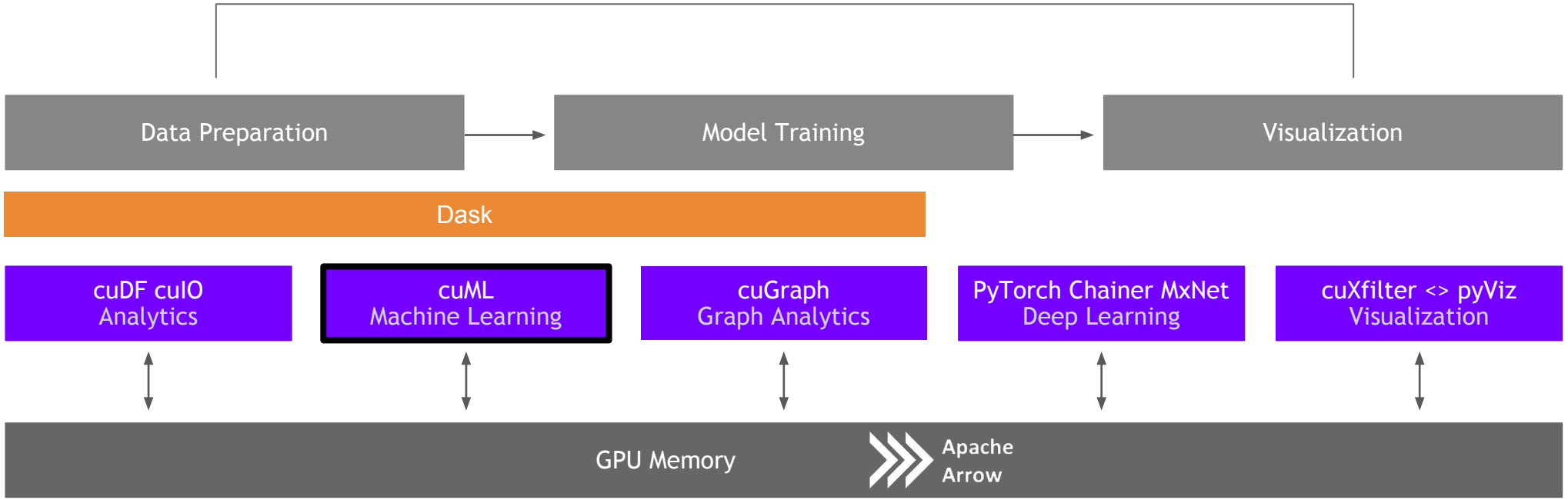
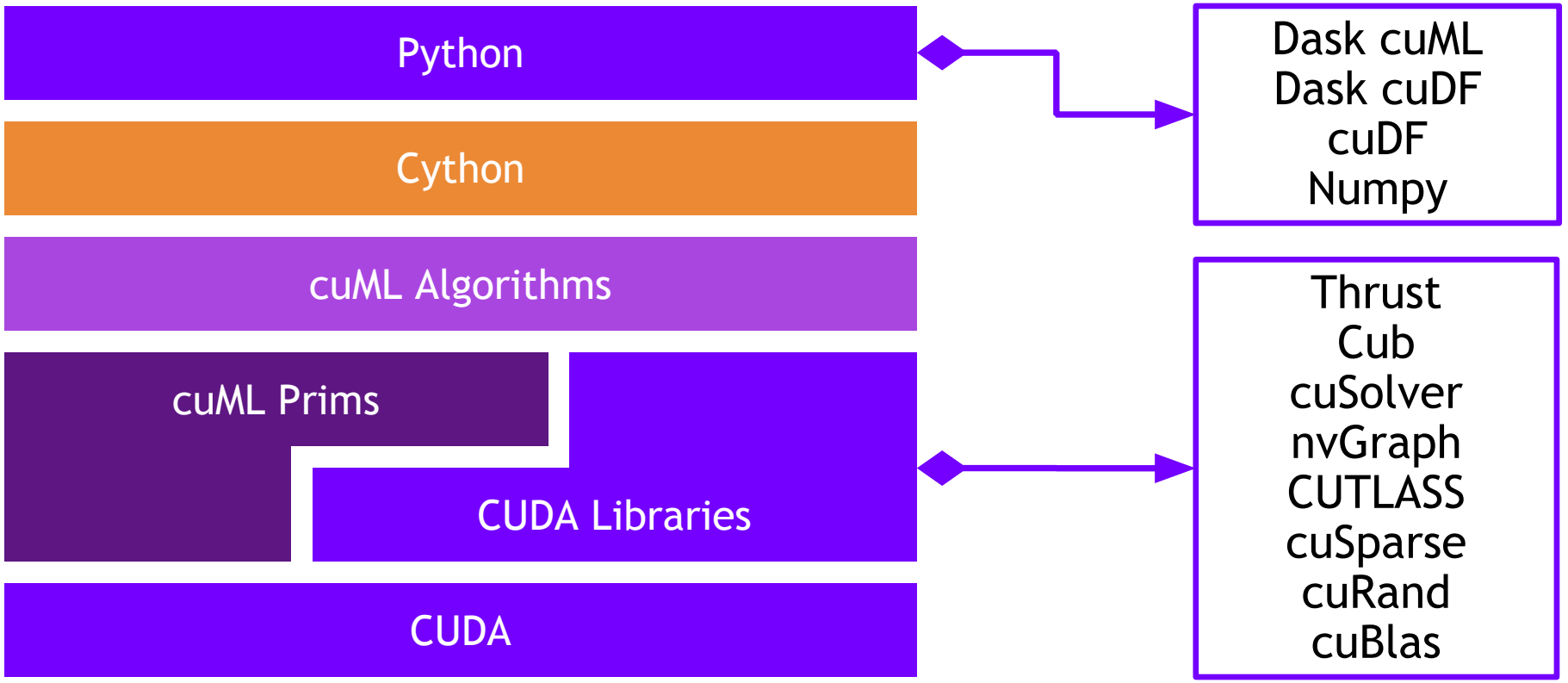
cuML

