

고려대학교
빅데이터 연구회

KU-BIG

Credit Card Fraud Detection

EBB



E B B



목 차



Project Timeline



Study Review



Autoencoder with Pytorch



github



파일

수정

보기

삽입

서식

데이터

도구

부가기능

도움말

드라이브에서 모든 변경사항이 저장되었습니다.

	A	B	C	D	E	F	G	H	I	J	K	L	M
1		참고											
2		이벤트		이번주	발표1		발표2 (홈커밍)						
3		발표주제		데이터 설명, 오리가 추구하고 Novelty	용어정리(outlier, Novelty)		O/A/N차이 설명, Novelty						
4		발표자		예은	수형		현우	정은		희정			
5	내용	참고	4/4	4/11	5/2	5/10	5/16	5/23	5/30	6.7			
6	깃허브 뉴토리얼	[쿠빅 레포] 파이썬/주피터/깃 허브데스크탑 설치											
7	깃허브 뉴토리얼	[쿠빅 레포] 설치/push-pull 간단가이드/read me.md											
8	용어정리	Outlier/Novelty/ Anomaly											
9	Evaluation Measure 정리	Precision/Recall /AUROC/AUPRC											
10	Autoencoder / Variational Autoencoder 스터디	https://goo.gl/b9zmzd											
11	Pytorch 뉴토리얼												
12	데이터 확정 / EDA	Detection with											
13	Novelty Detection with VAE 뉴토리얼	https://goo.gl/Zxg3Ev											
14	데이터셋에 적용												
15	Statistical Learning												
16	발표준비												
17													

2) Study Review

Variational Autoencoder: Intuition and Implementation

<https://bit.ly/2HsiTaK>

-> 블로그 포스트로 가볍게 접근

Auto-Encoding Variational Bayes

Diederik P Kingma, Max Welling, 2014

-> Variational Autoencoder의 개념이 처음 제시된 논문

Variational Autoencoder based Anomaly Detection using Reconstruction Probability

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-> VAE를 이용한 Anomaly Detection이 처음 제시된 논문

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다음주에 빛정은이 발표 ^.^

3) Novelty Detection on MNIST Dataset

9

A digit as a novelty

0
1
2
3
4
5
6
7
8

Others as normal data

```
class VAE(nn.Module):
    def __init__(self, image_size = 784, h_dim = 400, z_dim = 20):
        super(VAE, self).__init__()
        self.fc1 = nn.Linear(image_size, h_dim)
        self.fc2 = nn.Linear(h_dim, z_dim)
        self.fc3 = nn.Linear(h_dim, z_dim)
        self.fc4 = nn.Linear(z_dim, h_dim)
        self.fc5 = nn.Linear(h_dim, image_size)

    def encode(self, x):
        h = F.relu(self.fc1(x))
        return self.fc2(h), self.fc3(h)
    def reparameterize(self, mu, log_var):
        std = torch.exp(log_var/2)
        eps = torch.randn_like(std)
        return mu+eps*std
    def decode(self, z):
        h = F.relu(self.fc4(z))
        return self.fc5(h)

    def forward(self, x):
        mu, log_var = self.encode(x)
        z = self.reparameterize(mu, log_var)
        x_reconst = self.decode(z)
        return x_reconst, mu, log_var
```

빛희정 코드 https://github.com/KU-BIG/novelty-detection/blob/master/novelty_detection_pytorch.ipynb



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KU-BIG

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novelty-detection

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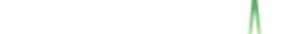
project_default_to_clone

Updated on Apr 2



KUBIG_2019_Spring

Jupyter Notebook 2 Updated on Mar 31



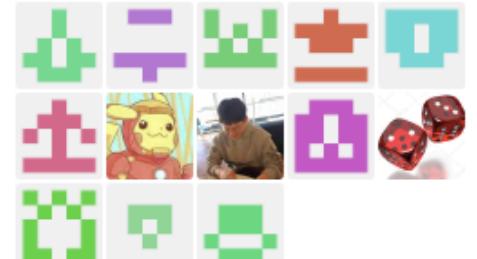
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0 releases

2 contributors

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AnnaJeong Add files via upload

Latest commit fa706d3 3 hours ago



[generated] eda & about novelty detection

17 days ago



[generated] eda & about novelty detection

17 days ago



Update README.md

7 days ago



[generated] eda & about novelty detection

17 days ago



[generated] loss function implemented

7 days ago



[modified] def train() updated

7 days ago



Add files via upload

3 hours ago



[generated] variational autoencoder implemented

7 days ago



Credit Card Fraud Detection

Credit Card Fraud Detection

About Credit Fraud Dataset :

- From [Kaggle \(Credit Card Fraud Detection\)](#)
- Highly unbalanced data (492 frauds out of 284,807 transactions)

Download Dataset

```
$ cd ..  
$ mkdir data  
$ cd data  
$ kaggle datasets download -d --unzip mlg-ulb/creditcardfraud
```

Columns

- **Input variables**
 - 28 numerical input variables V which are the result of a PCA transformation
 - 'Time' contains the seconds elapsed between each transaction and the first transaction in the dataset. (172792.0 seconds = about 48 hours = about 2 days)
 - 'Amount' is the transaction Amount, this feature can be used for example-dependant cost-senstive learning
- **Target Variable**
 - 'Class' is the response variable and it takes value 1 in case of fraud and 0 otherwise.

