



# Sports Highlight



박태준, 신은우, 최준수





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Intro

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Obstacles  
&  
Progress

03

Goals

Intro

# LEAGUE<sup>of</sup> LEGENDS<sup>®</sup>



## 풀영상



## 하이라이트




Obstacles

≠

Progress

# 데이터셋 준비





**LCK\_Korea** ✓

[2020 우리은행 LCK Summer Split]

[League of Legends](#) e스포츠 한국



**LCK** ✓

구독자 51.6만명 · 동영상 2,279개

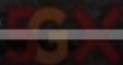
LCK 공식 유튜브 채널입니다. 풀경기 및 리플레이 등 다양한 콘텐츠를 제공합니다. 아래 링크에서 확인해주세요. cLIVE & LIV

00:00:02



우리은행

SKT

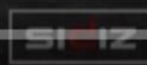


롯데캐피탈



TikTok

logitech



07:02:07



**INFERNAL DRAKE**  
**1:44**

**0** 4-9 **DYN**

5 53.8k

10 7

50.6k 1

**AF** 7-6 **1**

**BARON**  
**0:22**

YN Rich

YN Beyond

YN Kuzan

YN deokdam

YN GuGer

AF Fly

AF Spirit

AF F

AF Myst

AF Br

100%

15/11/127

308 0

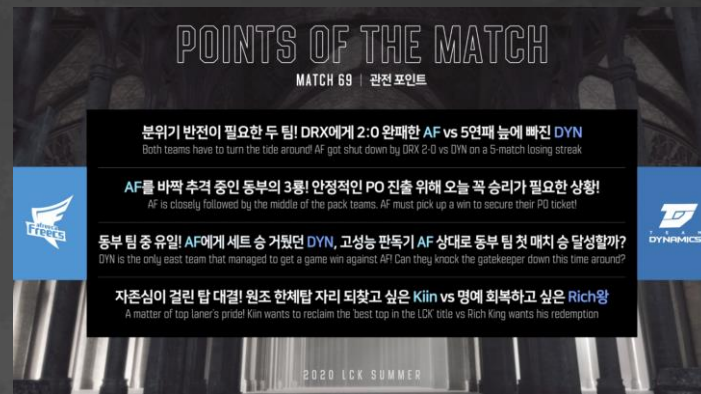
80 72

1.49 401

30	1/3/4	205	273	2/2/1	28
69	3/2/3	177	220	5/2/1	47
38	1/0/7	284	258	0/2/4	26
36	5/1/2	315	307	0/2/4	35
	0/1/5	35	31	0/2/4	

