

Sponsors



NanoHop

React Indy

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Sponsors



NanoHop



Intros

Presentations

Chris Achard

Deep Learning + React Native

Deep Learning + React Native

- React Native crash course
- Deep Learning crash course
- Not Hotdog
- sketch-to-react-native

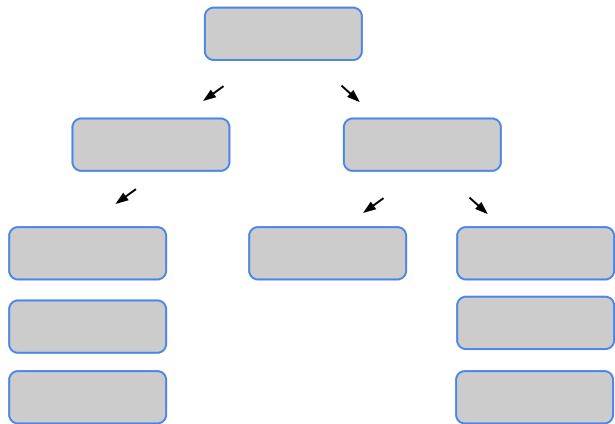
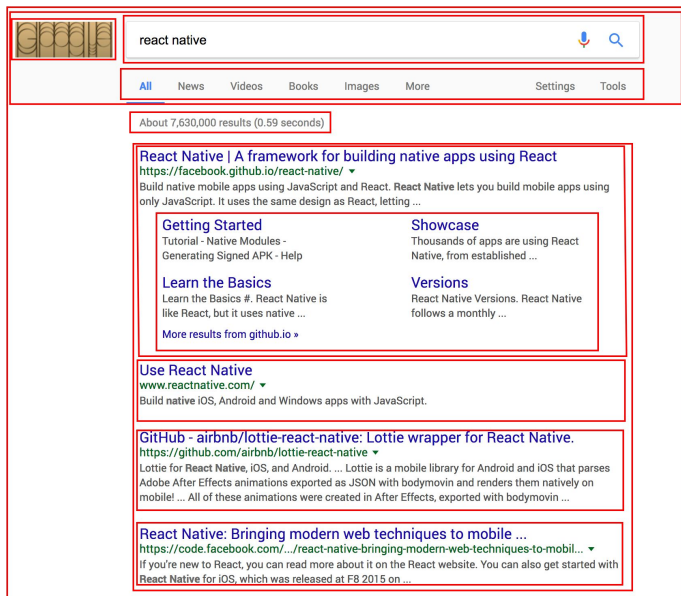
Survey:

**Deep Learning?
React Native?**

React Native

What is React? - Part 1: Components

- UIs can be broken into a tree of components



What is React? - Part 2: Data Driven

- How a component looks at any point can be determined by external data (**props**) and internal state (**state**)

Props

```
{  
  from: "me",  
  subject: "React Native",  
  body: "Test email...",  
  sent_at: "12:36 pm"  
}
```

State

```
{  
  selected: false  
  starred: false  
}
```

☐ ☆ 🟡 me

React Native - Test email...

12:36 pm

What is React? - Part 3: Automatic Updates

- Changing state or props automatically re-renders the component

Props

```
{  
  from: "me",  
  subject: "React Native",  
  body: "Test email...",  
  sent_at: "12:36 pm"  
}
```

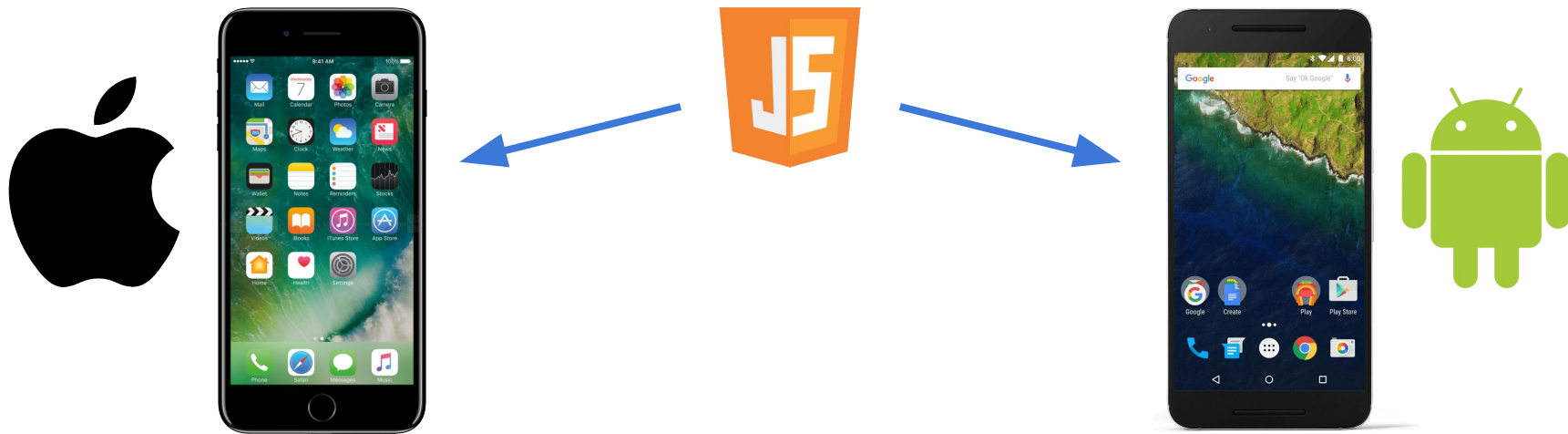
State

```
{  
  selected: true  
  starred: false  
}
```

