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ARTICLE HISTORY	ABSTRAK
Received [08 Juni 2023] Revised [30 Juni 2023] Accepted [05 Juli 2023]	Masyarakat dicirikan oleh hidup bersama dari berbagai budaya, dan sebagai akibat dari globalisasi, kota-kota semakin banyak dibangun dengan cara yang sama. Bagaimana ini bisa dihindari? meme budaya urban dalam lingkungan multikultural penting untuk pertumbuhan kota. Sebagian besar evaluasi gaya perkotaan sebelumnya mengandalkan tugas klasifikasi langsung. Tanpa memperhitungkan komponen visual kota yang paling penting secara keseluruhan untuk mencapai aspek visual kota. Untuk melakukan ini, kami menggunakan metode pembelajaran kamus untuk mengekstrak media sosial visual twitter dan meme dari data citra sepuluh
KEYWORDS	perwakilan wilayah perkotaan dari seluruh dunia. Kami kemudian menggunakan kesamaan
Urban Dictionary, memes, twitter	memetik untuk menghitung persamaan dan perbedaan simetris antara kota-kota dan representasi jarang untuk menginterpretasikan penyebab persamaan dan perbedaan ini. Temuan eksperimental menunjukkan bahwa meme visual dan utas media dari twitter memiliki beberapa batasan di seluruh kota, yaitu komponen gaya perkotaan sangat mirip sementara kombinasi logis dari meme visual sangat berubah, yang menjelaskan variasi gaya perkotaan di seluruh kota.
	ABSTRACT
This is an open access article under the <u>CC-BY-SA</u> license	Human society is characterized by the living together of various cultures, and as a result of globalization, cities are increasingly being built similarly. How can this be avoided? urban culture memes in a multicultural setting are important for the growth of a city. The majority of earlier evaluations of urban style relied on straightforward classification tasks. Without taking into account the most important visual components of cities as a whole in order to achieve the visual aspects of cities. In order to do this, we use the dictionary learning method to extract visual social media twitter and memes from the image data of ten representative urban areas from around the world. We then use memetic similarity to quantify the symmetric similarities and differences between cities and sparse representation to interpret the causes of these similarities and differences. The experimental findings show that visual memes and media thread from twitter have some restrictions across cities, i.e., the components of urban style are very similar

# INTRODUCTION

in urban style across cities.

while the logical combinations of visual memes change greatly, which accounts for the variations

We have the ability to research what people are interested in and discussing thanks to online communities. This includes discussing politics, sports, and general news. These communities do not, however, operate in a vacuum; the same individuals might use other platforms, and knowledge may spread from one community to another. We frequently observe this ecosystem impact, for instance, when memes and news media are shared. Investigating these connections can help us gain a better understanding of how content is distributed around the internet and how users interact with different platforms.

In this study, we rely on the Urban Dictionary (UD) platform, a public online dictionary of English slang and informal phrases. Urban dictionaries are known for being complicated and noisy, but they may be extremely useful for gaining insight into new slang terms [17]. It provides a perspective on the culture and acts as a mirror for certain aspects of modern society. Examples of how actual-world events affect language use online include increases in definitions around U.S. Presidents George W. Bush (in office from 2001 to 2009), Barack Obama (from 2009 to 2017), and Donald Trump (from 2017 to the present).

The building of cities gradually tends to be together, and the coexistence of diverse cultures has become a unique characteristic of human society as urbanization and global cultural interactions expand. According to Battiston, it is crucial for a society or a group to identify the characteristic urban design of a city in a multicultural setting in order to preserve the uniqueness of the culture itself. The urban style is a key representation of urban culture and includes the city's culture, legacy, history, and image. Finding the unique aspects of the urban style and examining the causes of the differences and similarities of urban style is particularly crucial for the development of the distinctive culture because previous research on the characteristics of urban style was in its early stages and neglected to combine its own historical monuments, humanistic style, and other significant elements.

What separates slang from formal language? Cooper (2005) found that the distribution of the number of senses per word in a dictionary is nearly exponential. Accordingly, most words only have one definition, and the number of terms having this many definitions declines exponentially as the number of definitions for a word rises. With slang, however, this is not the case. With slang, the distribution is almost flat, with a tiny decline as we get closer to a word having more senses. Slang has a very unclear meaning because of this. It should be noted that this study did not focus on slang; rather, it compared it to formal English and formal French.

