

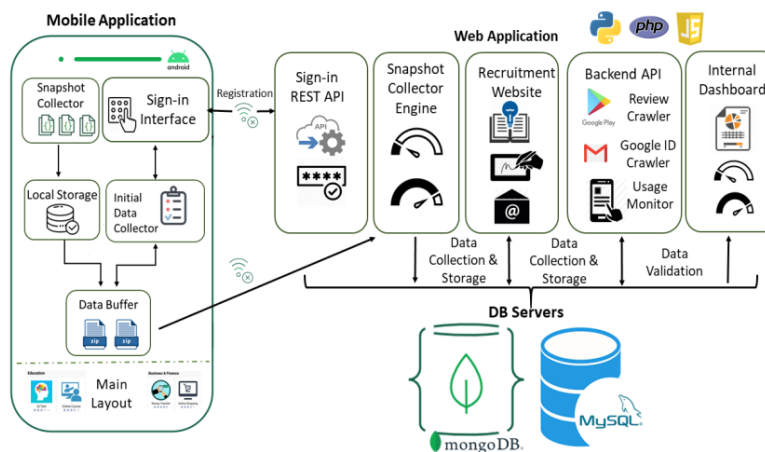
SaTC: CORE: Small: Deconstructing and Neutralizing Search Rank Fraud

Challenges:

1. Fraud detection and classification solutions need to target diverse types of fraud organizations, behaviors and strategies
2. Binary classification of activities fails to stop prolific raters
3. Solutions need to be
 - Trained using large sets of ground truth data
 - Evaluated under real-time fraud posting conditions

Scientific Impact:

1. Can rater behaviors identify fraud and classify by rater type?
2. Collect ground truth data about the behaviors of professional raters and honest users



3. Model fraud generation
4. Train models to disentangle fraud from honest behaviors
5. Introduce *fraud de-anonymization* and *pseudonymous rater discovery* problems

Solution:

1. Build RacketStore platform to collect data about the behaviors of professional raters and honest users from their mobile devices
2. Model fraud generation as a constraint optimization problem,
3. Introduce *activity sequences*, timelines of constraint-satisfying actions
4. Develop techniques to extract activity sequence *embeddings*

RacketStore Framework

Previously available only to app market providers

5. Iteratively train CNNs and RNNs to disentangle organic and federated fraud from honest behaviors
6. Develop fraud generators to produce benchmark datasets of synthetic, fraudulent activity sequences
7. Develop fraud attribution predictors
8. Identify accounts and devices controlled by the same organization

Broader Impact and Participation:

1. Potential to protect millions of online users from misleading information, malware. even censorship
2. Study and detect influence operations
3. Mentor minority students. FIU is one of the largest HSI in nation

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