**LOL ESports**

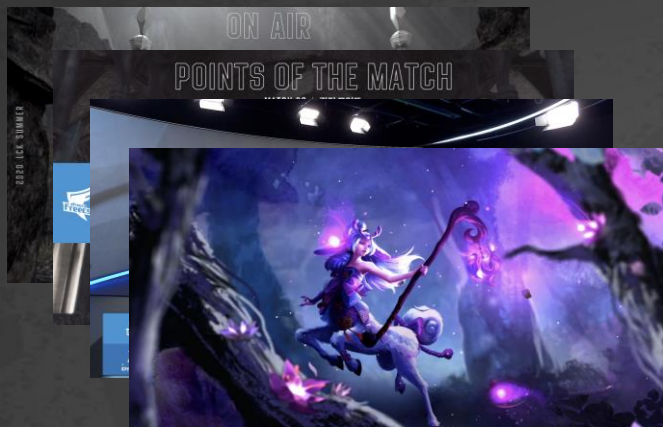
459





실제 경기 영상





Not in game

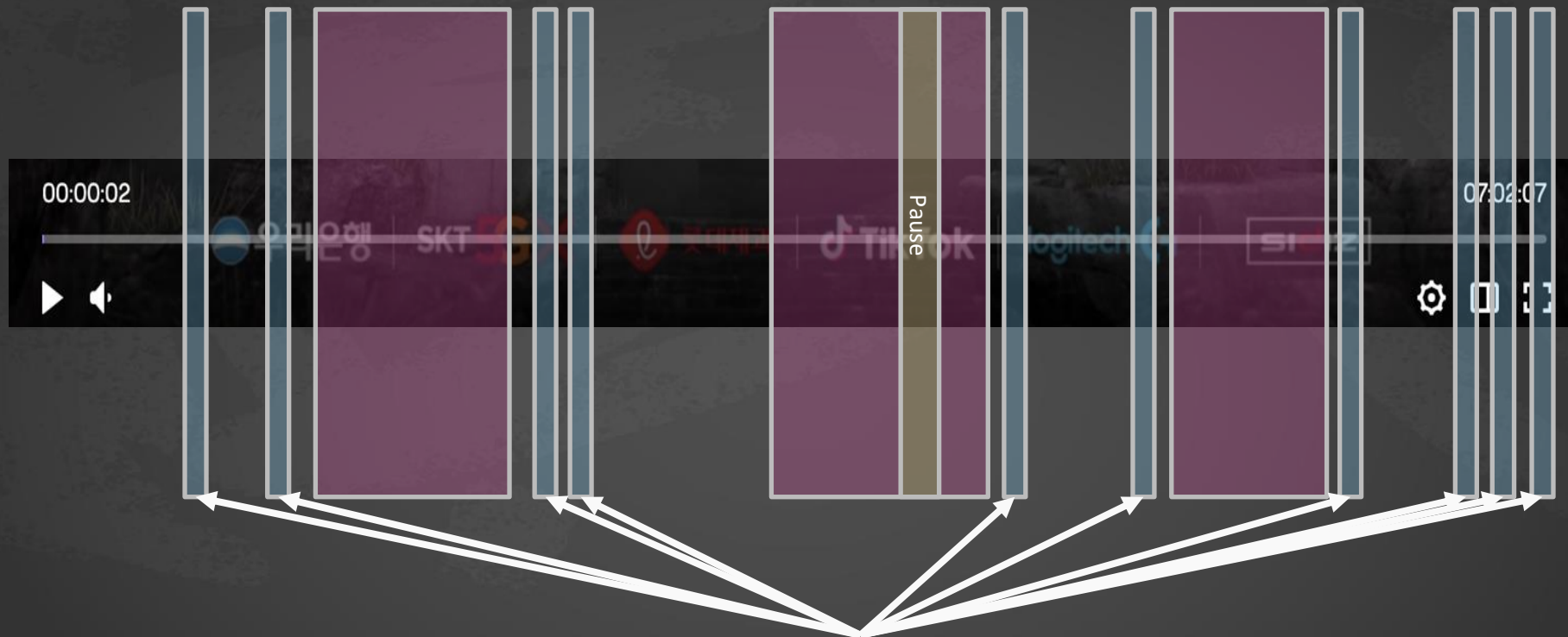


In game

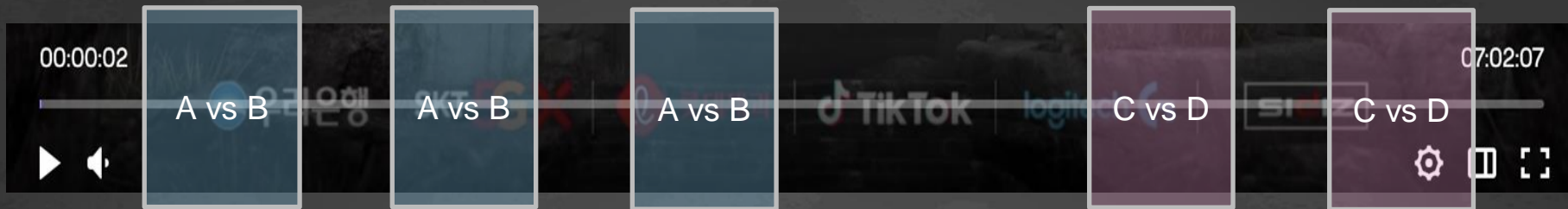


VGGNet

(Classification)



해설용 자료화면



???





