Computer Vision Made Simple

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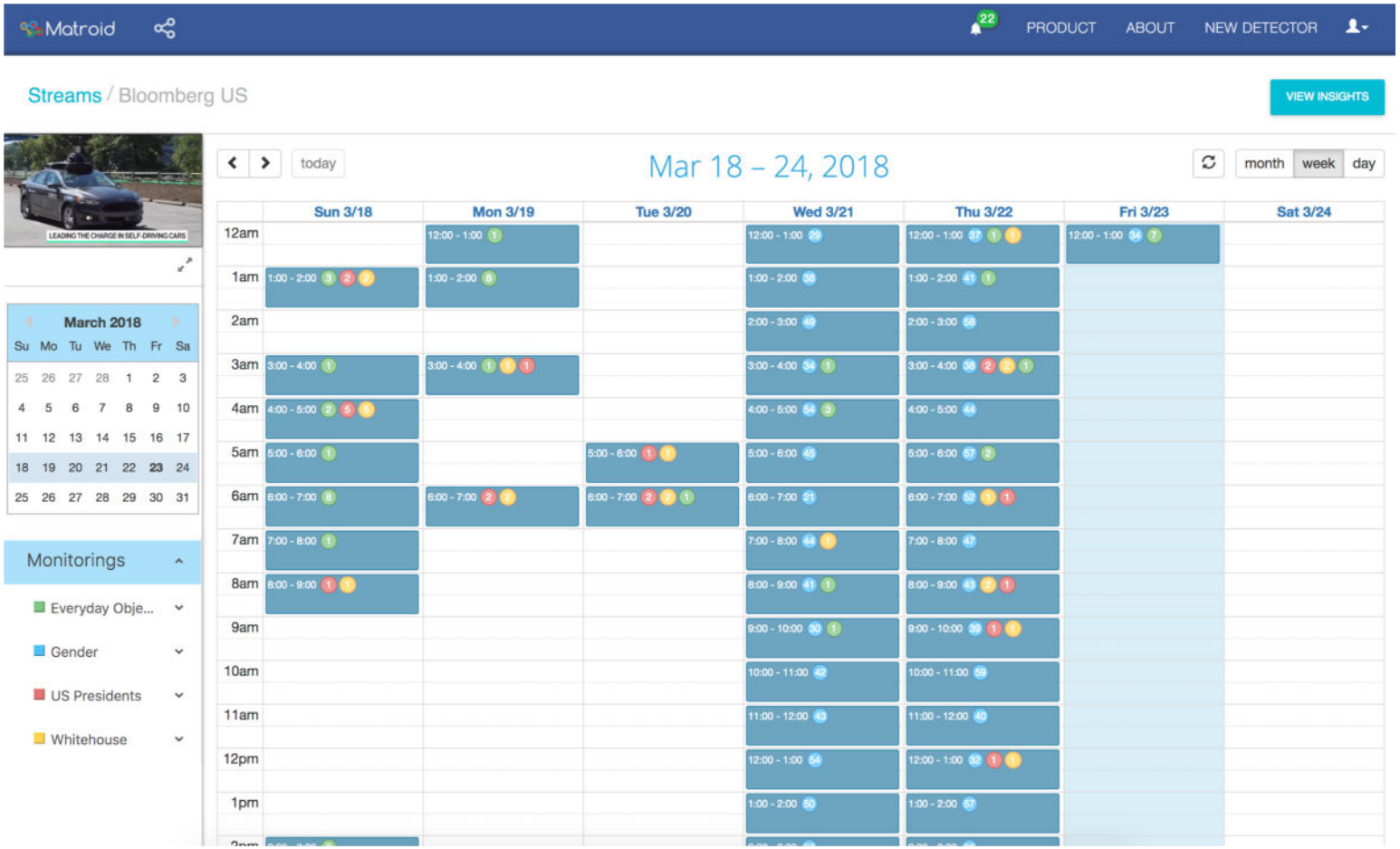
#scaledmlconf

