

# Bayesian Decision Making and E-learning: How to Combine?

Evgenia Suzdaleva<sup>1</sup>

<sup>1</sup> Department of Adaptive Systems  
Institute of Information Theory and Automation of the  
Academy of Sciences of the Czech Republic  
Pod vodárenskou věží 4, 18208 Prague 8 Czech Republic

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

**Keywords:** decision-making; fully probabilistic design; optimal control strategy; e-learning

**Abstract:** The paper describes an approach to the formulation of the decision-making tasks via specification including such specifying constituents as system, experience, ignorance, admissible strategy, loss function and decision [1]. The paper shows how to construct the offered specification on two examples of decision-making problems. One of them is a simple example from the everyday life; as the second example the fully probabilistic control design in its state-space setting has been taken [2]. The fully probabilistic design describes the controlled closed loop system and its desired behavior in probabilistic terms and uses the Kullback-Leibler divergence as their proximity measure [3]. Because of the state-space setting both solutions of filtering and regulation tasks are required. The example is demonstrated on normal state-space model and normal ideal pdf. In this case the solution of the fully probabilistic design reduces to Kalman filtering and design minimizing the quadratic criterion.

The paper shows how this way of the material organizing can be applied as the educational resources of the e-learning software. Such an area of e-learning software content as math-oriented material (particularly, Bayesian decision making) are still not sufficiently supported nowadays. It can be said both in terms of a conceptual approach to a structure of the information presented and from the point of view of implementation of the decision-making tasks in math-oriented educational software tools. The paper tries to reduce the lack of the solutions in this field and offers its own one.

## References

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