GSI Takes One of the Top Spots in the Billion-Scale Approximate Nearest Neighbor Search (ANNS) Challenge

December 22, 2021

SUNNYVALE, Calif., Dec. 22, 2021 (GLOBE NEWSWIRE) -- GSI Technology, Inc. (Nasdaq: GSIT), a leading provider of high-performance memory solutions for the networking, telecommunications and military markets, and developer of the Gemini® Associative Processing Unit (APU) for Artificial Intelligence, today announced that it was among the leaders in the Billion-Scale Approximate Nearest Neighbor Search (ANNS) Challenge held at this year's NeurIPS 2021 Conference.

Approximate Nearest Neighbor Search is a critical real-world problem facing search, retrieval, and recommendation applications that are used in many different domains. Despite the broad range of algorithms and approaches for ANNS, most empirical evaluations of algorithms have focused on smaller datasets (1 million points). However, deploying recent algorithmic advances in ANNS techniques for search, recommendation and ranking at scale requires technologies that can provide support at a billion, trillion, or larger scale. Currently, there is limited consensus on which algorithms are effective at these larger scales.

The Billion-Scale ANNS Challenge was created to provide a comparative understanding of algorithmic ideas and their application at scale, promote the development of new techniques for the problem and demonstrate their value, and introduce a standard benchmarking approach.

The six databases used for the challenge were two standard datasets (Deep1B and BigANN), along with two supplied by Microsoft, one by Facebook, and one by Yandex. There were four categories ranked in the challenge: Recall, Thru-put, Power, and Cost. GSI focused on the Recall, or accuracy, category which is the functionality most important in their target applications.

For the last several years, the state-of-the-art baseline for large scale ANN has been FAISS (Facebook AI Similarity Search). Many participants withdrew from the challenge because they could not improve beyond the baseline. GSI ranked above the FAISS baseline in all datasets, which is a material accomplishment for a new entrant into the AI sector. Also, GSI was the only participant to attempt the Facebook database.

"We are extremely encouraged by our results in the ANNS Challenge as we proved our technology could perform on par with the category leaders in AI," said Lee-Lean Shu, Chairman, and Chief Executive Officer. "It was an honor to compete against the very best, and in the end, we ranked among the best in the world. These results are an important milestone for GSI, and we are confident that we can deliver further improvement in our algorithm and hardware performance. We look forward to more challenges in the future."

GSI Technology has been developing the APU since 2016. Their first APU chip, Gemini-I, has begun alpha and beta testing for various search applications. As a start-up team in the AI sector, GSI has proven it can stand toe-to-toe with AI market leaders that have substantial internal and external resources. The Company anticipates launching its compiler stack in 2022 to optimize algorithm and software development.

About GSI Technology

Founded in 1995, GSI Technology, Inc. is a leading provider of semiconductor memory solutions. The Company recently launched radiation-hardened memory products for extreme environments in space and the Gemini® Associative Processing Unit (APU), a memory-centric design that delivers significant performance advantages for diverse AI applications. The Gemini APU architecture removes the I/O bottleneck between the processors and memory arrays and performs massive parallel search directly in the memory where data is stored. The novel architecture delivers performance-over-power ratio improvements compared to CPU, GPU, and DRAM for applications like image detection, speech recognition, e-commerce recommendation systems, and more. Gemini is an ideal solution for edge applications with a scalable format, small footprint, and low power consumption where rapid, accurate responses are critical. For more information, please visit www.gsitechnology.com.

Forward-Looking Statements

The statements contained in this press release that are not purely historical are forward-looking statements within the meaning of Section 21E of the Securities Exchange Act of 1934, as amended, including statements regarding GSI Technology's expectations, beliefs, intentions, or strategies regarding the future. All forward-looking statements included in this press release are based upon information available to GSI Technology as of the date hereof, and GSI Technology assumes no obligation to update any such forward-looking statements. Forward-looking statements involve a variety of risks and uncertainties, which could cause actual results to differ materially from those projected. Examples of risks that could affect our current expectations regarding partnership arrangements include: those associated with the rapidly evolving markets for GSI Technology's products and uncertainty regarding the development of these markets; the challenges of rapid growth followed by periods of contraction; intensive competition; and delays or unanticipated costs that may be encountered in the development of new products based on our in-place associative computing technology and the establishment of new markets and customer and partner relationships for the sale of such products. Many of these risks are currently amplified by and will continue to be amplified by, or in the future may be amplified by, the COVID-19 global pandemic. Further information regarding these and other risks relating to GSI Technology's business is contained in the Company's filings with the Securities and Exchange Commission, including those factors discussed under the caption "Risk Factors" in such filings.

Source: GSI Technology, Inc.

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