ADVANCED ANOMALY DETECTION IN CANARY TESTING

Presented by Tamas Cser – Functionize, Inc.
Advanced Deployment Methods

Advanced deployment methods - Multiple versions in product with split traffic
Modern Code Deployment

Users become the QA for your app!
Canary Testing Approach

1. Current App Version
2. Measure Behavior
3. Build User ML Model
4. Release To Subset
5. Measure Behavior
6. Anomaly Detection
7. Good For Release?
8. Yes: Release To All Users
9. No: Revise App
10. New App Version
11. Release To User Subset

Revise App if not good for release.
User Journeys
Experimental Method - Clustering

- Collected 10000 session and 150000 actions
LSTM Model

Source: Analytics Vidhya
Hybrid Approach

EM

LSTM
Process and Results

- Model trained on user data from live sites
- 10,000 user sessions were analyzed
- 80% of data used for training and 20% for testing
- Predicted the next user action 85% of the time
- Since there are hundreds of action/element combinations on a page, this is actually quite accurate
Split Traffic and Canary Modeling

95% → Current

New → 5%

Current

Canary modeling

PASS

FAIL

Current

New

100%

100%
Conclusion

- Successfully segmented sessions into 5 clusters based on similar behaviors
- 2% of sessions were identified as outliers
- Anomalous user sessions can be easily identified
- LSTM model can accurately predict probabilities of actions in a user session.
- This analysis can be used for gating releases and canary testing