Call for Paper

International Workshop on

Applications of Artificial Intelligence in Energy Production and Environmental Systems Engineering

To be held in conjunction with Eighteenth International Conference on Software Engineering and Knowledge Engineering (http://www.ksi.edu/seke/seke06.html)

Over the past two decades, a broad-based and intense effort has been ongoing to bring ideas and methodologies from artificial intelligence into the scope of energy and environmental systems analysis and modeling. Both academic research and industrial practice have generated an impressive amount of work, which spans virtually every aspect of engineering work. Artificial Intelligence (AI) techniques are now being used by the practising engineer to solve a wide range of energy production and pollution processing problems such as product and process development and design, process operations monitoring and diagnosis, process control, operations planning and scheduling, operator training, process hazard analysis and risk assessment, etc.

It is essential at this stage of development to pause and critically examine the state of affairs vis-à-vis the application of artificial intelligence in energy and environmental systems engineering. It is the objective of this Workshop to provide a forum that delineates the current state of application and implementation of artificial intelligence technology, and set forth future directions of focus that would continue moving the technology into useful applications in the energy- and environment-related industries.

Theme and Topics

The theme of the workshop is development and applications of advanced information technologies for modeling and analysis of energy production and pollution processing systems. Topics of the workshop include, but are not limited to the following:

Methods and Techniques

- Applications of real-time intelligent automation, and their associated supporting methodologies and techniques
- Architectures, algorithms and techniques for distributed AI systems
- Decision-support systems
- Knowledge acquisition, knowledge representation, knowledge compaction, knowledge-based expert systems, neural networks, fuzzy systems and genetic algorithms
- Aspects of software engineering, e.g. intelligent programming environments, testing, verification and validation of AI-based software, security and reliability issues
- Intelligent Monitoring, Control, Analysis and Synthesis of Process Operations
- Methods for Integrated Manufacturing
- Knowledge-Based Product and Process Design
- Fault detection, fault analysis and diagnosis

Application areas

- Energy management and conservation
- Energy production and development
- Greenhouse gas minimization, collection and sequestration
- Simulation and modeling of energy systems
- Pollution control
- Risk assessment and management
- Climate-change impact and adaptation

- Waste recovery, minimization and management
- Environmental simulation and modeling
- Environmental data and information management
- Environmental system optimization and planning
- Industrial experiences in the application of the above technologies or techniques, e.g. case studies or bench-marking exercises.

Program Committee (to be confirmed)

Aijun An	York University, Canada
Nick Cercone	Dalhousie University, Canada
Amit Chakma	University of Waterloo, Canada
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Xinhao Wang	University of Cincinnati, USA
Malcolm Wilson	The Energy Innovation Network, Canada
Zhifung Yang	Beijing Normal University, China
Guangming Zeng	Hunan University, China

Program Chair

Dr. Christine W. Chan
Software Systems Engineering
Faculty of Engineering
University of Regina
Regina, Sask S4S 0A2
Email: Christine.chan@uregina.ca

Important Dates:

Paper submission due: March 1, 2006
Notification of acceptance: April 15, 2006
Camera-ready copy due: May 1, 2006
Revised papers due: April 1, 2006
SEKE 2006 and Workshop: July 5-7, 2006