



Nasdaq Launches Artificial Intelligence for Surveillance Patterns on U.S. Stock Market

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New technology will extend to market surveillance clients globally

NEW YORK, Nov. 07, 2019 (GLOBE NEWSWIRE) -- [Nasdaq, Inc.](#) today announced the successful go-live of artificial intelligence for surveillance patterns on The Nasdaq Stock Market, the world's largest stock exchange by volume traded.

Developed as a collaboration between Nasdaq's Market Technology business, its Machine Intelligence Lab and the company's U.S. market surveillance unit, the initiative enhances Nasdaq's market surveillance functionality with artificial intelligence and transfer learning to improve detection of malicious activity. Currently, Nasdaq's U.S. market surveillance team annually reviews 750,000+ alerts that flag unusual price movements, trading errors and potential manipulation.

The new technology, which is currently patent pending with the U.S. Patent and Trademark Office, provides Nasdaq with unique artificial intelligence capabilities for market surveillance including:

1. *Deep Learning* –allows computers to understand extremely complex patterns and hidden relationships in massive amounts of data
 - learns invariant representations
 - uses 'hidden layer' in find increasingly complex relationships
 - can learn any function, including highly non-linear ones
2. *Transfer Learning* – creates new models from old models
 - rapid implementation
 - scalable model development
 - detect new forms of financial crime in new markets
3. *Human-in-the-Loop Learning* – allows analysts to share their expertise with the machine efficiently, allowing them to focus on investigation and evidence curation
 - man-machine integration
 - label generation on-the-fly for sparse or unclear classes
 - human assisted model improvement leads to more signal and less noise in flagged examples

Nasdaq plans to expand the technology to other exchanges and regulators worldwide via the Market Technology business, as well as to other Nasdaq markets. The company will also extend the range of scenarios the system detects.

"Working closely with our U.S. surveillance team, we are able to train our models based on their experience in monitoring data directly from the trading engine of the world's most liquid and dynamic market," said Tony Sio, Vice President and Head of Marketplace Regulatory Technology, Nasdaq. "Through transfer learning, we have now built a framework to provide those learnings to other marketplaces around the world. We believe this is a major step in the evolution of how we use artificial intelligence technology to maintain the integrity of capital markets."

In Nasdaq's [recent annual study of market surveillance](#) of the global capital markets, firms emphasized recent investments in artificial intelligence/machine learning (AI/ML) capabilities, ostensibly hoping such innovations will help reduce false positives in trade surveillance by improving the efficacy of alerts. The survey revealed investments in this technology rose dramatically: 42% of respondents report they recently invested in AI/ML, and 65% plan to invest in it over the next 12 to 24 months.

"The U.S. capital markets are the largest, most liquid financial ecosystem in the world and protecting our markets for retail and institutional investors alike is an important responsibility," said Martina Rejsjo, Vice President and Head of Market Surveillance, North America Equities, Nasdaq. "This means constantly evolving how we adopt and leverage new technologies to better surveil trading activity. By incorporating AI into our monitoring systems, we are sharpening our detection capabilities and broadening our view of market activity to safeguard the integrity of our country's markets."

"Artificial intelligence and machine learning have broad application across our company – from predicting market trends with Nasdaq's proprietary data or creating more sophisticated market surveillance capabilities," said Michael O'Rourke, Senior Vice President, Head of Machine Intelligence, Nasdaq. "We want to make every one of Nasdaq's businesses better and smarter by providing them with richer data and more context-specific information. AI is going to play a crucial role in building the next generation of technologies for not only the capital markets, but every industry."

As the industry benchmark for real-time and T+1 cross-market surveillance platforms, Nasdaq's surveillance technology automates the detection, investigation and analysis of potentially abusive or disorderly trading. The technology is built to improve the overall efficiency of the surveillance organization and reduce cost, even as market complexity and new regulations increase. These solutions are used to power monitoring for more than 59 marketplaces, 19 regulators and 160+ market participants, including several buy-side institutions, across 65 countries.

About Nasdaq

Nasdaq (Nasdaq: NDAQ) is a global technology company serving the capital markets and other industries. Our diverse offering of data, analytics, software and services enables clients to optimize and execute their business vision with confidence. To learn more about the company, technology solutions and career opportunities, visit us on [LinkedIn](#), on Twitter [@Nasdaq](#), or at www.nasdaq.com.

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