Motivation
- The American Psychological Association and the White House have identified cyberbullying as a serious national health concern, with more than 40% of teenagers in the US reporting that they have been bullied on social media platforms.
- Within the computer science community, existing efforts toward detecting cyberbullying have primarily focused on text analysis.
- These models inevitably ignore critical information included in the various social media modalities such as image, video, user profile, time, and location.

Challenges
- Heterogeneous information of different modalities may not be compatible with each other.
- Social media data is often not independent and identically distributed but is intrinsically correlated, either directly or indirectly, limiting the applicability of conventional text analysis approaches.
- Different modalities are often associated with rather diverse feature types (e.g., nominal, ordinal, interval, ratio, etc.)

XBully Framework
- Key Components:
  1. Detection of Mode Hotspots
  2. Heterogeneous Network Embedding
  3. Embedding Refinement

Experiments
- Contributions
  - Problem Formulation
  - Algorithms
    - Hotspot detection
    - Heterogeneity
    - Joint embedding
  - Experimental Evaluation

Acknowledgement
- This work was supported by National Science Foundation Award # 1719722.