React Native

<https://facebook.github.io/react-native/>

- Build native mobile apps using JavaScript and React



Framework Comparison



Getting Started

Getting Started

This page will help you install and build your first React Native app. If you already have React Native installed, you can skip ahead to the [Tutorial](#).

Quick Start

Building Projects with Native Code

Create [React Native App](#) is the easiest way to start building a new React Native application. It allows you to start a project without installing or configuring any tools to build native code - no Xcode or Android Studio installation required (see [Caveats](#)).

Assuming that you have [Node](#) installed, you can use npm to install the `create-react-native-app` command line utility:

```
npm install -g create-react-native-app
```

Then run the following commands to create a new React Native project called "AwesomeProject":

```
create-react-native-app AwesomeProject  
  
cd AwesomeProject  
npm start
```

This will start a development server for you, and print a QR code in your terminal.

Running your React Native application

Install the [Expo](#) client app on your iOS or Android phone and connect to the same

<https://facebook.github.io/react-native/docs/getting-started.html>

Render

```
render() {  
  return (  
    <View style={{flex: 1}}>  
      <Image source={logoImage} style={{height: 120, width: 120}} />  
      <Text style={{fontSize: 12, color: '#ffffff'}} >  
        Hello World!  
      </Text>  
      <TouchableOpacity onPress={this.sayHello}>  
        <Text>Say Hello!</Text>  
      </TouchableOpacity>  
    </View>  
  )  
}
```

Styles and Flexbox

```
import { StyleSheet } from 'react-native';

...

const styles = StyleSheet.create({
  root: {
    flex: 1,
    justifyContent: 'center'
  },
  buttonText: {
    color: 'rgba(0,0,0,0)',
    fontSize: 20
  }
});
```

Platform Specific

```
import {  
  Platform  
} from 'react-native';  
  
...  
  
headerText: {  
  fontSize: (Platform.OS === 'ios' ? 20 : 24),  
  marginBottom: 10,  
  padding: 5  
}
```

Native Features

```
import Camera from 'react-native-camera';

...

<View style={styles.container}>
  <Camera
    ref={(cam) => {
      this.camera = cam;
    }}
    style={styles.preview}
    aspect={Camera.constants.Aspect.fill}>
    <Text style={styles.capture} onPress={this.takePicture}>
      [CAPTURE]
    </Text>
  </Camera>
</View>
```

In Practice

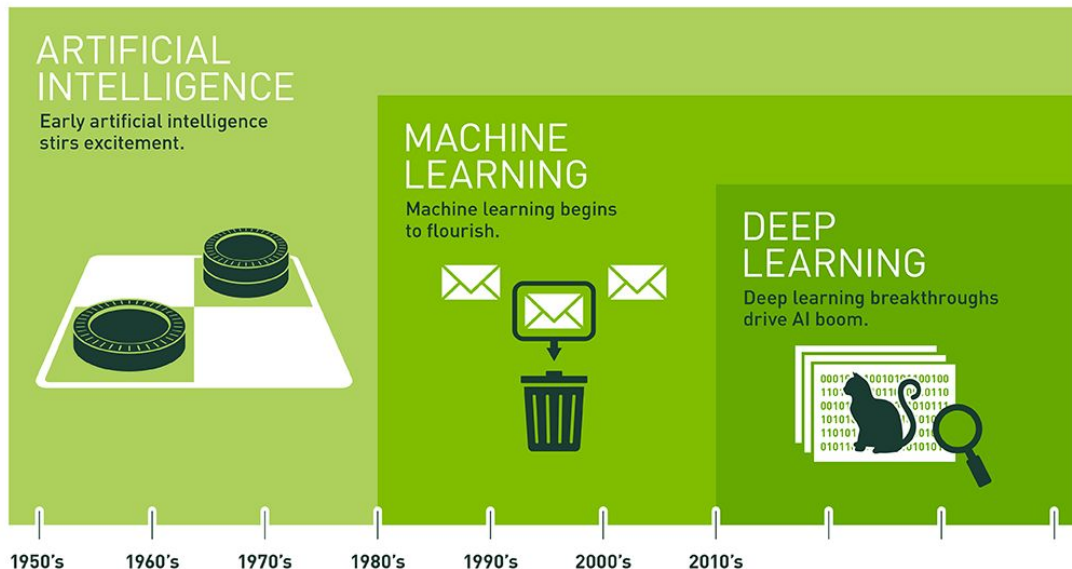
- 90% code sharing between iOS and Android
 - Modules contain code for each platform
 - Styles are biggest difference
 - Performance is great for “reasonable” use cases
 - Sometimes have to work around edge cases
 - Perfect for most business applications
 - Fetching from server, showing a list, text input
 - Look for npm modules
 - If you want to do it, it probably exists as a module
-

