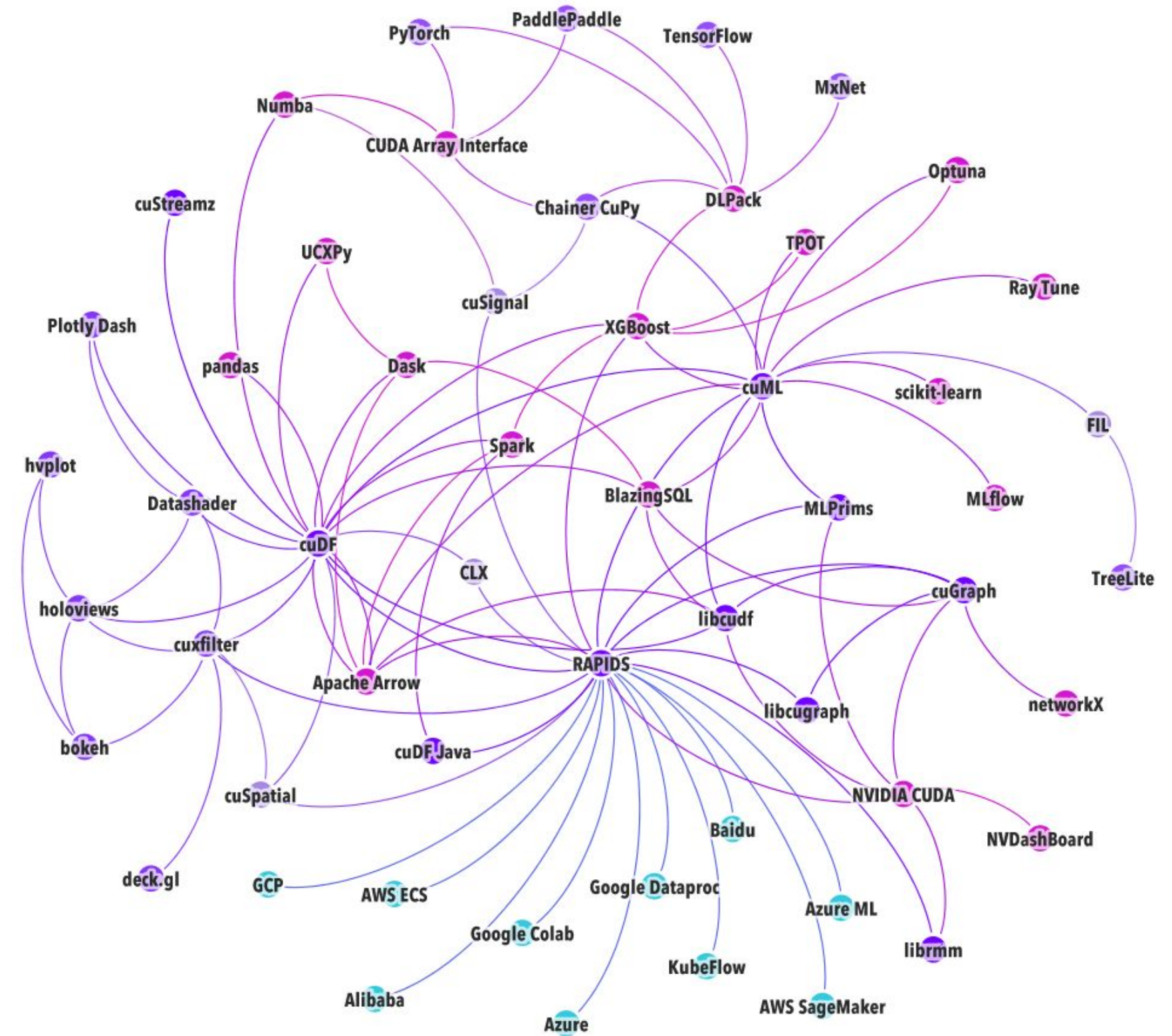


1x V100 vs. 2x 20 Core CPUs (DGX-1, RAPIDS 0.15)

