

AAAI-MAKE 2022: Machine Learning and Knowledge Engineering for Hybrid Intelligence

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The AAAI 2022 Spring Symposium on Machine Learning and Knowledge Engineering for Hybrid Intelligence (AAAI-MAKE 2022) brought together researchers and practitioners of the two fields to reflect on advances in combining them, and to present the first results in creating hybrid intelligence with the two AI methods. AAAI-MAKE 2022 is the fourth consecutive edition of this symposium, which combines two prominent AI approaches, symbolic and sub-symbolic AI, as hybrid AI.

In such hybrid architectures, agents using different types of AI work together to solve problems where separate approaches do not provide satisfactory results, e.g., in terms of explainability and data efficiency. Explainability is needed to complement human intelligence in the AI loop, and data efficiency (learning from small data sets) is needed in many domains where data availability is limited. Hybrid approaches that combine machine learning with the use of logic can explain inferences and increase data efficiency.

The combination of machine learning and knowledge engineering opens up new possibilities for the redesign of knowledge work at the interface of humans and machines, with the aim of combining complementary strengths. Knowledge workers without strong AI expertise can contribute to hybrid teams where humans and machines work synergistically to achieve common goals better in collaboration than separately. More efforts need to be made to democratize the combination of machine learning and knowledge engineering and unleash the complementary strengths.

The 2022 edition was held as a hybrid event with an on-site presence at Stanford and remote participation. The remarkable number of submissions again showed a huge demand for combined/hybrid AI approaches that address hybrid intelligence. These proceedings are a collection of papers that contribute to the symposium's aim of combining machine learning and knowledge engineering, hybrid intelligence / intelligent systems, as well as hybrid AI and neuro-symbolic approaches/methods.

In A. Martin, K. Hinkelmann, H.-G. Fill, A. Gerber, D. Lenat, R. Stolle, F. van Harmelen (Eds.), *Proceedings of the AAAI 2022 Spring Symposium on Machine Learning and Knowledge Engineering for Hybrid Intelligence (AAAI-MAKE 2022)*, Stanford University, Palo Alto, California, USA, March 21–23, 2022.


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