

# ISLAMOPHOBIC IN INDONESIA: INSIGHT FROM DIGITAL MEDIA USING MACHINE LEARNING

1<sup>st</sup> Alfiyyah Nisriinaa Zain, 2<sup>nd</sup> Izzuddin, 3<sup>rd</sup> Mahira Putri, 4<sup>th</sup> Muhammad Misbah Effendy, 5<sup>th</sup> Raffy Revanza.

- 1) Departement of Mathematic, Faculty of Science and Technologi, UIN Syarih Hidayatullah Jakarta, Tangerang, Indonesia (alfiyyah.nisriinaaz20@mhs.uinjkt.ac.id)
- 2) Departement of Mathematic, Faculty of Science and Technologi, UIN Syarih Hidayatullah Jakarta, Tangerang, Indonesia (zuddin.ahmd19@mhs.uinjkt.ac.id)
- 3) Departement of Mathematic, Faculty of Science and Technologi, UIN Syarih Hidayatullah Jakarta, Tangerang, Indonesia (mahira.putri20@mhs.uinjkt.ac.id)
- 4) Departement of Mathematic, Faculty of Science and Technologi, UIN Syarih Hidayatullah Jakarta, Tangerang, Indonesia (Muhammad.misbah20@mhs.uinjkt.ac.id)
- 5) Departement of Mathematic, Faculty of Science and Technologi, UIN Syarih Hidayatullah Jakarta, Tangerang, Indonesia (raffy.revanza19@mhs.uinjkt.ac.id)

## Abstract

*Islamophobia is a negative attitude and behavior that refers to prejudice, discrimination, fear, and hatred of Islam and Muslims. Certainly, it is not easy to detect Islamophobia, especially at this point when everyone can create content or access information on social media like Twitter and websites. It is clear that online platforms like Twitter and websites have a policy to stop users who promote Islamophobia, but content like that still exists, creating a problem for the Muslim community. Furthermore, in previous studies, Islamophobia constitutes a major racist discourse at this time. Therefore, it becomes pivotal to find solutions to eradicate such speech from social media platforms. This paper presents an effective methodology for detecting Islamophobia in social media, specifically Twitter and websites using the Support Vector Machine. Using this technique, based on a dataset consisting of 1582 preprocessed online tweets, accuracy of up to 87% was obtained.*

**Keywords:** Islamophobia, Hate, SVM

## 1. Introduction

After World War II, European nations “imported” workers from outside (countries where the majority of the population and culture are based on Islamic teachings, such as Algeria, Marocco, India, and Turkey) to rebuild their countries that were destroyed after World War II. Workers from Most of the expatriate workers and their families are at odds in social life in the countries where they work, this often causes conflicts in the community that lead to riots and violence. Sometimes these incidents foster a negative stigma against Islam which gradually develops into a fear of Islam or known as Islamophobia [1]. But only exploded after the terrorist attack on the Twin Towers of the World Trade Center in downtown New York City on September 11, 2001. Since 9/11, these attacks have been intensively carried out through countless media, articles, newspapers, journals, films, and documentaries [2]. Islamophobia is a combination of despise, fear, and bias against Islam, against Muslims, as well as against anything related to the religion, such as

Mosques, Islamic Centers, Heavenly Qur’an, and Hijab [1].

In later years, Islamophobia has advanced from an essentially political concept to one progressively sent for expository purposes. It too constitutes contempt, stigmatization, bigotry, and discrimination in everyday life, on media, in the workplace, and in the political circle. It rests within the intellect and it reflects in states of mind and might be shown through savage activities, such as burning mosques, vandalizing properties, manhandling ladies wearing Hijab, or insulting the Prophet or sacrosanct images of Islam. That’s more or less, how Islamophobia identifiable, how it shows, which can be seen not as if it were from occurrences, but too through points of view, articulations, behavior, and signals. Over the final two decades, Islamophobia keeps developing in a few parts of the world. Quoted to hatecrime.osce.org that 15 countries reported 23 countries for anti-Muslim hate crimes, a total

