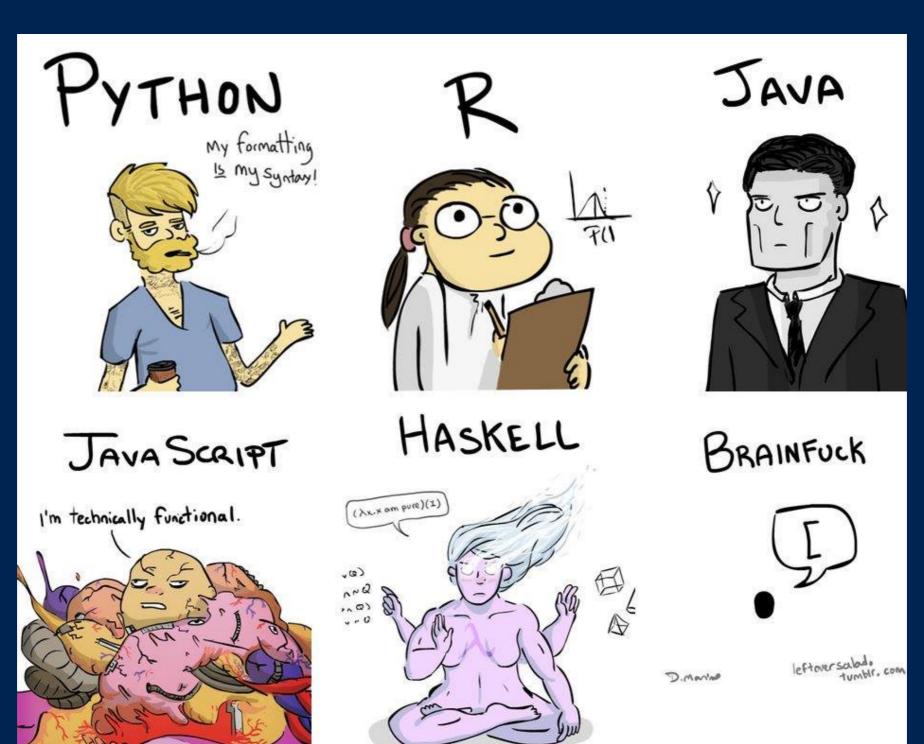
# tensorflow.js at the edge

by brett koonce oct 30th, 2018

#### overview

- javascript: the once and future language
- what's happened the past few months
- tensorflow.js + cloudflare demo

## javascript



## platform

- 0) cpu + tools (math)
- 1) basic vm's (juypter notebook)
- 2) cloud software (unix)
- 3) edge (mobile/embedded)
- 4) custom hardware (fp16, int8, ...)

## OF THE PRINCESS!

HOW TO SAVE THE PRINCESS USING 8 PROGRAMMING LANGUAGES

Goon Squad







#### welcome to the jungle

- no other language evolves at the speed of javascript
- my guesstimate: three months/ generation
- value of each new generation: rand(n)
- apple is ? 1 year generations ahead

## five easy pieces

- storage.googleapis.com/tfjs-examples/mnist/ dist/index.html
- modeldepot.github.io/tfjs-yolo-tiny-demo/
- magenta.tensorflow.org/js-announce
- · poloclub.github.io/ganlab/
- blog.mgechev.com/2018/10/20/transfer-learningtensorflow-js-data-augmentation-mobile-net/

### astronet

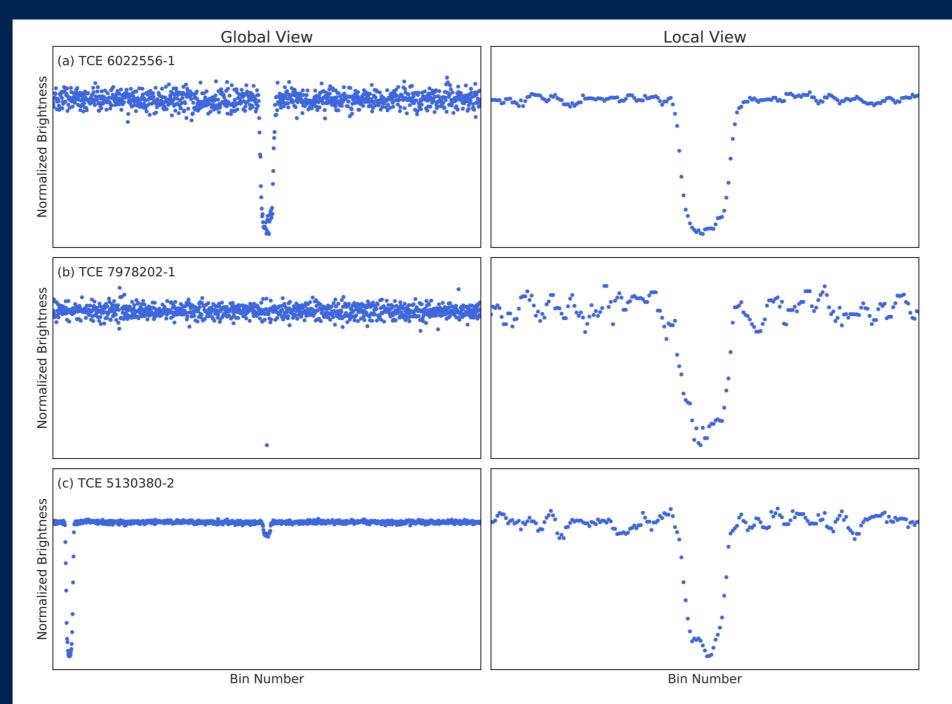


Fig. 3.— Light curve representations that we use as inputs to our neural network models. The "global view" is a fixed-length representation of the entire light curve, and the "local view" is a fixed-length representation of a window around the detected transit. (a) Strong planet candidate. (b) Long-period planet where the transit falls into just one bin in the global view. (c) Secondary eclipse that looks like a planet in the local view.

#### elsewhere

- turing, cuda 10
- pytorch, fastai 1.0
- tf 1.11, eager execution, tf2
- iOS 12 launched

## javascript 0



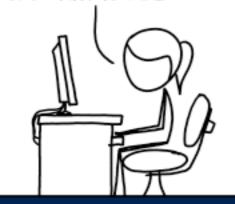
IT'S LIKE YOU RAN OCR ON A PHOTO OF A SCRABBLE BOARD FROM A GAME WHERE JAVASCRIPT RESERVED WORDS COUNTED FOR TRIPLE POINTS.



IT LOOKS LIKE SOMEONE
TRANSCRIBED A NAVAL WEATHER
FORECAST WHILE WOODPECKERS
HAMMERED THEIR SHIFT KEYS,
THEN RANDOMLY INDENTED IT.



IT'S LIKE AN E E CUMMINGS
POEM URITTEN USING ONLY
THE USERNAMES A WEBSITE
SUGGESTS WHEN THE ONE
YOU WANT IS TAKEN.



THIS LOOKS LIKE THE OUTPUT OF A MARKOV
BOT THAT'S BEEN FED BUS TIMETABLES FROM
A CITY WHERE THE BUSES CRASH CONSTANTLY.

WHATEVER, IT RUNS FINE FOR NOW.

SO DOES A
BURNING BUS.

#### demo

- tensorflow.js + mobilenets
- cloud worker server
- cloudflare proxy worker
- serverless deploy

#### urls

- jamesthom.as/blog/2018/08/13/ serverless-machine-learning-withtensorflow-dot-js/
- developers.cloudflare.com/workers/
- · github.com/cloudflare/worker-examples
- quarkworks.co