Computer Vision Made Simple



Millions of detectors and streams as easy as this

Outline

Overview of Infrastructure

Matroid Live Demo

New Announcements

Overview of Infrastructure

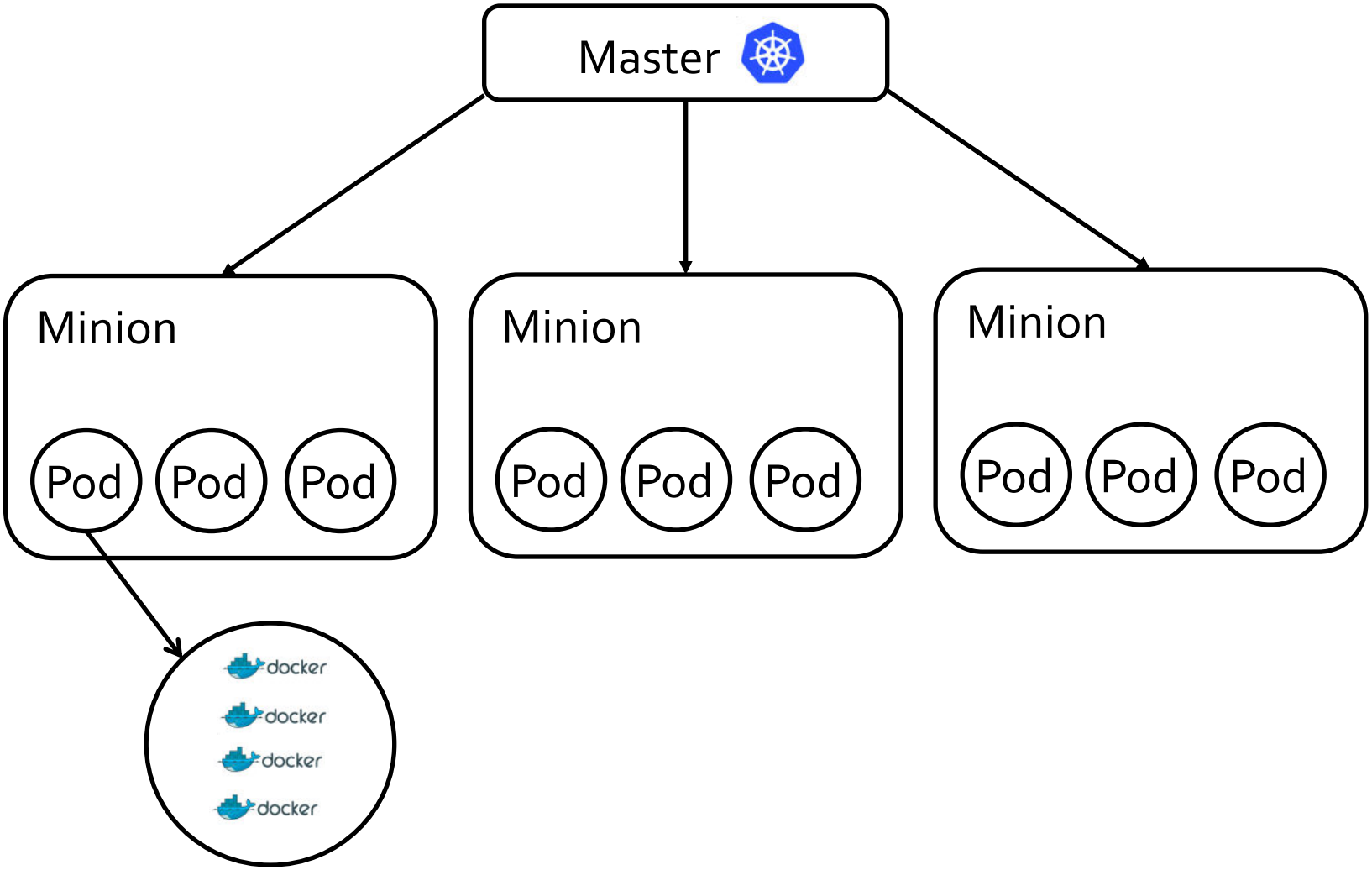
Kubernetes

Basic unit: Pod

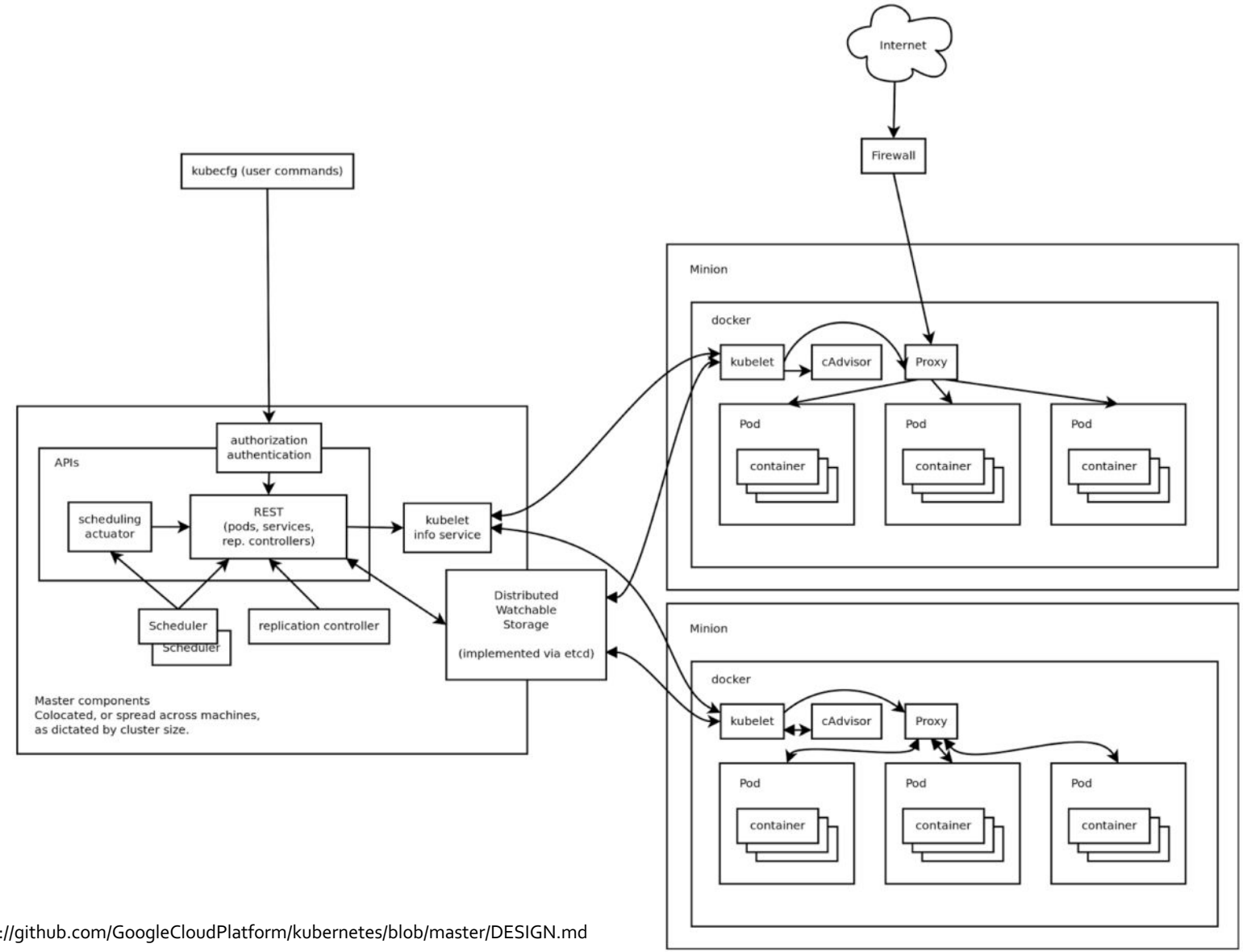
Pods contain one or more containers

Pods are scalable & fault tolerant by K8s

Kubernetes Simplified



Kubernetes Architecture



Source: https://github.com/GoogleCloudPlatform/kubernetes/blob/master/DESIGN.md

Matroid Kubernetes Pods

One pod for each of these services

Video Ingest

Each video stream is a kafka topic

Web Server

nginx routes HTTPS and RTMP

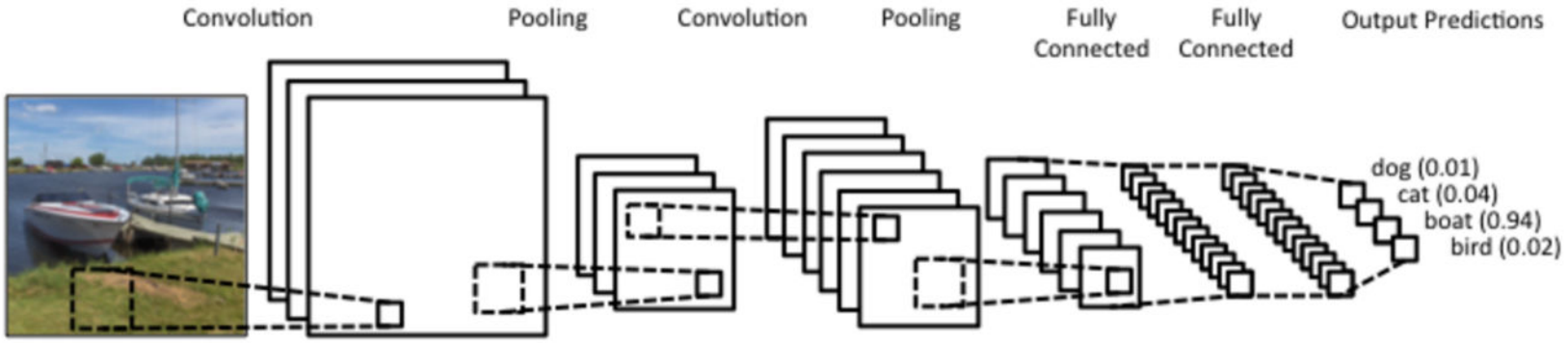
Training & Inference

Deep Learning framework from Google Brain

Happy coincidence: A Matroid is a generalization of a Tensor