More Info

- <https://facebook.github.io/react-native/>
 - Search youtube for “React conf”
 - <https://www.youtube.com/watch?v=7HSd1sk07uU&list=PLb0IAmt7-GS3fZ46IGFirdqKTlxlws7e0>
-

Deep Learning

AI vs Machine Learning vs Deep Learning



Since an early flush of optimism in the 1950s, smaller subsets of artificial intelligence – first machine learning, then deep learning, a subset of machine learning – have created ever larger disruptions.

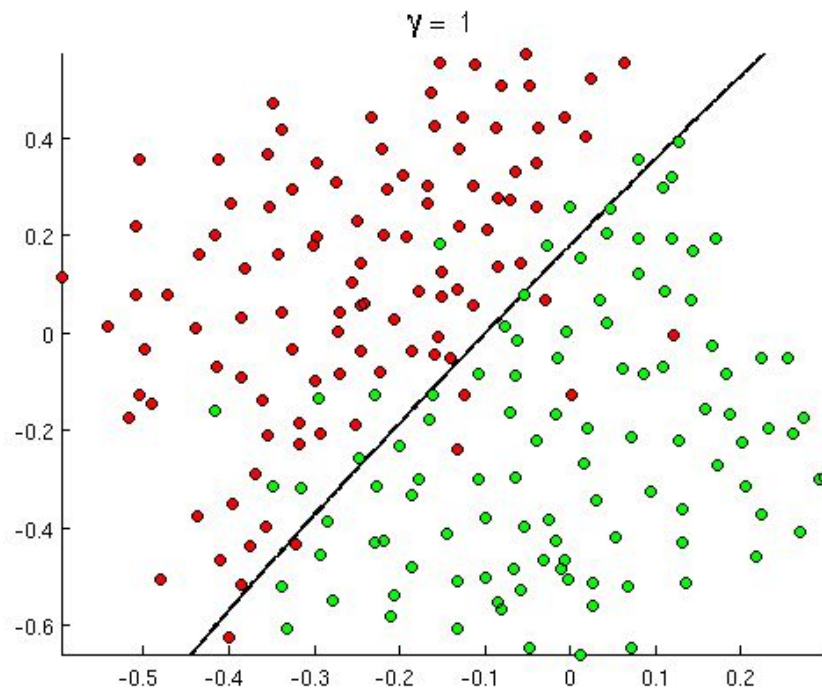
What is it good for?

- Anything a human can do in < 1 second
 - “This is a cat”
 - Predicting the next thing in a sequence:
 - “The apple is rotten. It is not good to _____”
-

