



ENGINEERING APPLICATIONS OF ARTIFICIAL INTELLIGENCE

The International Journal of Intelligent Real-Time Automation

AUTHOR INFORMATION PACK

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DESCRIPTION

Artificial Intelligence (AI) techniques are now being used by the practicing engineer to solve a whole range of hitherto intractable problems. This journal provides an international forum for rapid publication of work describing the practical application of **AI methods** in all branches of **engineering**.

Focal points of the journal include, but are not limited to innovative applications of:

- Real-time intelligent automation, and their associated supporting methodologies and techniques, including control theory and industrial informatics,
- Architectures, algorithms and techniques for distributed AI systems, including multi-agent based control and holonic control,
- Decision-support systems,
- Aspects of reasoning: abductive, case-based, model-based, non-monotonic, incomplete, progressive and approximate reasoning,
- Applications of chaos theory and fractals,
- Metaheuristics and their applications in intelligent automation and global optimization: Evolutionary Algorithms, swarm intelligence, nature and biologically inspired metaheuristics, etc.,
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- Neural networks, fuzzy systems, neuro-fuzzy systems,
- Deep learning and real world applications,
- Perception, e.g. image processing, pattern recognition, vision systems, tactile systems, speech recognition and synthesis,
- Aspects of software engineering, e.g. intelligent programming environments, verification and validation of AI-based software, software and hardware architectures for the real-time use of AI techniques, safety and reliability,
- Intelligent fault detection, fault analysis, diagnostics and monitoring,
- Self-organizing, emerging or bio-inspired system,
- Big data analytics, Understanding complex networks, Internet-of-things and cyber-physical systems, Intelligent transportation systems & smart vehicles
- Industrial experiences in the application of the above techniques, e.g. case studies or benchmarking exercises.

Engineering Applications of Artificial Intelligence publishes:

- Survey papers/tutorials.
- Contributed papers — detailed expositions of new research or applications.

- Case studies or software reviews — evaluative and descriptive reviews of existing available AI software systems, discussing the experience gained and lessons learnt from using or developing AI systems for engineering applications.
- IFAC EAAI Forum — problems arising from engineering practice, needing to be solved by somebody; solutions to problems discussed in this forum or elsewhere; critiques of a position or claim found in the literature.

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Artificial Intelligence (AI) techniques are now being used by the practicing engineer to solve a whole range of hitherto intractable problems. This journal provides an international forum for rapid publication of work describing the practical application of AI methods in all branches of engineering.

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- Metaheuristics and their applications in intelligent automation: Genetic Algorithms, Ant Colony Optimization, Particle Swarm Optimization, etc.,
- Knowledge processing, knowledge elicitation and acquisition, knowledge representation, knowledge compaction, knowledge bases, expert systems,
- Neural networks, fuzzy systems, neuro-fuzzy systems,
- Perception, e.g. image processing, pattern recognition, vision systems, tactile systems, speech recognition and synthesis,
- Aspects of software engineering, e.g. intelligent programming environments, verification and validation of AI-based software, software and hardware architectures for the real-time use of AI techniques, safety and reliability,
- Intelligent fault detection, fault analysis, diagnostics and monitoring,
- Self-organizing, emerging or bio-inspired system,
- Industrial experiences in the application of the above techniques, e.g. case studies or benchmarking exercises.

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Types of paper

Engineering Applications of Artificial Intelligence publishes

- Survey papers/tutorials.
- Contributed papers - detailed expositions of new research or applications.
- Brief papers - short discussions of new technical concepts or developments, or new applications of existing techniques.
- Case studies or software reviews - evaluative and descriptive reviews of existing available AI software systems, discussing the experience gained and lessons learnt from using or developing AI systems for engineering applications.
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