RAPIDS Everywhere

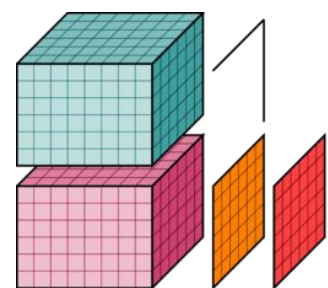
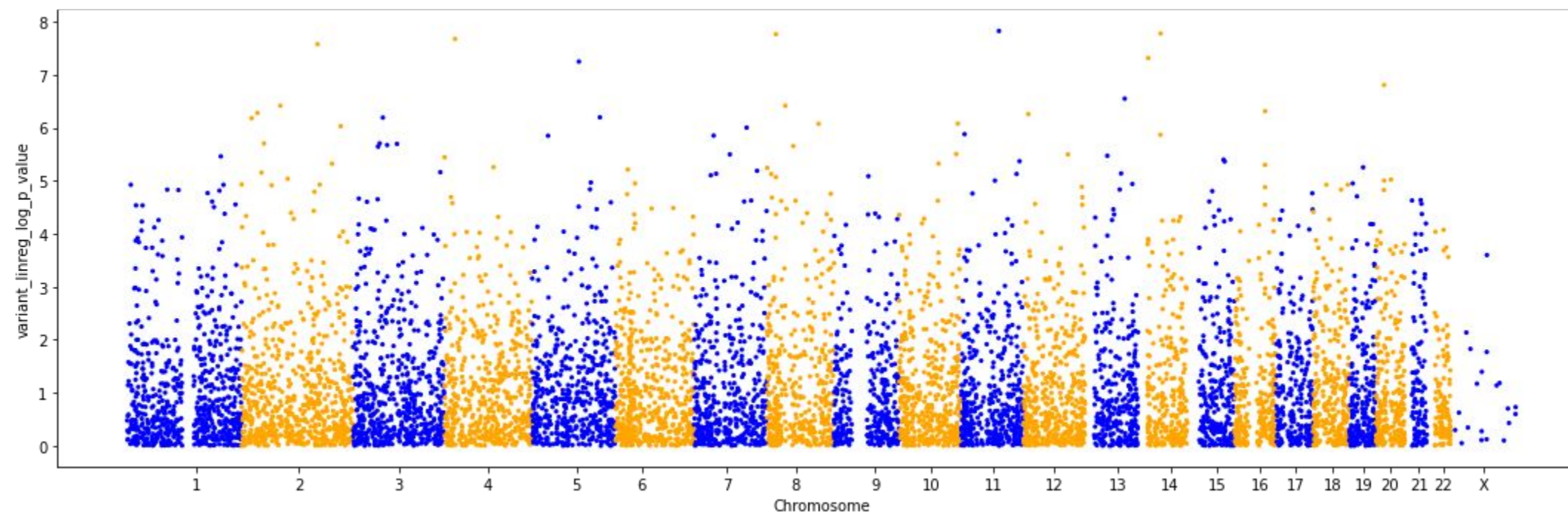
The Next Phase of RAPIDS

Exactly as it sounds—our goal is to make RAPIDS as usable and performant as possible wherever science is done. We will continue to work with more open source projects to further democratize acceleration and efficiency in science.

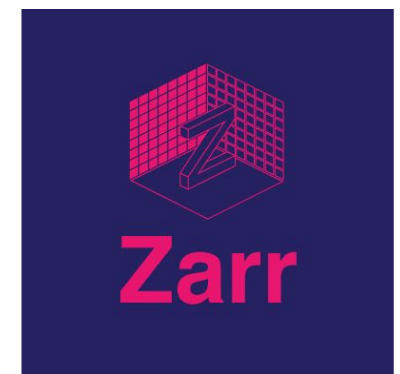




Statistical genetics toolkit in Python



xarray



Work with us

Everyone Can Help!



APACHE ARROW

<https://arrow.apache.org/>

 @ApacheArrow

RAPIDS

RAPIDS

<https://rapids.ai>

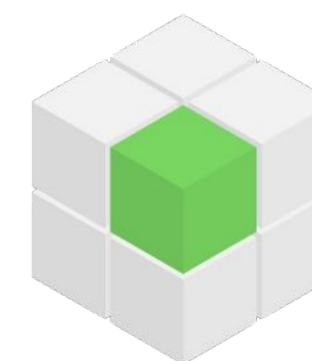
 @RAPIDSai



DASK

<https://dask.org>

 @Dask_dev



**GPU OPEN ANALYTICS
INITIATIVE**

<http://gpuopenanalytics.com/>

 @GPUOAI

Integrations, feedback, documentation support, pull requests, new issues, or code donations welcomed!

THANK YOU

Jacob Tomlinson

jtomlinson@nvidia.com

 [@_jacobtomlinson](https://twitter.com/_jacobtomlinson)

RAPIDS