AD VANTAGE

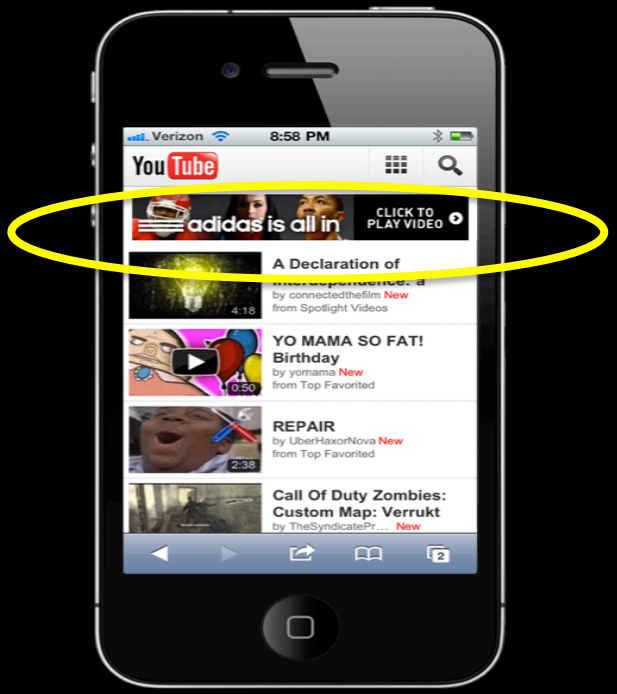
JUN ZHANG

MOBILE AD
MONETIZATION
OPTIMIZER

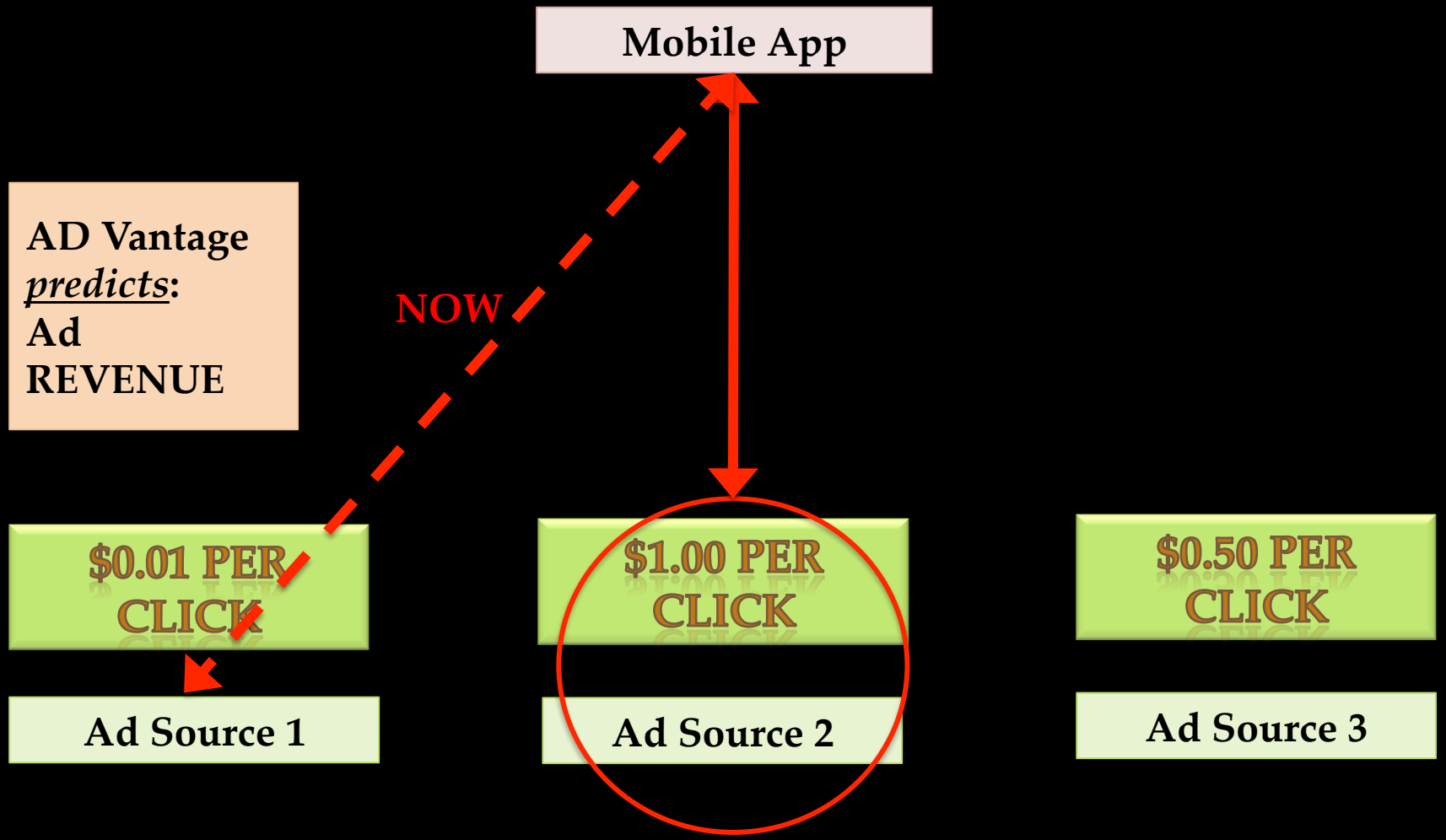
Objective

