May 30, 2012

MIT's 'Big Data' Proposal Wins National Competition to Be Newest Intel Science and Technology Center

NEWS HIGHLIGHTS

- The Intel Science and Technology Center (ISTC) for Big Data will be located at MIT's Computer Science and Artificial Intelligence Laboratory (CSAIL) and five additional collaborating universities.
- Research at the ISTC will focus on ways to analyze big datasets to develop solutions for such diverse fields as government, financial services, healthcare and life sciences, manufacturing and retail.

SANTA CLARA, Calif.--(BUSINESS WIRE)-- Intel Corporation announced today that the Massachusetts Institute of Technology (MIT) has won a national search to become the newest Intel Science and Technology Center (ISTC) for Big Data and will be hosted by MIT's Computer Science and Artificial Intelligence Laboratory (CSAIL).

The new research center will seek to accelerate the pace of scientific and medical discoveries, enterprise and industrial computing and encourage innovation in the design of new data-intensive end-user experiences.

By creating and funding an ecosystem of leading researchers in the field and providing a collaborative center such as the ISTC for Big Data, Intel and its partners' goal is to explore new computational solutions for how people share, store and manipulate large amounts of data. This will enable the extraction of the right information to gain new additional insights.

"We are witnessing unprecedented growth in unstructured digital data and this will only accelerate further through the rapid increase of mobile Internet devices such as phones, cars and signs, and the projected development of the 'Internet of Things,' which will be constantly sensing the world around us," said Justin Rattner, Intel's chief technology officer. "For this massive amount of what is called 'Big Data' to be useful, it has to be analyzed to be made understandable. Our goal is to innovate and guide this work across multiple fields, from medical to media, to extract meaning from large amounts of data."

"At MIT, we are honored that Intel chose CSAIL as the hub of its Intel Science and Technology Center for Big Data; the selection represents a vote of confidence in our ability to work together to accelerate breakthrough research," said Susan Hockfield, MIT president. "One of MIT's defining strengths is our commitment to working with industry allies like Intel."

The new ISTC for Big Data is Intel's sixth research center to open since January 2011. Intel is operating five other U.S.-based ISTCs in the fields of visual computing, secure computing,

cloud computing, embedded computing and pervasive computing.

Big Data Research

Research at the new ISTC for Big Data will center on exploring the challenges and opportunities associated with the massive, unstructured and dynamic nature of Big Data. These Big Data attributes are often a poor fit for relational models of conventional database systems and end-user needs for complex, real-time decision-making stay unmet.

Specific research will examine designing and prototyping hardware and software for storing, managing, processing, understanding and visualizing data; discovering novel algorithms and scalable, co-designed architectural alternatives; and innovative ways of optimizing modern processor technology trends such as multicore, manycore and emerging non-volatile memory technologies. The research could impact several areas:

- **Economic analysis:** Research at the center will make it possible to visualize and better understand factors driving the global economy. It will become possible for individuals, traders, corporate strategists and government policymakers to combine and analyze streams of real-time data representing financial transactions, social network effects, climate and political developments for faster and better decisions.
- **Healthcare and Life Sciences:** Huge amounts of data need to be processed across the medical community. For example, in the complex area of genetics and gene expression, Big Data analytics could bring the hope of creating more customized treatments for people by making sense of the petabytes of information.
- **Retail**: Today's retail business is a real-time information-driven enterprise. Every customer interaction and movement of a product through a distribution network is measured and used to refine pricing strategies, update inventory decisions and tailor customer incentives. The center's research will focus on how it can help retailers access information that didn't exist before or were too costly or complex, so they are able to delight customers with outstanding selection, service and intelligent personalized offers.
- **Government:** Safety and security professionals need actionable intelligence that can help predict scenarios that can be utilized in the fields of disaster preparedness, intelligence gathering and even crowd management. The ISTC for Big Data will explore solutions that can help turn their gold mine of data into high-quality information that can increase efficiencies and inform decisions.

With MIT as its hub school, the ISTC for Big Data will include faculty research collaborators from six U.S. universities, the others being the University of California at Santa Barbara, Portland State University, Brown University, University of Washington and Stanford University. The ISTC for Big Data is expected to complement and benefit from the synergistic research in related fields of cloud and visual computing at the other ISTCs. The ISTC for Big Data is co-led by MIT professors Michael Stonebreaker and Sam Madden as the university principal investigators, and Intel Fellow Pradeep Dubey as the industry principal investigator. Intel's Jeff Parkhurst will serve as the center's program director.

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Source: Intel Corporation