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SwiftFest Boston  
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```
// use your Skafos model
Scafos.load("ObjectDetection", tag:"latest"){ model in
    if let model = model {
        self.objectDetection.model = model
    }
}
```

# How to include ML in your iOS App

# Talk Outline

- Why ML for Mobile?
- Example App Demo
- Architectural + Technical Considerations
- Q&A

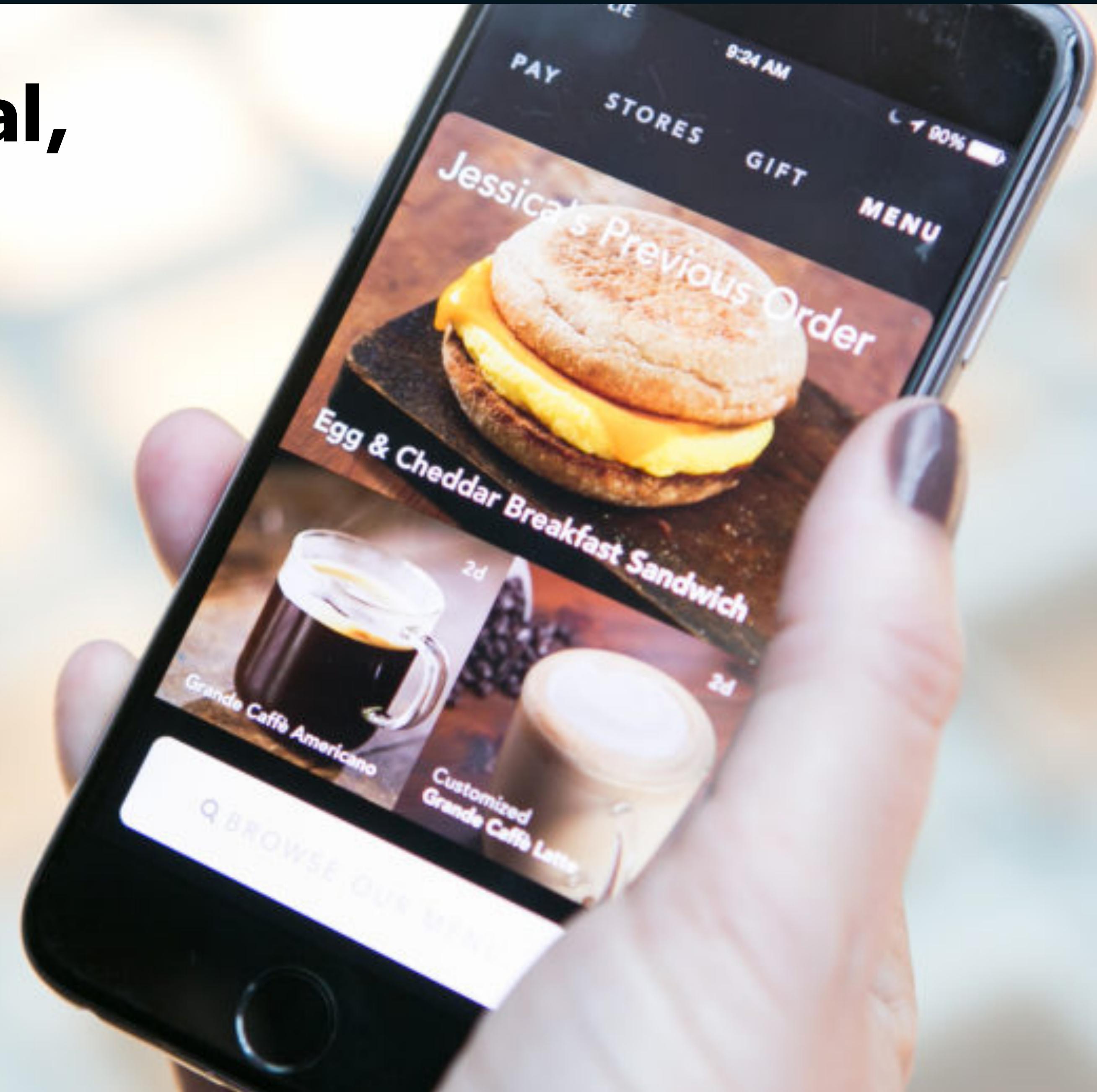
# Mobile has evolved

**Mobile users expect  
apps to be smarter.**



# Mobile has evolved

**More personal,  
less creepy.**



# Mobile has evolved