Matroid incorporated Oct 2015
TensorFlow released Nov 2015

Convolutional Network



Slide a two-dimensional patch over pixels.

Specialized Chips we'll see presented today.

GPU Machines

Can ask Kubernetes to schedule a pod on a machine with dedicated GPU as of v1.5

Multi-GPU machine support added in v1.6

Auto-scaled based on load

Spot Prices

One pod is always watching out for workers that are going to be evicted because of Spot Instance marketplace

Brings them up as reserved instance if they are needed to handle load

Matroid

Product is a studio for creating and using “detectors”

Detectors are first class citizens in Matroid

Live Demo

Use Detectors

Create Detectors

Combine Detectors

Elements

A studio for creating and using detectors.

An ever-growing detector library.

Video player with Computer Vision core.

Tight feedback loop for detector iteration.

An extensive API and stream monitoring.

Work-sharing amongst users, with privacy.

Combining Detectors

Combine & chain detectors

Sliding detectors

Import TF Models

Improve on existing detectors

Auto-label with existing detectors

Free TensorFlow Model Hosting

Stream Monitoring

Ingestion support RTMP, RTSP, Snapshots, and many others

Same ingestion mechanism as Ustream, Twitch, Youtube Live, typical VMS, etc

Opened to all today – matroid.com/streams

Two new products

Camera Partner

Computer Vision solution for Intel Chips

Compress detector to fit on jointly-developed camera

Camera runs detectors onboard without internet

Matroid On-Prem

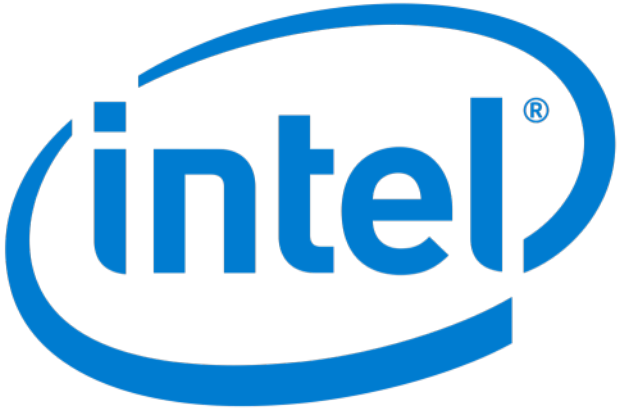
Workstation disconnected from the internet, runs Matroid webserver internally