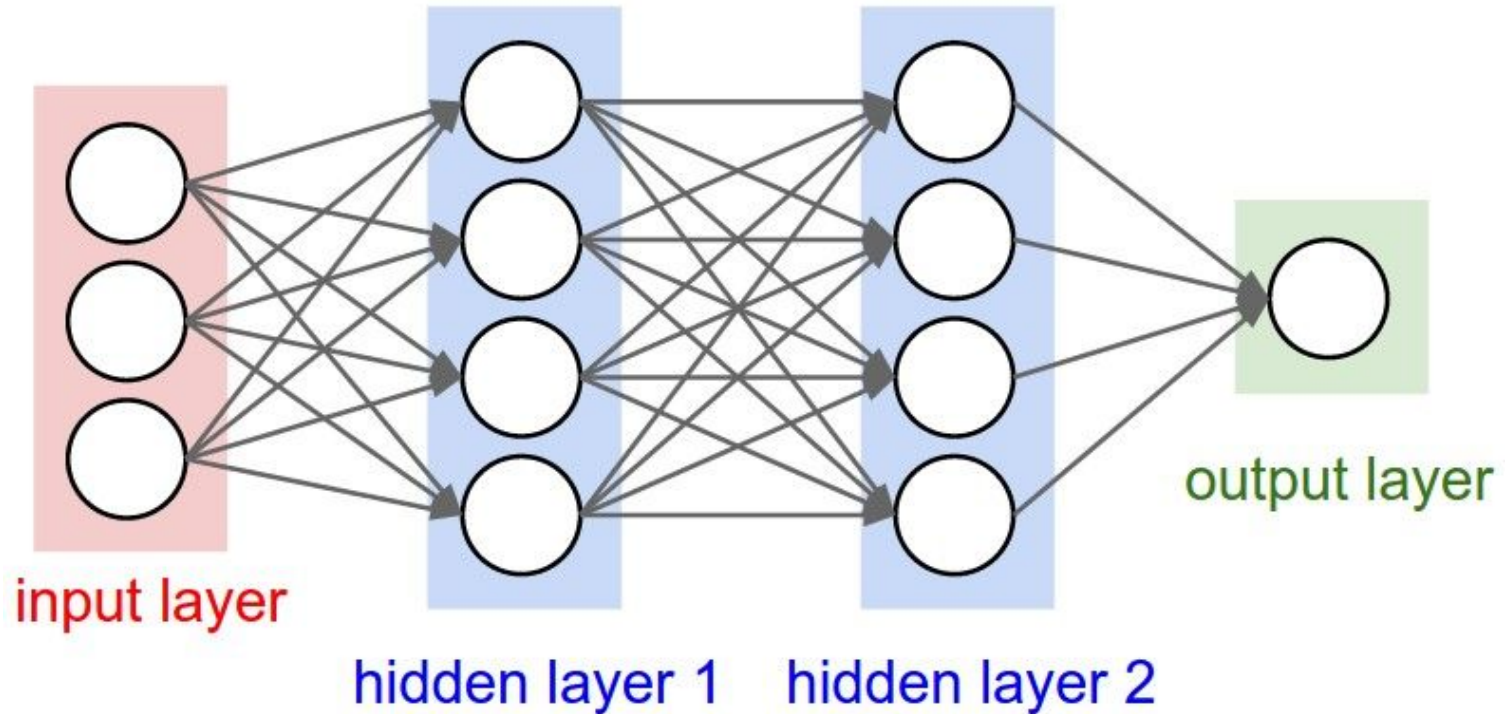
Cat or Dog?



