

**AI4SE 2019**  
**First Workshop on the application of**  
**Artificial Intelligence for Systems Engineering**  
**Call for Presentations/Papers**

<http://www.kr.inf.uc3m.es/ai4se-2019/>

Carlos III University of Madrid  
Leganés (Madrid), Spain, November 12-13, 2019

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The [Knowledge Reuse Group](#) invites submissions to AI4SE workshop, which will take place at Carlos III University of Madrid within the “Artificial Intelligence in Systems Engineering Week”.

[Artificial Intelligence](#) (AI), sometimes called machine intelligence, is intelligence displayed by machines, in contrast to the natural intelligence displayed by humans and animals. Computer science defines AI research as the study of "intelligent agents": any device that perceives its environment and takes actions that maximize its chances of successfully achieving its goals. Colloquially, the term "artificial intelligence" is used to describe machines that mimic certain "cognitive" functions that humans associate with other human minds, such as "learning" and "problem solving".

[Systems Engineering](#) (SE) is an interdisciplinary field of engineering development and engineering management that focuses on how to design and manage complex systems throughout their life cycle. Activities such as requirements engineering, reliability management, logistics, coordination of different teams, testing and evaluation, maintainability and many other disciplines necessary for the successful development, design, implementation, and ultimate decommission of systems, become more difficult when dealing with large or complex projects.

-----KEYNOTE SPEAKERS-----

Paul Schreinemakers, INCOSE-EMEA. *A short introduction to INCOSE and the FuSE initiative; a need for change in Systems Engineering*

(A second keynote to be announced)

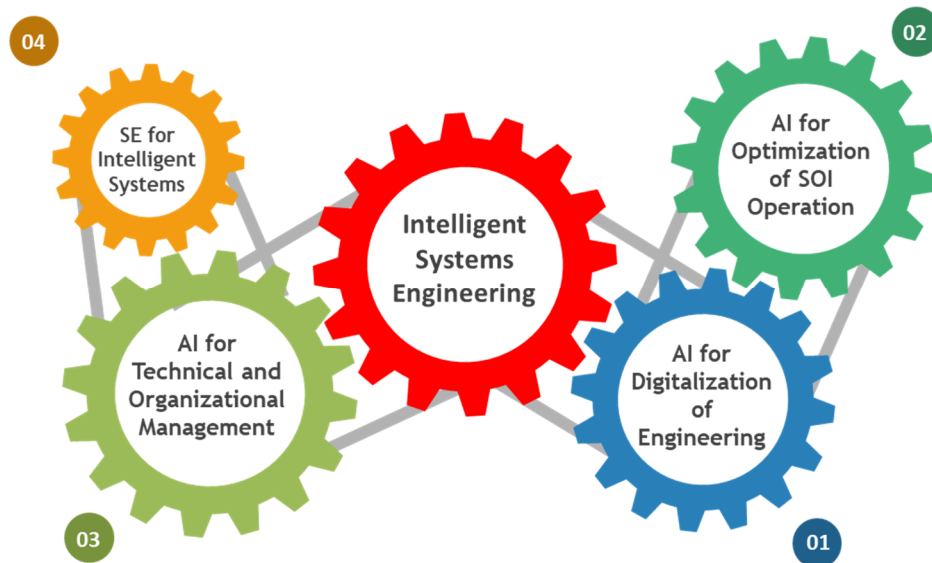
-----TOPICS OF INTEREST-----

Many of the challenges described in the previous definitions are human intensive, and could demand highly developed skills in learning, reasoning, decision making and problem solving. Therefore, Artificial Intelligence and all of its interleaved variants (machine learning, knowledge engineering, artificial reasoning, ontologies, optimization methods, etc.) are more and more relevant to systems engineering. Our purpose in this AI4SE workshop is to focus on the following application areas:

- AI for digitalization of Engineering
- AI for optimization of System of Interest (SOI) Operation
- AI for Technical and Organizational Management
- Systems Engineering for Intelligent System

The Artificial Intelligence for Systems Engineering Workshop, AI4SE is designed to be the meeting point for the industry and academia to share promising on-going or relevant past experiences

where AI is applied to improve Systems Engineering processes, methods or tools, with a clear focus on practical applications. The organizing committee invites submissions of results from industrial projects, scientific works and demonstration activities on how models and technologies, from AI, cover the following (but not restricted to):



### 01. Digitalization of Engineering

#### - Smart Authoring

- Computer assisted guidance for requirements development
- Automatic generation of requirements, models, test cases, manuals

#### - Engineering Support Systems

- Automatic Quality Judgement for requirements, models, components, the SOI, etc.
- Automatic reasoning for trade-off analysis and decision management
- Decision Support Systems for specification and modeling
- Computer guided design methods (Designs Reuse)
- Automatization of digital twin construction
- Deep Learning for optimization and control
- Smart safety analysis

#### - Engineering knowledge discovery

- Automatic identification and/or suggestion of traceability links
- Automatic patterns identification
- Automatic generation of Product Lines from legacy information
- Commonality/Variability discovery

### 02. Optimization of SOI Operation and Maintenance

#### - Operational optimization

- Optimization of System Governance

#### - Predictive maintenance of systems

#### - Smart configuration of the SOI

- Self-organization of systems

#### - Human-machine smart interaction (virtual assistants, chat boxes, etc.)

### O3. Technical and Organizational Management

- Decision Management Process
- Management Support Systems (Automatic Reasoning)
- Trade-off analysis
- Knowledge Management & Reuse
  - Relevant Knowledge discovery
  - Automatic generation of repositories

### O4. Systems Engineering for Intelligent Systems

- V&V in Autonomous / Intelligent Systems
- Automatic V&V generation techniques

#### -----SUBMISSION INFORMATION AND PAPER PUBLICATION-----

Submissions will be accepted in two different formats, always written in English:

- Regular papers (10-12 pages)
- Presentation-only papers

Authors of accepted submissions will be notified and required to submit the final camera-ready version either as a Presentation-only or as a Regular paper.

Submissions for Regular papers must follow Springer LNCS format. Proceedings containing accepted papers shall be submitted to CEUR-WS.org for online publication.

Presentation-only papers are format-free. Accepted Presentation-only papers will be allowed a slot for presentation at the Workshop, but will NOT be included in the Proceedings.

Submissions must be original and not published elsewhere. Each submission will be peer-reviewed by at least two members of the Program Committee. Acceptance will be based on the paper's significance, technical quality, clarity, relevance, and originality. All accepted papers must be orally presented at the workshop by one of the authors and at least one author of each accepted paper must register for the workshop.

All papers should be submitted in PDF format through the AI4SE EasyChair submission page <https://easychair.org/conferences/?conf=ai4se2019>.

#### -----IMPORTANT DATES-----

Submission deadline: ~~July 15th, 2019~~ **Extended July 31st, 2019**

Notification of paper acceptance: August 31, 2019

Camera ready papers deadline: September 30, 2019

Workshop dates: November 12-13, 2019

#### -----ORGANIZING COMMITTEE-----

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