- Allow mobile apps to predict the revenue of the next ad it will receive from an ad source.

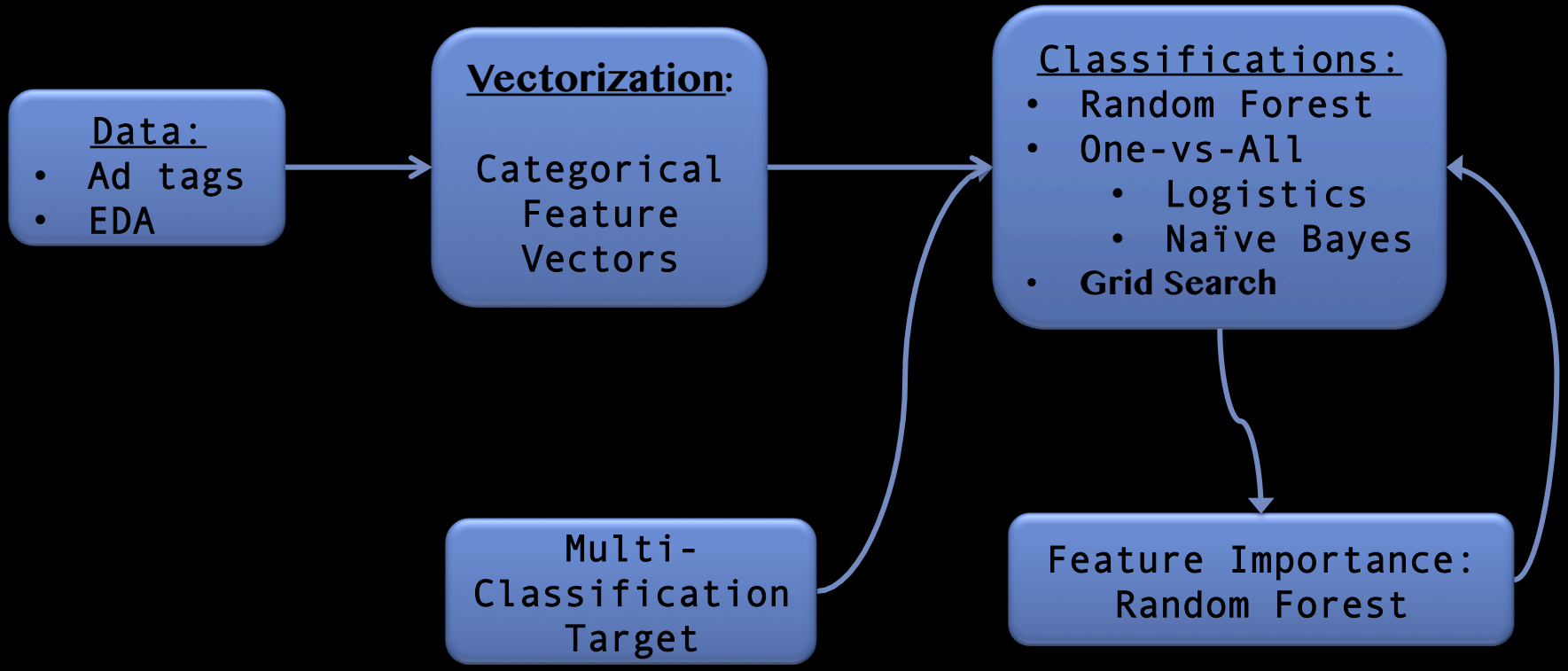
Mobile App Ad



How do Mobile Apps get ads?



