

Spotting the next great music superstar

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For every rock star who hits it big, there are thousands of artists who never make it out of their own back yards. Before Madonna was "Madonna," she was a local success in New York clubs. Until Britney Spears became a global pop superstar, she performed in dance revues in her native Louisiana.

But how can you tell who will make it onto the Billboard charts and who will never get beyond the local bar circuit? Professor Yuval Shavitt, of Tel Aviv University's School of Electrical Engineering, has developed software that can accurately predict the next big music phenomenon. His software could become a profitable tool for music producers and record labels — and a boon to young people who want to be in the know.

Using data collected from Gnutella, the most popular peer-to-peer file-sharing network in the United States, Prof. Shavitt has developed a computer algorithm that can spot an emerging artist several weeks or months before national success hits. "Until now, talent scouts for record companies used instinct to predict the next rock personality. Our software has an astonishing success rate — about 30%, and in some cases up to 50%. We've crossed a new frontier in the record business," he says.

Measuring the "Temperature" of New Artists

Soulja Boy ("Crank That") and Sean Kingston ("Temperature") were both flagged by Prof. Shavitt's system in April 2007, weeks before they emerged into the national spotlight — both songs became Billboard hits

when they entered the charts in June of that year. And the group Shop Boyz skyrocketed to popularity in their home city of Atlanta in just two weeks. Their "Party Like a Rockstar" became a hit single, and Shop Boyz was catapulted to national fame. But not before the band popped up on Tel Aviv University's algorithm "radar" a few weeks before they signed with Universal.

To develop the algorithm, Prof. Shavitt, with graduate students Tomer Tankel and Noam Koenigstein, examined a large amount of data from Gnutella user queries for unknown artists over a 9-month period during 2007. By examining the first 6 months' worth of data, and then using the remaining 3 months' data to track the increasing popularity of those artists, they developed a system to predict which artists would break out of their local markets.

The Three Most Important Words: Location, Location, Location

"The key was understanding the role of geography in the rising popularity of these artists," says Prof. Shavitt. As part of the largest study ever done on geographically-tied searches, Tel Aviv University researchers examined the thirty to forty million queries that are entered each day on Gnutella. They realized that those artists who eventually made it to the national level first had a huge number of user queries in their local region, even when they had zero queries from elsewhere in the United States.

The numbers for new artists started small, often with 5, then 20, then 150 queries within the artist's home city each week, sometimes localized even to a specific urban neighborhood. At first glance, these numbers seem insignificant, Prof. Shavitt explains, but exponential growth in search queries sent from a geographical region proved a reliable

predictor of a future breakout artist.

Striking a Chord with Business

There are many business applications for Prof. Shavitt's algorithm. For a record company, having a system that produces early recommendations for new signings, half of which will become successful musicians, would be a powerful tool. This same software can be applied to television programs, video clips, and other entertainment products, including home videos on sites like YouTube.

To continue collecting data for future study, Prof. Shavitt has started his own collection network on Direct Connect, which gets about a million hits a day. Koenigstein, his student, is hoping to expand the scope of the algorithm predictions to look at individual songs by well-established artists. "Will a Madonna song sell because it's a hit, or just because it's sung by Madonna?" he asks. "That's what we're looking at now."

Source: American Friends of Tel Aviv University

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