

How Programmers Should Interpret “The Bad Kids”《隐秘的角落》

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Original Mandarin:

<https://mp.weixin.qq.com/s/GPJ2TjgldA-XG5rNWVCXZQ?fbclid=IwAR06hacg0Ag2yh3lxZjivr-ldNe0FXj6vkgSuFz7zdhfXyAVNwT7H8SEmC4>

Two days ago, I watched the TV series "The Bad Kids" in one go, and the plot was quite exciting. The disadvantage is that in order for the series to pass the review (of the National Radio and Television Administration), the edited sequences for episodes 11 and 12 were disrupted, even to the point that lines were modified, so that there are several places in the film where the actor's mouth movements and lines are not matched, which makes the plot confusing to people. Therefore, I tried to restore the modified lines through artificial intelligence technology, thereby restoring some of the original plot, which contained a darker truth.

Lines that have been modified to pass review

The modified lines are mainly concentrated in the 12th episode. The dialogue between Zhu Chaoyang and Yan Liang on the rooftop after their escape:



Yan Liang: "Tell the police" 「告诉警察吧」

Zhu Chaoyang: "As my dad hoped" 「像我爸希望的那样」

Zhu Chaoyang: "Do you want to call the police?" 「你想报警么」

*Note: You can see GIFs of the dialogue, where the lip movements don't match up to the words, in the [original Mandarin](#)

This dialogue has actually been revised later on, and the mouth movements and content do not match. As for why the "hidden" crew had to modify this line, I didn't know the answer until I restored the original dialogue. I discovered that the reason was because the original dialogue was too dark, and it was impossible to pass the review because it confirmed the darkening (of Zhu Chaoyang's heart) - which was something that couldn't pass the review.

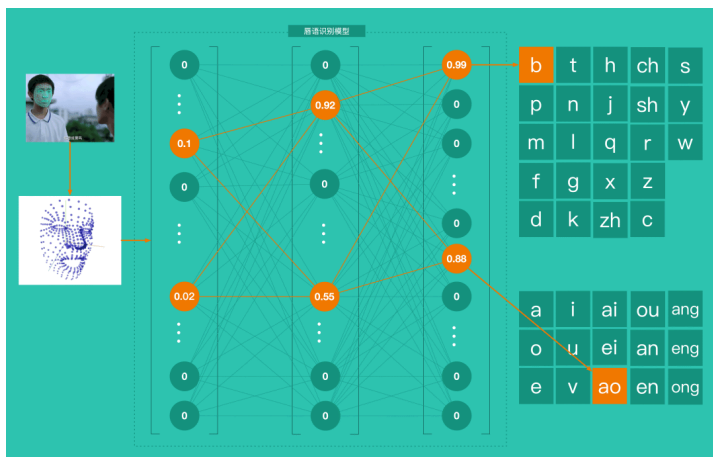
So what exactly is the original dialogue? As you read further, I'll use deep learning to tell you the answer.

Lip recognition with machine learning and restoring dialogue

Excerpted two paragraphs of context: using lip recognition ML to restore Zhu Chaoyang's dialogue.

For the model in this case, I chose to use the Facemash model based on Tensorflow. The main function of Facemash is to obtain the features of facial expressions. Then, by analyzing the characteristics of the lip movements, it predicts the **initial of a Chinese syllable** (声母 -- usually a consonant like b in bao 抱) and the **final of a Chinese syllable** (韵母 -- i.e. the syllable other than the initial, so like -iang in 娘 niang). It is too difficult to predict Chinese characters directly through the shape of the mouth, so I have to predict the pinyin first, and then restore the original dialogue according to the context of the plot + pinyin)

