

Predicting ESRB Ratings for Video Games

By Carl Cook

Game Ratings

- ◇ Generally Rated E – M
- ◇ Based on Content
- ◇ Detailed on Game Case

ANSWER THE CALL

THE SHADOW OF CALAMITY GANON RISES OVER THE ASHES OF HYRULE...

CRAFT YOUR SURVIVAL

DEFEND THE LEGEND

amiibo
Use compatible amiibo figures for helpful boosts on your adventure!

PLAY MODE	TV	Tablet	Smartphone
NUMBER OF PLAYERS	1	1	1

Voix et texte du jeu en français. Voices y compris dans les vidéos de jeu en français.

WARNING: IF YOU HAVE EPILEPSY OR HAVE HAD SEIZURES OR OTHER UNUSUAL REACTIONS TO FLASHING LIGHTS OR PATTERNING, CONSULT A DOCTOR BEFORE PLAYING VIDEO GAMES.

ESRB
Fantasy Violence
Mild Suggestive Themes
Use of Alcohol

MADE IN JAPAN HAC P AAAAAA USA 10521A
0 43496 59042 0

THE LEGEND OF ZELDA™: BREATH OF THE WILD

THE LEGEND OF ZELDA™
BREATH OF THE WILD

ESRB
Everyone 10+

Best RPG

EMBRACE THE DARKNESS
PEONGEZ DANS LES TÉNÉBRES

As firsts take and the world life journey, journey once more into a universe filled with more colossal enemies and environments. Deliver your world of epic atmosphere and darkness through the series hallmark revealing gameplay and massive graphics. Now only embers remain...

Tandis que les monstres s'éveillent et que le monde tombe en ruines, peinez dans un univers rempli d'énormes et d'immenses créatures colossales. Plongez dans une atmosphère épique et sombre à travers le monde de jeu grandiose et les graphismes massifs caractéristiques de la série. À présent, tout n'est que cendres...

DARKSOULS.COM

1 PLAYER
2-4 PLAYERS
DOLBY DIGITAL
HDD
2-4 PLAYERS
DIGITAL DOLBY DIGITAL
IN-PLAY OPTION
RENETE PLAY
DUALSHOCK 4
DUALSHOCK 4

ESRB
M
Blood
Violence
Sex
Smoking

PS4

DARK SOULS III

ESRB
M
Blood
Violence
Sex
Smoking

RECLAIM YOUR THRONE

Out on the road with his closest friends, Prince Noctis hears unsettling news: his homeland has fallen to the empire, with his father, his fiancée, and he himself reported dead. Unsure of what to believe, he knows only one thing—he must make his way home and take back what is rightfully his.

INCLUDES BONUS CONTENT* WEAPON: MASAMUNE (FFXV)

