

# WHAT A GAME POSTER NEED?

## INTRODUCTION

SteamCODE (Steam COmmunity DEtection) stands for “Detecting Communities of Steam Game Posters”.

Steam, one of the most famous PC game platform, serves a huge amount of games.

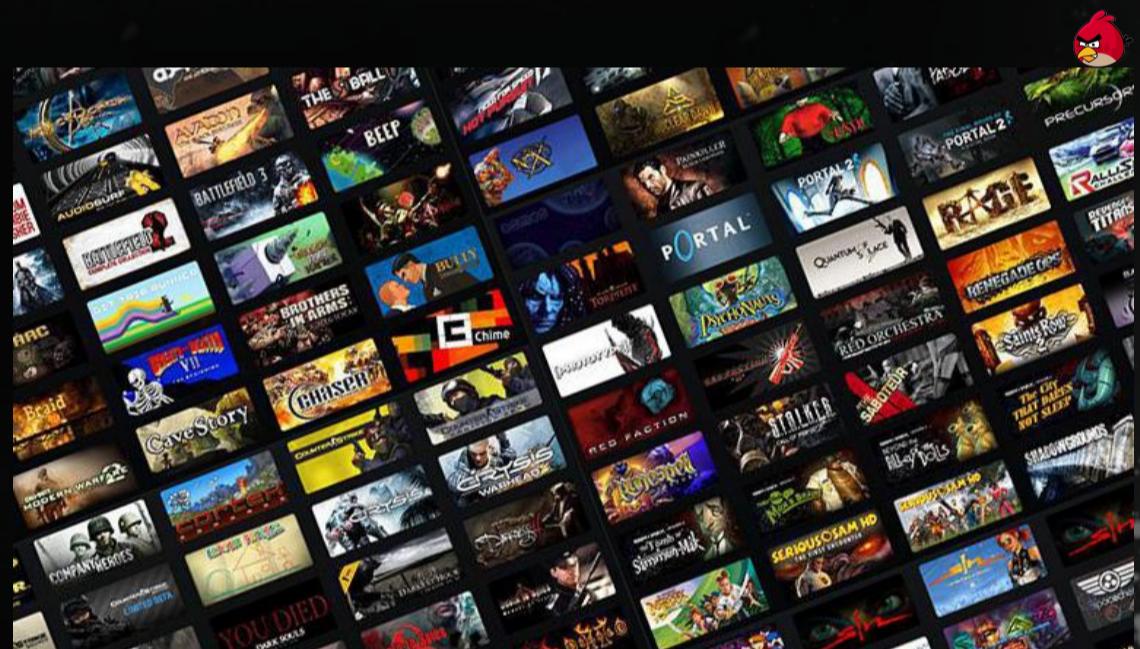
From Communities of Game Posters, we aim to provide a system and try to answer three questions.

1. IF YOU WERE A LEADER OF ONE COMPANY, WHETHER YOUR GAME POSTER IS ATTRACTIVE ENOUGH?
2. IF YOU WERE A PLAYER, WHICH UPCOMING GAME WOULD HAVE BETTER QUALITY?
3. IF YOU WERE A SENIOR PLAYER, DO YOU WANT TO DISCOVER MORE INTERESTING STORIES?



## WORKFLOW

### DATA

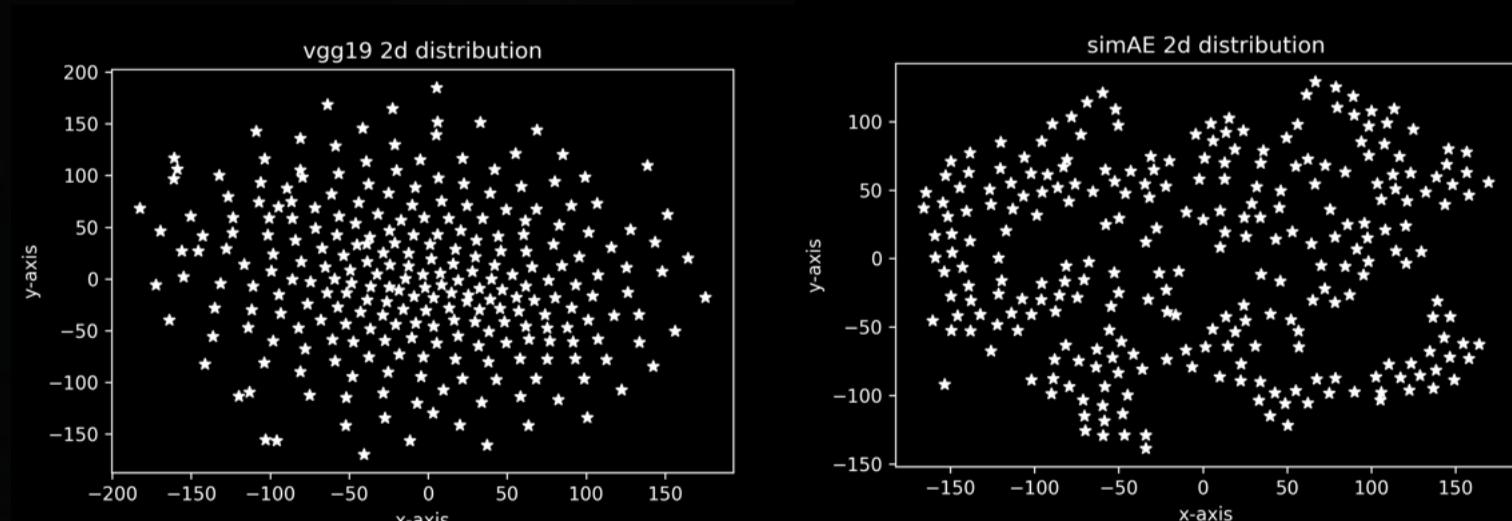


### DISTANCE MATRIX

- Extract Feature Vector. We tried pre-trained both vgg19 (left) and Simple AutoEncoder (right) to get the feature vector matrix.
- INPUT: 460x215 image -> OUTPUT: 1x4306 vector.



