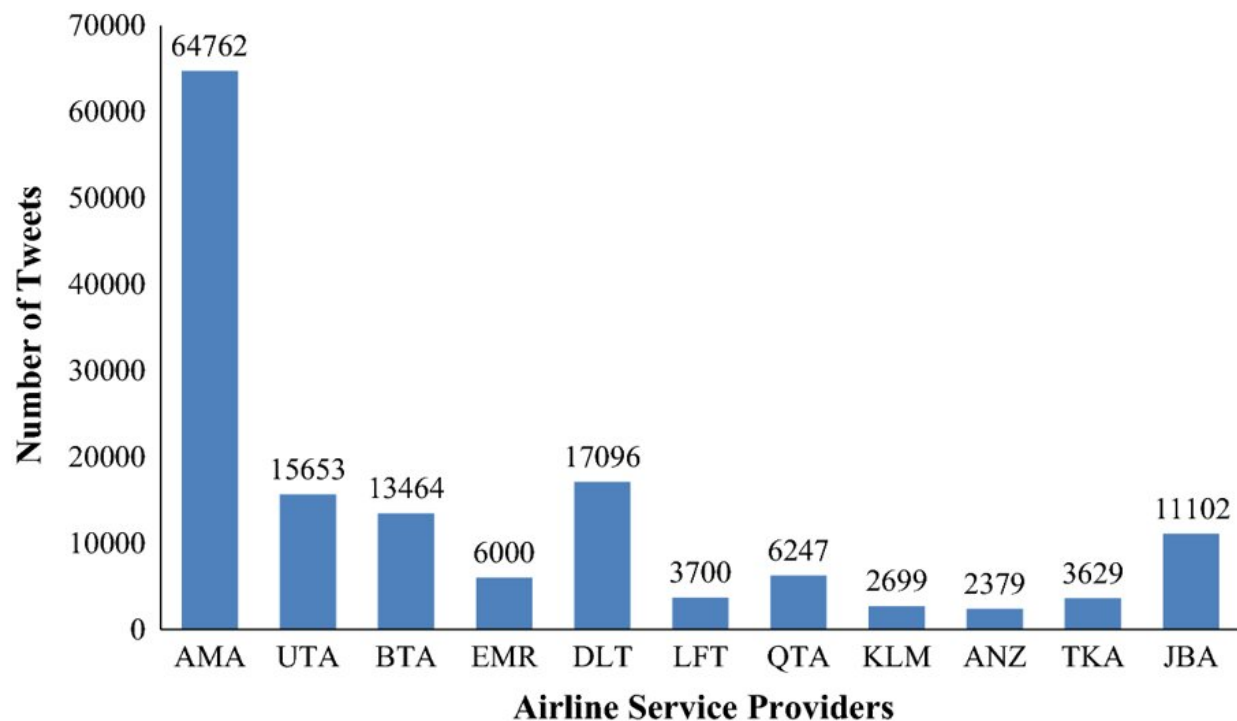


Special algorithm for Twitter can reveal the satisfaction of air passengers

September 19 2019



Total number of tweets from 1 Mar 2019–11 Mar 2019. DOI:
10.1186/s40537-019-0224-1