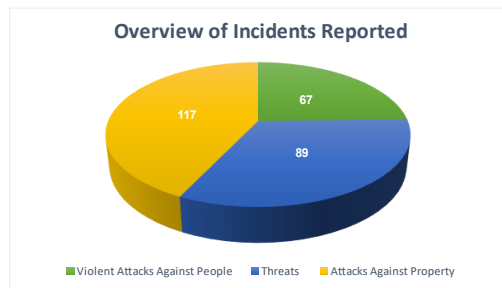
of 333 reports containing threats, violent attacks against people, and attacks against property [3].

Islamophobia has been around for a long time in countries where the majority of the population is non-Muslim. But what if Islamophobia is found in a Muslim-majority country?

There is no violence, coercion and terror in Islam. This is related to the word of God in the Qur'an surah al-Baqarah verse 256 :

لَا إِكْرَاهَ فِي الدِّينِ قَدْ تَبَيَّنَ الرُّشْدُ مِنَ الْغَيِّ  
فَمَنْ يَكْفُرْ بِالطَّاغُوتِ وَيُؤْمِنْ بِاللَّهِ فَقَدِ اسْتَمْسَكَ  
بِالْعُرْوَةِ الْوُثْقَى لَا انْفِصَامَ لَهَا وَاللَّهُ سَمِيعٌ عَلِيمٌ

Which means:



*“There is no compulsion in religion. The right direction is henceforth distinct from error. And he who renounces false deities and believeth in Allah hath grasped a firm handhold which will never break. Allah is Hearer, Knower.” [al-Baqarah: 256]*

This verse explains that there is no compulsion to embrace Islam. Islam is propagated not by coercion, but by providing valid arguments or explanations. So, people who listen to da'wah can receive it with an open heart without any coercion. Islam is a perfect religion, a religion that is a way out of various difficulties in this life. Of course, Islam is also a blessing for the entire universe. This is explained by Surah al-Anbiya verse 107

وَمَا أَرْسَلْنَاكَ إِلَّا رَحْمَةً لِّلْعَالَمِينَ

We are not sent thee except save as a mercy for the people [al-Anbiya: 107]

Indonesia is a country where the majority of the population is Muslim. Even so, we cannot deny that Indonesia is additionally an assorted nation that has five fundamental religions in it. Since the marvel of Islamophobia regularly happens, it is essential to advance the investigation of why Islamophobia can happen in this Muslim-majority country. In contrast to Indonesia's religious diversity, many things

make it difficult for religious people to practice their religious activities. In 2020, there were a total of 422 violations of religious freedom in Indonesia. Of these, 184 were committed by non-state actors such as civil society groups, individuals, and community organizations. Most violations of religious freedom were committed by non-state actors in the form of intolerance in 62 acts. Then there are 32 acts of reporting religious blasphemy, 17 acts of refusing to build a house of worship, and 8 acts of prohibiting religious activities by non-state actors [4].

In Indonesia, there are several cases of Islamophobia, which are often found on social media and are openly carried out. Hate speech on Islam, Muslims, and other Islamic religious activities, that's frequently found on online platforms because social media platforms such as Instagram, YouTube, and Twitter provide an open space for their users to share their views [5].

While this freedom of speech has many positive and constructive aspects, it also propagates biasness or negativity, as a result of conflicts [5]. It is necessary to further research why Islamophobia can occur in this Muslim-majority country. Therefore, researchers want to reveal the deeper content of social media, especially Twitter to raise awareness and provide clarification with verses related to Islamophobia and Islamic hate speech that appear on the internet.

