Situational Knowledge on Demand (REALM)

Discover rare events (Child left in hot or cold car without adult)

Locate a person with possible intentions to do harm in public place

Data Set:

- **100+ hours** of *dashcam video* collected at MIT which is being further explored together with *tweets* from the same vicinity and Cambridge public datasets of structured data
  - Raw video can be retrieved from MIT database at Cambridge:
    - Split into chunks of 30 seconds
    - Metadata collected: geolocation and timestamp for each 30 seconds video file
    - Metadata and videos are stored in different tables
  - Already collected about **140K** tweets (collecting each week)
  - Targeting more than **1M**
  - **More data from drones and dashcams will be added**
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Principal Investigator:

- *Bharat Bhargava, Purdue*
  - *Extract and identify patterns related to significant mission needs*
  - *Develop algorithms to establish situational awareness*
  - *Connect disaggregate knowledge sources*
- *Michael Stonebraker, MIT*
- *Information Value*
  - *Push relevant information efficiently to interested parties (e.g. analysts, experts, and decision makers)*
- *Aarti Singh, CMU*
  - *Context Aware Machine Learning, ML*
  - *Metadata Tagging*
- *Peter Bailis, Stanford University* Research
  - *Extract Knowledge Patterns from Streams*
  - *Real-time Content Reduction &*
  - *Object Association*

Proposed Solution

Mission-relevant machine learning and data management system