In a scientific work, there are several vocabularies that are difficult for students to understand, especially for UINSU students in the faculty. As we all know, many UINSU students have very little vocabulary knowledge and rely on the common words found in dictionaries or simply use Google translate. education in English. In addition to formal language and meanings that students can recognize, many scientific books also include grammatical settings for each phrase and paragraph. The urban dictionary is defined as informal words with ambiguous meanings that can only be expressed by an emotional picture among young people to be in use and is frequently found in several social media, especially on twitter and tik tok. On the other hand, students also have ease and difficulty understanding some modern vocabulary, especially in the urban dictionary. The urban dictionary has advantages for comprehending millennial youngsters since it contains words that are frequently used in media content, including music, blogs, YouTube vlogs, social networking homepages, and other websites. In addition, there is no need to memorize it or use the outdated method of opening the dictionary. The urban dictionary's weaknesses in terms of student comprehension include recognizing the numerous new vocabulary kinds that regularly occur but with a hazy knowledge of the meaning of the vocabulary's actual meaning. Some of the most recent light novels, short tales, fanfiction/Alternate Universe, blogspots, etc. all contain a small amount of informal language or modern vocabulary. With this, it's acceptable that the urban dictionary will have an impact on how effectively millennial learners are able to create original works of writing.

# THEORY OF INTERPRETATION URBAN DICTIONARY

#### **Urban Style analysis**

The urban style is a representation of urban culture, with historical sites, urban structures, and street names serving as particular examples. Studies on urban style use both textual and visual data as their data sources. Text-based methods frequently use attributes, like the names of particular representations of urban style, to gather and analyze data. Daniel discovered that religious street names have a close relationship to the cultural elements they capture and can be closely related to local economic development, which can reflect a city's social and urban style. In order to investigate the terminology used to describe urban centers, the geographic distribution of urban cultural centers, and the boundaries of urban cultural center communities at the level of individual cities, Livia collected georeferenced and tagged metadata associated with eight million Flickr images. By describing the identity of a city through attribute analysis of 2 million geo-tagged images from 21 cities on three continents, Zhou examined the visual similarity of various urban styles.

Image-based data, as opposed to text-based data, contains rich visual information and provides a more natural representation of the urban environment. The relationship between the appearance of a city and the behavior and health of its residents was determined by Abhimanyu using a convolutional neural network approach to quantify the perception of urban appearance by looking at six perceptual attributes: safe, lively, boring, rich, frustrated, and beautiful. argued that the most distinctive geographic visual features

for Paris and the distinctive signs that can set it apart from other cities are windows, balconies, and street signs. Therefore, in order to find representative urban style components from streetscape images, a discriminative clustering method was used to recognize and categorize them.

To determine the architectural style and type of style of Mexican cultural heritage, Abraham used convolutional neural networks to identify images. Although there are analyses of the similarities in style between various cities, the majority of the studies on urban style discussed above focus on identifying urban elements and do not take into account the overall style characteristics of cities. As a result, they are unable to explain the reasons for the differences and similarities in urban style.

## Interpretation urban dictionary Theory

DEHASEN

Under the tagline "Define Your World," Urban Dictionary is a crowdsourced online dictionary of slang words and expressions. Aaron Peckham founded the website in 1999. The Urban Dictionary, which is now used to define any word, event, or phrase (including sexually explicit content), was originally intended to be a dictionary of slang or cultural words and phrases not typically found in a standard dictionary. In the Urban Dictionary, a word or phrase may have several labels, usage examples, and definitions. Over seven million definitions have been added to the dictionary since 2014, and 2,000 new words are added each day.

These words are frequently used by young people because there are numerous trends that kids follow today that can be interpreted as slang. The definition of the word from the urban dictionary then has its own meaning from the existing word, making it clear from the data when it frequently appears how many new words there are and that young people frequently use them both online and in person.

## **Dictionary Learning**

In the same way that a finite dictionary can represent a sizable body of knowledge, a sizable dataset can be represented by a small number of low-dimensional features. In order to reduce the dimensionality of the data while maintaining the accuracy of the information, dictionary learning aims to extract the most crucial features of things, also known as dictionary atoms. The goal of class-specific dictionary learning, a subset of dictionary learning techniques, is to discover the relationship between atoms and class labels. This can be done in a variety of ways by adding the proper constraint and penalty terms. It can be used for a variety of classification tasks. In order to obtain the cognition of human action, Binjie Gu et al. considered the combination of the representation-constrained term and the coefficients incoherence term and input these two jointly into the classification model. This was done on the basis of building the sparse representations of the training samples used for classification in each category into a dictionary separately. To make the dictionaries linked to the various categories as independent as possible, the term "incoherence-promoting" is used. The prior distribution for learned dictionary atom is modeled using a modified Gaussian mixture model. Cross-lingual dictionary learning methodology is used to implement text classification for various languages in order to fulfill the goal of learning shared dictionaries in different expressions of the same knowledge, carries out a variety of visual tasks well.

