# PerSent

personalizowana analiza wydźwięku

# Nasz zespół

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# Jak udoskonalić Twittera?

Wyobraźmy sobie świat social mediów skrojony idealnie pod nas...

# Od strony użytkownika

**@asia065**

Publikuje post

**@janusz666**

Wystawia złośliwy nic niewnoszący komentarz

**@mihalkaj**

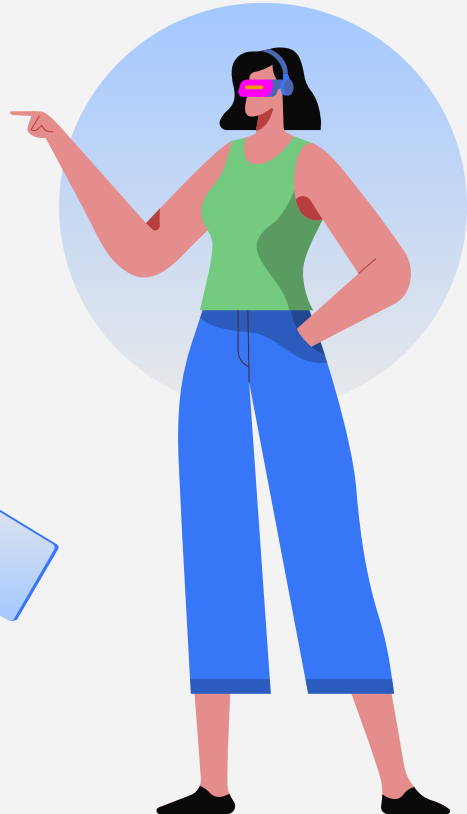
Pisze konstruktywny miły komentarz

# Co nas irytuje?

Każdy z nas spotkał się na Twitterze z:

- mową nienawiści
- tematyką, która wzbudza w nas niekoniecznie dobre emocje
- nieciekawymi wpisami (marnowanie czasu)

Rozwiązanie: kreowanie kontentu dopasowanego pod indywidualną osobę, swoiste „różowe okulary”



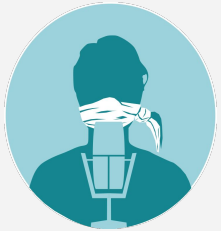
# Co mógłby zrobić właściciel Twittera?

## Filtracja

Blokowanie treści uznanych za ofensywne przy użyciu ogólnych modeli do detekcji mowy nienawiści.

## Wolność słowa

Należy jednak pamiętać o drugiej stronie medalu — prawa do wolności słowa. Modele ogólne go nie uwzględniają...



# 77%

przyrostu usuniętych kont do poprzedniego półrocza

# 1,126,990

ukaranych kont

# 3,8 mln

usuniętych postów

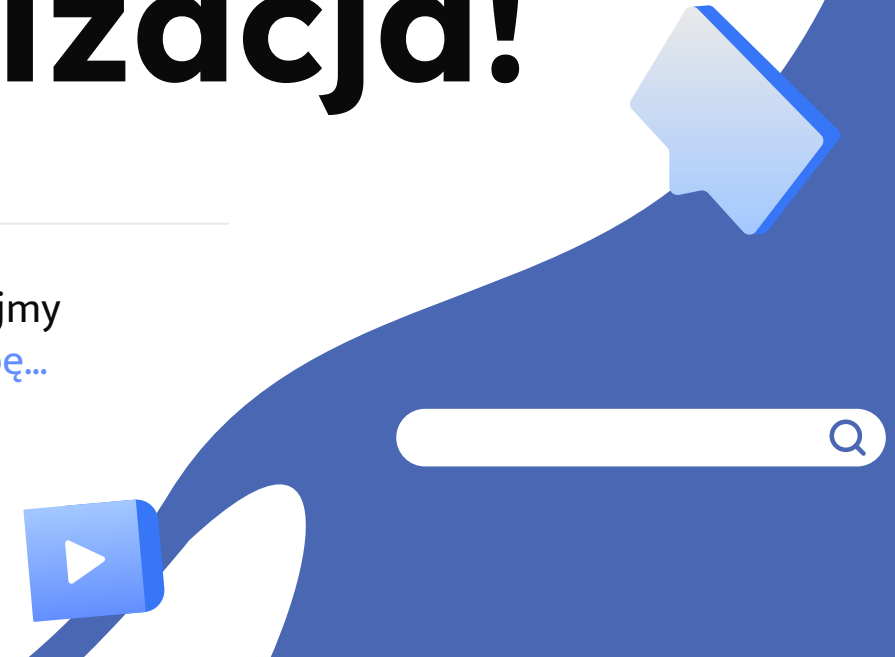
Dane z II połowy 2020 r. - źródło: time.com

“If we don't believe in **free** expression for people we despise, we don't believe in it at all.”