# 하이라이트 레이블링

# Frame Matching

하이라이트 영상



경기 영상

# Mean Squared Error(MSE)

하이라이트 480p



풀영상 480p



# Scale Invariant Feature Transform (SIFT)



# SIFT Output

Frame 1

Frame 2



유저 인터페이스

# 그외...

SSIM: 너무 느림

GMSD: 라이브러리 버그

**FRAME-LEVEL MATCHING OF NEAR DUPLICATE VIDEOS BASED ON TERNARY  
FRAME DESCRIPTOR AND ITERATIVE REFINEMENT**

*Kyung-Rae Kim, Won-Dong Jang, and Chang-Su Kim*



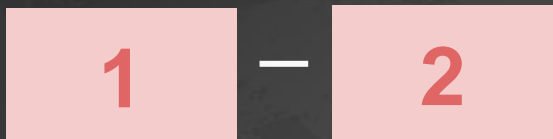
## 하이라이트



## 경기영상







VS



.....



VS



같은 Pair들간의 차이의 합

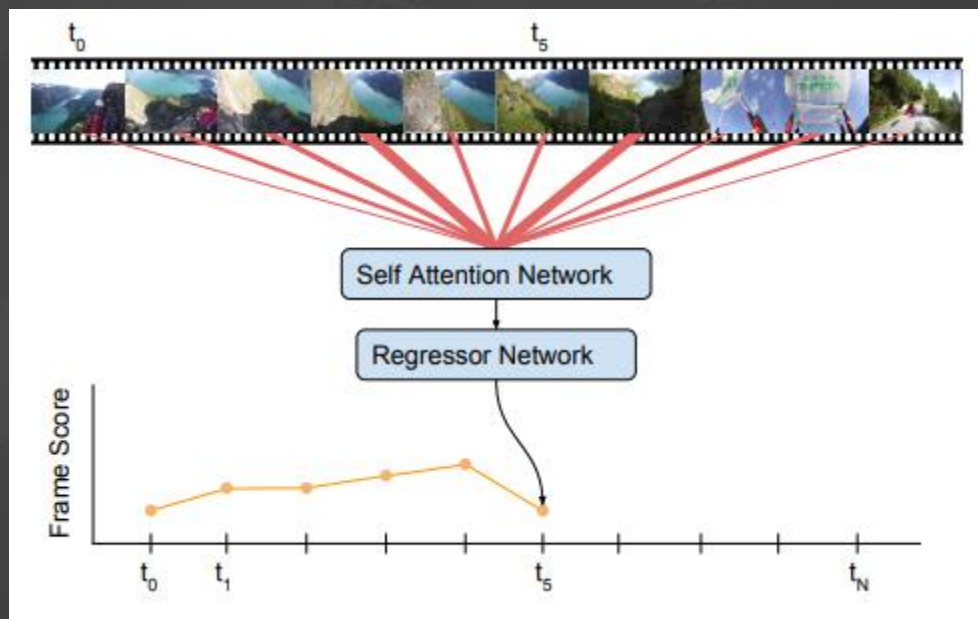
# 모델 학습

# Summarizing Videos with Attention<sup>\*</sup>

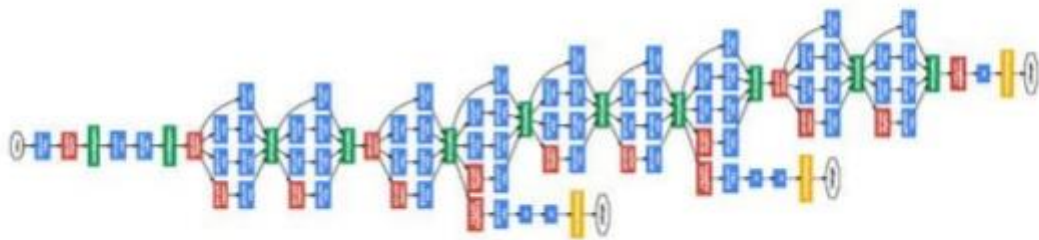
Jiri Fajtl<sup>1</sup>, Hajar Sadeghi Sokeh<sup>1</sup>, Vasileios Argyriou<sup>1</sup>, Dorothy Monekosso<sup>2</sup>,  
and Paolo Remagnino<sup>1</sup>