## Useful in new ways.

“People who tried the **View In Room** feature on a product page were **3.4x more likely to buy that item.**”

- Apple's WWDC 2019 talking about Wayfair



# Market Case Study

## Goal

**Increase revenue per ticket by providing recommended food pairings for beverages in cart.**

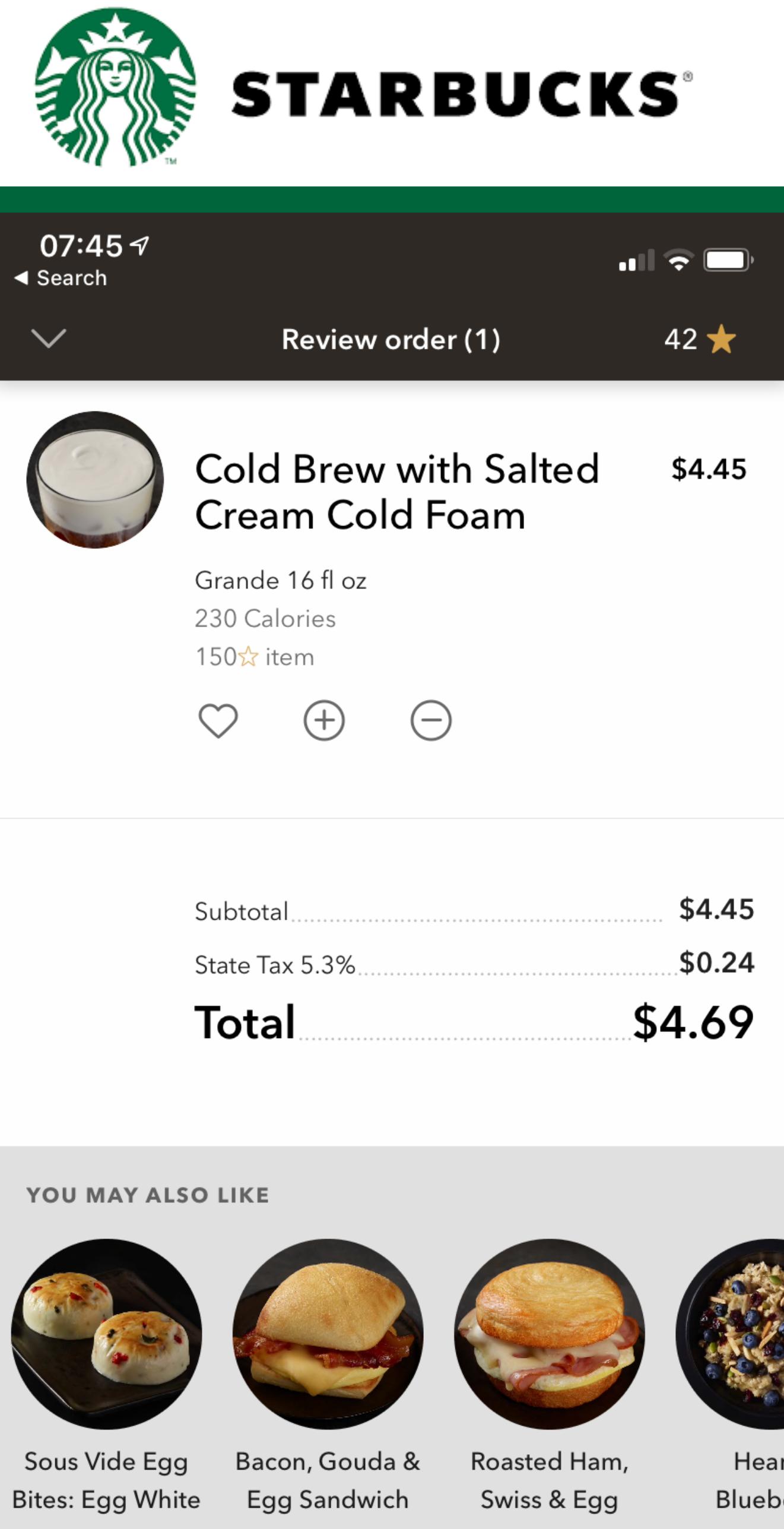
ORGANIZATION PAIN	SOLUTION
— Lack of AI/ML Experience	✓ Engaged Experienced People
— Scoping a Meaningful Approach	✓ Simple Recommendation Engine



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**"...for tech to be done well at Starbucks means tech needs to enhance that [Starbucks] experience, not get in the way of that experience.**

- Gerri Martin-Flickinger,  
Starbucks CTO



# Example Use Case

## Goal

Let your customers use their **camera to find and purchase those cool boots** with just a picture.

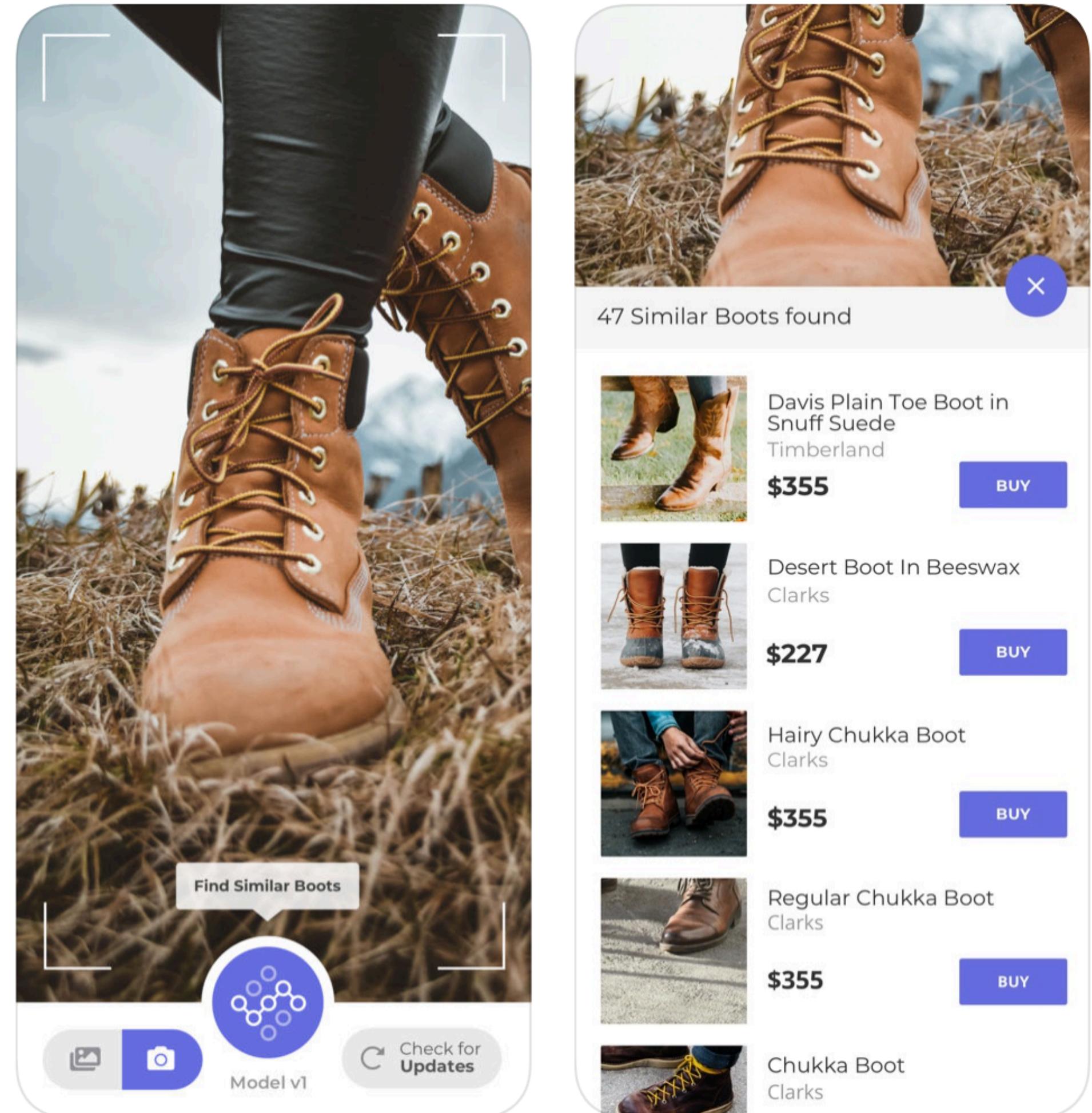
### WHY IT MATTERS

✓ Convenience & Impulse  
Increase Revenue

✓ Makes Your App More Interesting,  
More Useful

**"It's like 2008 all over again. The tools just aren't there for the average company to jump right in. Let's fix that!**

- Michael J Prichard,  
Skafos CEO



# Bootfinder

## Demo

# **How do we construct a useful app?**