# **RESEARCH METHODS**

#### Data pre-processing

In this paper, some images of flowers and grasses that are not related to buildings are deleted and categorized according to cities. Because of the large sample size, this paper adopts the way of random sampling to select samples, for each city randomly sampled 5000 images each.

#### **Data preprocessing**

This paper removes irrelevant images of flowers and grasses, categorizes them by cities, and uses random sampling to select samples. For each city, 5000 images are randomly sampled, resized to a

standardized size, and divided into a training set and a test set in a 6:4 ratio. This process is repeated five times, and the test set with the highest accuracy is considered the final result.

## **Extraction of style features**

After dividing the test set and training set, style features are extracted from the samples, and a style vector is obtained for each sample. Dictionary learning: The DPC method is employed to learn the dictionary of style vectors from the training set. The dictionary and sparse matrix of each city are obtained. The test set's style vectors are tested for similarity and difference between cities. The dictionary is then used to calculate the memetic similarity between cities and analyze the reasons for style similarities and differences.

#### Urban style analysis

This analysis involves style similarity, meme type, and sparse representation. Style similarity quantifies the similarities and differences between cities' styles. Meme type detects the composition of memes, and sparse representation analyzes the linear combination of style factors in a city's building images, as well as the differences between images from different cities. Sparse representation not only detects inter-city style as a whole but also analyzes the linear combination of meme factors in a city's architectural images and the reasons for style similarities between two architectural images from different cities.

## **Style Feature**

Deep learning allows the extraction of both content and style features from images. Deep neural networks encode style information in addition to content, and it has been discovered that the style information is separable from the content. The ResNet-50 network is used in this paper to extract style features from urban images. The fourth layer of the network provides 2048 feature maps, from which style feature vectors are derived. The rest of the text describes sparse representation and dictionary learning methods used for classification and the calculation of memetic similarity and style similarity to analyze urban culture and style differences between cities

# **RESULT AND DISCUSSION**

In addition to producing urban visual interpretation, dictionary learning based on urban classification tasks may also roughly distinguish the similarities and differences between urban cultures. The training and test sets were divided in a 6:4 ratio, with 30 iterations and a dictionary K atomic number of 300, to generate the data used in this study. This paper uses five random samples to avoid the randomness of the experimental findings, and the best accuracy of the test set is used to determine the final classification result, as shown in Table. With an average accuracy of 0.351 and the maximum accuracy obtained in the fifth random sampling classification result, it can be seen that the accuracy difference between the five random samplings' visual style classification results is not too great. As a result, the fifth result is expanded in the next paper.

According to Figure, the classification outcomes of the fifth random sampling are displayed in a confusion matrix. The value along the diagonal line refers to the percentage of samples in which urban images are correctly identified, reflecting the distinctiveness of urban style. The value off the diagonal line denotes similarity to other urban cultures, and the higher value indicates the more similarity among cities. Urban styles can be recognized using the urban lexicon, as can be seen by the value on the diagonal being the highest.

The study mentioned above reveals the causes of cultural differences between cities. The investigation of disparities between cities can benefit from the research of visual interpretation types, notwithstanding the limits of the visual meme itself. In order to produce a variety of types, we therefore feed the picture into the K-means clustering algorithm. Based on the calinsko harabaz index and the principle of



classification balance, the clustering results with a total of seven clusters are chosen for display and analysis, as shown in Figure.

# CONCLUSION

The online activity on the under-researched platform Urban Dictionary and the widespread dialogues that take place on Twitter have been analyzed for the first time in our presentation. We looked at the connections between times when phrases were trending and related activity on Urban Dictionary, such the addition of new meanings, and discovered that these times are when new definitions are most likely to appear. We found examples where Urban Dictionary activity most closely matches the topics being discussed on Twitter through a variety of cross-correlation tests.

Interpretation and urban style study can be combined to better understand not only the general urban style but also the specific factors that contribute to city-to-city similarities. However, there are a few issues with our work. Due to the unlabeled and hence uninterpretable visual memes produced from dictionary learning in this study, we are aware of how many various components the urban style is made up of but are unable to identify what each one is. Additionally, the urban style is a complex combination, which makes it difficult to accurately capture with just images of urban structures from Flickr. In the future, we can extend our research by including urban photos from other sources and classes in order to extract visual memes with labels for more accurate evaluation of urban style.

We discovered that terms related to memes, well-known people, and offline events are the most commonly used terms in Urban Dictionary activity that is positively correlated with Twitter mentions. This was done through analyzing and defining the terms that have a stronger connection to discussions on Twitter. Even though this research is just beginning to explore the connections between these two platforms, we hope that it will serve as a starting point for future work that analyzes the web and all of its various parts as a larger socio-technical system, looking for interactions between different online communities and their behaviors rather than analyzing each one separately.

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