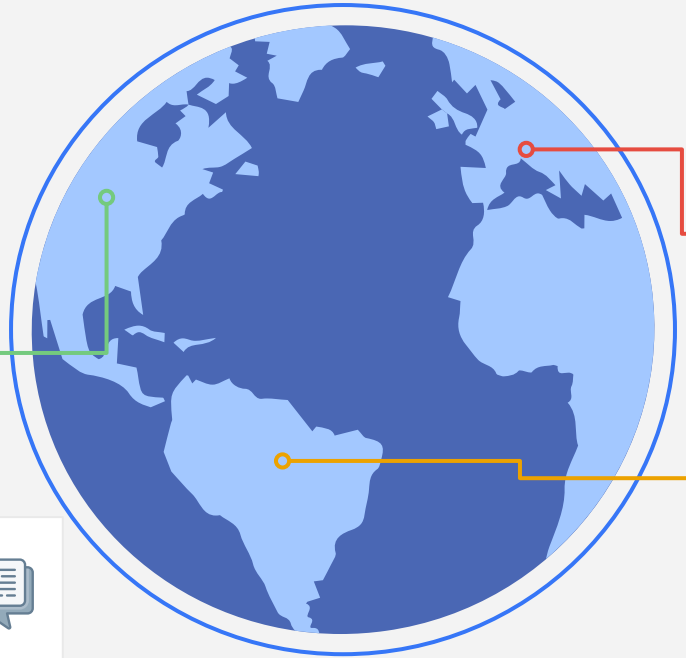
—Noam Chomsky

# Personalizacja!

Zamiast bezwzględnej cenzury, dopasujmy wyświetlane treści pod konkretną osobę...