<sup>1</sup> Robot Vision Team RoVit, Kingston University, London, UK

<sup>2</sup> Leeds Beckett University, Leeds, UK



## GoogLeNet : Inception models

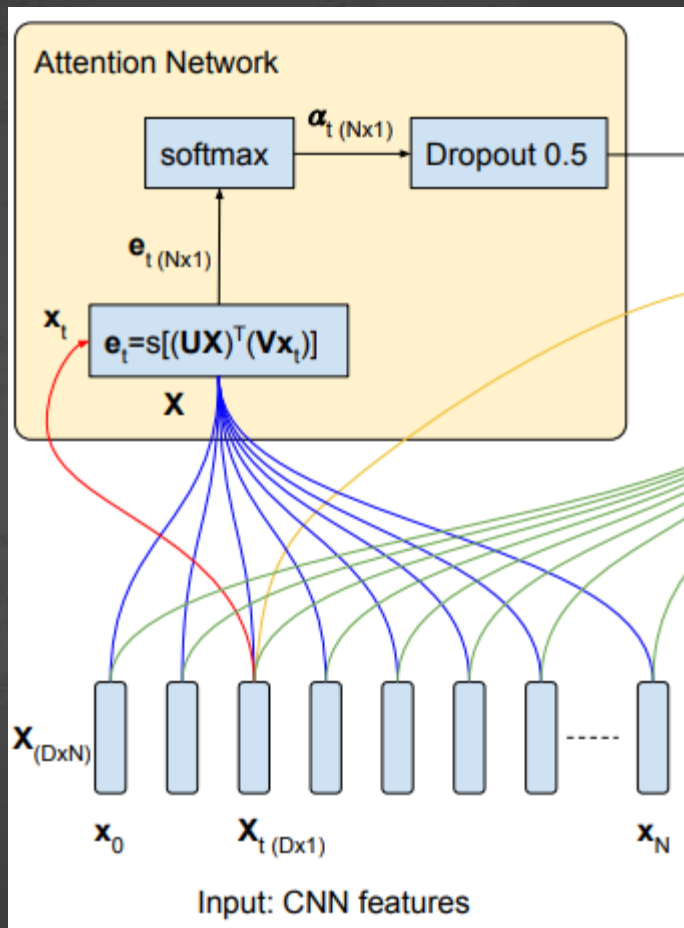


1024개의 Feature를 추출

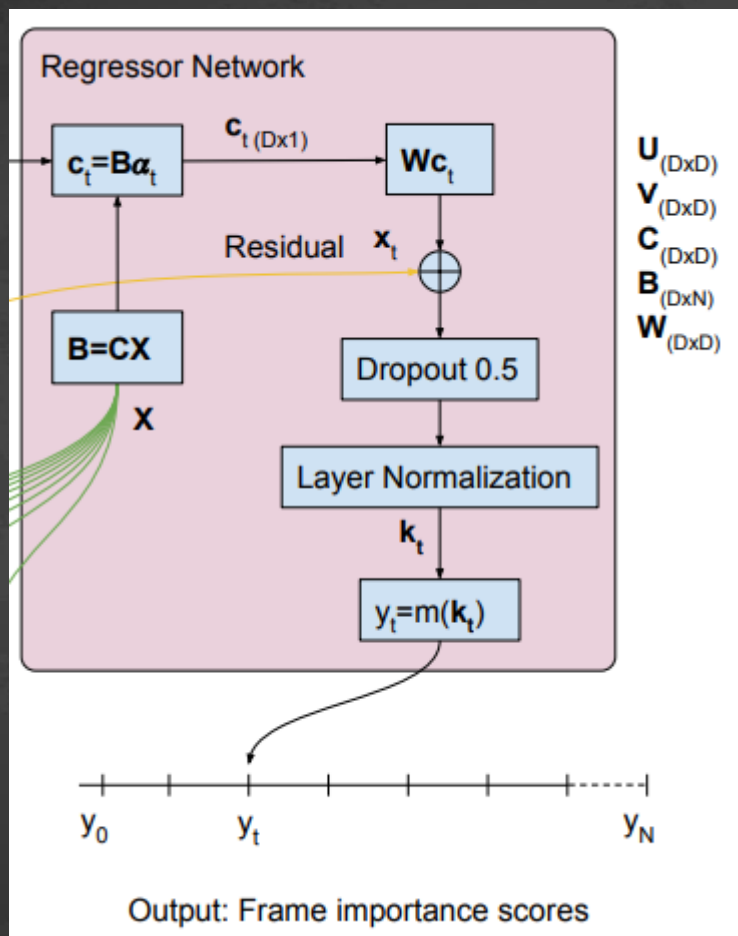
각 Feature가  
얼마나 중요한가

각 Feature를 더욱  
도드라지게!

