

New AI for IEEE Systems, Man, and Cybernetics Society

A Brief Report on SMCS AI Executive Workshop

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I. Workshop Goals and Organizational Framework

As outlined by Adrian Stoica, President of IEEE SMC Society, the 2025 AI Executive Workshop has been held on February 15, 2025, at the Huntley Hotel, Santa Monica, CA, USA, a day before the IEEE SMCS ExCom. The objectives of the Workshop have been to review the state-of-art in the rapidly developing AI field and to discuss the critical avenues for the SMC Society to contribute to this field through its strong leadership position. The intensive one-day workshop was chaired by Robert Kozma and Fei-Yue Wang, co-organized by Yan Wan and Valeria Garai, and conducted via an onsite/online hybrid fashion.

The AI Executive Workshop invited Ashitey Trebi-Ollennu of NASA/JPL Autonomy as its guest speaker. Onsite participants included Okyay Kaynak, Ferat Sabin, Ming Hou, Eddie Tunstel, Enrique Herrera-Viedma, Yo-Ping Huang, Vladik Kreinovich, Yan Wan, Shun-Feng Su, Maria-Pia Fanti, Mike Smith, Sam Kwong, Tadahiko Murata, Daoyi Dong, Imre Rudas, Daniel Yeung, Gina Tang, Olga Kosheleva, while Tiago Falk, Martha Takacs, and Charlie Yang joined the meeting online.

19 speakers addressed various important issues on AI for IEEE and SMCS with the focus mainly on the five areas: 1) Conferences with the special attention on IEEE Conference on AI to be organized by SMCS next year (IEEE CAI 2026); 2) AI Strategic Technological Aspects; 3) Identification of Government and Industry Target Audience; 4) Publications; and 5) Societal Perception and Impact of AI. More detailed description of the main themes of the AI Workshop, the conclusions and tentative recommendations are elaborated next.

II. Description of the Workshop Events

The Workshop included 5 sessions, from 9:30am to 5:30pm; 2 Sessions in the morning, and 3 Sessions in the afternoon. Morning Sessions 1 & 2 addressed the question: What is a sustainable strategic approach to AI in the general context? (Session 1), and: What are the strategic AI opportunities of SMCS, specifically (Session 2). The afternoon sessions discussed how we can achieve our strategic goals. Namely, How to implement SMCS cutting-edge AI strategy (Session 3); Breakout Session determining priorities and action items (Session 4); and Conclusions and Recommendations to ExCom (Session 5).

- **Session 1 started with an introduction and vision statements** by Robert Kozma and Fei-Yue Wang, followed by the inspiring invited talk given by Ashitey Trebi-Ollennu (NASA/JPL) on The Role of A.I. & Autonomy in Future Space Exploration Missions. Finally, Okyay Kaynak described the AI industrial landscape, perspectives and challenges. The talks, followed by a panel discussion, explored what are the key areas, tools, products, which are expected to be crucial for the development of AI in the coming years. How the role of LLMs may change as we progress with AI/AGI? How will symbolic reasoning integrate with neural solutions. Which AI architectures do you think will scale? How AI hubs will be limited by power demand? How to respond to societal anxiety to AI dominance? Ethical concerns? Should we be afraid of superintelligence, when AI exceeds human cognitive capabilities?



IEEE SMCS 2025 AI Executive Workshop at Santa Monica, CA, USA

- **Session 2 discussed the challenges and opportunities SMC Society faces in the AI area. How to benefit from the special position of SMCS as an incubating society? In the past over 50 years, SMCS gave birth to other IEEE Councils and Societies, which became very prosperous on their**

own activity areas. Systems, Man, and Cybernetics: expressing our leading edge. Which AI advances should we especially embrace based on our profile? Which AI areas are less relevant to SMCS? Key areas for our AI strategy and success are Collaborative AI, Human-AI Collaboration, AI-AI cooperation. How to promote progress? The session began with Ming Hou's talk on collaborative human-AI symbiosis and engagements with IEEE AI coalition. This is followed by the talk on robotics and AI by Ferat Sahin, and discussion on AI and autonomous systems by Eddie Tunstel. Mike Smith introduced his ideas on new challenges in AI. Tiago Falk elaborated on brain and computer interfaces and human-AI interaction.