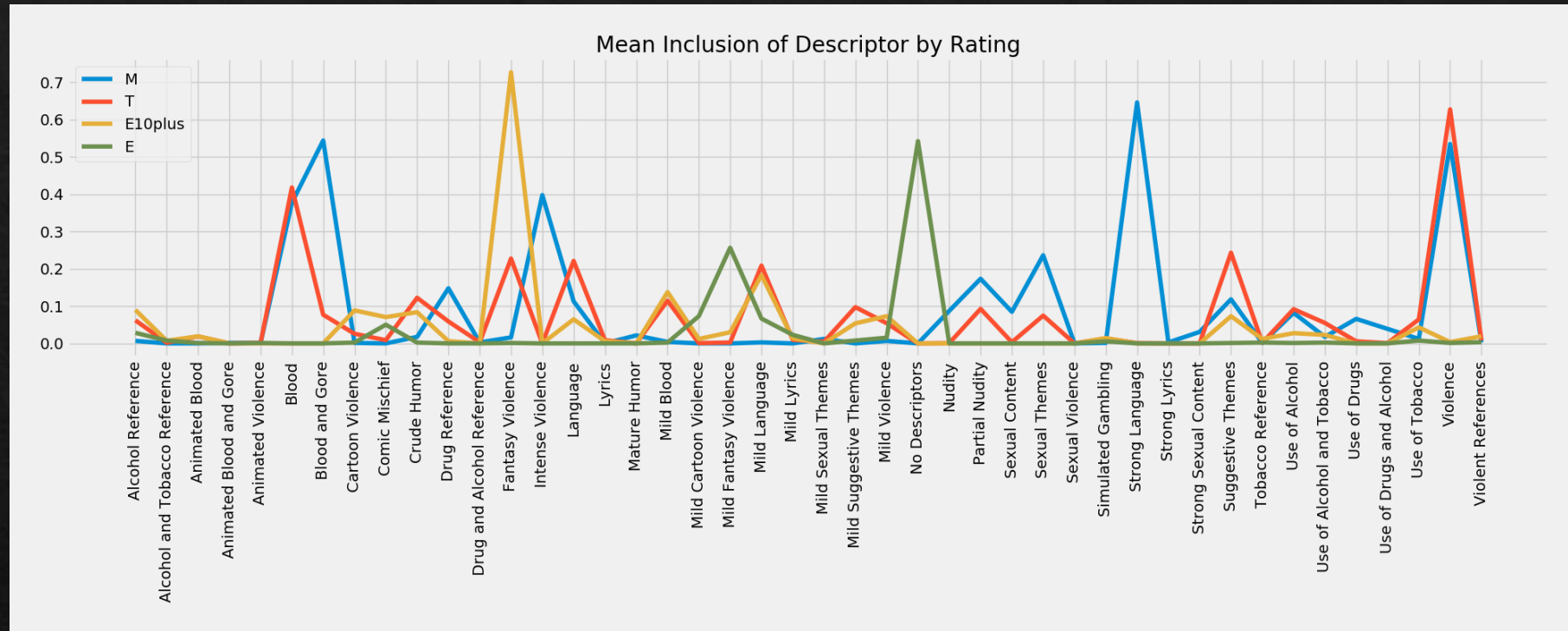
ESRB
TEEN
Mild Blood
Partial Nudity
Violence

FINAL FANTASY XV

ESRB
TEEN
Mild Blood
Partial Nudity
Violence

Goals

- ◆ Predict Game Ratings
 - ◆ Maximize Recall for M-rated Games
 - ◆ Minimize M-ratings Classified Below ‘T’
 - ◆ Identify Methods for Improvement

