ABS18: BAYESIAN STATISTICAL MODELLING AND ANALYSIS IN SPORT

Villa del Grumello, Como, Italy
4-8 June 2018

Monday 4

13.00	Registration
14.00 - 16.00	Introduction to Bayesian modelling and computation. Overview of Bayesian hierarchical modelling. Introduction to Bayesian modelling in R.
16.00 - 16.30	Coffee break
16.30 - 18.00	Presentation of Problem 1: ranking and benchmarking athletes. Discussion of potential Bayesian hierarchical models and computational solutions. Implementation of Bayesian hierarchical models. Discussion and communication of results.
18.00 – 19.00	Participants' talks

Tuesday 5

09.00 - 10.30	Lectures on foundational Bayesian theory. Introduction to Bayesian high dimensional regression.
10.30 - 11.00	Coffee break
11.00 - 12.30	Presentation of Problem 2: modelling swimmers' effective work per stroke. Discussion of potential Bayesian high dimensional regression models and computational solutions. Analysis of swimming data using selected model. Discussion and communication of results.
12.30 - 14.00	Lunch at Villa del Grumello
14.00 - 16.00	Introduction to Bayesian time series. Discussion of Problem 3: modelling cyclists' wearable data. Discussion of potential Bayesian (marked) time series models and computational solutions.
16.00 - 16.30	Coffee break

16.30 – 18.00	Analysis of cycling data using selected model. Discussion and communication of results.
19.30	Dinner

Wednesday 6

09.00 - 10.30	Lectures on foundational Bayesian computation. Introduction to Bayesian mixture models.
10.30 - 11.00	Coffee break
11.00 - 13.00	Presentation of Problem 4: optimizing athlete's resilience. Discussion of potential Bayesian mixture models to relate performance, fatigue and recovery. Analysis of resilience data using selected model. Communication of results.
13.00	Free afternoon and evening

Thursday 7

09.00 - 10.30	Lectures on foundational computation and Bayesian theory. Introduction to Bayesian optimal design and sampling
10.30 - 11.00	Coffee break
11.00 - 12.30	Presentation of Problem 5; optimal sampling strategies. Discussion of potential Bayesian experimental design and sampling design methods for acquiring data from athletes.
12.30 - 14.00	Lunch at Villa del Grumello
14.00 - 15.30	Introduction to spatio-temporal models for sports images and videos. Presentation of problem 6: using video data to analyse basketball games. Discussion of potential Bayesian spatio-temporal models.
15.30 - 16.00	Coffee break
16.00 – 18.00	Analysis of video data using selected model. Communication of results

Friday 8

09.00 - 11.00	Lectures on frontier Bayesian computation. Discussion of Bayesian Network models for sports science. Discussion of visualization of Bayesian results.
11.00 - 11.30	Coffee break
11.30 - 13.00	Finalisation of problems 1-6. Development of Bayesian Network model for a selected problem. Communication and visualization of results. Concluding remarks.
13.00	Free afternoon and evening