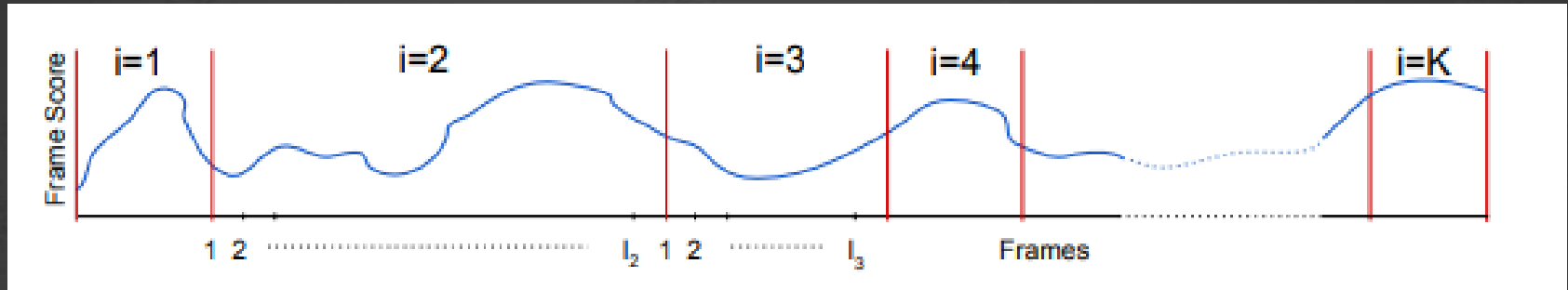
D개의 Feature



N개의 Frame



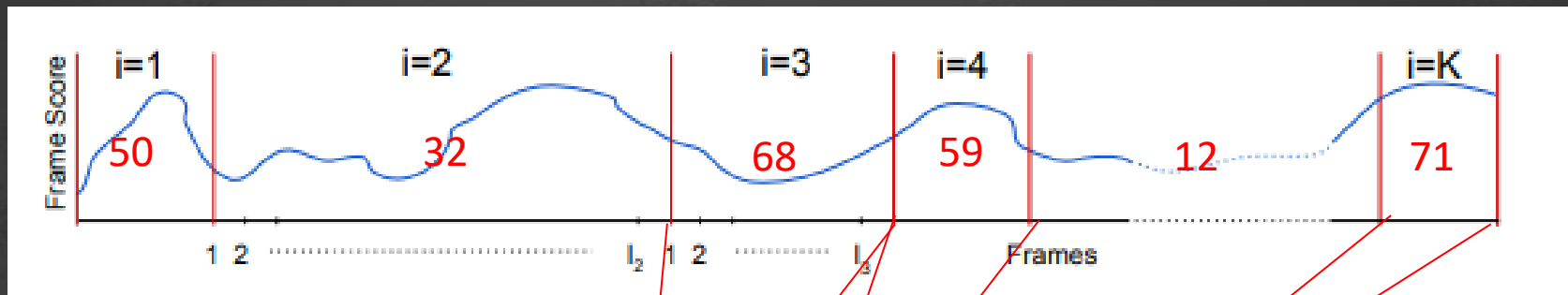
각 Frame별 score를 계산



## Video Segmentation

1. Kernel Temporal Segmentation
2. SIFT








추출한 하이라이트



# 알파모델 성능



-  True Positive
-  False Positive
-  False Negative