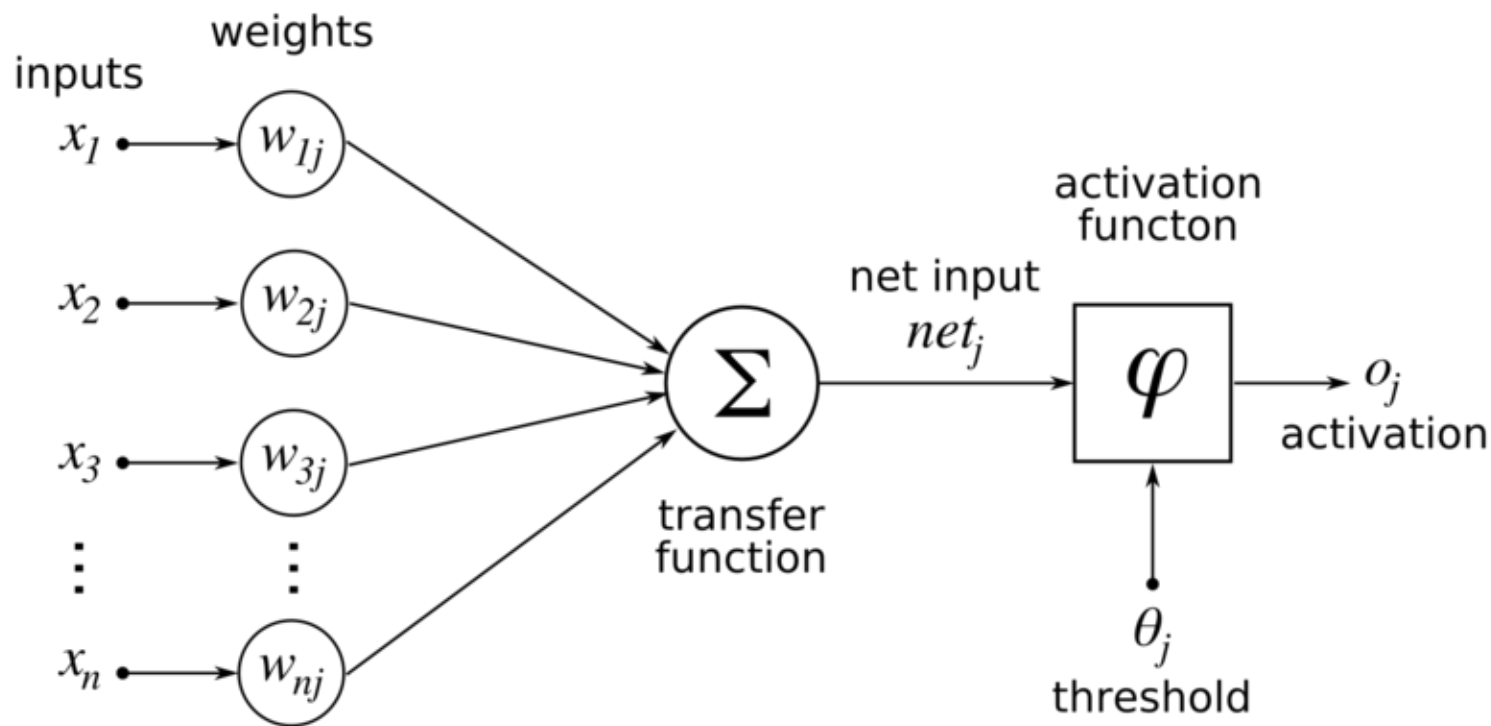
Linear Regression



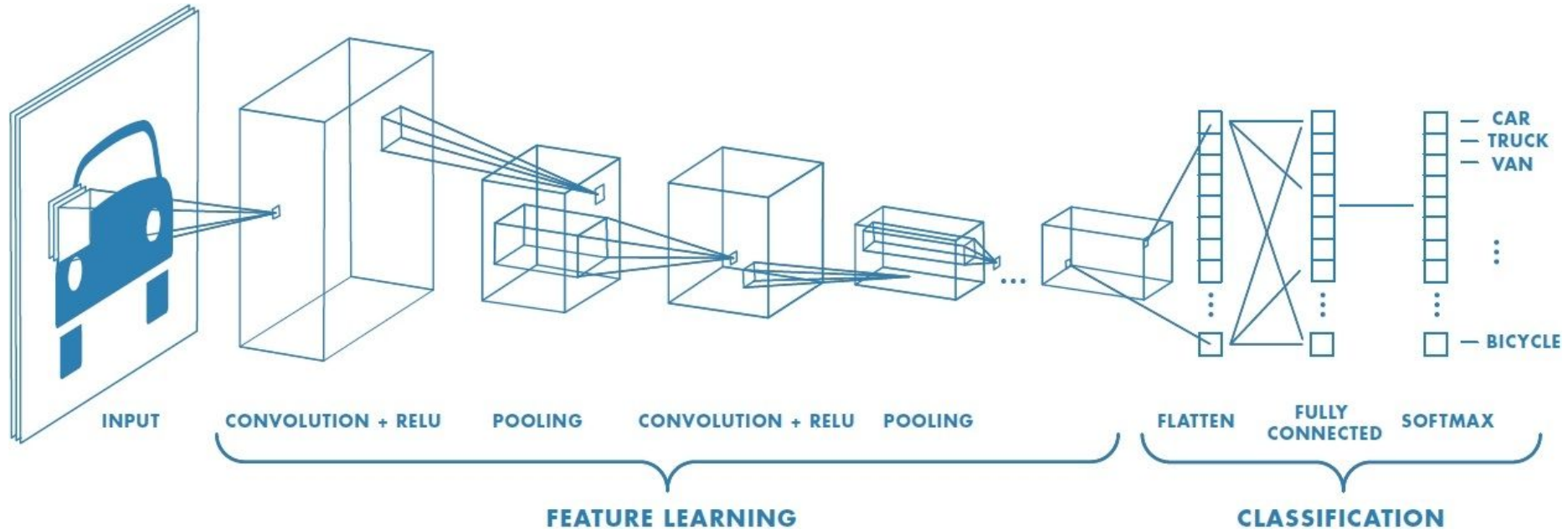
Neural Network



Neuron



Convolutional Neural Net



More Info

- Tensorflow for poets
 - <https://codelabs.developers.google.com/codelabs/tensorflow-for-poets/#0>
 - Fast.ai (practical): <http://www.fast.ai/>
 - Andrew Ng's coursera deep learning course (math)
 - <https://www.coursera.org/specializations/deep-learning>
 - Stanford classes on youtube
 - Two Minute Papers:
 - <https://www.youtube.com/user/keeroyz/videos>
-