# Wady istniejących metod



## Miliardy ludzi

Zmienność preferencji użytkowników

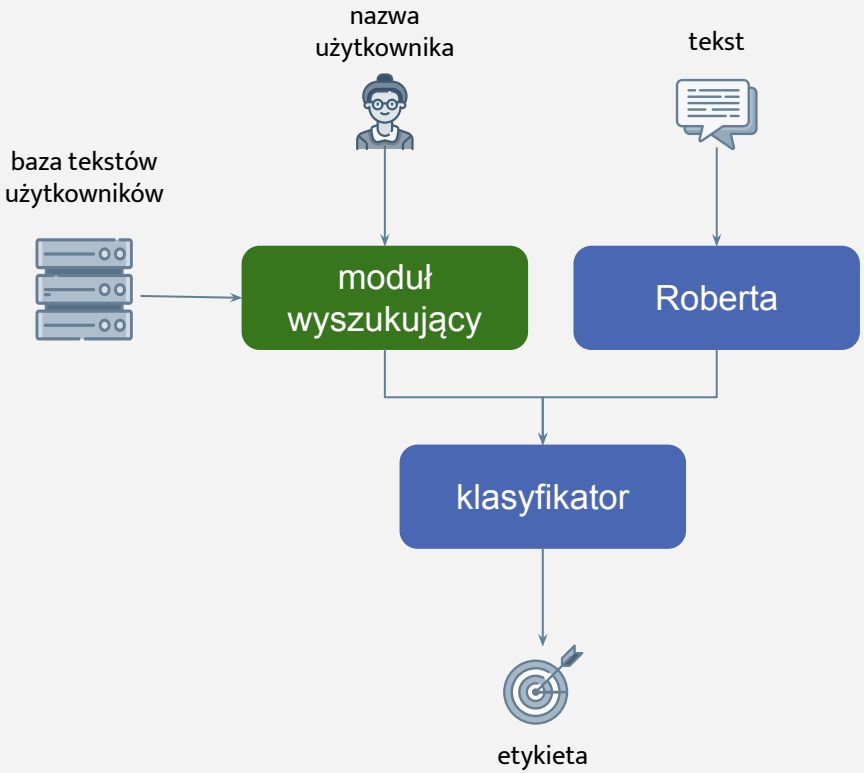
## Wdrożenie

Aktualne metody wymagają douczania dla nowych użytkowników

## Treść

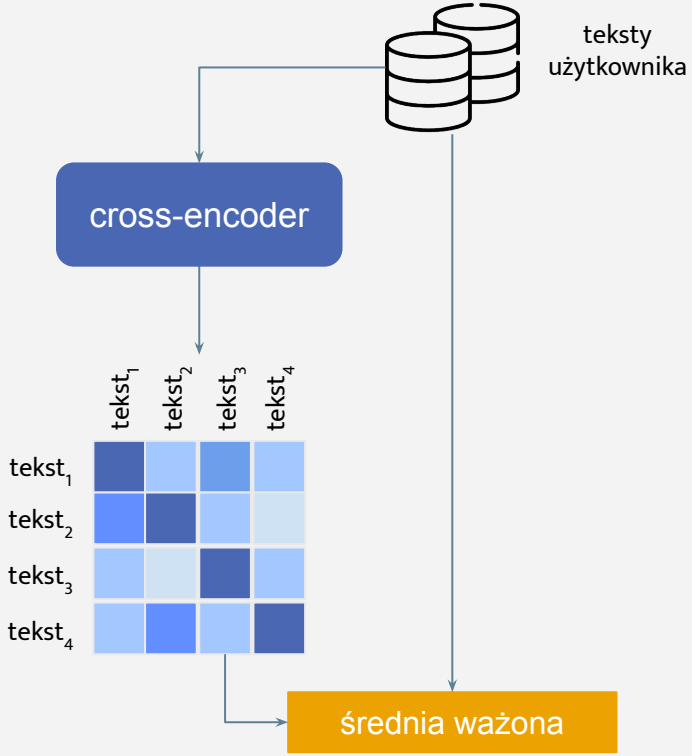
Nie biorą pod uwagę zawartości tekstów

# Nasza propozycja




- Wyszukuje podobne teksty użytkownika
- Średnia ważona dotychczasowych ocen

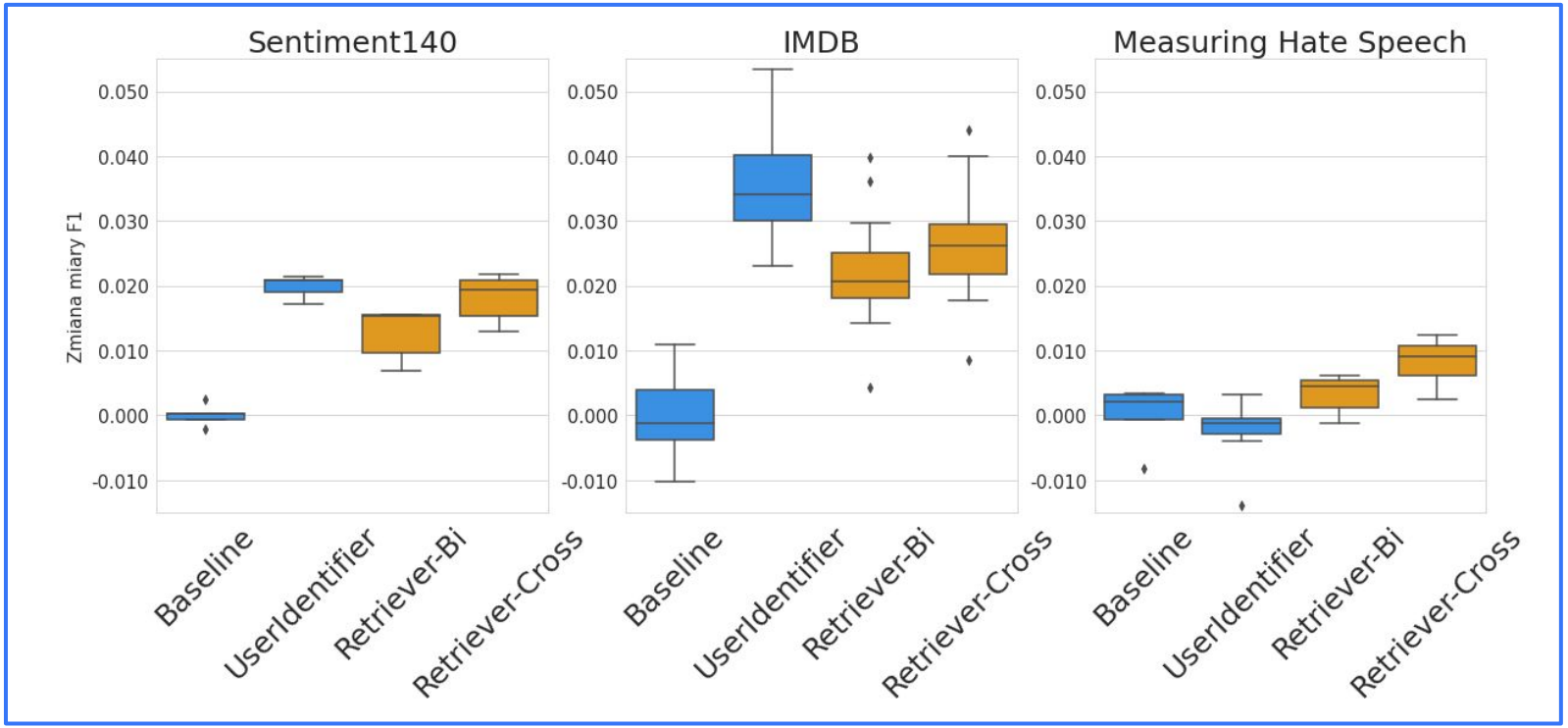
# Moduł wyszukujący



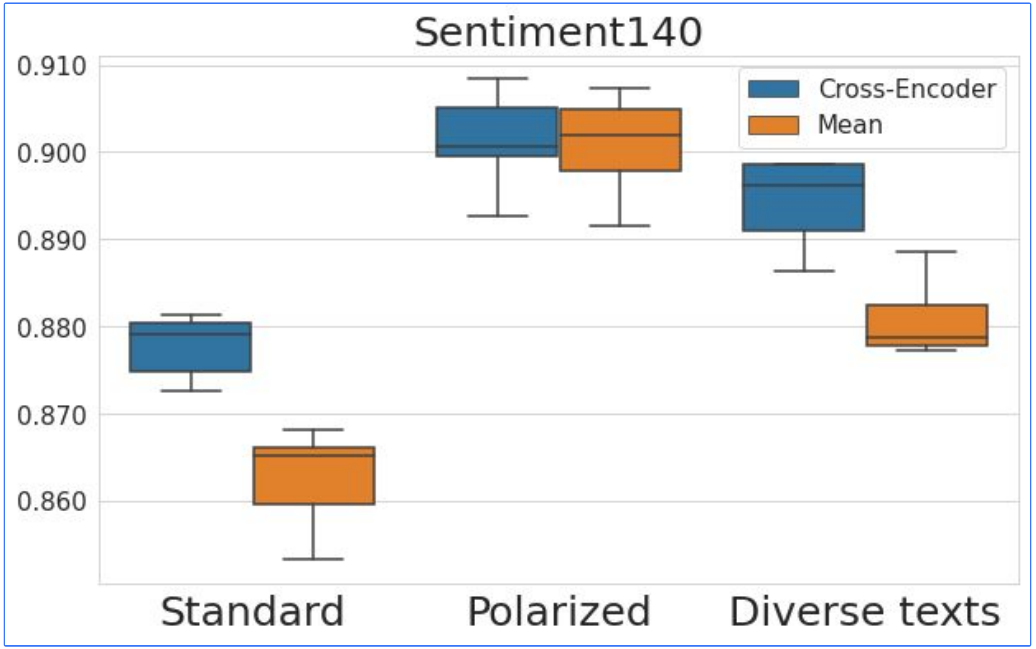
# Zalety

- Nie trzeba douczać modelu
- Bierze pod uwagę podobieństwo tekstów
- Szybciej się uczy

# Personalizacja pomaga



# Pozytywne scenariusze




- Przetestowaliśmy Retrievera na różnych podziałach danych
- Użytkownicy “ekstremalni”
- Różnorodne teksty

# Efekt końcowy

## Retrieval based approach for subjective tasks in NLP

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**Abstract**

Generalizing models are often unable to produce a personalized prediction for a individual user. Personalized methods often yield better results, but at the cost of an increased training complexity, especially in big-data scenarios, when frequent re-training is necessary. We propose a retrieval based approach that performs similar to SOTA personalization algorihms, but does not require any further optimization for new users.

### 1. Introduction

Popular classical approaches to natural language processing tasks have for a long time focused solely on developing a general classifier that does not take into account the characteristics of a single person. However, everyday language is influenced by many individual factors like one's mood, emotion, world view, and sociodemographic circumstances. This has become the reason for the dynamic development of the *personalization* trend in NLP, which has been going on for over a dozen years. Perfect for subjective tasks, where obtaining a single label is hard or even impossible, *human-based* approaches were exploited in various ways. Starting