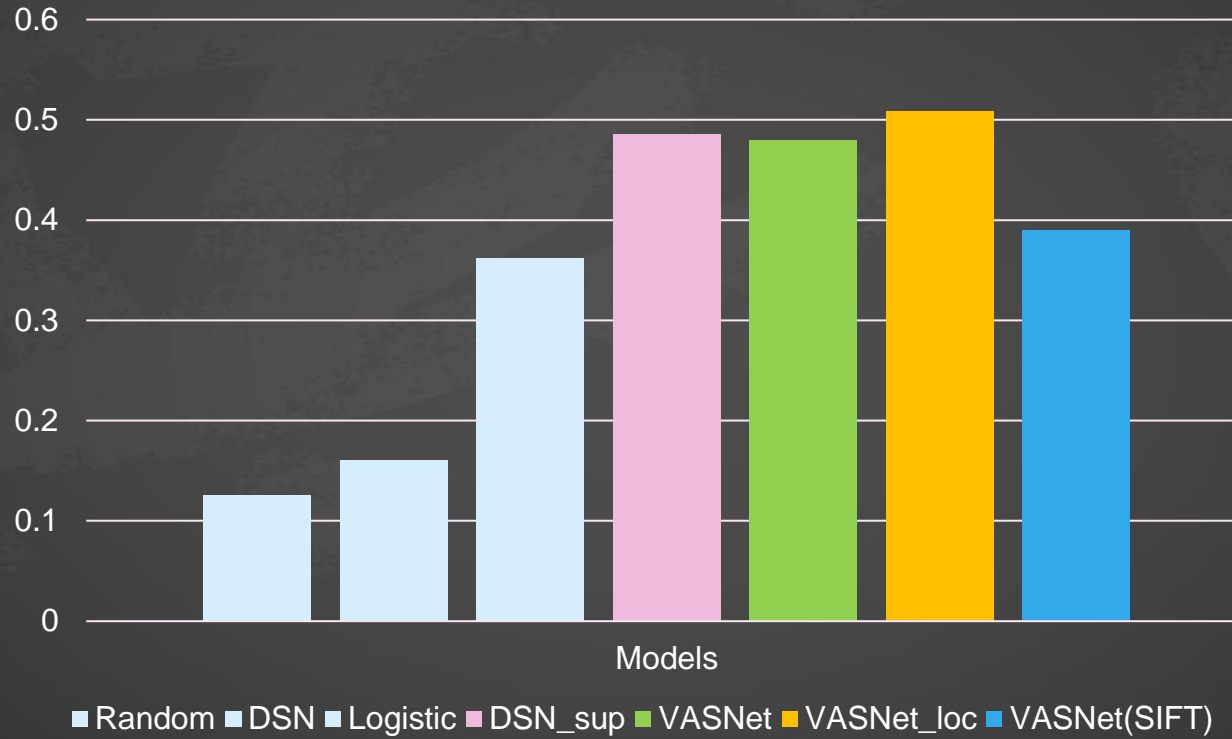
# 사람



# 모델



## F1 Score



$$F_1 = 2 * \frac{precision * recall}{precision + recall}$$

Goals



# Dataset

2020 LCK Summer

2020 Mid Season Invitational

2020 LCK Spring

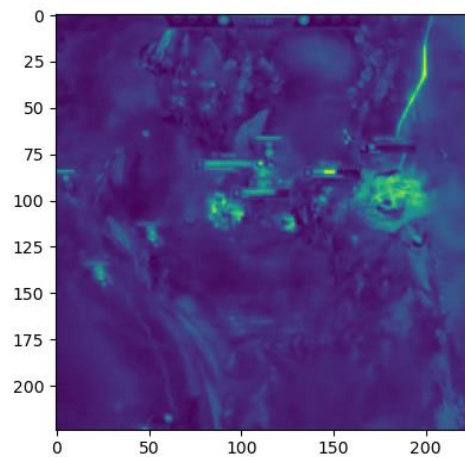
2019 LOL Championship