- Dimension Reduction. Apply Principal Component Analysis to reduce the number of dimensions to a reasonable amount (eg. 50).
- OUTPUT: 2-d data (left: vgg19, right: simple AutoEncoder)



- Compute Distance Matrix.

### COMMUNITY DETECTION

- Construct and Refine the graph. Set threshold to weight and degree to delete edges and nodes to get better CD result.
- Apply CD algorithms. Try different CD algorithm and get the most suitable one.

FastUnfolding Algorithm perform best on our case.

## RESULTS

### INSIGHTS

#### 1. WHAT WE KNOW WE KNOW.

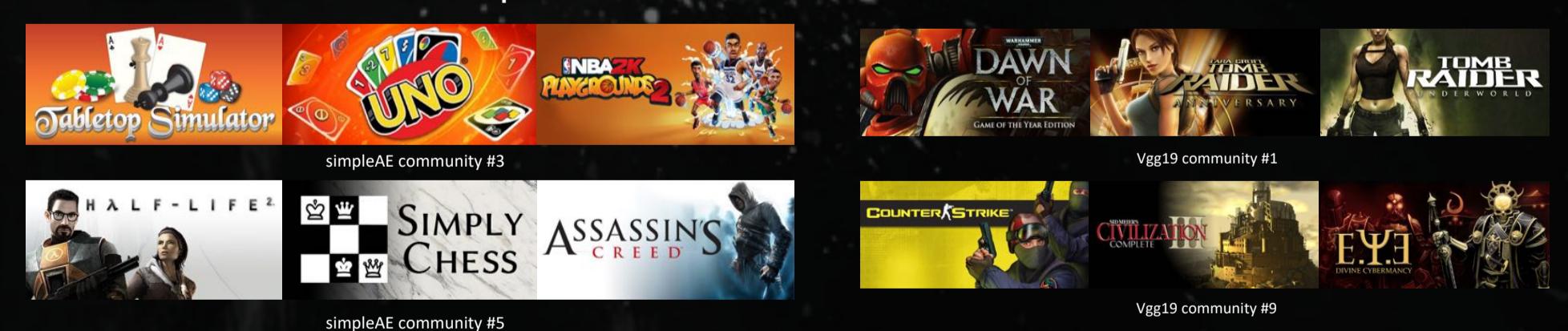
- Series games belong to the same (closer) community generally.
- Most action games in the same community.



ID	Model	Dimension	Modularity	Clusters
1	simAE	100	0.041	5
2	simAE	20	0.076	11
3	simAE	2	0.089	13
4	Vgg19	2	0.228	10
5	Vgg19	10	0.251	7

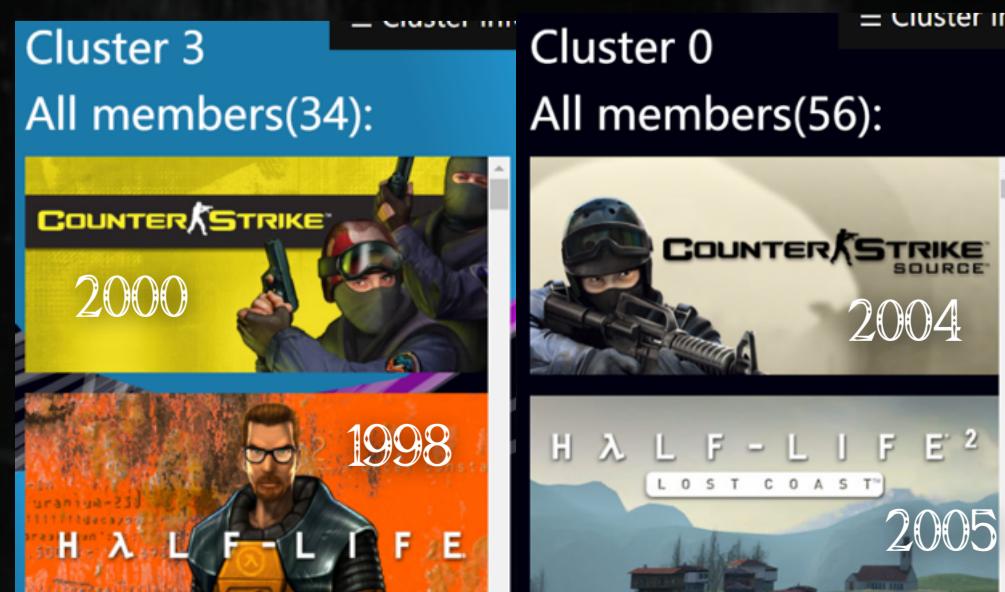
#### 2. WHAT WE KNOW WE DON'T KNOW.

- Images in the same community appear similar in tone. (simpleAE)
  - Images in the same community appear similar in shape. (vgg19)
- Which means simple AutoEncoder may extract more features about tone, and vgg19 may extract more about shape.



#### 3. SOMETHING INTERESTING?

- The style changes within a series of games may reflect interesting stories.



- Counter Strike comes from Half-Life.
- Mike Harrington (author of Half-Life) left Valve and travel all over the world at 2000.
- Counter Strike is more popular for Half-Life to mirror the success.
- They both changes to source engine after 2000.