## 2. Related Work

Related works in this area have not much been researched and no specific research has been found regarding this research. However, some studies are still relevant to this research. Davidson et al. train a model to distinguish between hate speech, offensive speech, and non-offensive speech in tweets. They report impressive results, with an accuracy of 0.91, recall of 0.90, and an F1 score of 0.90. Their work demonstrates the potential for multiclass classification, makes a significant theoretical argument apropos the need to separate different types of content, and introduces the use of readability metrics as an inputs feature. However, as they point out, their model performs defective with hate speech, of which almost 40% are misclassified. The high F1 score is disproportionate (76% of the data is in the 'offensive speech' category). They also train and test their classifier on a single dataset, which could risk overfitting [6].

Other than that, there is also research that detects Islamophobic hate speech from electronic media using deep learning. It used Convolutional Neural Network (CNN)

framework and classification using Long-Short Term Memory (LSTM) with 1290 pre-processed tweets. It results in more than 90% accuracy [5].

However, these past researches do not provide the insight details to consider what Muslims or non-muslim should do as a unity to spread peace and love in the name of humanity nor provide what Islam looks like to clear up wrong speculations.

### 3. Method and Experimental Details

The research method used for this study is using pattern classification techniques. Classification is the process of recognizing, understanding, and grouping ideas and objects into preset categories or “sub-populations”. Using pre-categorized training datasets, machine learning programs use a variety of algorithms to classify future datasets. Classification algorithms in machine learning use input training data to predict the likelihood that subsequent data will fall into one of the predetermined categories. There are five top classification algorithms in machine learning, they are Logistic Regression, Naïve Bayes, K-Nearest Neighbors, Decision Tree, and Support Vector Machines. On this matter, researchers use Support Vector Machines (SVM).

The Support Vector Machine (SVM) is a linear classifier that works on the maximization of margins principle. The SVM method has the central concept of classifying data, namely finding the best hyperplane to separate between two predetermined classes [7]. The hyperplane is the best function used to separate between two predetermined classes. The best hyperplane is obtained by maximizing the margin support-vector. The more complex the data, the more accurate the predictor will become with using SVM. Determine the above in three dimensions, with the addition of a Z-axis to make it a circle. Because SVM is multidimensional, it provides for more accurate machine learning.

In this study, researchers obtained data from social media, namely Twitter, from January 2021 to May 2022. Researchers used data from ten top websites in addition to Twitter data, and the data used were the first ten pages on the websites to be classified later. For the first step, a rule-based approach is used to detect the subject text. The second step is to collect the data obtained and labels the data. By using the keywords “benci” and “Islam” on Twitter 1582 tweets were found and for the website were found 50 titles articles from 10 websites. It took two days to collect this data. After collecting data, researchers perform the data labeling process. The data was labeled with Islamophobic intended (‘1’) and neutral (‘0’)

samples. The neutral in this question is the discovery of hate speech whose sentences are not directly given to Islam/Muslims, but instead, respond to the tweets of those racist people, and the 1 mean Islamophobic what is meant is the discovery of tweets that directly express racist or hate speech against Muslims/Islam.

After labeled data, researchers conduct exploratory data analysis to check data consistency and deficiencies in the data, such as noise and missing values.

The next step after exploratory data analysis is preprocessing, which involves removing special characters such as “!”, “.”, and “\$”, lowercase all of the letters, then splitting data using 80:20 proportion into data training set dan test set. training 1910 and one during testing 478. These numbers exceed the original tweets number because Synthetic Minority Oversampling Technique (SMOTE) is used to balance the imbalanced data set.

<i>Total Tweets</i>	1582		
<i>Islamophobic intended</i>	388	Neutral	1194
<i>Training set</i>	1910	Test set	478

In general, the oversampling method gives better results than the under-sampling method. One of the modification methods of over sampling is SMOTE. So, for this SMOTE technique, we synthesize a new sample from the minority class to balance the data set by resampling the minority class sample. The advantage of SMOTE is that it is not randomly duplicated from an existing sample. Additionally, the sample is made using the nearest neighbor concept.

The data is ready to use after all processes of data cleaning have been completed. Then, using the SVM method, the data will be trained using the SVM method.

