

2020 Hsinchu x MeiChu Hackathon

Team: 726戰隊

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梅竹黑家棍

Topic

Logitech International:
Ethical gaming world

Problems to solve

- Ways to cheat on games
- Privacy concern
- Sometimes I want to have fun!
- Application on various games



Hardware Detection

- **logitech** Mouse G502
- **logitech** Keyboard G815



Can our machine learn a gamer's behavior?



梅竹黑家秘

Result

Tester



+Hack

Model



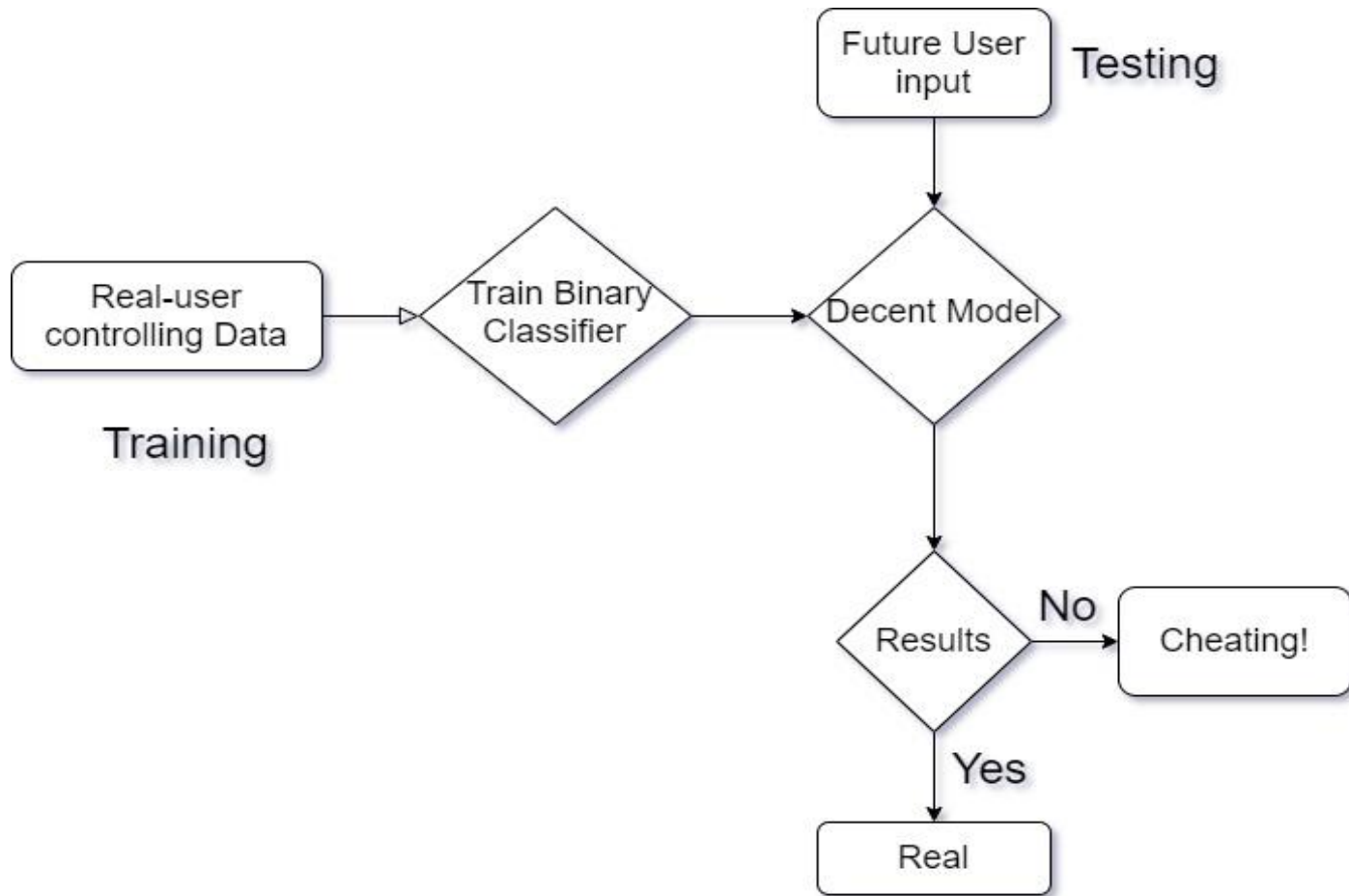
Result

No
(69%)

No
(68%)

Yes
(53%)

No
(54%)



Collection Process

- Detect the input from mouse and keyboard using Python.