Not Hotdog

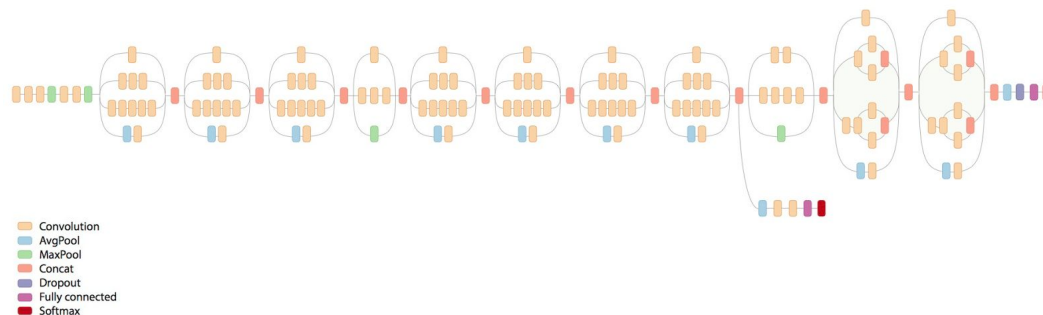
Silicon Valley

<https://www.youtube.com/watch?v=ACmydtFDTGs>

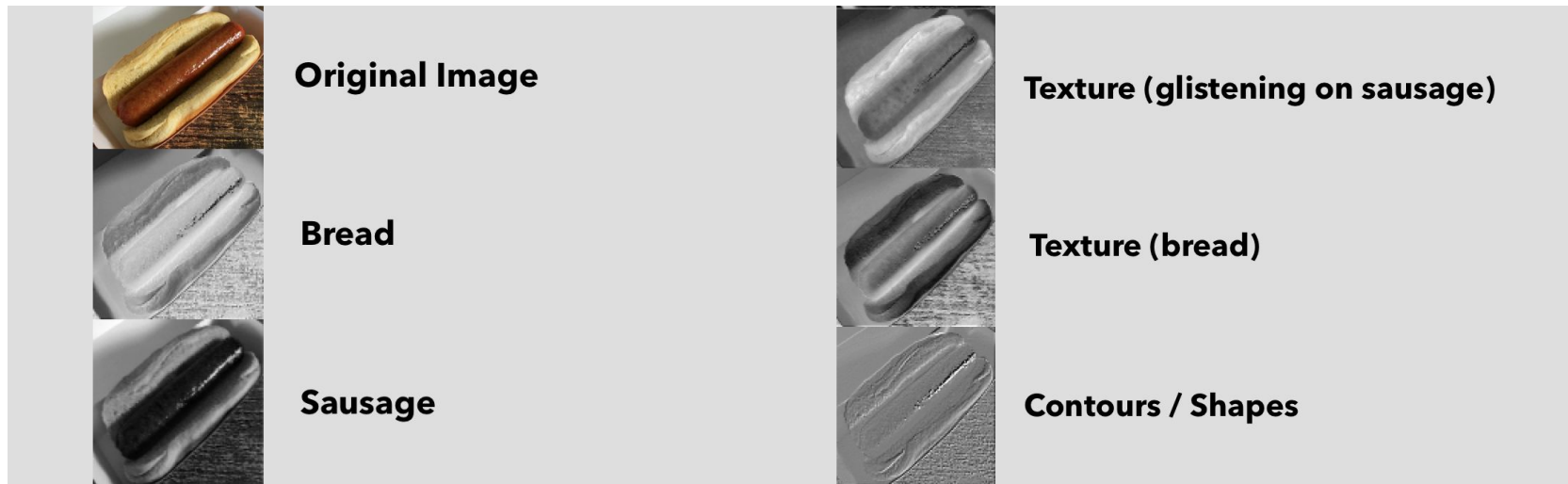
<https://medium.com/@timanglade/how-hbos-silicon-valley-built-not-hotdog-with-mobile-tensorflow-keras-react-native-ef03260747f3>

