Advanced Robotics Call for Papers

Special Issue on Real-World Robot Applications of the Foundation Models

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Scope: This special issue will focus on the discussion of intelligent robots using pre-trained foundation models, such as large language models and large vision-language models, which have rapidly been utilized in various fields, including object recognition, speech recognition, dialogue, Q&A, and image generation. Recently, the innovation of foundation models is attracting attention in artificial intelligence [1]. The foundation models have a tremendous potential in robotics applications and have already applied to many robotics tasks. The emphasis of the discussion and research topics will be on the practical applications of these foundational models in real-world robot scenarios. The special issue will feature research papers that explore the application of various pre-trained models, including large language models such as ChatGPT, GPT-4, PaLM, and LLaMA, large vision-language models such as CLIP, GLIP, OFA, X-CLIP, Flamingo, Detic, and SAM, and large audio-language models such as AudioLM, AudioCLIP, HuBERT, Whisper, as well as image generation models/reinforcement learning models such as DALL-E2, Stable Diffusion, Gato, RT-1, and BC-Z. The special issue will include the practical application of these models, such as CLIP-Fields, Code as Policies, SayCan, LM-NAV, ProgPrompt, Socratic Models, and VIMA.

We also welcome survey and short papers that clarify current essential topics in real-world robot applications of the foundation models. Prospective contributed papers are invited to cover, but are not limited to, the following topics:

- Foundation model
- Large language model
- Vision-language model
- Audio-language model
- Multimodal learning
- Embodied AI
- Service robotics
- Data-driven robotics
- Task and motion planning
- Object Manipulation
- Navigation
- AI alignment in robotics

[1] Bommasani, R., Hudson, D. A., Adeli, E., Altman, R., Arora, S., von Arx, S., ... & Liang, P. (2021). On the opportunities and risks of foundation models. arXiv preprint arXiv:2108.07258.

Website:
https://sites.google.com/view/robotics-foundation-models/special-issue-on-advanced-robotics

***Submission*:** The full-length manuscript (either PDF file or MS word file) should be sent by **31 January 2024** to the office of Advanced Robotics, the Robotics Society of Japan through the homepage of Advanced Robotics (https://www.rsj.or.jp/pub/ar/submission.html). Instructions for authors and manuscript template are available at the homepage.