with the inclusion of user traits, modelling entire social groups, ending with focusing on individual features - thus creating perfectly tailored NLP systems. From the user's perspective, personalization can occur as an explicit input, when the person is providing information themselves, or by using implicit inference made by specially designed models (Flek 2020). In the scope of this research, we consider the last approach since it is more convenient for users (no additional action is required on their part) and thus better applicable in business.

The example of a highly subjective task is sentiment classification, where the polarity of a text depends on a person's experiences and a character. This existing methods require frequent re-training for each new user, which usually is done by sending the data to a centralized server. Although federated learning algorithms allow for in-device gradient update computation (Mahlool and Abed 2022), they are still not feasible to use in many situations, because of significant performance overhead, especially in big-data scenarios (Gadekallu et al. 2021).

In this work, we propose a retrieval based approach, which provides personalized results using the text similarity and is easily extendable to the large number of users. We experiment with different ways of capturing the text similarity, including state-of-the-art bi-encoders and cross-encoders. The analysis performed on three datasets shows in which situations the personalized methods work best and where the improvements come from.

### 2. Related Work

The existing approaches to human-based NLP can be divided into two main groups - based on users personal metadata, and focused on using their past digital traces such likes, ratings, posted texts in social media, etc. The first works that addressed the need to adapt NLP approaches to subjective language have appeared since the 2010s.

# Dziękujemy!

Czy są jakieś pytania?

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