# What do I need?

- Business goal that can be solved with ML
- iOS App Code (Swift + XCode)
- Machine Learning Model
- A way to tie it all together

# The Right Business Goal

## Typical E-Commerce Goals

- Create a new customer acquisition channel
- Create a personalized shopping experience



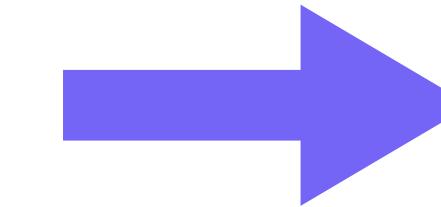
Photo by [Brooke Lark](#) on [Unsplash](#)

# Functional Architecture: User Experience

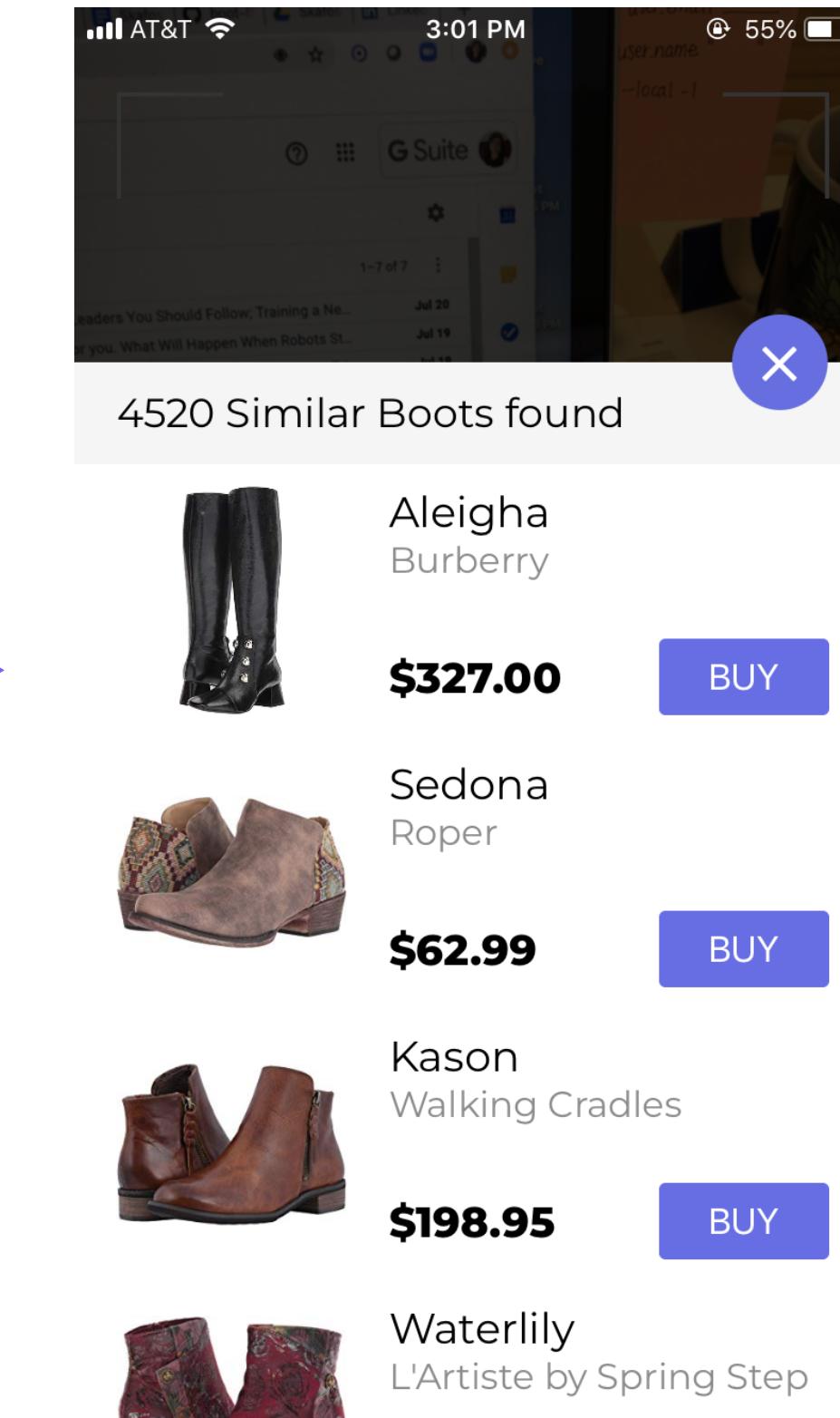
Customer identifies a pair of boots they like



Photograph boots

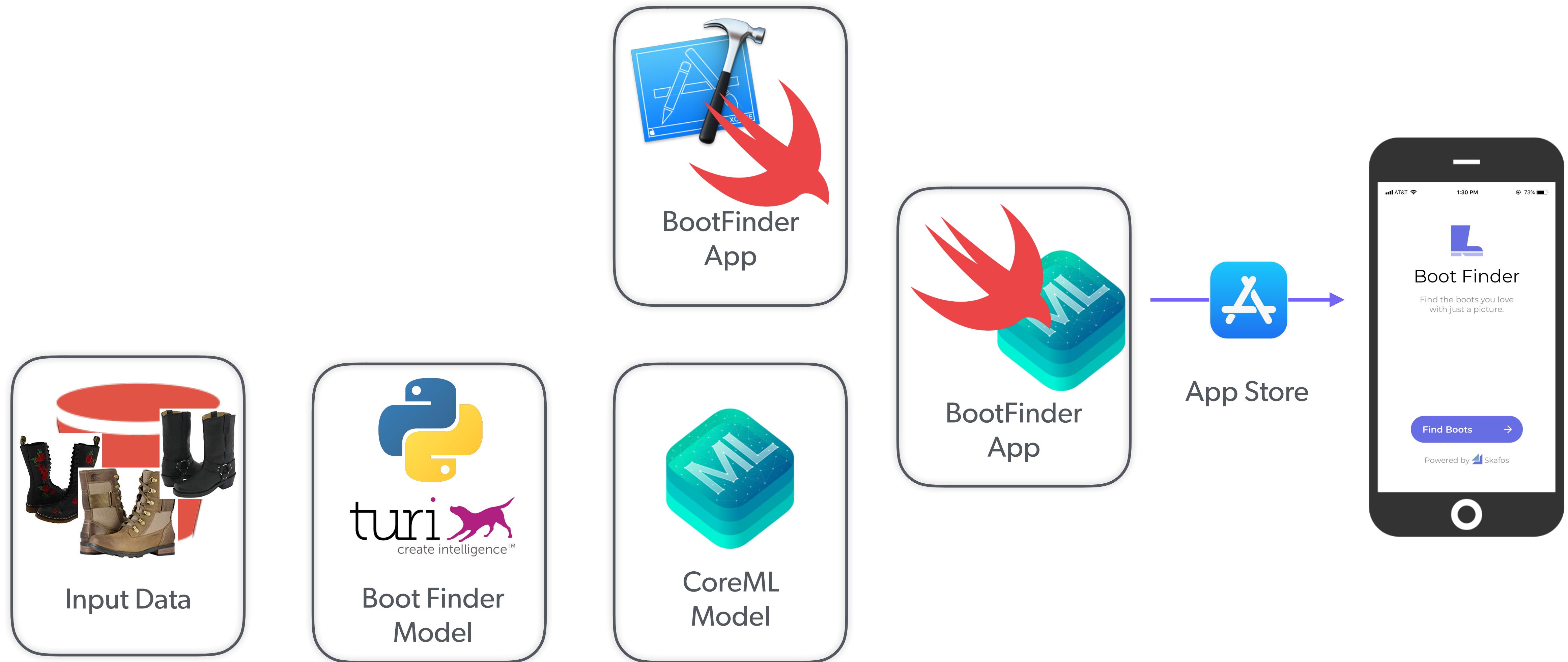


Boot Finder presents similar choices

