

Stuck at the airport and we love it #not

ASU research on sarcasm detection stands the test of time

By Kelly deVos, ASU News

March 24, 2025

Airports don't bring out the best in people.

Ten years ago, Ashwin Rajadesingan was traveling and had that thought. Today, he is an assistant professor at the University of Texas at Austin, but back in 2014, Rajadesingan was a student seeking his master's degree in computer science in the [School of Computing and Augmented Intelligence](#), part of the [Ira A. Fulton Schools of Engineering](#) at Arizona State University.

While flying to a technical conference, the computational social scientist observed that his fellow travelers were tired, sometimes cranky and frustrated by flight delays. And they were ... pretty sarcastic about it.

"When people are angry or downcast, they're more likely to use sarcasm," Rajadesingan says. "But online customer service agents can struggle to detect this. We were watching airline representatives respond to sarcastic social media posts in sometimes unintentionally hilarious ways."

When he returned to ASU, Rajadesingan began to explore how computer systems could be trained to detect sarcasm and assist corporate customer service agents who work all over the world and must respond quickly. He turned to his faculty mentor, [Huan Liu](#), an ASU Regents Professor and a seminal figure in the development of artificial intelligence, or AI, specializing in data mining and machine learning.

Under Liu's direction, Rajadesingan and then-doctoral student Reza Zafarani co-authored the paper "Sarcasm Detection on Twitter: A Behavioral Modeling Approach."

Now, the work has received the WSDM 2025 Test of Time Award. The accolade, given by the [Association for Computing Machinery](#), honors research that has maintained its scientific significance after 10 years, recognizing scholarship that has endured.

This March, Liu and Zafarani traveled to Hamburg, Germany, to accept the award at the [18th ACM International Conference on Web Search and Data Mining](#).

'I'm stuck at the airport, and I love it' #not

“At that time, an airline would get huge numbers of messages on platforms like X or elsewhere,” Zafarani says. “They really wanted their customer service agents to respond within a specific time frame, often within as little as a minute. Sometimes, the posts were sarcastic, like, ‘I’m stuck at the airport, and I love it,’ or something.”

Zafarani is an associate professor at Syracuse University. In 2014, he was a computer science doctoral student working under Liu’s supervision. Together with Rajadesingan, he considered a key question.

How do you get a computer to understand people who mean the opposite of what they are literally saying?

With that problem in mind, the team got to work. They decided to focus on sarcasm detection on the social site X, formerly known as Twitter. The researchers started by identifying different types of sarcasm used on the platform, studying social science theories to understand how and why people employed sarcastic language. Their system also inspected past posts to help determine if a poster was likely to use ironic humor and analyzed the presence of hashtags such as #not and #sarcasm.

They gathered more than 800,000 posts and used them to create mathematical models. They then translated those insights into machine language, with the ultimate objective of making an online detection system that could alert a service agent to the presence of a customer’s sarcasm in real time.

Zafarani says that he’s hopeful that their work laid a good foundation for additional helpful research.

“Computer science research is often well separated from social science research,” he says. “What this paper really did was look at social science theories and explore how these could be translated into a language that computers understand. This led to other research that applied those concepts to different problems.”

Huan Liu is, like, a way famous computer scientist

One truly lasting legacy is the value of Liu's mentorship of students who move on to play important roles in both industry and academia.

Rajadesingan currently studies how machine learning and AI can be used to improve online political discussions. He notes that he uses a textbook co-authored by Liu in one of his classes and says that he tries to be similarly supportive and inspirational to his own students.

"Dr. Liu is obviously a visionary when it comes to data mining and machine learning. The mentorship that he provided was super helpful," Rajadesingan says. "I remember him giving me the freedom to ask interesting questions and, perhaps, follow the path less taken."

For his part, Liu says he is proud of his former students who are now accomplished academics in their own right and commends them on the Test of Time Award.

"As a teacher, it's incredibly fulfilling to see former students receive this type of recognition," Liu says. "Not only is it a testament to the fine work being done here in the School of Computing and Augmented Intelligence, but this award demonstrates the caliber and depth of talent of our graduate students."

This story originally appeared on [ASU News](#).

Main image



From left: Ashwin Rajadesingan and Huan Liu reunite in the Brickyard building on the Tempe campus of Arizona State University. Photo by Kelly deVos/ASU

Text image(s)



Huan Liu (center) and Reza Zafarani (second from right) receive the WSDM 2025 Test of Time Award at the 18th ACM International Conference on Web Search and Data Mining, held earlier this month in Hamburg, Germany. Zafarani is also a Fulton Schools alumnus, who co-authored the paper and received his doctoral degree in computer science under Liu's supervision. Photo courtesy of Huan Liu