Process Overview



5 Classes of Predicted Revenue				
Bucket 1	Bucket 2	Bucket 3	Bucket 4	Bucket 5
y >= $ 0.04	$0.04 >= y > $0.025	$0.025 >= y > $0.007	$0.007 > = y > $0.005	y <= $0.005

ROC Plot

Random Forest: 79% accuracy. Optimal trees=8.

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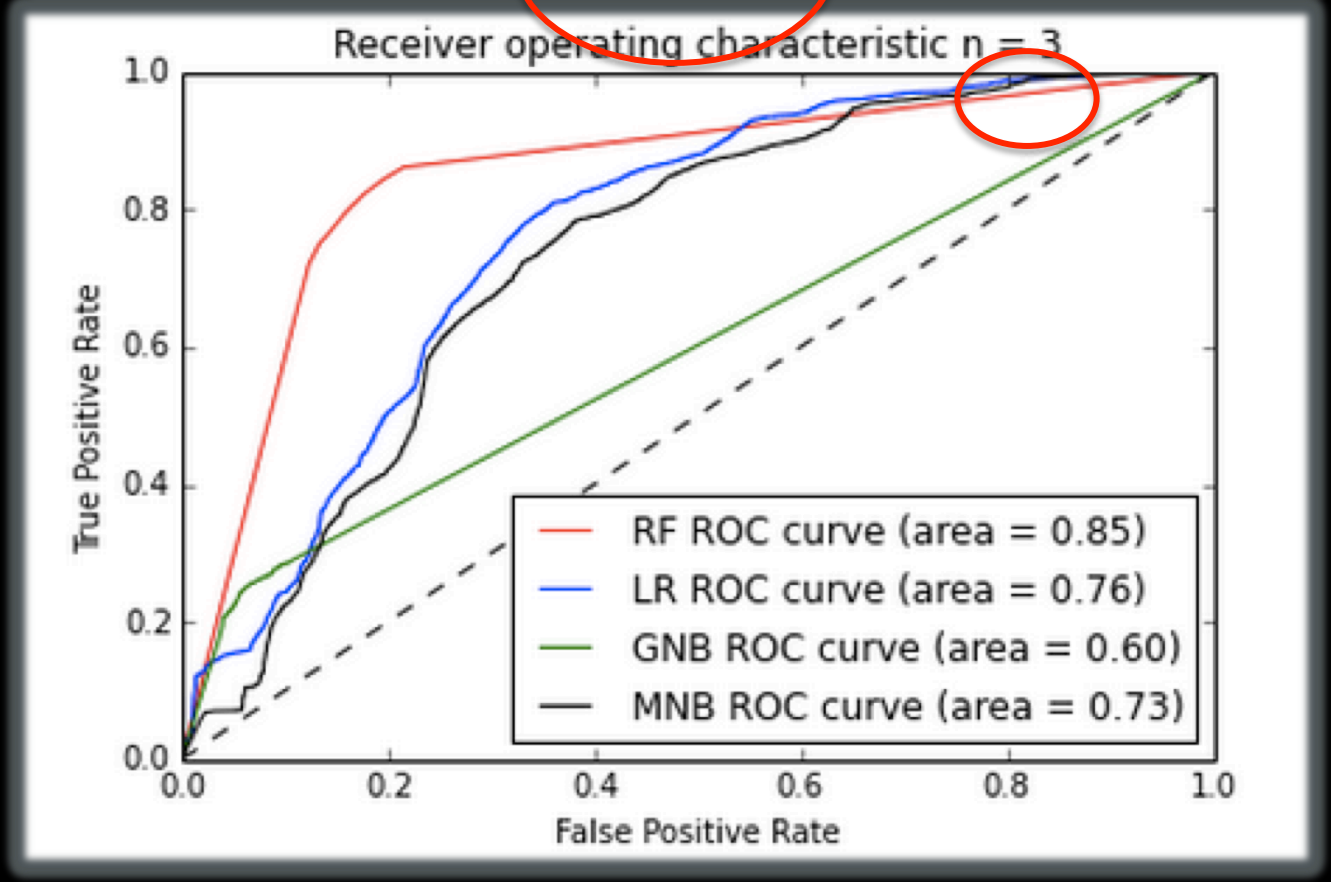