In the trained data step, use parameter C=1, gamma = 0.1, kernel = ‘rbf’, probability = True C=1, gamma = 0.1, kernel = ‘rbf’, probability = True are used in the model. after the training, the model is evaluated using the F1 score and confusion matrix.

### 4. Result and Discussion

#### 4.1 Related Terms or Words Aside Islam-Hate (WordClouds)



As seen in the picture, Islam-hate topics data on Twitter reveal some related terms people talk about. For instance, **ulama or religious leader**, **Arab**, **Shia**, **times** or people support political leader, and **PKI or communist party**. The Islam-hate term reveals not only do people hate Islam but also hate the religious leaders too.

*“Yang benci ulama ini adalah pembenci islam dan pro teroris.”*

- Anonymous

*“Hanya pki yg benci islam tokoh islam dan ulama yg lurus.”*

- Anonymous

Also, Islam is closely related to Arabs as the prophet and his teachings come from it. Then, people bring out Arabs as the object of hatred in the context of Islam hate.

*“Kami tak benci arab kami benci islam cuma karena arab identik dengan islam maka yg berbau arab kami tolak kami tak cinta singapura kami cinta nkri cuma karena singapura bermasalah dengan orang yang kami benci maka kami bersama singapura.”*

- Anonymous

*“Islamophobia memang begitu benci arab bukan benci islam pokoknya yang berbau islam mereka benci.”*

- Anonymous

Not to mention, Islam, as a religion, has Shia as one of its branches. After The Prophet Muhammad died, Shia is guided by the wisdom of Muhammad's descendants through his son-in-law and cousin, Ali [8]. In Indonesia, Shia is

majorly linked to hatred and radical because of its ‘deviation’ from Islam teachings [9].

*“Kafir munafiq syiah liberal sekuler sangat benci islam.”*

- Anonymous

*“Agama nya syiah toh pantas benci banget sama umat islam.”*

- Anonymous

Lastly, some reveal that they do not purely hate Islam, but including towards people who abuse Islam for their benefit only or political parties that think of Muslims as rivals.

*“Yg bener tuh benci sama oknum yg memanfaatkan nuansa islam.”*

- Anonymous

*“Maksud anda radikal dan teroris itu bagian dari islam kami muslim ga mungkin benci islam tp benci pihak2 yg mengatasnamakan islam tp berkelakuan ga islami spt teroris radikal dan kelompok mu bung kalian mewarisi sifat2 khawarij yg ngaku plg islam juga.”*

- Anonymous

*“Gue paling benci yg namanya kadrin yg ngaku islam padahal baj\*\*\*an penjahat yg berkedok islam doang.”*

- Anonymous

*“Kami tidak islamophobia kami hanya benci & lawan gerombolan yg ingin didirikan negara islam di Indonesia dan merubah Pancasila dgn khila\*\*\*\*.”*

- Anonymous

*“Jujur gue islamophobia gue benci banget sama islam tapi ya gimana yamereka mayoritas di negara kita.”*

- Anonymous

*“Timesesnya byk buzzer yg benci dgn islam.”*

- Anonymous

#### 4.2 Classification Model and Application

The trained data using the SVM model with respective parameters was resulting in:

F1-Score: 0.87

Confusion Matrix:  $\begin{bmatrix} 921 & 34 \\ 207 & 748 \end{bmatrix}$

Classification Report -----				
	precision	recall	f1-score	support
0	0.82	0.96	0.88	9:
1	0.96	0.78	0.86	9:
accuracy			0.87	19:
macro avg	0.89	0.87	0.87	19:
weighted avg	0.89	0.87	0.87	19:

Then, the model was tested, and the results showed:

F1-Score: 0.84

Confusion Matrix:  $\begin{bmatrix} 229 & 10 \\ 67 & 172 \end{bmatrix}$

Classification Report -----				
	precision	recall	f1-score	support
0	0.77	0.96	0.86	239
1	0.95	0.72	0.82	239
accuracy			0.84	478
macro avg	0.86	0.84	0.84	478
weighted avg	0.86	0.84	0.84	478

As result, the model brings out significant accuracy from the data set provided with the F1-score accuracy of 84% in predicting unseen data from 87% of the model trained from familiar data. Subsequently, the model is used for classifying 80 article titles collected from 10 top websites with the keyword of “*benci Islam*”. It detects one article from TIMESINDONESIA that indicates an Islamophobic event. The article was talking about the case when one of the Islamic religious leaders was deported from Singapore and religious leaders in Madura claimed it was an act of Islamophobic.