- **Session 3 addressed the question: How can we implement a cutting-edge SMCS AI strategy?** A key topic was the upcoming Conference on AI in 2026 (CAI2026), in which SMCS is the lead organization. This and other conferences were presented by Yo-Ping Huang. CAI2026 is an excellent opportunity to SMCS and it has a top priority in the coming year. Shun-Feng Su discussed on developing a strategic approach in AI-related publications. The link between systems science and engineering and AI in SMCS strategic vision is described by Haibin Zhu. Vladik Kreinovich elaborated on AI challenges in human-machine systems area of the SMC Society.
- **In Session 4, speakers were divided into two focus groups.** One is on CAI2026 as top priority. The other focus group evaluated the inputs provided by the speakers in previous sessions, and specific recommendations were formulated. These recommendations were focused around the following core areas: CAI 2026; AI strategical technological aspects; 3) identification of government and industry target audience; 4) publications supporting AI strategic goals; and 5) societal perception and impact of AI.
- **Session 5 summarized the results of the workshop,** with specific outcomes and recommendations identified, which were reported to the ExCom next day; see detailed Recommendations Section next.

III. Recommendations

1. The SMCS AdHoc Committee on Strategic Planning, Foresight, and Strategic Initiatives

- The AdHoc Committee chaired by Fei-Yue Wang, has been charged to propose detailed short- and long-term plans and actions that would carry out the suggested recommendations. The goal is to transform IEEE SMCS into a digital and smart organization with new AI technologies, making SMCS Sustainable and Smart, Motivated and Magnificent, Cohesive, Collaborative and Capable in professional services and academic exchanges for research and development of Algorithmic Intelligence, Agentive Intelligence, Autonomous Intelligence, and other AI effort for humanity.

2. Specific focus area recommendations

- Formulate AI Task Force for AI (AI TF). AI TF should determine vehicles to achieve strategic goal in various activity areas (publ, conf, consulting firm, etc.), define measures of success.
- Determine key AI areas and AI applications which are to be pursued by SMCS. Preliminary (incomplete) list of areas: Systems/teams intelligence; Interaction & collaboration between Human, AI, and Machine; Methodology for trusted AI; Role of LLMs.
- Analyze SMCS accumulated AI-relevant experience based on pioneering history, as incubator society, and benefit from it when addressing present-day AI challenges.
- Form an Education Working Group on teaching AI and using AI in education (“AI education and AI in education”)

3. Identification of Government and Industry Target Audience:

- Use the AI-TF to identify and reach out to gov/industry audience.
- In our industrial outreach, we have to showcase and benefit from our existing AI strengths in systems, cybernetics, and HMI areas.
- Conduct a gap analysis to identify issues/problems in gov/industry.
- Develop best practices and standards.
- Identify and resolve/mitigate problems due to the discrepancy between fast industry response time and the high inertia in slow IEEE processes.

4. Publications

- We should be more proactive in initiating new publications in AI-related topics.
- Learn from positive experiences of other societies/organizations, INCOSE, RAS, CIS, IEEE SA.
- Explore new forms of publication venues, as industry/AI cluster is often less interested in traditional publication venues, archived journals.
- Specific opportunities: Make SMC Letters strong; Intelligent Science and Technology; IEEE Letters in Cyber Physical Social Intelligence.
- SMC Newsletter and other venues publicize SMCS conferences; e.g., after conference, publish conference review, SMC, CAI, etc.
- Citation databases: Look into the proper inclusion of AI in SJR etc databases.

5. Societal perception and impact of AI

- Focus areas: anxiety towards AI/superAI; trust of people in AI; sustainability of AI technology; ethical, legal, cultural, and social impacts of AI; accountability; regulatory framework.
- Broadly publicize our human-centered SMC approach that addresses many of the reservations encountered.
- Space exploration is generally positively perceived by public and can be showcased.

In summary:

The 1st SMCS AI Workshop has successfully completed its stated objectives. The participants provided their very valuable and enthusiastic inputs, which are greatly appreciated. This helped to provide an initial sketch of a roadmap and action plan for SMC Society in AI area for the coming years. The discussions confirmed the unique position of the SMC Society in the AI transformational changes, revolution, based on our long-standing integrative focus emphasizing the interaction between humans and machines, manifested in the principles of cybernetics and systems science and engineering. A detailed report and action plan on AI-related activities will be provided in the near future.