Sell-Side Technology

Nasdaq Boosts Surveillance with Machine Learning

Nordic markets build machine-learning algos into surveillance architecture to help prioritize workflows

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Nasdaq is incorporating artificial intelligence into how it monitors its Nordic exchanges, providing one of the first substantial use-cases for the emerging technology in market surveillance.

The machine learning-enhanced algorithms have been deployed across Nasdaq markets in Stockholm, Copenhagen, Helsinki and Iceland. They have been designed to provide predictive signals, based on historical data, which should indicate to market supervisors when trading is likely to be in line with market movements and what should be considered worthy of further investigation.

As part of this, the exchange operator is examining how past behavior from surveillance analysts—and their reactions to market events—is likely to correlate with future actions. Nasdaq expects the technology to be particularly useful during periods of intense market activity, such as opens and closes, in which it will play a role in prioritizing surveillance workflows.

“We’ve created a set of algorithms that have reviewed historical alerts for a long period of time, and have come up with factors that have been predominant for analysts either taking an action based on an alert, or not,” says Joakim Strid, head of European surveillance at Nasdaq. “With that historical knowledge, with the characteristics of the alert and the decisions taken by the analysts, the algorithms have come up with predictive models to generate a scoring with a new alert, which will predict the likelihood that alert will lead to action.”

The technology has been developed through a partnership between Nasdaq's Nordic Market Surveillance Team and its Smarts business, a surveillance platform used globally by exchanges, regulators and firms on both the buy and sell sides. The machine learning component is essential to the process, given the vast amount of information that may need to be digested and acted on at any point during the trading day.

"At market open, you'll have a burst of activity, and therefore a burst of alerts," Strid explains. "At certain times of the day when there are important announcements or other events that may lead to volatility or increased trading activity, those will generate alerts. At those times, when you have maybe 60 alerts coming your way, the score will be able to help the analyst make decisions on which represent the highest likelihood of them taking an action, and they can choose to focus on them first."

Nasdaq has been notably aggressive among its peers in grappling with emerging technologies. The operator has made a name for itself by being one of the earliest adopters of distributed ledger, or blockchain, technology, and it has long been a proponent of advanced surveillance technology through Smarts.

The work in the Nordic markets is also not Nasdaq's first foray into machine learning. Last month it **announced the acquisition** of Sybenetix, a buy-side-focused surveillance provider specializing in the application of artificial intelligence and behavioral science to the capital markets.

Looking ahead, the current algorithms are planned to be rolled out globally, now that they have been incorporated into Nasdaq's existing oversight processes. However, Strid sees even more potential for machine learning and other forms of artificial intelligence in the future, particularly in surveillance.

"I think we'll embark on other initiatives based on machine learning that will have far-reaching consequences," he says. "Ultimately, I think we'll have certain sets of alerts, similar to those today, where it will basically define the patterns for the system to search for, but will complement that with other, more open-ended alerts that will search for anomalies based on where the norm is changing over time, rather than just a fixed set of parameters describing what the alert should be looking for."

To hear more about Nasdaq's new initiative from Joakim Strid, listen to episode 86 of the Waters Wavelength Podcast, published on September 7 on WatersTechnology.com, iTunes and SoundCloud.