Can monitor streams & make detectors, same as matroid.com

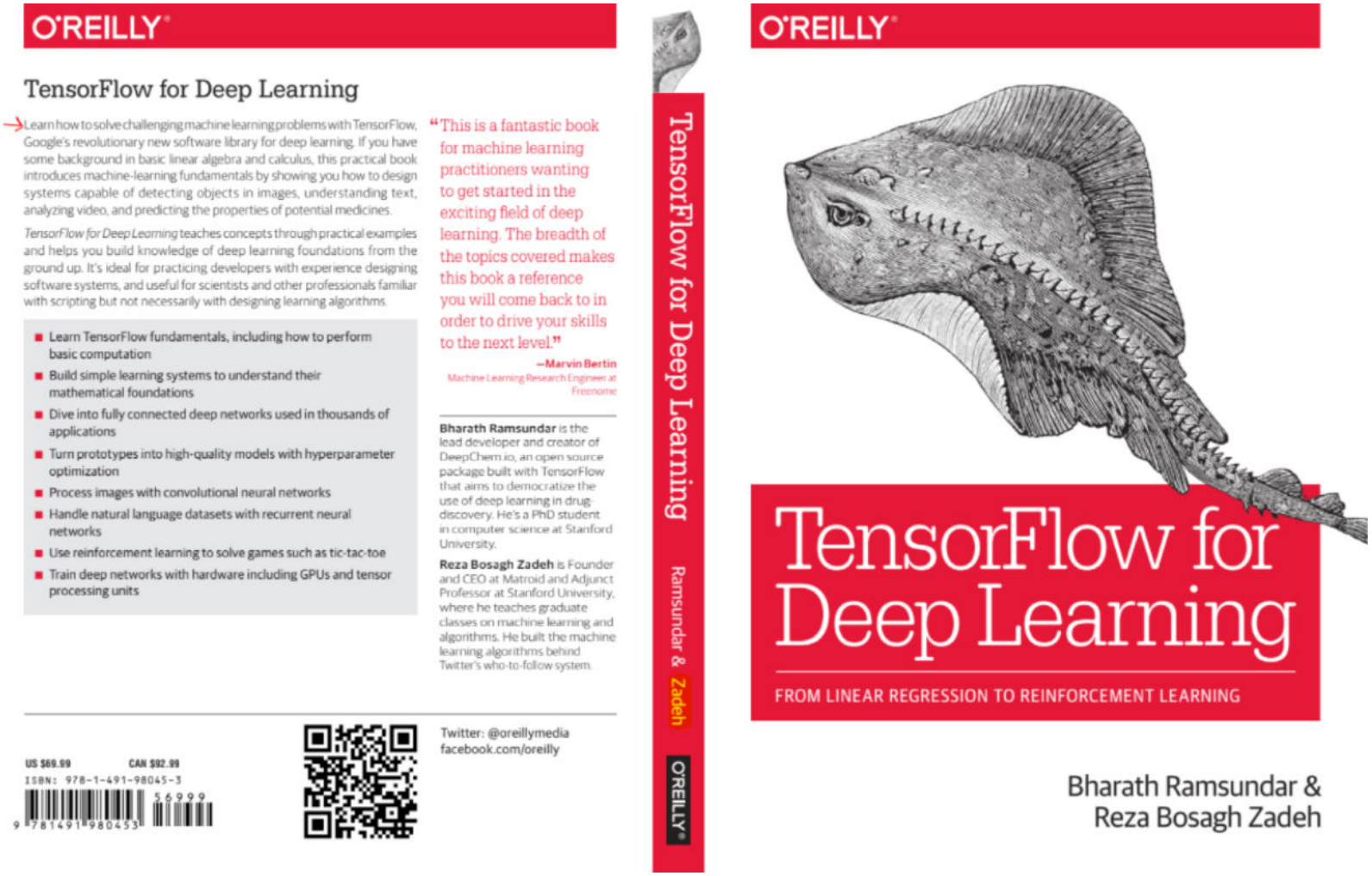
Great for cost-sensitive and privacy-conscious users

Matroid

$13.5 million in funding from world-class partners



Open Source Contributions



Thanks to

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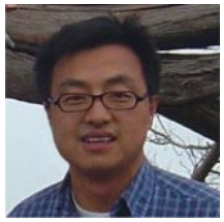


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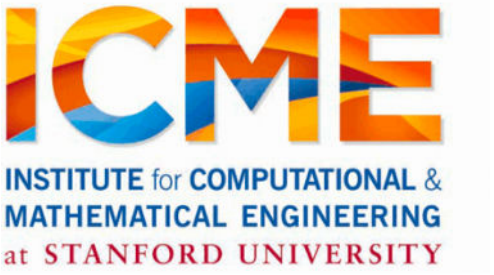

Thank you for your attention

Available right now on matroid.com