Alberta **News** release

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Alberta's data mining research to benefit natural resource industries

Alberta's natural resource industries are poised to benefit from computer data mining research taking place at the University of Alberta.

Data mining research helps organizations take the data they collect and turn it into useful information. Dr. Sirish Shah is leading a $2.5 million research program that will continue to build expertise in computer process control in an effort to improve everything from plant operations to production quality.

"Process control performance is a basis for competitive advantage in Canada's refining, petrochemicals, pulp and paper and mineral processing industries, so this area of research has very marketable potential," said Acting Minister of Alberta Innovation and Science, George VanderBurg. "Alberta offers a collaborative environment that is a model for successful technology transfer and development, which helps appeal to researchers of Dr. Shah's calibre."

With funding from iCORE and NSERC, and the research environment at the University of Alberta, Dr Shah has attracted two industrial partners, Suncor and Matrikon. As the NSERC-Matrikon-Suncor-iCORE Senior Industrial Research Chair in Computer Process Control, Dr. Shah will continue to develop and evaluate practical tools that industry can use to convert data into useable information. Suncor and Matrikon will test the tools being developed. Suncor will provide ongoing interactive access to process data analysis challenges, while Matrikon will partner to commercialize the information-based, decision support system.

"Few organizations or institutions are able to fully utilize the information that is embedded in the data that they save and archive each day. Yet they have invested millions to measure and archive this data. The tools that our research has developed, and continues to develop allow one to convert data into useful information easily," explains Dr Shah. "It is futile to swim in an ocean of data without proper floatation aids. You can easily get overwhelmed by the torrent of data that comes like a tidal wave. The solution is to be armed with tools that can sort and facilitate the data mining exercise."

The investment in Dr. Shah's research will continue the work supported by the Natural Sciences and Engineering Research Council of Canada (NSERC), Matrikon and the Alberta Science and Research Authority (ASRA) since 2001. In the renewed phase of the industrial research chair program, NSERC is contributing $1 million, industry partner contributions total $1 million, and the Alberta government through iCORE is providing $500,000. In addition in-kind contributions will be made to the project by various partners and the University of Alberta. For more information, visit www.icore.ca

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Editor's Note: See attached backgrounder for more information.

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Alberta Backgrounder

Dr. Sirish Shah, NSERC-Matrikon-Suncor-iCORE Senior Industrial Research Chair in Computer Process Control

Research Program Overview
Control performance assessment and monitoring applications have become mainstream in Canada's refining, petrochemicals, pulp and paper and mineral processing industry.

In the typical process industry, operators are responsible for monitoring several hundreds or even thousands of control loops. With such a wide span-of-control, operator responsibility forces them to work in an "alarm-driven" mode, principally depending on computerized systems to inform them of problems when or after they occur.

Common faults can be avoided if preventative and early stage fault detection and diagnosis systems, such as the ones being conceived and developed in this research, are implemented. The main objective in this NSERC-Matrikon-Suncor- iCORE supported Industrial Research Chair project is to continue the development and evaluation of tools for effective process and performance monitoring strategies. An equally important objective is to demonstrate the utility of these tools in the Canadian process industry. The end goal is to develop practical tools that industrial personnel can use for knowledge discovery from process data and use them effectively towards process and performance monitoring. The support from industrial partners, Matrikon and Suncor, is the key towards demonstrating the utility and practicality of the tools that are developed and that will be developed.

Biographical Information
Dr Shah completed his undergraduate and master's work in the UK, prior to completing his PhD at the University of Alberta. Since his appointment in 2001, Dr Shah has worked to establish a centre of research excellence in Intelligent Systems and Control. He has held visiting appointments at Oxford University and Balliol College as a SERC fellow in 1985-86 and at Kumamoto University, Japan as a senior research fellow of the Japan Society for the Promotion of Science (JSPS) in 1994, and at the University of Newcastle, Australia in 2004. Dr Shah has also held consulting appointments with a wide variety of process Industries and has also taught many industrial courses.

About iCORE (Informatics Circle of Research Excellence)
iCORE invests in people – the highest caliber research scientists who work on fundamental and applied problems in informatics. It operates several grant programs to develop iCORE Chairs at Alberta universities, around which world-class research teams are developed. Since its inception, more than 24 research chairs have been established to focus on emerging areas such as wireless communications, artificial intelligence, and quantum and nanocomputing. For more information, visit www.icore.ca

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