

PowerAI Vision and iOS

Chris Parsons

@chrisparsonsdev



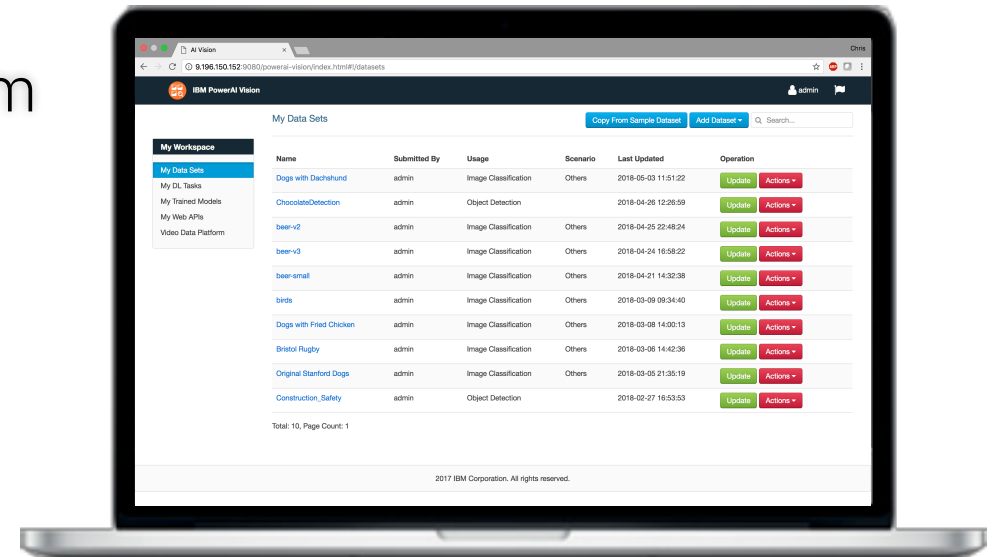
Agenda

- Why?
- AI Vision
- iOS 101
- Considerations
- Demo

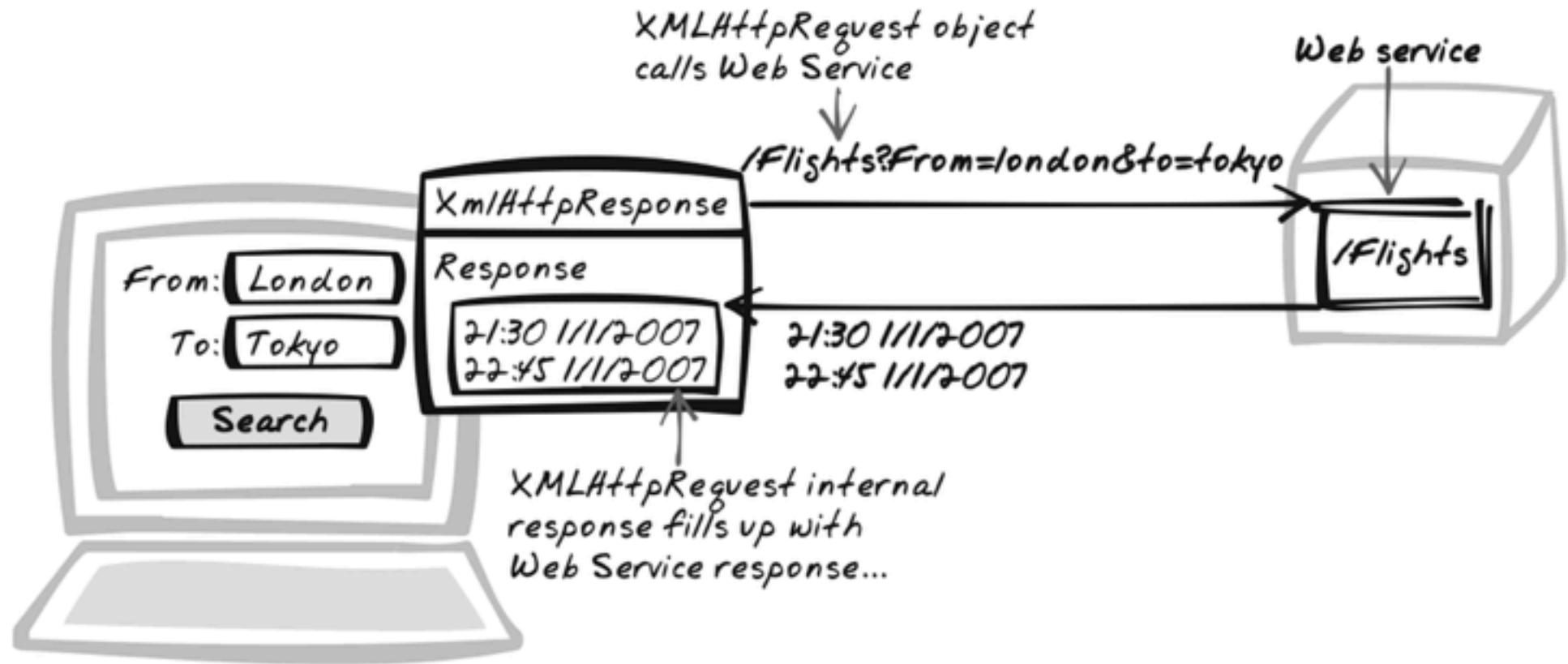


PowerAI Vision

- Automatically build Image Classification and Object Detection models
- Makes the data science easy!
- Curate datasets and train on one platform
- Easily deploy models as a web API
- Handles video and image workloads



XHR

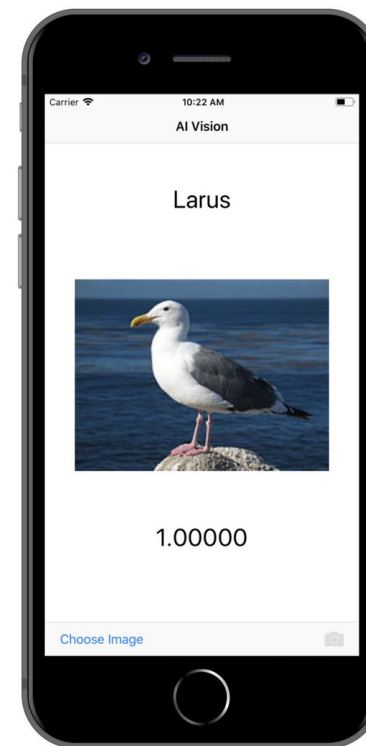


Who is Jason? *JSON

```
{  
  "classified": {  
    "Larus": "1.0000"  
  },  
  "imageUrl": "https://aivisioninstance.com/api/tmp/img.png",  
  "result": "success"  
}
```