\$1000





Counter-Strike: Global Offensive

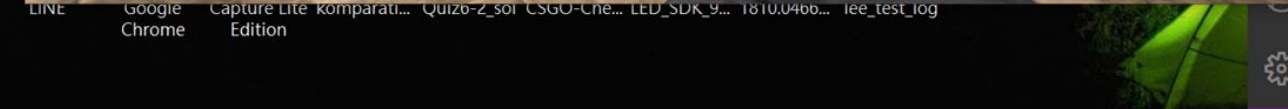


```

monitor.py X Source.cpp
C: > Users > bowen > Desktop > monitor.py > ...
6 from getkey import getkey, keys
7
8 PRINT_MODE_ON = True
9
10 FILEPATH = 'mouse_log.txt'

TERMINAL ... 2: python
25.614532947540283, 715, 515, Pressed
25.71078395843506, 715, 515, Released
26.24037766456604, 715, 515, Pressed
26.34408712387085, 715, 515, Released
26.646484375, 714, 515, Moved
26.657411575317383, 714, 515, Moved
26.663398027420044, 713, 515, Moved
26.666387796401978, 712, 515, Moved
26.669382333755493, 711, 515, Moved
26.671381950378418, 710, 515, Moved
26.674379348754883, 709, 515, Moved
26.690324783325195, 699, 515, Moved
26.693318367004395, 696, 515, Moved
26.713265419006348, 678, 515, Moved
26.715256929397583, 673, 515, Moved
26.717253923416138, 671, 515, Moved
26.719247579574585, 669, 515, Moved
26.721242904663086, 665, 515, Moved
26.724233865737915, 663, 515, Moved
26.72722601890564, 660, 515, Moved
26.745184421539307, 647, 515, Moved
26.758143424987793, 641, 515, Moved
26.776097059249878, 640, 515, Moved
27.38644576072693, 715, 515, Pressed
27.464237213134766, 715, 515, Released
27.539040565490723, 715, 515, Pressed
27.618828773498535, 715, 515, Released

```



Name	Description	#features
v_x	mean, std, min, max	4
v_y	mean, std, min, max	4
v	mean, std, min, max	4
a	mean, std, min, max	4
j	mean, std, min, max	4
ω	mean, std, min, max	4
c	mean, std, min, max	4
type	MM, PC, DD	1
elapsed time	$t_n - t_1$	1
trajectory length	s_n	1
dist_end_to_end	$ P_1 P_n $	1
direction	see Fig.6	1
straightness	$\frac{ P_1 P_n }{s_n}$	1
num_points	n	1
sum_of_angles	$\sum_{i=1}^n \Theta_i$	1
largest_deviation	$\max_i \{d(P_i, P_1 P_n)\}$	1
sharp angles	$\# \{\Theta_i \Theta_i < TH\}$	1
a_beg_time	accel. time at the beginning	1
Total		39



Technical Details

- Data Collect: Python(pynput)
- Model: Random Forest
- Game: CS-GO
- Gaming hack: Auto Aim(open source), Booster, AFK



Prospect

- Model Accuracy Enhancement
- Co-operations with game developers
- Game mode selection
- Other hardwares (ex: mic)
- Other applications of our model



Reference

*“Intrusion Detection Using Mouse Dynamics” M
Antal Et Al. 2018*

BALABIT MOUSE CHALLENGE DATA SET -
<https://reurl.cc/pypQjl>

Osiris - <https://reurl.cc/Ld29rX>