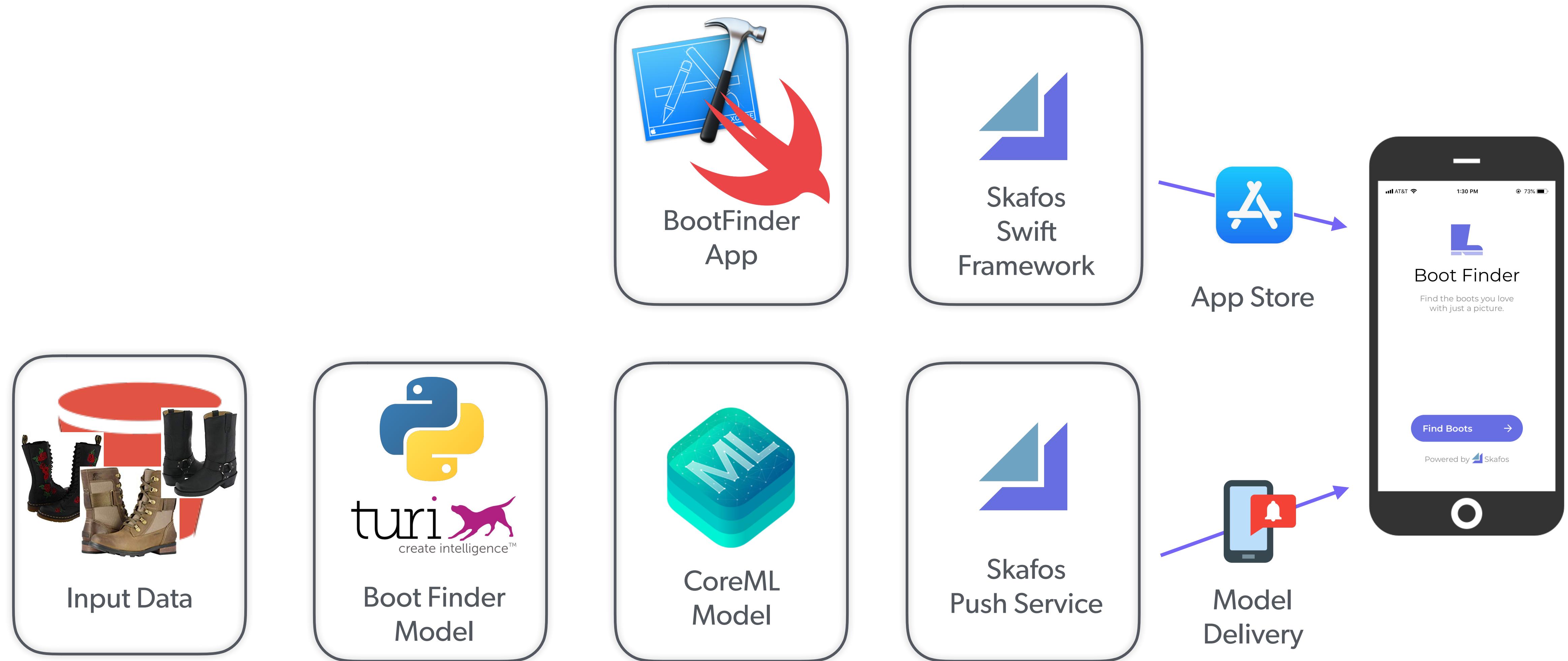


Buy or not buy, depending on results

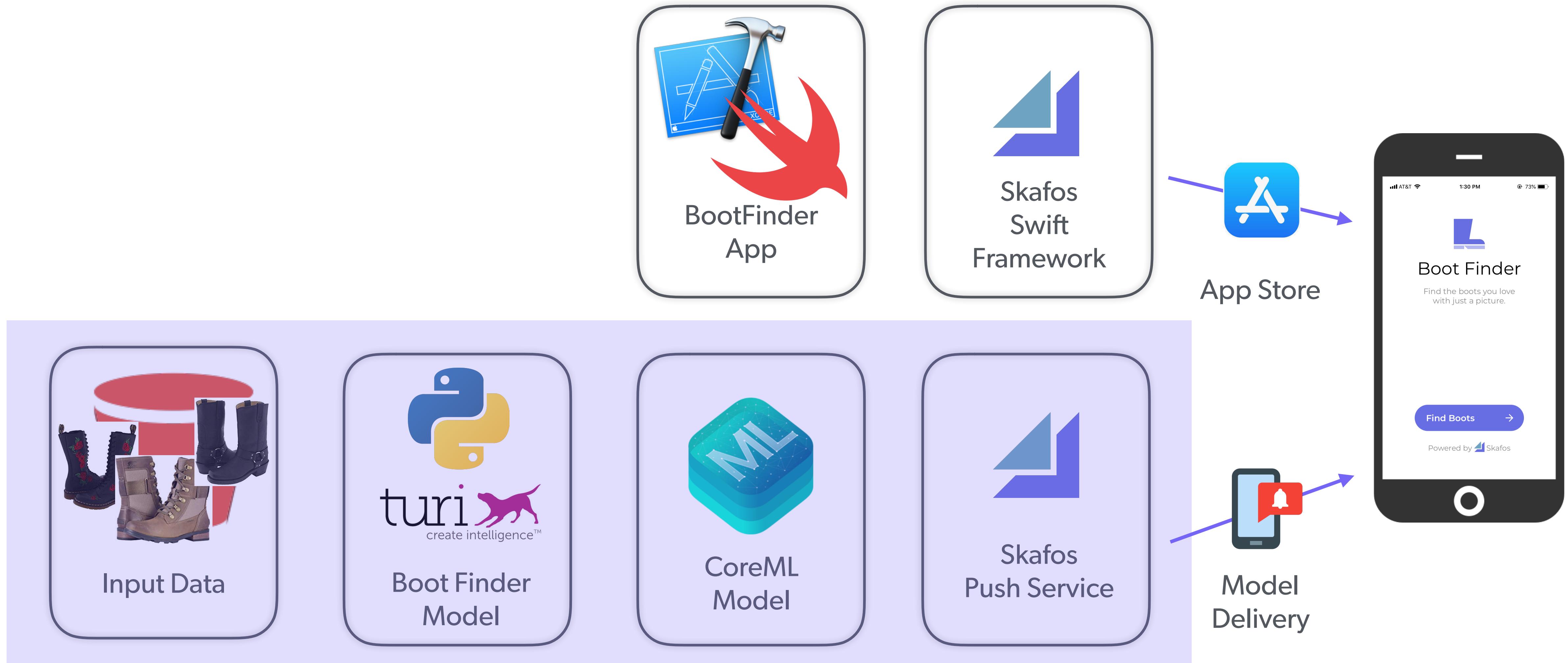
# Functional Architecture: Single Stream Solution



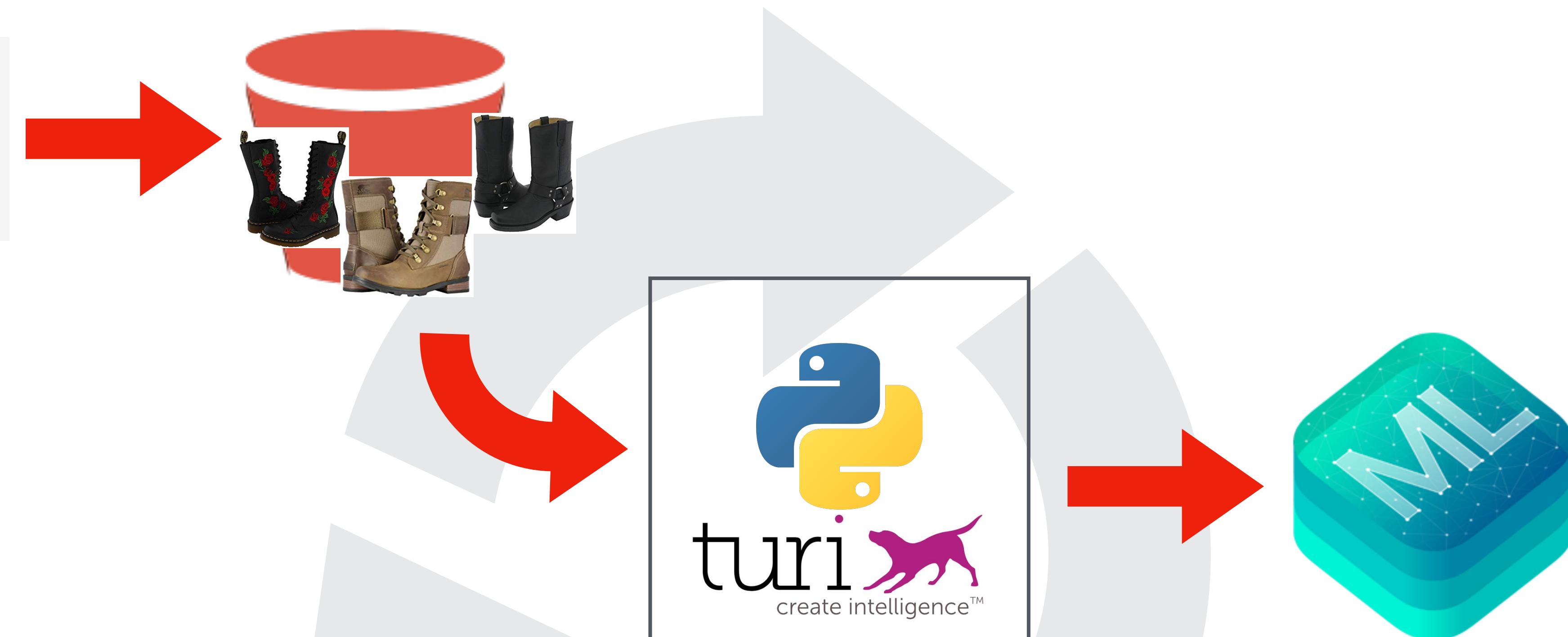
# Functional Architecture: Integrated Solution



# Functional