

# Certificate of participation

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took part from 20.03.2023 to 24.03.2023 in the training course

## **Introduction to Bayesian Statistical Learning**

given by Dr. Alina Bazarova (Jülich Supercomputing Centre) as part of the training programme of Forschungszentrum Jülich.

### Contents

In this course we introduced the basic theoretical concepts of Bayesian Statistics and Bayesian inference. We discussed the computational techniques and their implementations, different types of models as well as model selection procedures. We exercised on the existing datasets use the PyMC3 framework for practicals.

### Main topics

- Bayes theorem
- Prior and Posterior distributions
- Computational challenges and techniques: MCMC, variational approaches
- Models: mixture models, Gaussian processes, neural networks
- Bayesian model selection: Bayes factor and others
- PyMC3 framework for Bayesian computation
- Running Bayesian models on a Supercomputer

The course consisted of 20 lectures (20 hours).

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