## **Bayesian Approach to Multi-Agent Systems**

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**Abstract:** Multi-agent systems [1] are increasingly popular approach to control of complex industrial processes [2]. The idea of distribution of a complex task into many semi-autonomous cooperating units has been formalized using many frameworks. In this paper, we review the close relation of distributed Bayesian decision making [3] and multi-agent systems. The Bayesian methodology was primarily designed for systems with uncertainty. Therefore, a distinctive feature of a Bayesian agent is that all information is represented by probability density functions. Many algorithms derived for a single Bayesian decision maker [4] are suitable for use in multi-agent scenarios, however, more work is required to resolve issues related to Bayesian approach to communication and cooperation. The challenges for future research will be outlined. It is concluded that the Bayesian paradigm provides a solid, consistent framework for formalization of the task.

## References

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