Architecture: Building the App



# ML/AI

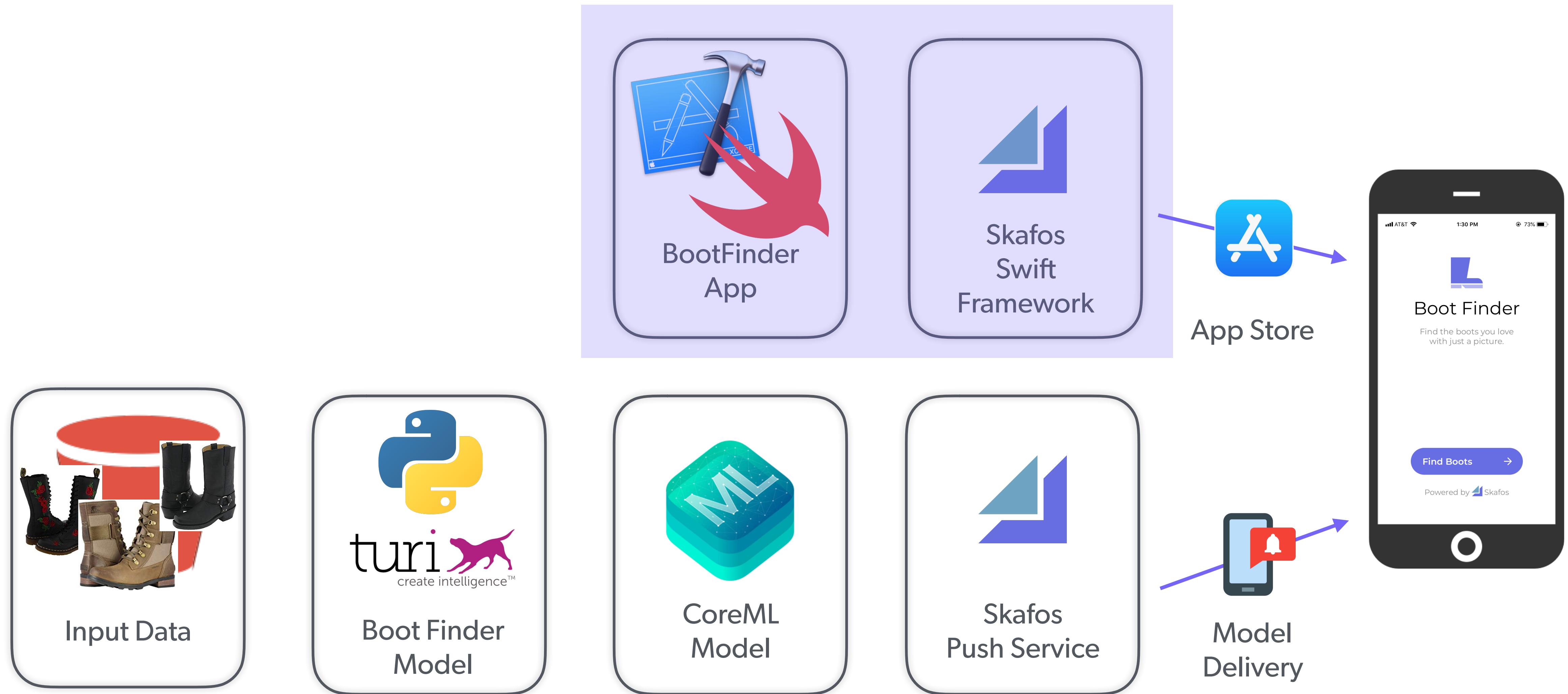


<https://github.com/skafos/boot-finder-model>



Code!

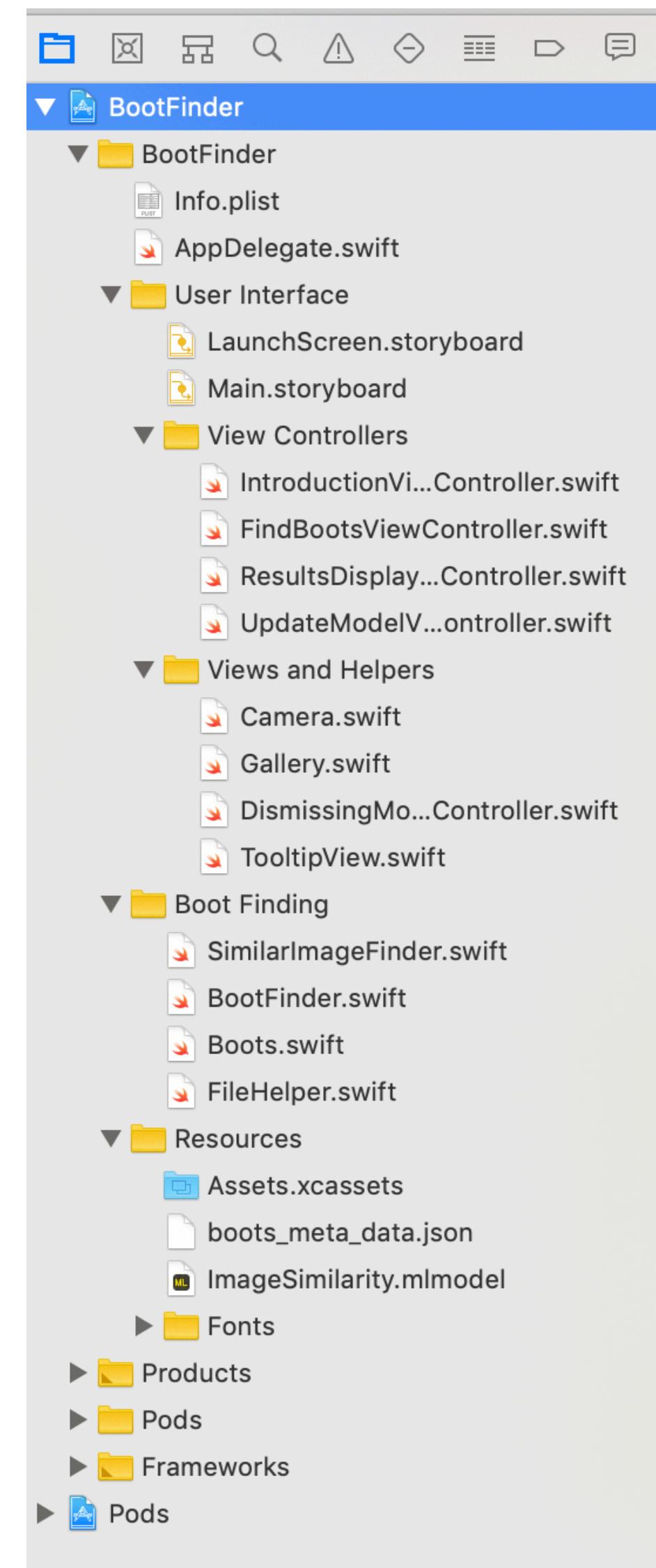
# Functional Architecture: Building the App



# iOS App/Swift

Where to incorporate Skafos and CoreML functionality?

