

# PIONEERING NEW GROUND IN WEB TECHNOLOGY

**Amit Sheth**, LexisNexis Eminent Scholar for Advanced Data Management and Analysis at Wright State University, **is pioneering the next generation of Web technology** with applications in diverse fields ranging from defense and thwarting terrorism to health care and financial services. These technology breakthroughs are tied to economic development through the creation of high-tech jobs and new information technology companies.

“We live in a society where we are deluged with data, and a key goal in our work is to organize and analyze this data through computer applications and software development,” he explained. “We want to collect the dots and then connect the dots.”

As the LexisNexis Eminent Scholar, Sheth directs the Kno.e.sis Center, a world-class academic research organization created to apply knowledge to understanding.

“Kno.e.sis is based on the Greek word for knowledge, and our goal is to advance new approaches, techniques, and technologies for information integration and analysis and for process management,” he said. “The key to our work is to make data understandable for machines so that machines can do more for humans.”

One way Sheth will achieve this is through the Semantic Web, an evolving extension of the World Wide Web in which content can not only be expressed in natural language but also in a form that can be understood, interpreted, and used by software and machines.

Sheth said the researchers contribute to workforce development by educating and training graduate students.

The research contributes to economic development through the creation of intellectual property and technology transfer leading to software products and services.

Sheth’s work involves several fields, including:

- **Health care:** Improved electronic record systems will help doctors with instant decision support to avoid drug interactions and achieve a better match between diagnosis and treatment.
- **Life Science:** Sheth’s team helps biologists improve automation of their experiments and provides better analysis of data to understand such things as the role of complex carbohydrates in cancer research.
- **Financial Services:** Successful investment strategies rely on finding patterns and trends from an increasingly diverse set of information sources (market data, historical trends, commodity prices, etc.) that can be better integrated using the Semantic Web.
- **Security:** Kno.e.sis can help banks minimize the risks of money laundering, fraud, and terrorist financing by going beyond normal search engine applications to include relationships among people and organizations.
- **Military:** These applications include integrating sensor data from spy satellites and other sources with known data bases and profiles to provide troops and commanders in the field with the latest situational awareness.

The center, part of the Wright State College of Engineering and Computer Sciences, is housed in the recently completed Joshi Research Center.

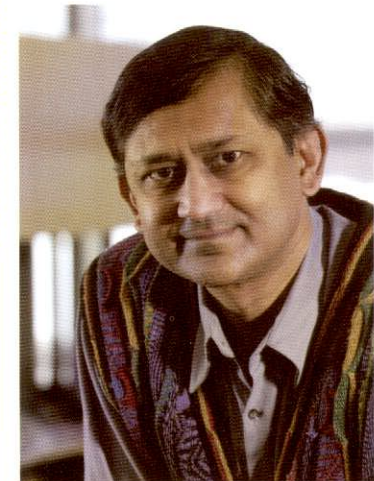
Goals of the center are closely aligned with those of the \$43 million daytaOhio, a Wright Center of Innovation, also headquartered in the Joshi Center. Part of the state’s Third Frontier Project, daytaOhio was created to leverage innovation in data-intensive technologies.

Sheth is internationally known for his work in information integration and analysis, metadata and workflow management, the Semantic Web and service-oriented computing. He came to Wright State in January from the University of Georgia.

Sheth said the Miami Valley has excellent resources for his work in these fields because of daytaOhio, Wright-Patterson Air Force Base, the proliferation of information technology companies in this region like LexisNexis, and considerable entrepreneurial spirit. “The forward-looking university and area IT leadership management is in place here to provide an environment for big success and provides an excellent match to my desire to be an educator, researcher, and an entrepreneur at the same time,” he said.

Primary funding sources for Kno.e.sis involved federal agencies such as NSF, NIH and the Department of Defense. Secondary sources are industry collaborations and state grants.

For more details, contact Sheth at [amit.sheth@wright.edu](mailto:amit.sheth@wright.edu) or (937) 775-5203. Information is also available on the Web site at <http://knoesis.wright.edu>.



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