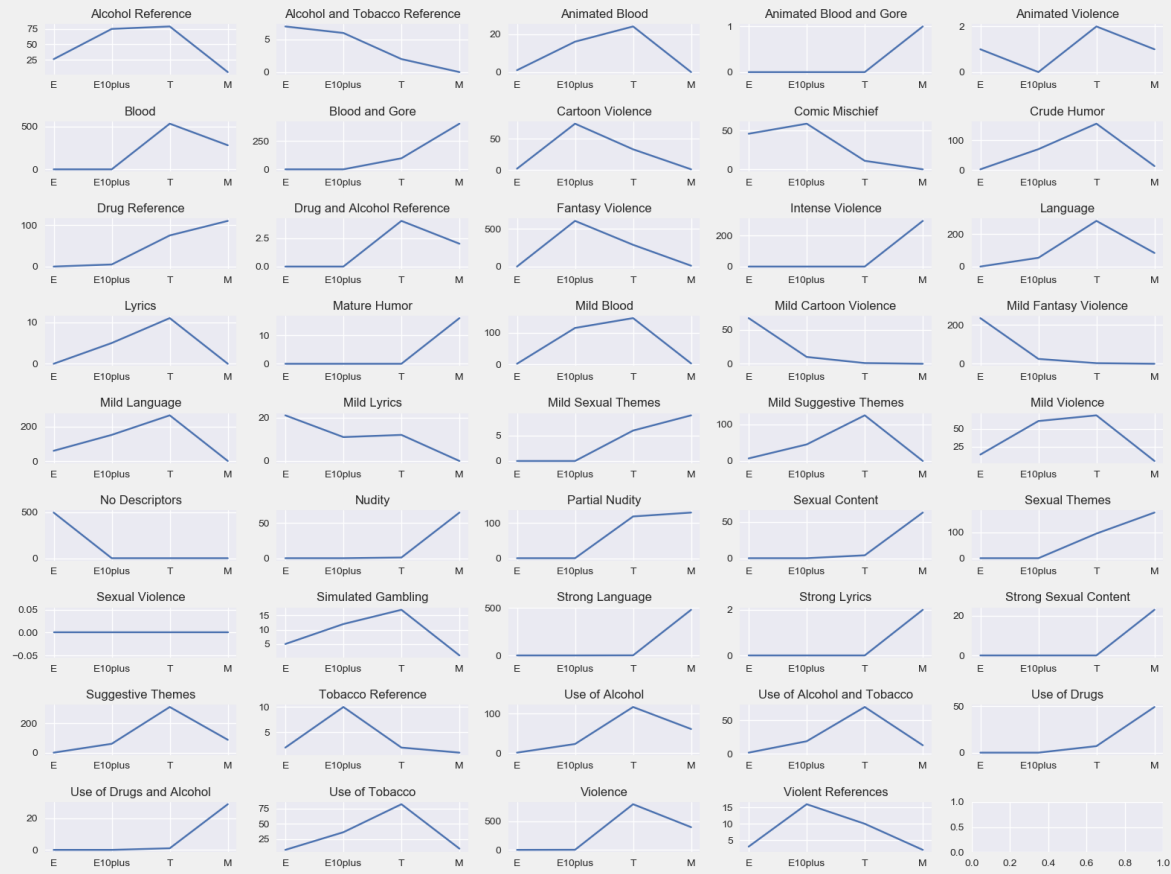


Rating Indicators

Most Indicative Descriptors:

- ◇ Blood and Gore
- ◇ Fantasy Violence
- ◇ Intense Violence
- ◇ Mild Fantasy Violence
- ◇ No Descriptors
- ◇ Strong Language

Ratings by Descriptor



Ratings by Descriptor (Scaled)