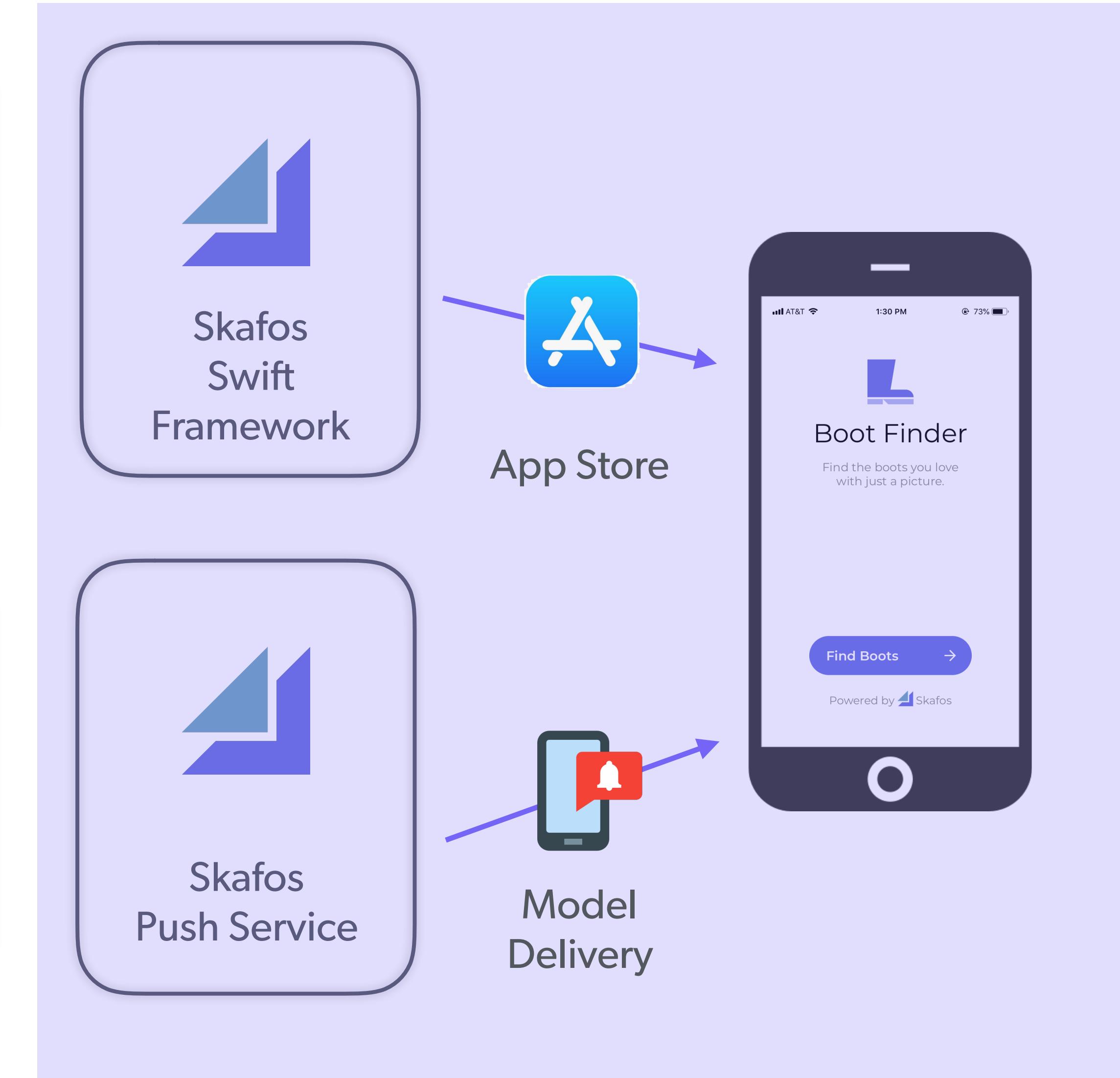
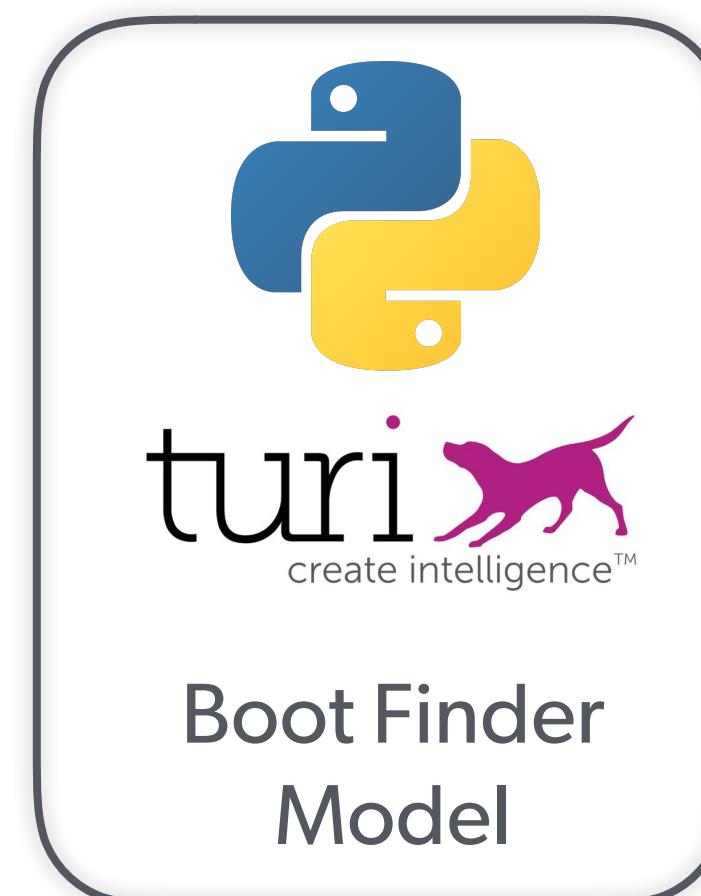
- AppDelegate.swift
- Class containing your app's logic



# iOS App/Swift

**Code!**

# Tying it all together with Skafos



## Demo #2

# Wrap-up

- Why ML for Mobile?