Machine Learning

More models more problems

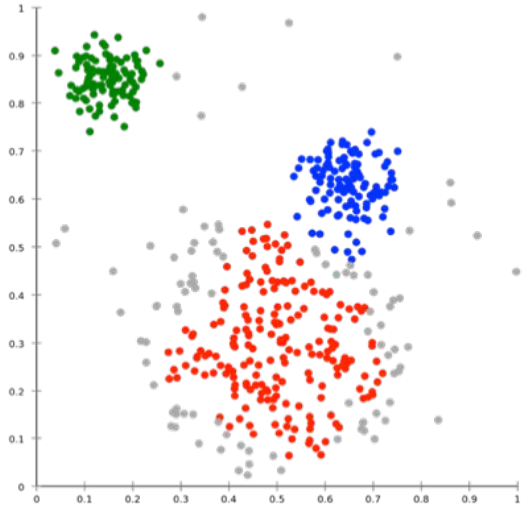


ML Technology Stack



Algorithms

GPU-accelerated Scikit-Learn



Cross Validation

Hyper-parameter Tuning

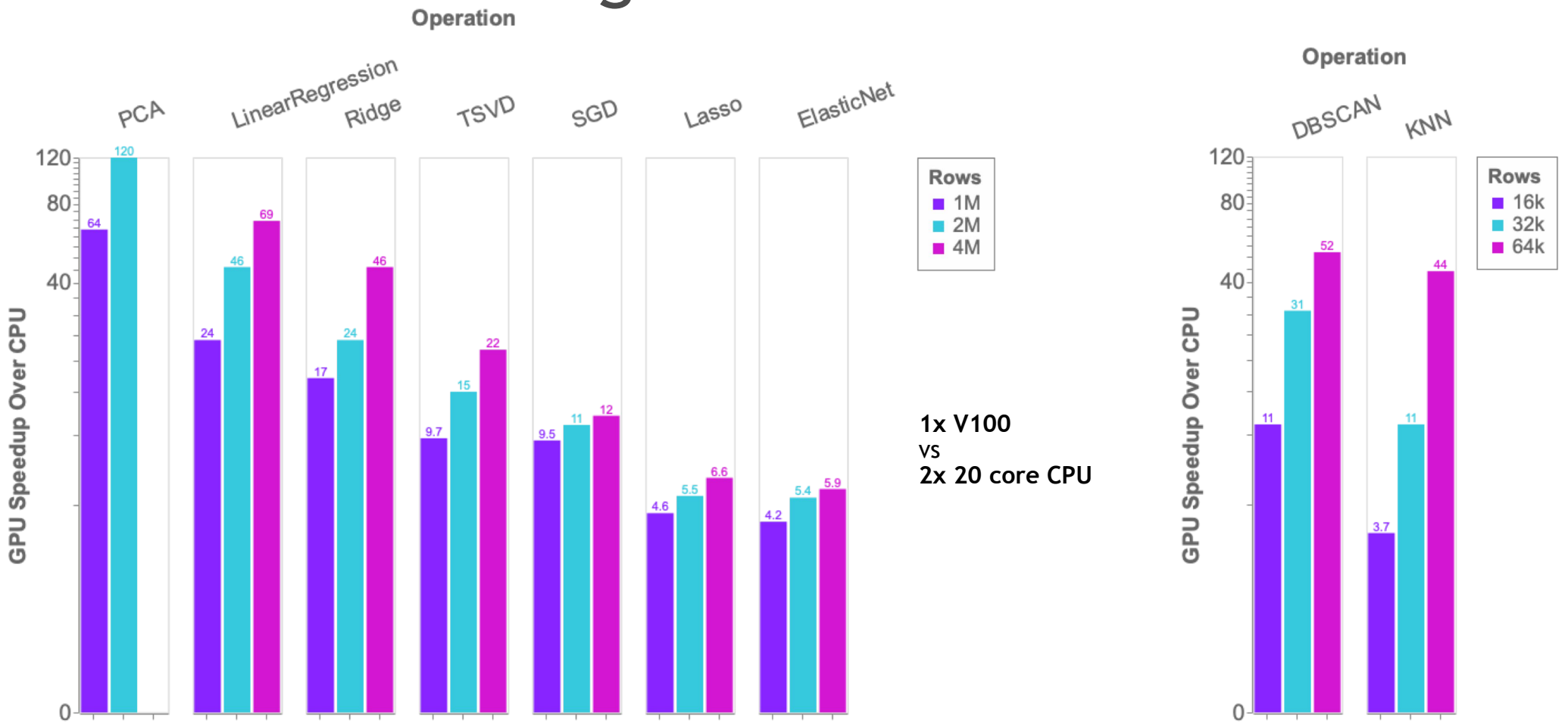
More to come!

Classification / Regression	Decision Trees / Random Forests Linear Regression Logistic Regression K-Nearest Neighbors
Inference	**Random forest / GBDT inference**
Clustering	K-Means DBSCAN Spectral Clustering
Decomposition & Dimensionality Reduction	Principal Components Singular Value Decomposition UMAP Spectral Embedding
Time Series	**Holt-Winters** Kalman Filtering

Key:

- Preexisting
- **NEW for 0.9**

Benchmarks: single-GPU cuML vs scikit-learn



Road to 1.0

August 2019 - RAPIDS 0.9

cuML	Single-GPU	Multi-GPU	Multi-Node-Multi-GPU
Gradient Boosted Decision Trees (GBDT)	■	■	■
GLM	■	■	
Logistic Regression	■		
Random Forest	■	■	■
K-Means	■	■	■
K-NN	■	■	
DBSCAN	■		
UMAP	■		
Holt-Winters	■		
Kalman Filter	■		
t-SNE	■		
Principal Components	■		
Singular Value Decomposition	■	■	

Road to 1.0

March 2020 - RAPIDS 0.14

cuML	Single-GPU	Multi-GPU	Multi-Node-Multi-GPU
Gradient Boosted Decision Trees (GBDT)			
GLM			
Logistic Regression			
Random Forest			
K-Means			
K-NN			
DBSCAN			
UMAP			
ARIMA & Holt-Winters			
Kalman Filter			
t-SNE			
Principal Components			
Singular Value Decomposition			