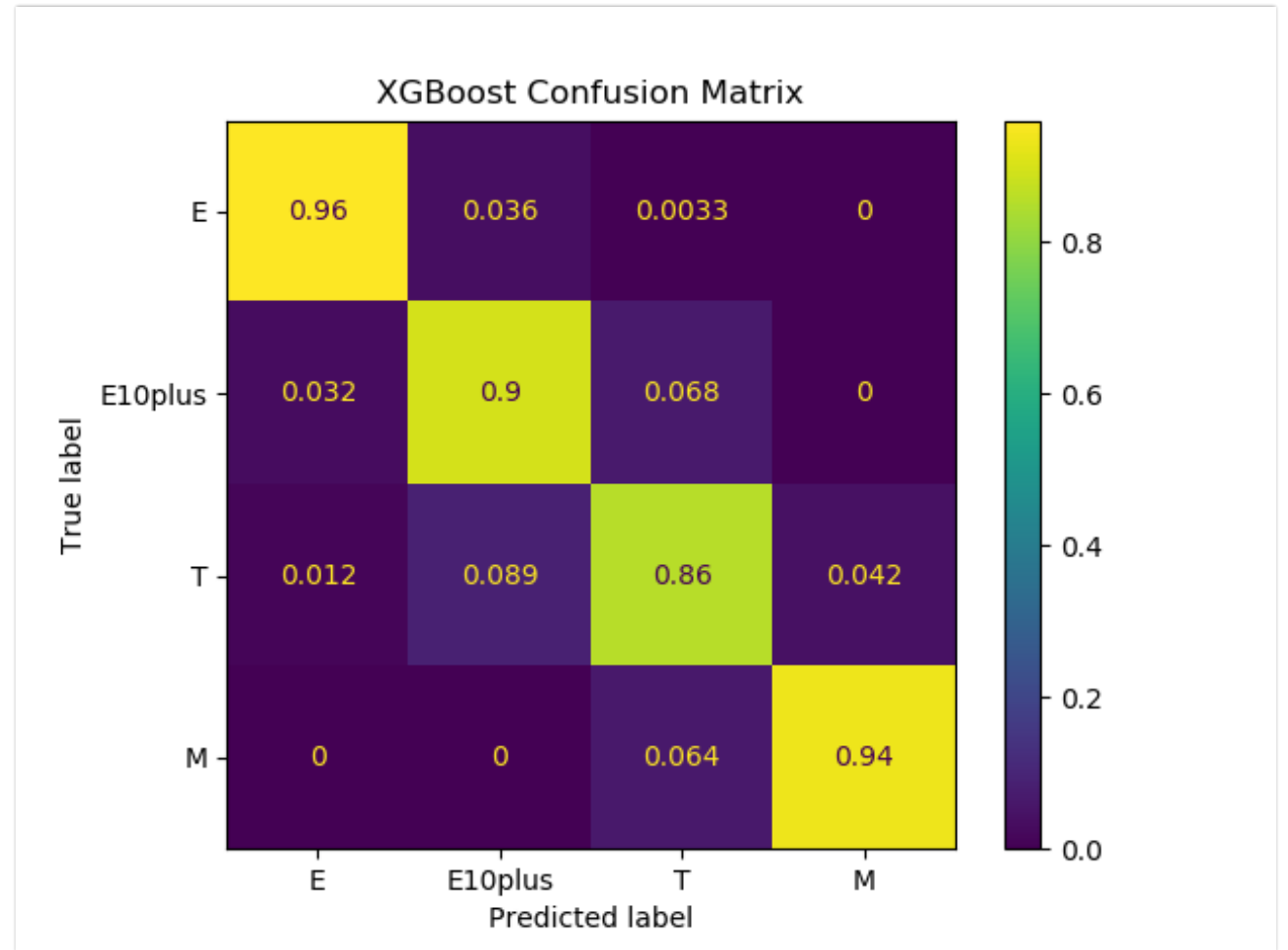


Descriptor Usage

Model Predictions

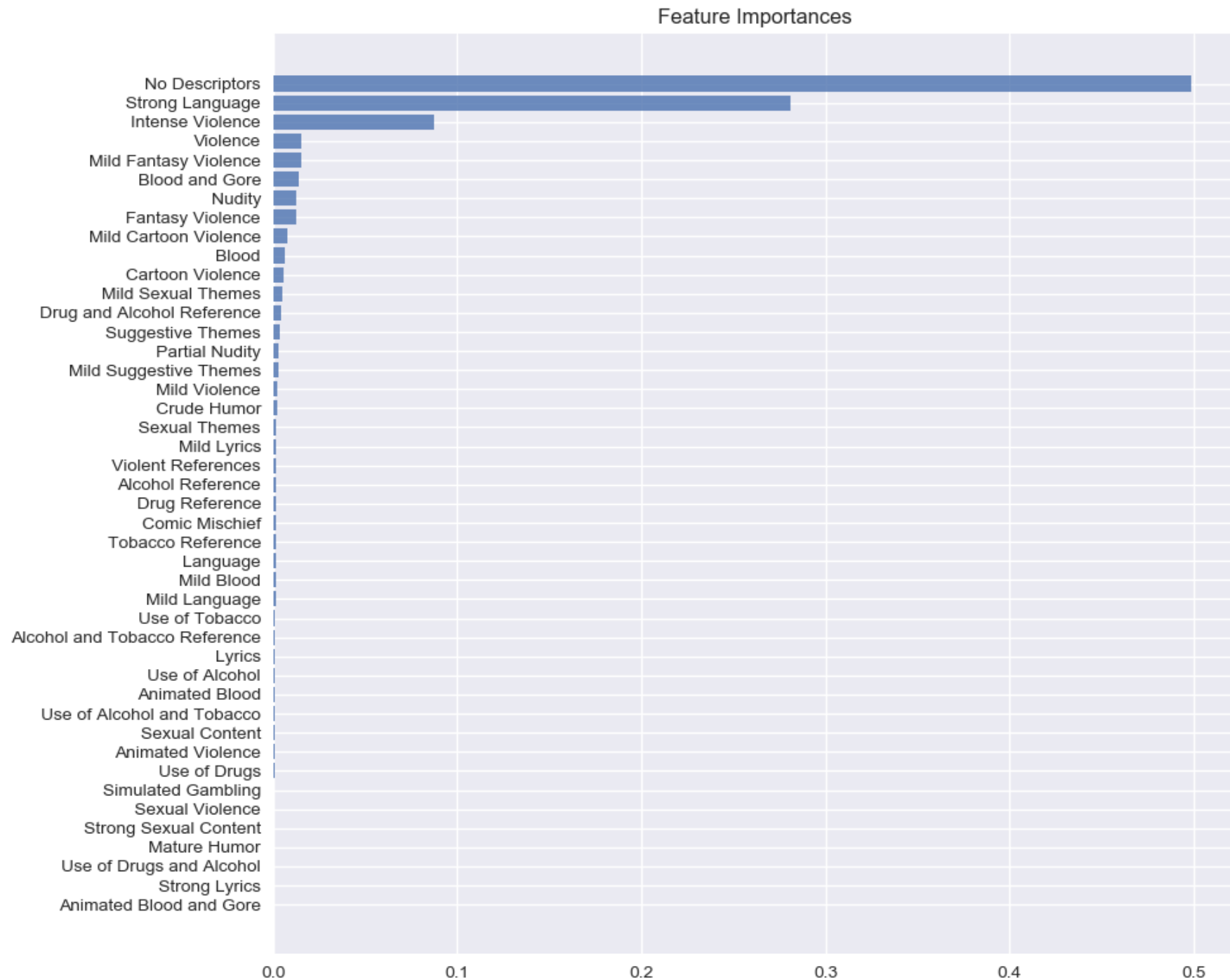
XGBoost Model:

- 94% recall for M ratings.
- Most misclassification is slight.
- No E/M or M/E misclassification.



Important Features

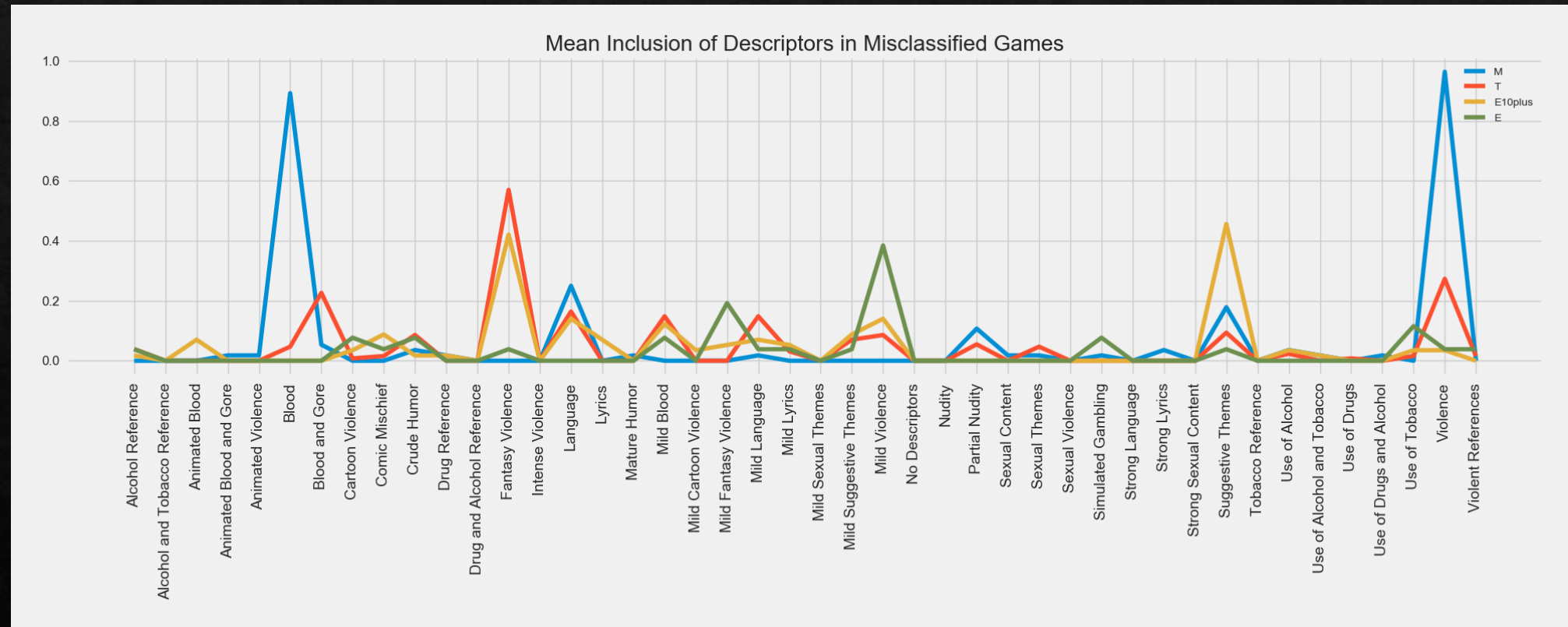
- No Descriptors
- Strong Language
- Intense Violence