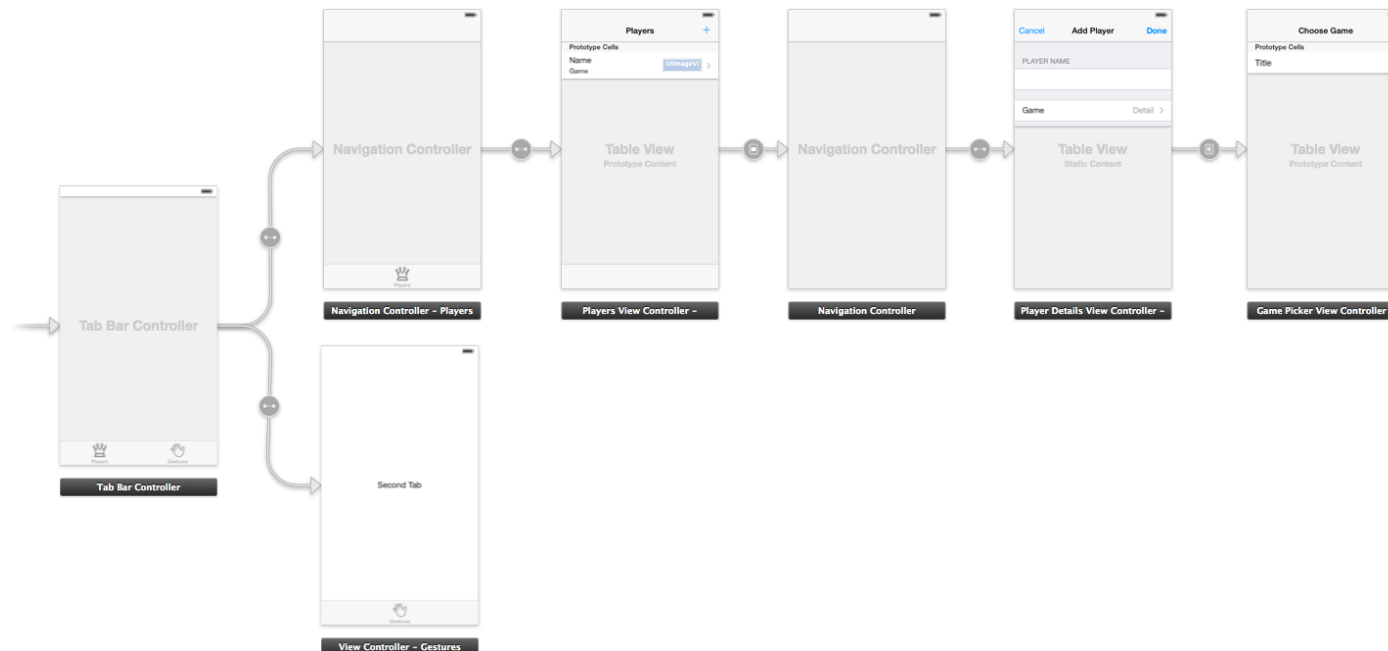
iOS Application 101

- Swift
- Storyboards
- UI Kit
- iOS Network Stack



Storyboard

- Defines user navigation
- Easily add and manipulate UI Elements



Getting Images

```
@IBAction func chooseImageFromAlbum(_ sender: Any) {  
    let pickerView = UIImagePickerController()  
    pickerView.delegate = self  
    pickerView.sourceType = .photoLibrary  
    self.present(pickerView, animated: true, completion: nil)  
}
```

```
@IBAction func chooseImageFromCamera(_ sender: Any) {  
    let pickerView = UIImagePickerController()  
    pickerView.delegate = self  
    pickerView.sourceType = .camera  
    self.present(pickerView, animated: true, completion: nil)  
}
```


Network Request

```
//URL for your AI Vision instance and model
let urlString = "API_URL_HERE"

//Set up HTTP Request Object
var request = URLRequest(url: URL(string: urlString)!)
request.httpMethod = "POST"
let boundary = "Boundary-\(UUID().uuidString)"
request.setValue("multipart/form-data; boundary=\(boundary)", forHTTPHeaderField: "Content-Type")
request.setValue("gzip, deflate", forHTTPHeaderField: "Accept-Encoding")

let imageData = UIImagePNGRepresentation(image)!
let fileName = "upload.png"
let fullData = photoDataToFormData(data: imageData, boundary: boundary, fileName: fileName)

request.setValue(String(fullData.count), forHTTPHeaderField: "Content-Length")

request.httpBody = fullData
request.httpShouldHandleCookies = false
```

Dealing with the response..

```
let jsonResponse = try JSONSerialization.jsonObject(with: data, options: .allowFragments) as!
[String:Any]
guard let classification = jsonResponse["classified"] as? [String: AnyObject] else {
    print("Could not find classification")
    return
}

// Retrieve values from API
let responseClass = Array(classification.keys)[0]
let responseConfidence = Array(classification.values)[0]
let responseConfidenceString = responseConfidence as? String ?? ""

//Update Labels
performUIUpdatesOnMain{
    self.classificationLabel.text = responseClass
    self.confidenceLabel.text = responseConfidenceString
}
```

Design Choices

- Inference – Native or Network?
 - Where will your users be?
 - How quickly do they need a response?
 - How much do I care about their battery?
 - How much space do I want on the device?
- XHR – Native or Library?



Live Demo

What can possibly go wrong?

- Build dataset in AI Vision
- Train Model in AI Vision
- Deploy AI Vision Web API
- Build iOS App
- Connect to API
- Test iOS App

All you need to change...