Training Data

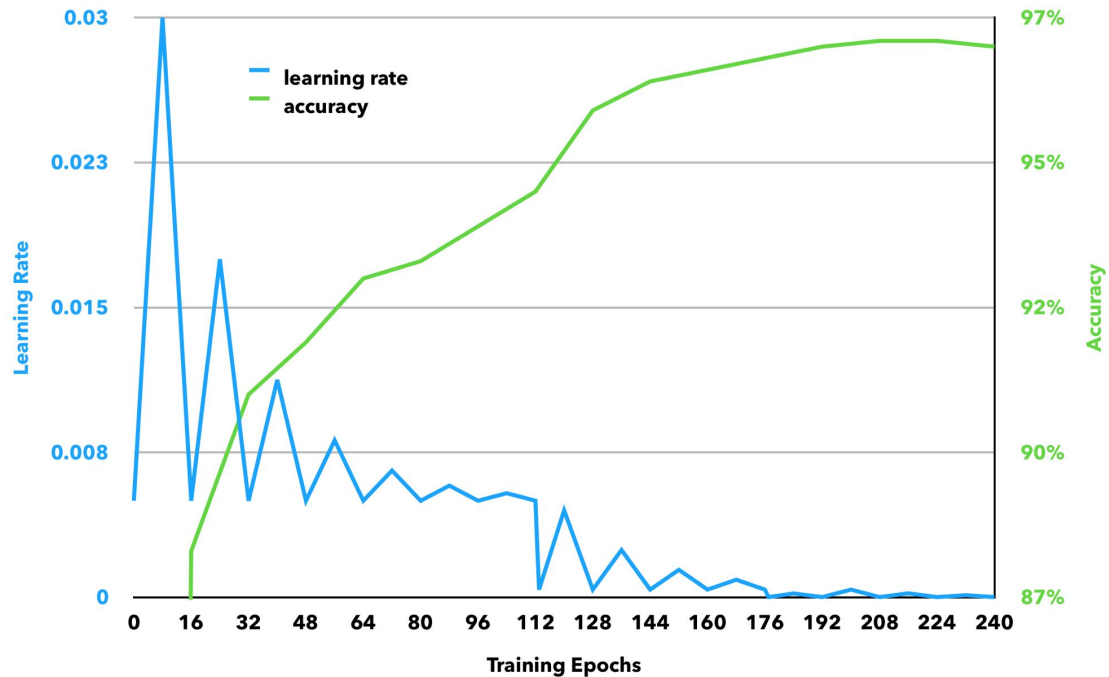
- 150k images, 3k images of hotdogs
- Data augmentation (rotation, skew, etc)
- Started with Google's Inception



Hotdog parts - how the neural net sees it



Training Accuracy



Machine Learning on iOS

- Google's cloud vision API
 - <https://cloud.google.com/vision/>
 - Running your own neural net server
 - <https://codelabs.developers.google.com/codelabs/tensorflow-for-poets>
 - Tensorflow embedded
 - <https://www.tensorflow.org/mobile/>
 - Using code push to push new neural nets!
-

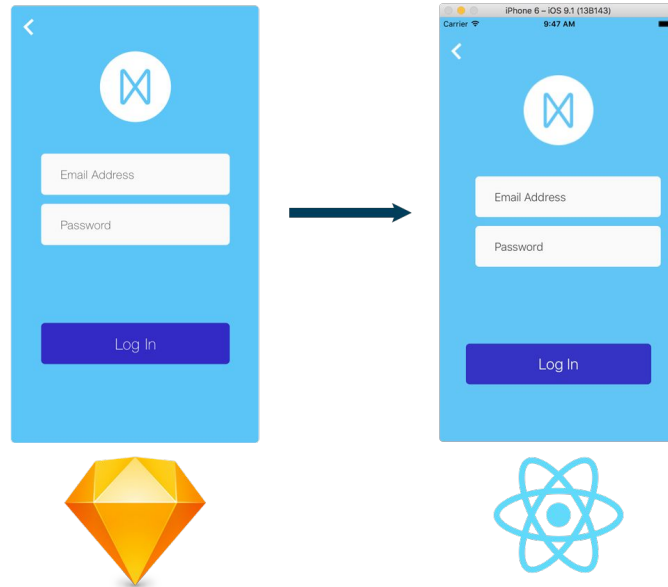
Device Considerations

CNN architecture	Compression Approach	Data Type	Original → Compressed Model Size	Reduction in Model Size vs. AlexNet	Top-1 ImageNet Accuracy	Top-5 ImageNet Accuracy
AlexNet	None (baseline)	32 bit	240MB	1x	57.2%	80.3%
AlexNet	SVD (Denton et al., 2014)	32 bit	240MB → 48MB	5x	56.0%	79.4%
AlexNet	Network Pruning (Han et al., 2015b)	32 bit	240MB → 27MB	9x	57.2%	80.3%
AlexNet	Deep Compression (Han et al., 2015a)	5-8 bit	240MB → 6.9MB	35x	57.2%	80.3%
SqueezeNet (ours)	None	32 bit	4.8MB	50x	57.5%	80.3%
SqueezeNet (ours)	Deep Compression	8 bit	4.8MB → 0.66MB	363x	57.5%	80.3%
SqueezeNet (ours)	Deep Compression	6 bit	4.8MB → 0.47MB	510x	57.5%	80.3%

sketch-to-react-native

Open Source

- <https://github.com/nanohop/sketch-to-react-native>



Initial Results

December 2016

S	M	T	W	T	F	S
27	28	29	30	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Tasks today