Cross-Validation

Random Forest Confusion Matrix					
	5 Classes of Predicted Revenue				
	Bucket 1	Bucket 2	Bucket 3	Bucket 4	Bucket 5
Actual Revenue	y >= $ 0.04	$0.04 >= y > $0.025	$0.025 >= y > $0.007	$0.007 > = y > $0.005	y <= $0.005
Bucket 1	3840	141	645	49	191
Bucket 2	137	1573	384	134	85
Bucket 3	735	445	4817	85	694
Bucket 4	52	148	98	2413	0
Bucket 5	220	71	778	0	6844

F1 Scores from Random Forest				
Bucket 1	Bucket 2	Bucket 3	Bucket 4	Bucket 5
0.77969543	0.67064592	0.71373537	0.89502967	0.87035035

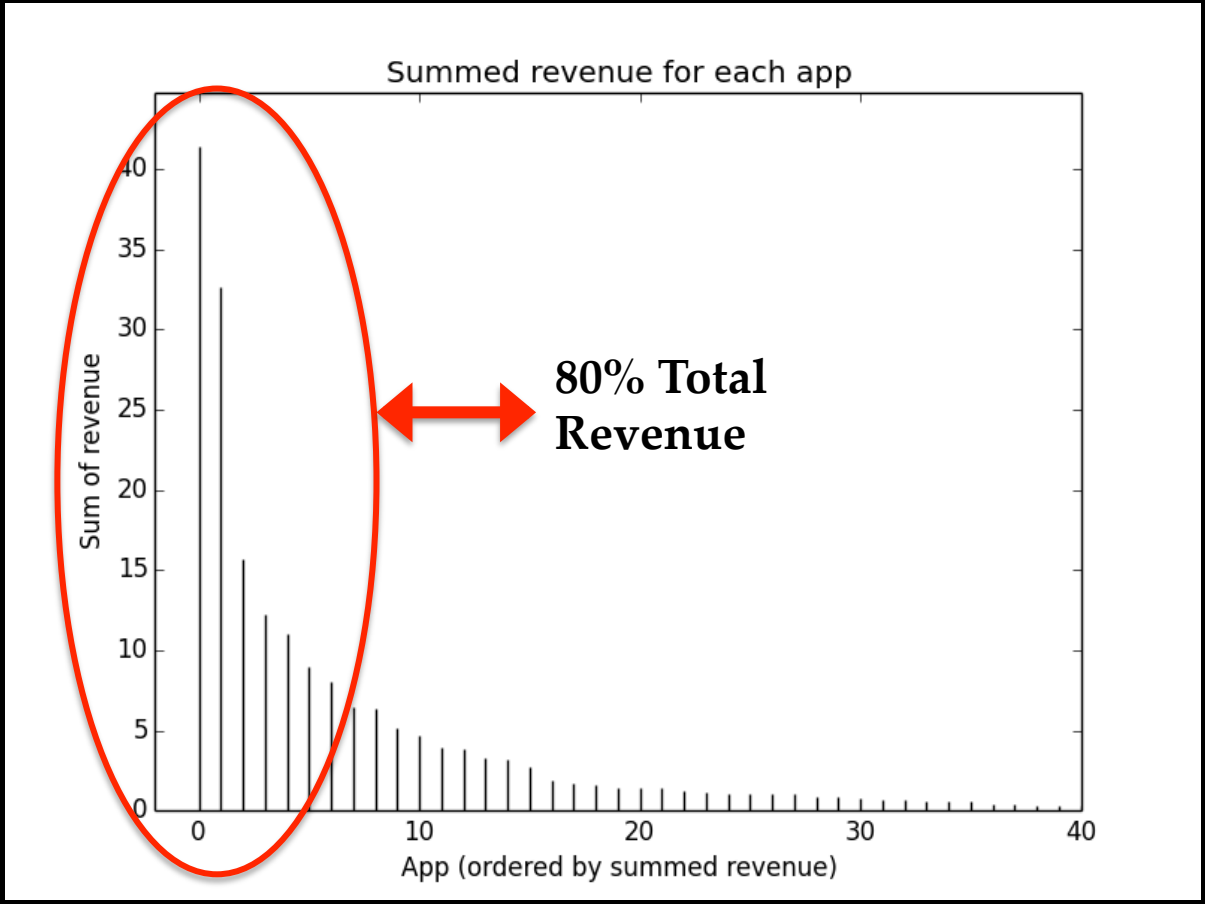
Next Steps

More data and more time, more magic:

- A/B testing, revenue lift.
- More device history:
  - Use Device ID to create user session feature.
  - Establish user history to form behavior pattern.
- Improve accuracy, more granular preprocessing.
- Combine models.

Next Steps

Most importantly, Core Revenue Segment:
Location, App, Device.



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