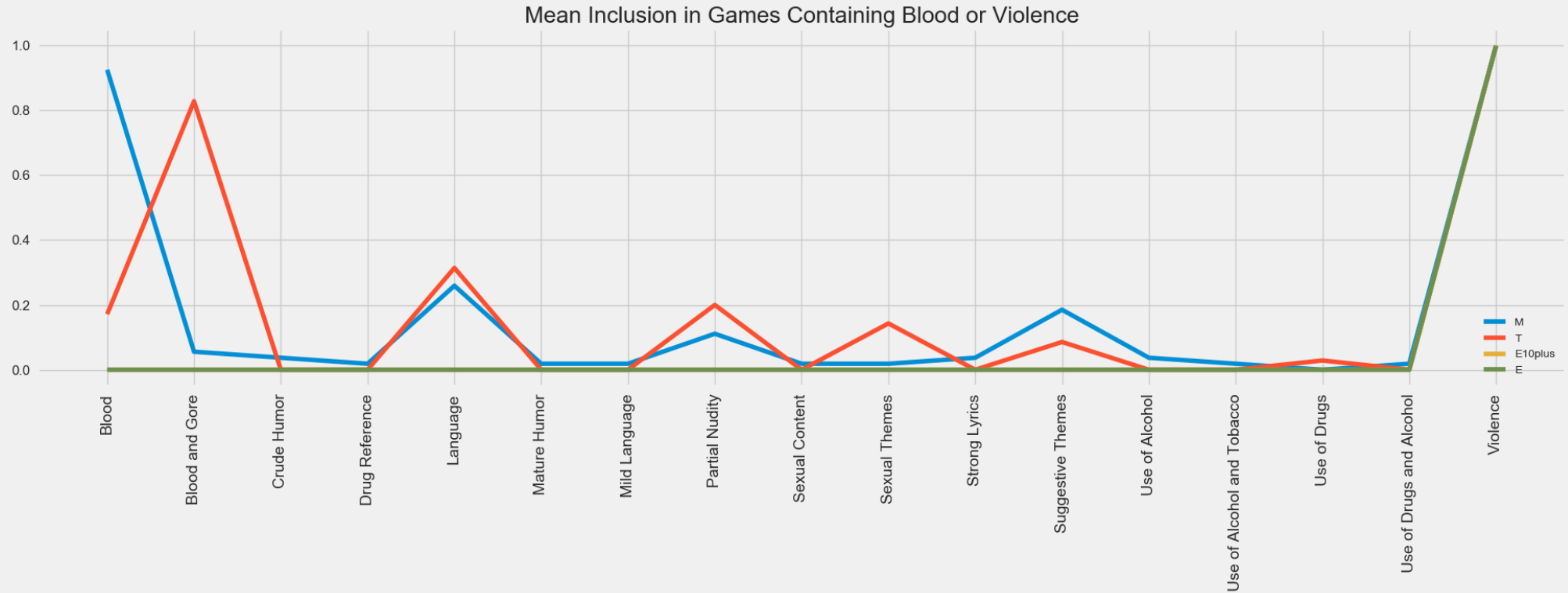


Misclassified Games

Common Descriptors :

- ◇ Blood
- ◇ Fantasy Violence
- ◇ Mild Violence
- ◇ Suggestive Themes
- ◇ Violence





Recommendations

- ◇ Consistent, Intuitive Labeling
- ◇ More Descriptive Labeling



Future Work

Image Classification



Thank you for your time and attention!