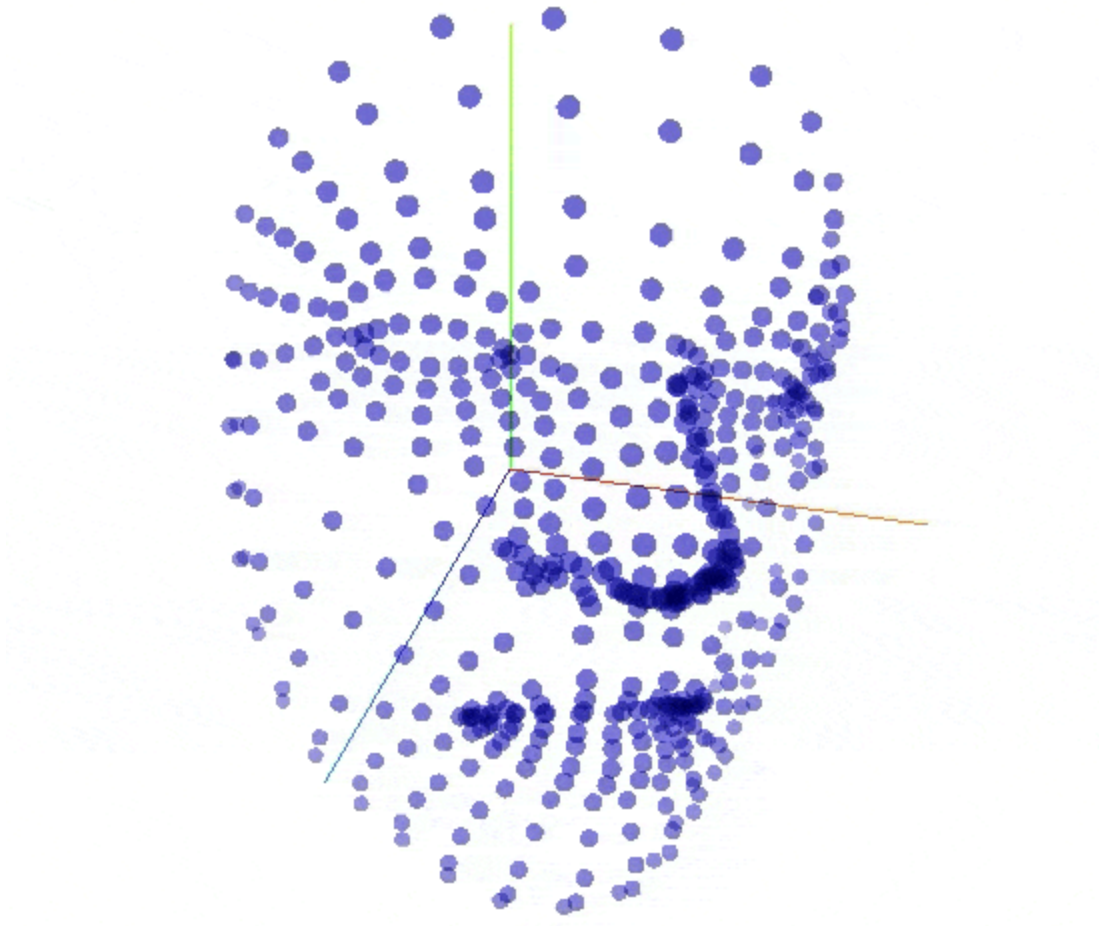
The first step is to get the facial features of Zhu Chaoyang's dialogue through Facemash, as shown in the figure:



This "facial mask" is the connection between the feature points recognized by the Facemash model. The following figure is the facial recognition data of a specific frame:

```
1  [
2  {
3    faceInViewConfidence: 1,
4    boundingBox: { topLeft: [Array], bottomRight: [Array] },
5    mesh: [
6      [Array], [Array], [Array], [Array], [Array], [Array], [Array],
7      //... 368 more items
8    ],
9    scaledMesh: [
10     [Array], [Array], [Array], [Array], [Array], [Array],
11     //... 368 more items
12   ],
13   annotations: {
14     silhouette: [Array],
15     lipsUpperOuter: [Array],
16     lipsLowerOuter: [Array],
17     lipsUpperInner: [Array],
18     lipsLowerInner: [Array],
19     rightEyeUpper0: [Array],
20     rightEyeLower0: [Array],
21     rightEyeUpper1: [Array],
22     rightEyeLower1: [Array],
23     rightEyeUpper2: [Array],
24     rightEyeLower2: [Array],
25     rightEyeLower3: [Array],
26     rightEyebrowUpper: [Array],
27     rightEyebrowLower: [Array],
28     leftEyeUpper0: [Array],
29     leftEyeLower0: [Array],
30     leftEyeUpper1: [Array],
31     leftEyeLower1: [Array],
32     leftEyeUpper2: [Array],
33     leftEyeLower2: [Array],
34     leftEyeLower3: [Array],
35     leftEyebrowUpper: [Array],
36     leftEyebrowLower: [Array],
37     midwayBetweenEyes: [Array],
38     noseTip: [Array],
39     noseBottom: [Array],
40     noseRightCorner: [Array],
41     noseLeftCorner: [Array],
42     rightCheek: [Array],
43     leftCheek: [Array]
44   }
45 }
46 ]
```

If we display a series of continuous data under the coordinate axis of 3D space, it will show a face in dialogue:



After obtaining the lip and facial features, we can start to make predictions. In this part, I will show you the dynamic flow chart directly (again GIF of the flow chart in original Mandarin):

Using this method, I restored several possibilities of the original pinyin of the original line:

- ni **ba xiao ba** chou me
- ni **ba xiang ba** chou me
-
- ni **bu xiang bao** chou me
-

...

*****Excerpted summary of the next couple paragraphs:**

Using context clues Eury Chen takes these possible sequences and finds which ones best match the plot. This gives the following original exchange:

Yan Liang: "Tell the police" 「告诉警察吧」 ---> ORIGINAL = "What now?" [那该怎么办]

Zhu Chaoyang: "As my dad hoped" 「像我爸希望的那样」---> ORIGINAL = Apart from having him (the substitute teacher they filmed murdering his elderly in-laws) get caught...「除非让他被抓...」

Zhu Chaoyang: "Do you want to call the police?" 「你想报警么」----> ORIGINAL = Don't you want to get revenge? 「你不想报仇么」--- ni **bu xiang bao** chou me

Ok, the above is the rooftop dialogue restored by using machine learning + fit with the context of the plot. Next, I'm going to interpret the plot, to understand why this dialogue would confirm the blackening of Zhu Chaoyang's (heart), and couldn't pass the review.

Interpretation of modified lines

These are the two most important principles for the review process of Chinese dramas:

- 1 No unsettled cases
- 2 Bad guys must be brought to justice

***Excerpted rest of the article -- goes through what the author thinks the modified lines would have changed with regards to the plot --- I haven't watched the how but those who have watched the show and want to explain in English are welcome to add their thoughts below