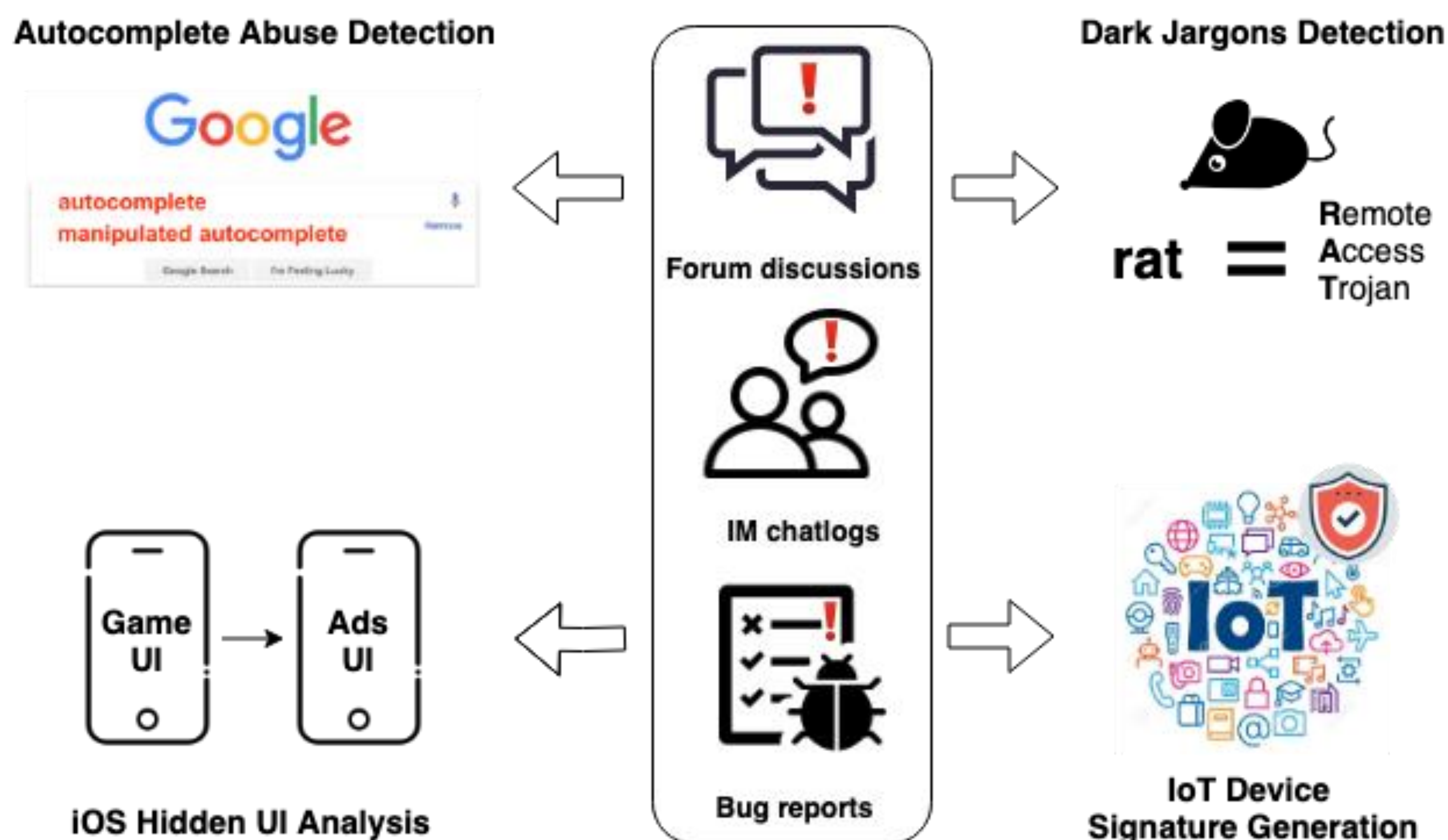# SaTC: CORE: Medium: Collaborative:
Understanding and Discovering Emerging Cybercrimes through Automatic Analysis of Online Text Traces

Project number: 1801432, 1850725, 1801652

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Challenge:

- Innocent-looking deceptive content can be easily blended into legitimate traces
- Encoded words such as dark jargons are extensively used by cybercriminals
- Hard to interpret the text information and extract actionable knowledge

Scientific Impact:

- A critical step for more intelligent and automated defense against Cybercrimes based on text content
- Result in more in-depth understanding of the dark business world, enabling identification of its key weaknesses and rapid responses to new threats

Solution:

- Applying NLP techniques to discover the semantic discrepancies in the cybercrime text content
- ML techniques can help discover in-depth knowledge from the text traces

Broader Impact:

- Will contribute to new interdisciplinary research on applying NLP and learning techniques to support intelligent security protection
- Outcomes of the project can be transferred to the industry partners
- Working closely to involve HBCU students
- Organizing an annual semantics-aware security challenge

Publications:

[1] **Into the Deep Web: Understanding E-commerce Fraud from Autonomous Chat with Cybercriminals**
P Wang, X Liao, Y Qin, XF Wang. to appear ISOC Network and Distributed System Security Symposium (NDSS), 2020

[2] **Understanding and Securing Device Vulnerabilities through Automated Bug Report Analysis**
X Feng, X Liao, XF Wang, H Wang, Q Li, etc,. in Proceeding of USENIX Security Symposium (Security), 2019

[3] **Understanding iOS-based Crowdturfing through Hidden UI Analysis**
YJ Lee, XQ Wang, KW Lee, X Liao, XF Wang, etc,. in Proceeding of USENIX Security Symposium (Security), 2019

[4] **Reading Thieves' Cant: Automatically Identifying and Understanding Dark Jargons from Cybercrime Marketplaces**
K Yuan, H Lu, X Liao, XF Wang. in Proceeding of USENIX Security Symposium (Security), 2018