- ☐ Send prototype of the web app to dev

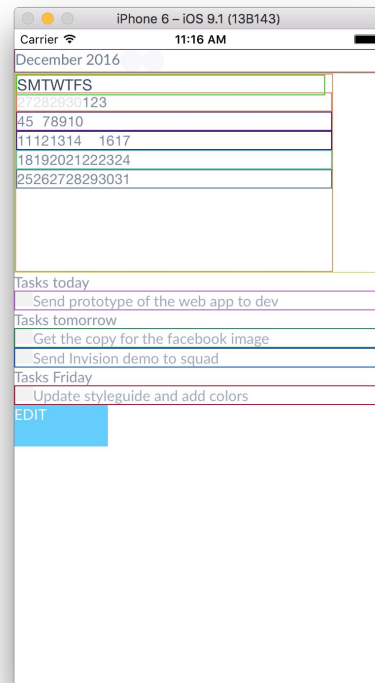
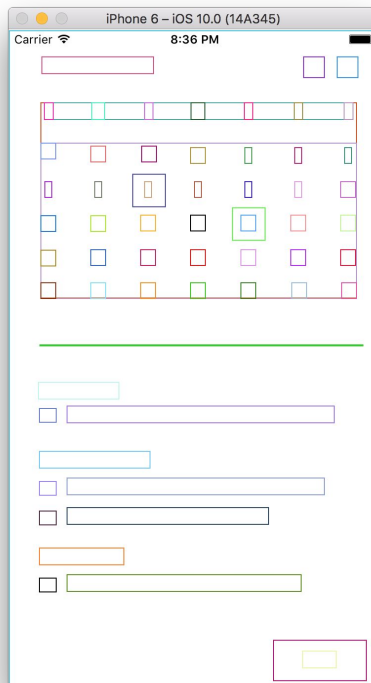
Tasks tomorrow

- ☐ Get the copy for the facebook image
- ☐ Send Invasion demo to squad

Tasks Friday

- ☐ Update styleguide and add colors

EDIT



Neural Net?

December 2016

S	M	T	W	T	F	S
27	28	29	30	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Tasks today

- ☐ Send prototype of the web app to dev

Tasks tomorrow

- ☐ Get the copy for the facebook image
- ☐ Send Invision demo to squad

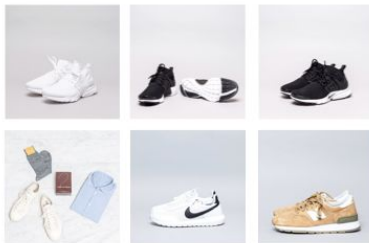
Tasks Friday

- ☐ Update styleguide and add colors

EDIT

PHOBOS 4:21 PM 22%
cart

@mercatusstore



#Yourmercatus



9:41

Que

Most popular

People

Boards

You might look for

Que sadilla recipes

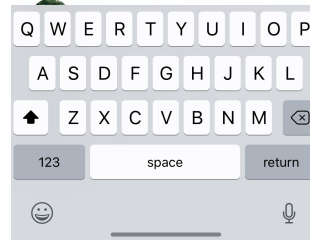
Que en quotes

Que en of hearts costume

Que so dip

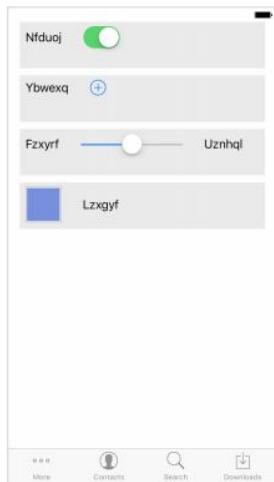
Que en

People



All AI

- <https://github.com/tonybeltramelli/pix2code>



(a) iOS GUI screenshot

```
stack {  
  row {  
    label, switch  
  }  
  row {  
    label, btn-add  
  }  
  row {  
    label, slider, label  
  }  
  row {  
    img, label  
  }  
}  
footer {  
  btn-more, btn-contact, btn-search, btn-download  
}
```

(b) Code describing the GUI written in our DSL

Figure 2: An example of a native iOS GUI written in our markup-like DSL.

The Future (maybe)