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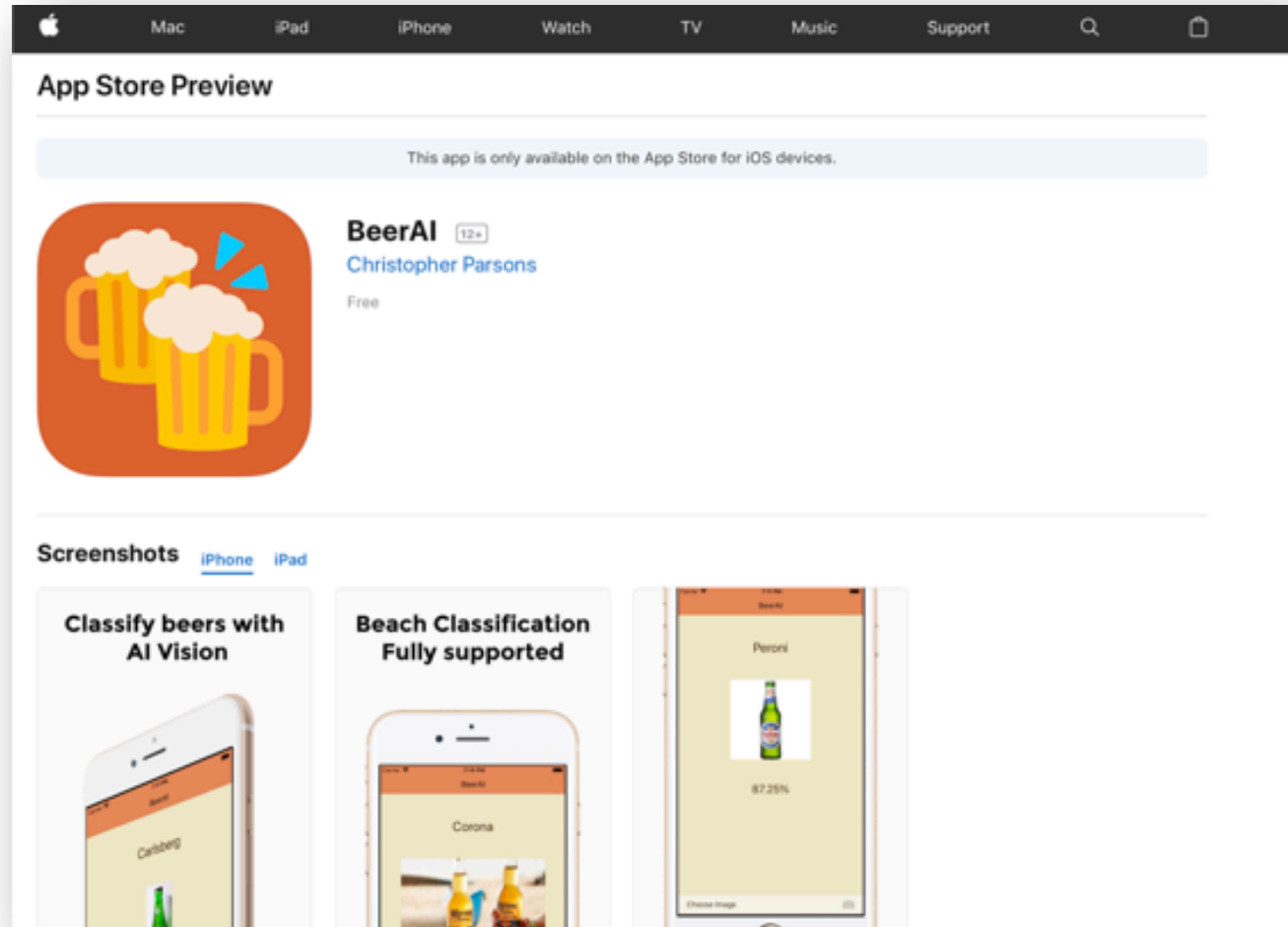
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BeerAI



Chris Parsons
@chrisparsonsdev

- <http://poweraicommunity.com>
- <http://meetup.com/topics/powerai>
- https://github.com/chrisparsonsdev/vision_ios