- Example App Demo
- Architectural + Technical Considerations

# Make it happen for your Company

**Skafos is on a mission to make your apps smarter.**

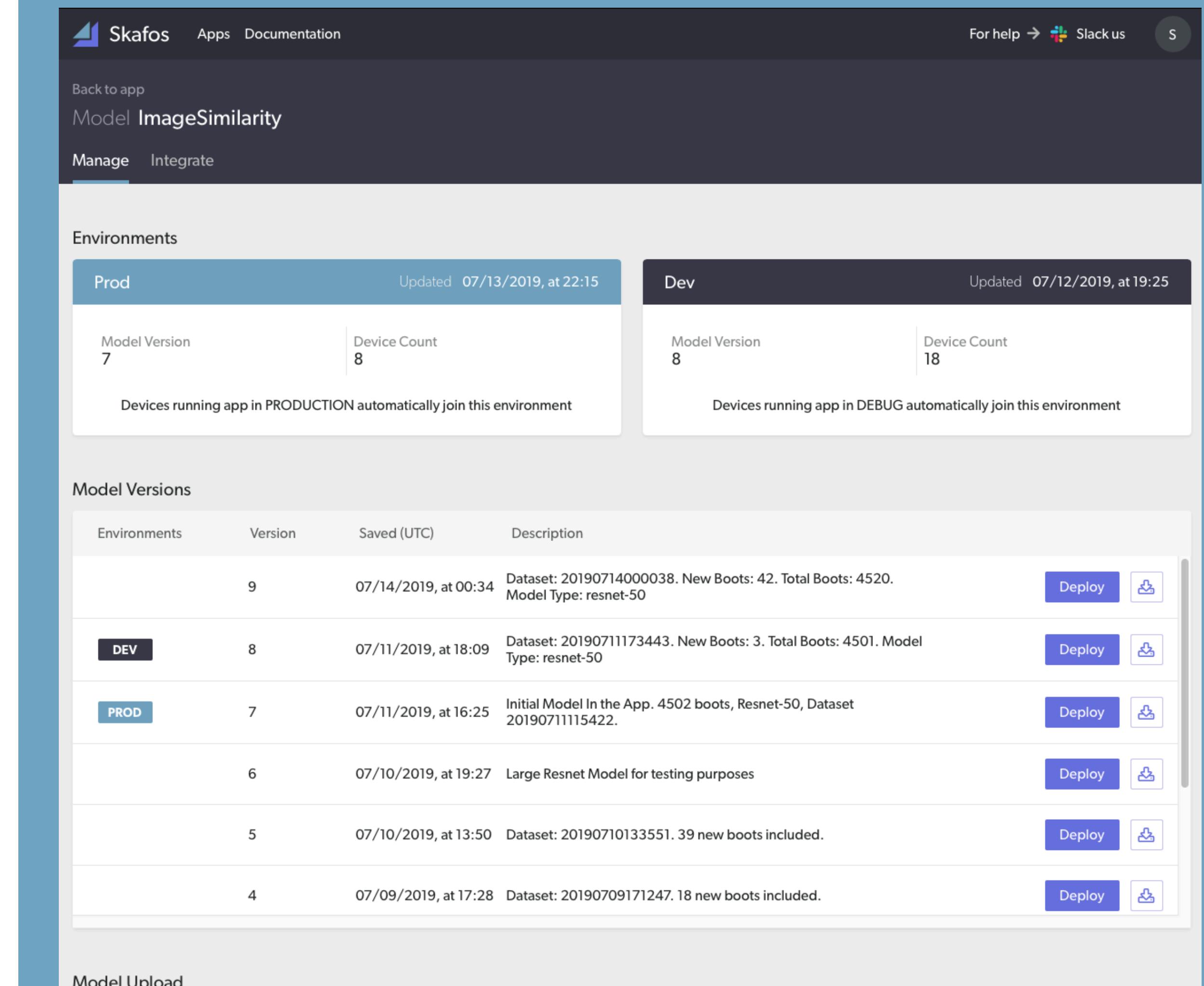
The [Skafos.ai](https://Skafos.ai) platform delivers on the promise of smart apps through best-in-class machine learning tools alongside our team of mobile experts and data scientists.

- ✓ Built exclusively to enhance mobile experiences
- ✓ Works with your existing apps
- ✓ Experienced ML development services
- ✓ Your data, your models



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The screenshot shows the Skafos web interface for managing a model named "ImageSimilarity". The top navigation bar includes links for "Skafos", "Apps", "Documentation", "For help → Slack us", and a user icon. Below the header, there are tabs for "Manage" and "Integrate", with "Manage" currently selected. The main content area is divided into two sections: "Environments" and "Model Versions".

**Environments:**

Environment	Model Version	Device Count	Last Updated
Prod	7	8	07/13/2019, at 22:15
Dev	8	18	07/12/2019, at 19:25

Below the environments, a note states: "Devices running app in PRODUCTION automatically join this environment".

**Model Versions:**

Environments	Version	Saved (UTC)	Description	Action
DEV	9	07/14/2019, at 00:34	Dataset: 20190714000038. New Boots: 42. Total Boots: 4520. Model Type: resnet-50	<button>Deploy</button>
PROD	8	07/11/2019, at 18:09	Dataset: 20190711173443. New Boots: 3. Total Boots: 4501. Model Type: resnet-50	<button>Deploy</button>
PROD	7	07/11/2019, at 16:25	Initial Model In the App. 4502 boots, Resnet-50, Dataset 20190711115422.	<button>Deploy</button>
	6	07/10/2019, at 19:27	Large Resnet Model for testing purposes	<button>Deploy</button>
	5	07/10/2019, at 13:50	Dataset: 20190710133551. 39 new boots included.	<button>Deploy</button>
	4	07/09/2019, at 17:28	Dataset: 20190709171247. 18 new boots included.	<button>Deploy</button>

At the bottom of the interface, there is a "Model Upload" section.