Computer scientists lay out vision for a 'science of the Web'

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Researchers need a clear agenda to harness the rapidly evolving potential of the World Wide Web, according to an article in the Aug. 11 issue of the journal *Science*. Calling for the creation of an interdisciplinary "science of the Web," a group of computer scientists suggests the need for new approaches to tap the full richness of this powerful tool, while ensuring that it develops in a way that benefits society as a whole.

"If we want to model the Web; if we want to understand the architectural principles that have provided for its growth; and if we want to be sure that it supports the basic social values of trustworthiness, privacy, and respect for social boundaries, then we must chart out a research agenda that targets the Web as a primary focus of attention," wrote the team of computer scientists, which is led by corresponding author James A. Hendler, visiting professor at Rensselaer Polytechnic Institute.

Hendler is currently a professor of computer science at the University of Maryland, and in January 2007 he will become senior constellation professor of the Tetherless World Research Constellation at Rensselaer, where he will lead a team of faculty dedicated to advancing the research agenda described in the Science article.

"Despite the incredible importance of the World Wide Web to people all around the globe, and its increasingly important role in society and politics, the Web has not received as much interest within the traditional computer science research world as it deserves," Hendler said. "My research focuses on what might be called 'Web science' -- understanding

the Web in its full richness, exploring the underlying technologies that make it work and its social and policy implications, and developing new technologies to keep the Web growing ever more useful as it reaches further into our lives."

Hendler will focus the work of the new Tetherless World Constellation on increasing access to information at any time and place without the need for a "tether" to a specific computer or device. "How often have you wished you had a phone number that was sitting on your computer at home, or that you could find interesting activities in the city you're visiting without lugging your laptop along?" Hendler asked. He envisions an increasingly Web-accessible world in which personal digital assistants (PDAs), cameras, music-listening devices, cell phones, laptops, and other technologies converge to offer the user interactive information and communication.

Widely recognized as one of the inventors of the Semantic Web, Hendler says this extension of the World Wide Web will bring new information resources to the Web by enabling computers to interpret the meaning and context of words and numbers. This technology could be used to bring informative databases -- from Internet business to basic biology research -- to the Web in more searchable and usable ways, according to Hendler.

Hendler's coauthors on the *Science* article are Tim Berners-Lee and Daniel J. Weitzner of the Computer Science and Artificial Intelligence Laboratory at MIT; and Wendy Hall and Nigel Shadbolt of the School of Electronics and Computer Science at the University of Southampton.

At Rensselaer, Hendler will play a lead role in structuring the new Tetherless World Constellation. Led by outstanding faculty in fields of strategic importance, Rensselaer constellations are focused on a specific research area and comprise a multidisciplinary mix of senior and junior

faculty and postdoctoral and graduate students.

Source: Rensselaer Polytechnic Institute