

## Final Model

### Input:

- X array includes 139 columns, including:
  - 3 numerical columns:
    - Visits
    - Visit time
    - Visit pages
  - 5 original boolean columns
    - No email
    - Search
    - Recommendations
    - MTI copy
    - Modified
  - 2 ordered (label encoded) categorical features:
    - Activity Index
    - Profile Index
  - 10 categorical features, one-hot encoded into 129 binary value columns
    - Origin (5)
    - Source (20)
    - Last activity (17)
    - Country (38)
    - Specialization (18)
    - Hear about (9)
    - Occupation (6)
    - Quality (5)
    - Profile (5)
    - City (6)

### Output:

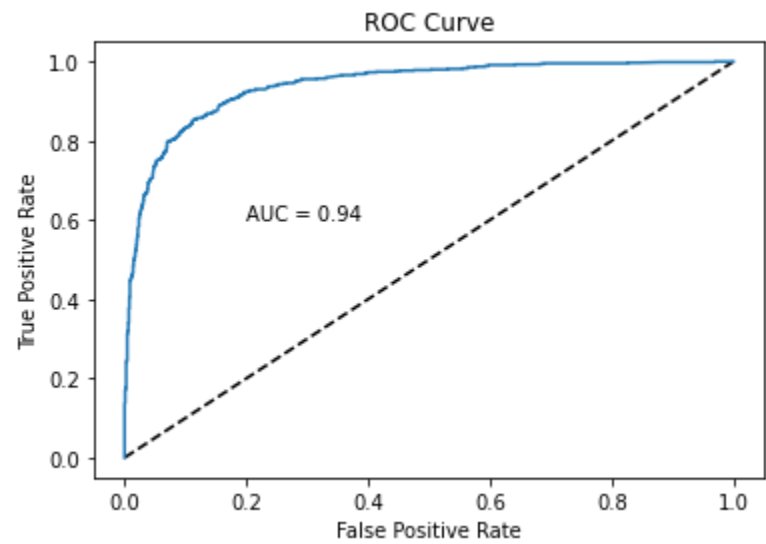
- Binary column, Converted

## XGBoost Model

- Hyperparameters (non-default in **red**):
  - booster='gbtree',  
colsample\_bytree=**0.9**,  
gamma=0,  
importance\_type='gain',  
learning\_rate=**0.2**,  
max\_delta\_step=0,  
max\_depth=**4**,  
min\_child\_weight=1,  
n\_estimators=**95**,  
num\_parallel\_tree=1,  
objective='binary:logistic',

reg\_alpha=0,  
reg\_lambda=1,

Model Metrics



	precision	recall	f1-score	support
Converted = 0	0.89	0.92	0.90	1146
Converted = 1	0.85	0.81	0.83	702
Weighted Avg	0.87	0.87	0.87	1848
Accuracy	-	-	0.87	1848

