Bayesian case studies

ECTS : 4

Volume horaire : 24

Description du contenu de l'enseignement :

1. Bayesian Modelling Foundations: learn the principle of Bayes formulation, the choice of a prior distribution (conjugate prior, Jeffreys prior, non-informative and weekly informative prior) and model selection (Bayes Factor)
2. Bayesian Inference: insights on sampling methods such as importance sampling, Markov Chain Monte Carlo methods, Approximate Bayesian Computation methods
3. Variable Selection: learn about Gibbs Sampler, model averaging and Zellner's Prior
4. Bayesian Workflow: apply the Bayesian workflow on examples using R and stan

Compétence à acquérir :

- Learn Bayesian thinking in practice, not just theory
- Build statistical models that are interpretable and robust
- Apply simulation algorithms
- Perform model selection
- Hands-on with real data using R and Stan

Mode de contrôle des connaissances :

Final written examination including a practical part on R

Bibliographie, lectures recommandées :

Bayesian Essentials with R, Jean-Michel Marin, Christian P. Robert (2014)