2019 LCK Summer

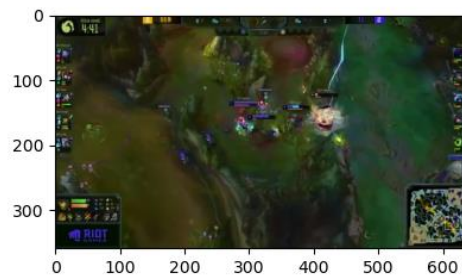
▪  
▪  
▪



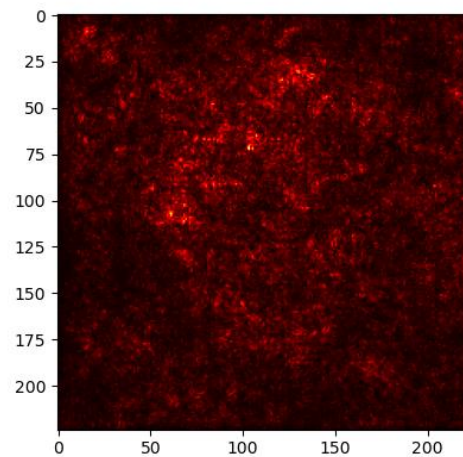
# GoogLeNet Features



Cropped



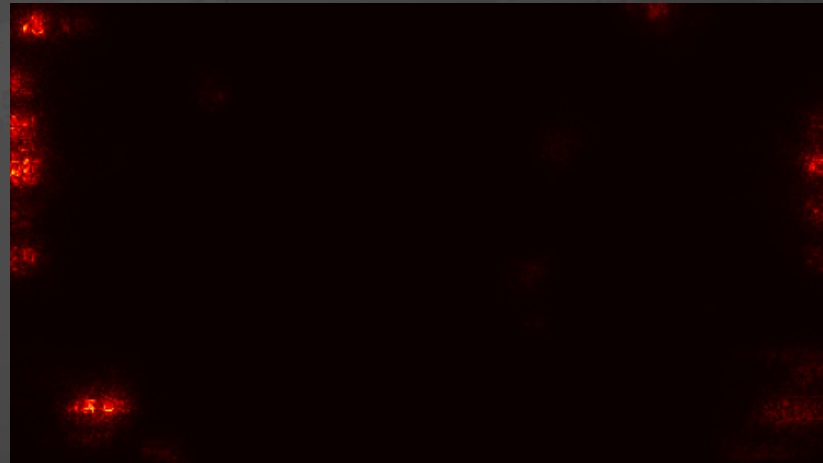
Original



Saliency Map



# VGGNet Features



# 해설진 음성

일반 상황 

하이라이트 

새로운 도전

감사합니다  
Q&A