4) GitHub

깃허브 가이드 (팀원용)

<https://bit.ly/2LWieDE>

-> 계정생성/설치, 기본적인 push, pull 사용법

깃허브 가이드 (조장용)

<https://bit.ly/2HmDEFW>

-> Branch, Merge, Pull Request 개념 포함하여 설명

GitHub Desktop 기본 설치 및 사용법

<https://bit.ly/2Hs0hHP>

-> 저보다 대단하신 분이 만드신 슬라이드

+) 추가로 필요한 부분이 있으면
팀별로 혹은 세션때..?



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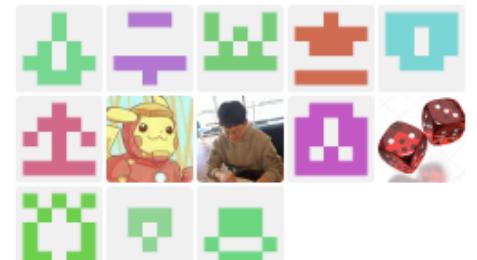
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Create a new repository

A repository contains all project files, including the revision history. Already have a project repository elsewhere? [Import a repository](#).

Owner



KU-BIG ▾

Repository name *

/

Great repository names are short and memorable. Need inspiration? How about [didactic-barnacle](#)?

Description (optional)



Public

Anyone can see this repository. You choose who can commit.



Private

You choose who can see and commit to this repository.



Initialize this repository with a README

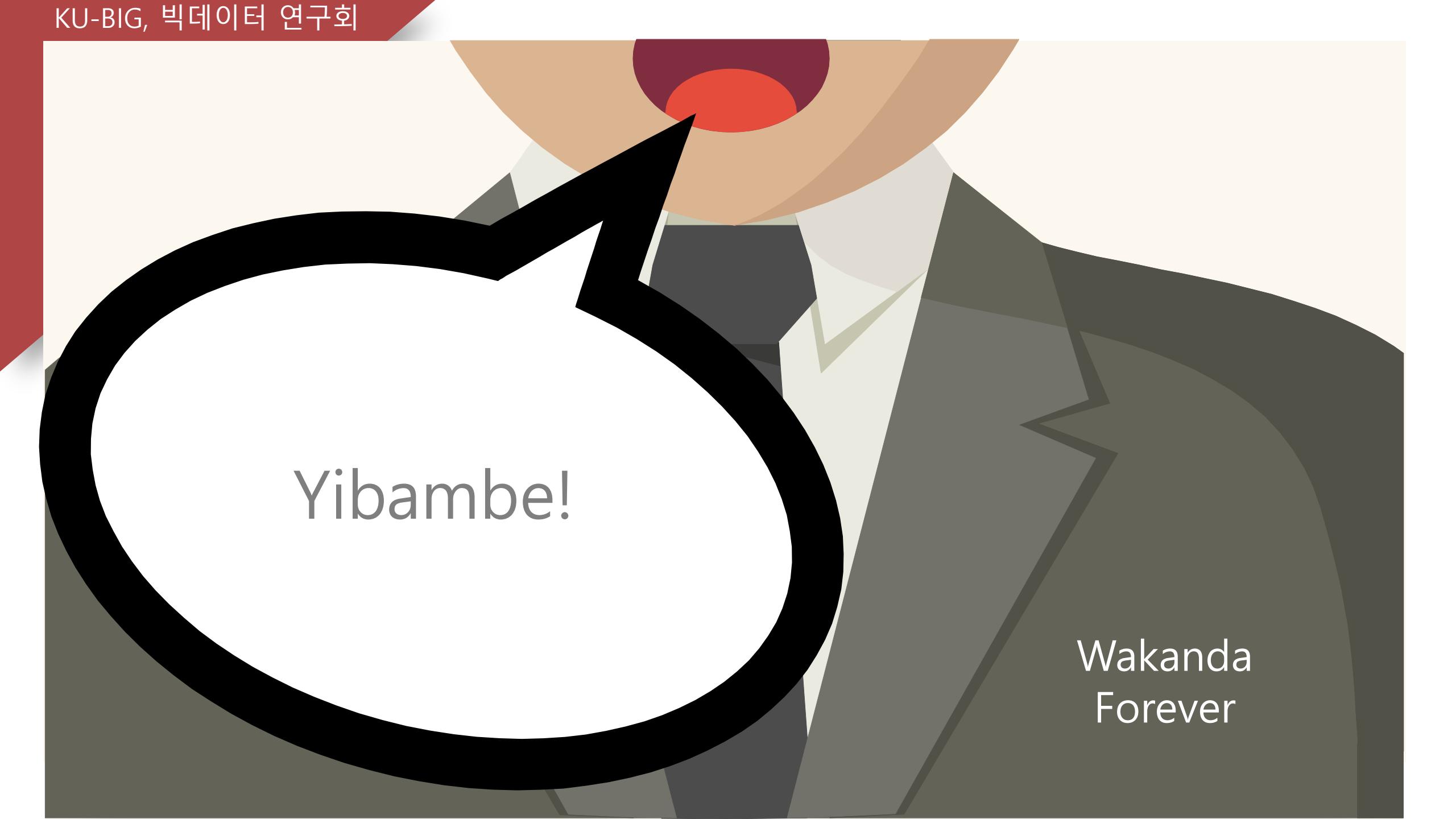
This will let you immediately clone the repository to your computer. Skip this step if you're importing an existing repository.

Add .gitignore: None ▾

Add a license: None ▾



Create repository



A stylized, abstract portrait of T'Challa (Black Panther) is positioned in the background. The portrait uses geometric shapes like triangles and circles in shades of brown, tan, and red for the head and shoulders, while the body is composed of dark grey and black angular forms. A large, solid black circle overlaps the lower-left portion of the portrait.

Yibambe!

Wakanda
Forever