“*Sikap resmi pemerintah Singapura yang disampaikan Ministry Home Affairs (Mendagri) of Singapore yang melakukan pengekangan terhadap UAS sangat menggambarkan Islamofobia negara Singapura.*” – A representative of religious leaders in Madura quoted from Hai Guys Youtube Official

Out of the overall articles, Indonesian websites tend to be always neutral as Indonesia has the Law of Electronic Information and Transactions to prevent hate and crime in a digital network.

## 5. Conclusion

Regardless of hatred towards Islam and/or Muslim(s) as an individual or a community, Islam brings blessings (*rahmatan Lil 'alamin* or blessings to the world) and teaches its followers to lean towards peace. As Allah *subhanallahu wa ta'ala* told in Surah al-Anfal verse 61:

وَإِنْ جَنَحُوا لِلسَّلَامِ فَاجْنَحْ لَهَا وَتَوَكَّلْ عَلَى اللَّهِ إِنَّهُ هُوَ السَّمِيعُ الْعَلِيمُ

Which means:

“*But if the enemy incline towards peace, do thou (also) incline towards peace, and trust in Allah: for He is One that heareth and knoweth (all things).*” [Al-Anfal: 61]

Muslims should act as Prophet Muhammad SAW. exemplifies, such as being kind, polite, truthful, and respecting every single human in any kind of interaction. Generally, in social media, no matter how borderless it is, people still need to take care of well-being and politeness without spreading any hatred more on each other.

## 6. Acknowledgements

It is unfeasible to finish the project report thoroughly without input and encouragement from other people. First and foremost, researchers would like to extend our sincere appreciation to all the personages who have helped the researchers in this endeavor. Without their active guidance, help, cooperation, and encouragement, the researcher would not have made headway in the project. Ineffiably indebted to Mr.Taufik Edy Sutanto, M.Sc.Tech., Ph.D. as our lecturer who has guided us during this research and also to our college friend, Muhammad Hanan Azhar Jihaannuriy, who has helped share his knowledge to complement this research, and for all the support given, especially for our teams. Finally, we would like to express our gratitude to the UIN Jakarta Mathematics Student Association for providing us with information and supporting us in this competition.

## 7. References

- [1] F. Nugraha, “Latar Belakang Munculnya Islamophobia di Kalangan Masyarakat Eropa,” 2012.
- [2] K. Dikarma, “Tragedi 9/11 dan Perjuangan Muslim AS Lawan Stereotip,” *Republika*, 2021.
- [3] A. Shaheed, “Report on Countering Islamophobia/Anti-Muslim Hatred to Eliminate Discrimination and Intolerance Based on Religion or Belief,” 2021.
- [4] R. Novianto, “Refleksi 2021, Ironi Kebebasan Beragama dan Berkeyakinan di Indonesia,” 2021.
- [5] Q. Mohmmmed, A. Kaleem, and I. Siddiqi, “Islamophobic Hate Speech Detection from Electronic Media Using Deep Learning,” *Mediterranean Conference on Pattern Recognition and Artificial Intelligence*, 2022.

- [6] H. Khan and P. Joshua L, "Language agnostic model: detecting islamophobic content on social media," 2021.
- [7] A. Kowalczyk, *Support Vector Machines Succinctly*. 2017.
- [8] BBC News, "Sunnis and Shia: Islam's ancient schism," 2016.
- [9] K. Setiawan, "Syiah di Indonesia, Seperti Apa?," *BALITBANG KEMENAG*, 2017.