KissKissBan
A Competitive Human Computation Game for Image Annotation

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Human Computation Game

Collaborative Mechanisms
Coalition Problem
Limited Data Diversity
The ESP Game

- Coalition problem
- partner with themselves
- unified strategy
- Limited diversity
- easy words first
Competitive Mechanism?
DELIVER EMOTION BY TYPING THE SAME WORD
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A Competitive Human Computation Game for Image Annotation
1. First, the blocker has 7 seconds to type words.
2. Then, the couple has 30 seconds to type words.
Couples win for matching within time limit

1. First, the blocker has 7 seconds to type words.
2. Then, the couples has 30 seconds to type words.
Screenshots of KissKissBan

Game Time - 5

Hints: Guess harder words may prevent being blocked!
Intuitions Behind the Game
Incentive Structure

- Zero sum game
- strict competitive
- players can not benefit from coalition
- Different decision time periods
- harder words, longer consideration [Barry et al. 2001]
- diverse data contribution
Small-scale Experiment

- Image Source
  - 125 images randomly from ESP dataset
- Experiment Setup
  - 17-player gameplay survey
  - Data collection on Mechanical Turk
Gameplay Survey

• Fun
  • 3.76/5 overall rating
  • 15/17 players claim that would play again
  • over 60% like to play as a blocker
MTurk Experiment

- Collecting data from anonymous users
- Publish two games for comparison
  - KissKissBan
  - ESP Game without taboo words
- Each game is played for ~5000 rounds
Example of Collected Data

<table>
<thead>
<tr>
<th></th>
<th>ESP</th>
<th>ML-KKB</th>
<th>BL-KKB</th>
</tr>
</thead>
<tbody>
<tr>
<td>man</td>
<td>21</td>
<td>beach 3</td>
<td>sea 9</td>
</tr>
<tr>
<td>beach</td>
<td>10</td>
<td>water 3</td>
<td>man 8</td>
</tr>
<tr>
<td>karate</td>
<td>5</td>
<td>sand 3</td>
<td>ocean 3</td>
</tr>
<tr>
<td>water</td>
<td>1</td>
<td>sea 2</td>
<td>black 1</td>
</tr>
</tbody>
</table>

ML-KKB: matching between couples
BL-KKB: matching between couple and blocker
MTurk Experiment

- Data property
- For each image
  - ESP: 39.96 labels, 6.56 distinct labels
  - KKB: 44.17 labels, 11.53 distinct labels
- A more diverse player contribution
Conclusion

- We proposed a competitive human computation game, KissKissBan.
- KissKissBan has two nice properties
  - a player-level anti-coalition mechanism
  - diverse player input
More in the Future

• Publish the game on Facebook within the next one to two months.

• Study the different tagging behaviors of the blocker and the couples.

• Apply the competitive mechanism to more general human computation game design.