

# Processing of External Knowledge in Bayesian Parameter Estimation

**Jan Kracík**

Department of Adaptive Systems, Institute of Information Theory,  
Academy of Sciences of the Czech Republic, Prague, Czech Republic

*E-mail:* kracik@utia.cas.cz

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**Abstract:** Efficient multiple-participant decision making [1] relies on a cooperation of participants. Basic element of such cooperation is a mutual exchange of individual knowledge pieces, which are, in case of Bayesian decision makers [2], represented by probability density functions. As (in general) individual participants use different parameterized models, the knowledge can be exchanged only by sharing probability density functions of quantities describing data which are in common of communicating participants.

The aim of the presentation is to propose a rationale and technically feasible framework which allows a Bayesian decision maker to utilize an external information in form of probabilistic model of data. The presented method is consistent with Bayesian learning from data – learning from an external probabilistic model is equivalent to the ordinary Bayesian learning, if the external model is described by an empirical probability density function.

## References

- [1] J. Andřýsek, M. Kárný, and J. Kracík, Eds., *Multiple Participant Decision Making*, Adelaide, May 2004. Advanced Knowledge International.
- [2] J. Berger, *Statistical Decision Theory and Bayesian Analysis*, Springer-Verlag, New York, 1985.