FOR IMMEDIATE RELEASE

Innovative Use of Artificial Intelligence
Monitoring NASDAQ for Potential Insider Trading and Fraud

Menlo Park, Calif –September 17, 2003. The American Association for Artificial intelligence has awarded the prestigious Innovative Applications of Artificial Intelligence award to the National Association of Securities Dealers (NASD) for an intelligent system that monitors the NASDAQ, Over the Counter (OTC), and NASDAQ-Liffe (futures) stock markets for potential insider trading and fraud through misrepresentation. NASD has long been in the regulatory business. It was formerly known as the National Association of Securities Dealers, approved by the SEC in 1939.

Automatic market surveillance

In this era of Enron, Martha Stewart, and a host of Wall Street scandals, there is a growing need for better tools to monitor the market for suspicious activity that warrants closer inspection. The clues contained in the millions of trades, wire stories, and SEC filings each day makes it impossible for humans alone to sift through all the data to perform surveillance. To mine these vast stores of data, NASD has harnessed computers to sweep through all the data, identify and link items of potential interest, then present them to human analysts for further review.

To mine the data, NASD has developed an intelligent surveillance application -- the Securities Observation, News Analysis and Regulation (SONAR) system -- that automatically monitors the NASDAQ, OTC, and futures markets for suspicious patterns. SONAR has been in operational use since December 2001. _Each day_ it processes between 8,500 and 18,000 news wires stories, approximately 1,000 quarterly and annual SEC filings from corporations, and evaluates price-volume models for 25,000 securities. The system generates 50-to-60 alerts ("breaks") per day for review by several groups of regulatory analysts and investigators. After review, a number of these are referred to the SEC or Justice Department for prosecution.

"With SONAR, the same number of analysts are now able to review a broader cross-section of the market in less time," explains Henry Goldberg, Head of NASD's Knowledge Discovery and Data Mining

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team that is responsible for SONAR. "It takes less time to look at more things. The system provides the information humans need to make decisions. It also enforces consistency in the way people evaluate each instance."

How effective is it?

SONAR has both greatly expanded surveillance coverage to new areas of the market, as well as significantly increased accuracy. It alerts and augments the task of detecting and evaluating potential cases of insider trading and fraud.

While NASD must be circumspect in describing in detail the efficacy of SONAR, it has released some information in this regard. To date, 180 cases have been referred to the SEC or DOJ, including several very high profile cases. When compared to its predecessor application, SONAR generates less alerts, but is three times more accurate in generating real alerts that warrant further investigation. Further, SONAR summarizes and presents information to the human analyst in a more concise form, thus reducing human review time by one-half or more. This time savings has translated into redeploying 9 (out of 30) analysts to later stages of review, resulting in more comprehensive and accurate regulation, according to NASD. As a gauge of NASD management's reaction to the system, the company has continued to fund SONAR and further development. "We are looking to expand to several other areas of regulatory concern," says Goldberg, "such as applying SONAR to the bond market."

AI in the software

SONAR includes several AI techniques, such as data mining, natural language processing for text mining, intelligent software agents, rule-based inference, and knowledge-based data representation.

"I like the observation made by Patrick Winston (an AI pioneer, and Ford Professor of Artificial Intelligence and Computer Science at the Massachusetts Institute of Technology)," says Goldberg, "that AI in an AI system is like the raisins in raisin bread. They don't occupy much of the loaf, but it isn't raisin bread without them.

"There's lots of standard data management in SONAR," Goldberg continues, "but the AI, like the raisins, is what makes it really work." Goldberg notes that AI is being used in many innovative ways. "There are people using 15 to 20 year old AI technology for new applications. These new applications demonstrate what we can do with these powerful ideas. Each is an innovative application of AI."

About AAAI's Innovative Applications Awards

For fifteen years, the American Association for Artificial Intelligence has awarded innovative applications of AI to honor new ways technologists are using AI to make strategic contributions in

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corporations and government agencies world-wide. This year, AAAI honored four innovative

applications that are in full production and yielding quantifiable benefits: NASD for SONAR (see above

for description), Educational Testing Service for an automated student essay evaluation application,

Tokyo University for a cellular-telephone-based application to support door-to-door sales, and SISCOG

(Portugal), and NAS (Norway) for a train crew scheduling system. In addition, AAAI has recognized 16

emerging applications that use AI in innovative ways. These applications are under development, and

many have undergone preliminary testing with promising results. Each points to new ways that some the

vast array of AI techniques are enabling innovative computer applications.

Information about this year's and the previous two years' award-winning Innovative Applications of

AI winners can be found in the AAAI Press Room website in the Background Information at

www.aaai.org/Pressroom/pressroom/html. A technical paper describing NASD's SONAR application in

detail is available from AAAI Press (www.aaaipress.html.)

About AAAI

Founded in 1979, the American Association for Artificial Intelligence (www.aaai.org) is a nonprofit
scientific membership society devoted to advancing the science and practice of AI. Its mission is to: (1)
advance the scientific understanding of the mechanisms underlying intelligent thought and behavior, (2)
facilitate their embodiment in machines, (3) serve as an information resource for research planners and
the general public concerning trends in AI, and (4) offer training for the current and coming generations
of AI researchers and practitioners.

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