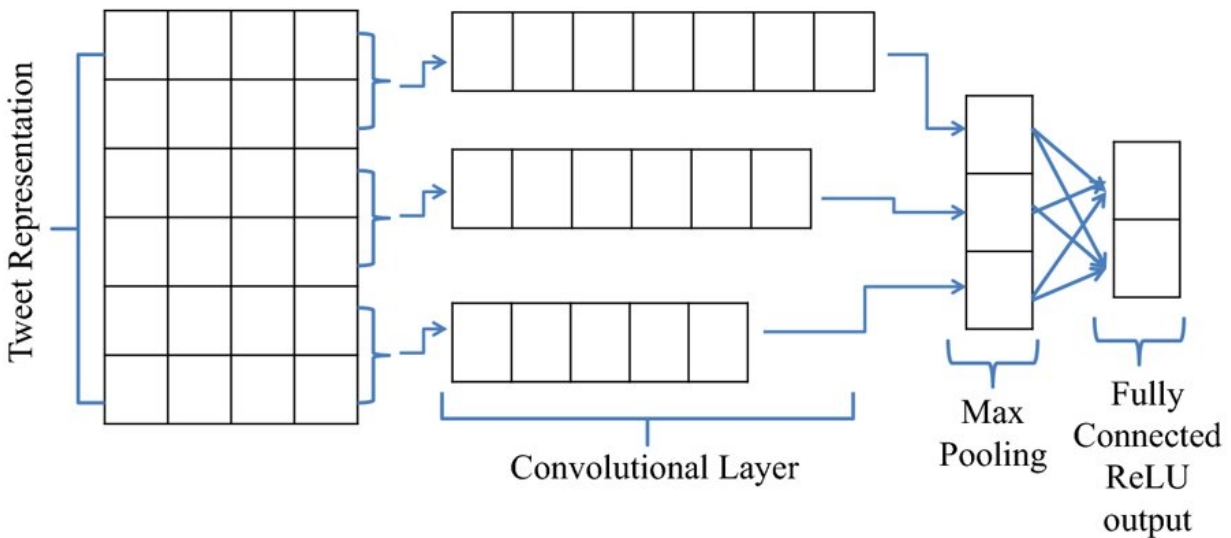
Scientists of South Ural State University have developed an algorithm that allows researchers to distinguish between positive and negative feedback from air travelers' tweets using machine learning methods. The innovation represents a program for processing preliminary data in

combination with a trained convolutional neural network. The development is intended to increase the satisfaction of airline customers; the results of the study were published in the *Journal of Big Data*.

Competition between airlines stimulates them to discover ways to attract customers, and the analysis of social networks is one of them. Scientists at the Higher School of Electronic and Computer Science of the South Ural State University have developed an algorithm for analyzing airline [customer](#) posts on Twitter to identify possible reasons why the passenger received positive emotions or felt uncomfortable during the flight.

"Passenger reviews are extremely important for air travel. The easiest and most traditional way is a customer feedback form. But for passengers, the most convenient way to share their opinions is through social networks, rather than a feedback form. Twitter is one of the most popular platforms in the world. Information from Twitter can be used to develop recommendations to improve the quality of customer service," says Sachin Kumar, a senior fellow at the SUSU Department of System Programming.

The traveler considers several factors before choosing an airline. This may be the cost of air tickets, [travel time](#), number of transfers, the weight of checked baggage, reviews of existing customers, etc. Therefore, air carriers pay close attention to these factors in order to improve the quality of service and customer comfort in flight. Using Twitter as an additional source of information when making decisions can significantly improve the quality of services and the number of airline customers.



General architecture of CNN model From: [A machine learning approach to analyze customer satisfaction from airline tweets](#)

Using machine learning methods, scientists at South Ural State University analyzed a database of Twitter messages and developed a model for emotion classification in tweets for several popular airlines. The model proposed in the study distinguishes between positive and [negative emotions](#).

"Twitter was used as a data source for research. The program, written in Python, downloads tweets and preprocesses them. Tweets were grouped into several categories, and a logical connection was identified between them to find a possible reason for a tweet that conveys negative or [positive emotions](#) of a passenger," explains Mikhail Tsymbler, head of the SUSU Data Mining and Virtualization Department of the Higher School of Electronics and Computer Science.

The results of the study can be used for further development of commercial applications. Airlines will be able to analyze the experiences

of their customers and try to improve services to attract more customers and provide more comfortable flights. In addition, the approach described in the article can be applied to increase customer satisfaction in other service areas. An indispensable condition is only the availability of official Twitter accounts.

More information: Sachin Kumar et al. A machine learning approach to analyze customer satisfaction from airline tweets, *Journal of Big Data* (2019). [DOI: 10.1186/s40537-019-0224-1](https://doi.org/10.1186/s40537-019-0224-1)

Provided by South Ural State University

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