

# LGBIO2060: Modelling of biological systems

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*Session 3 : Bayesian inference of a continuous hidden state*

***Professor***

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***Teaching assistants***

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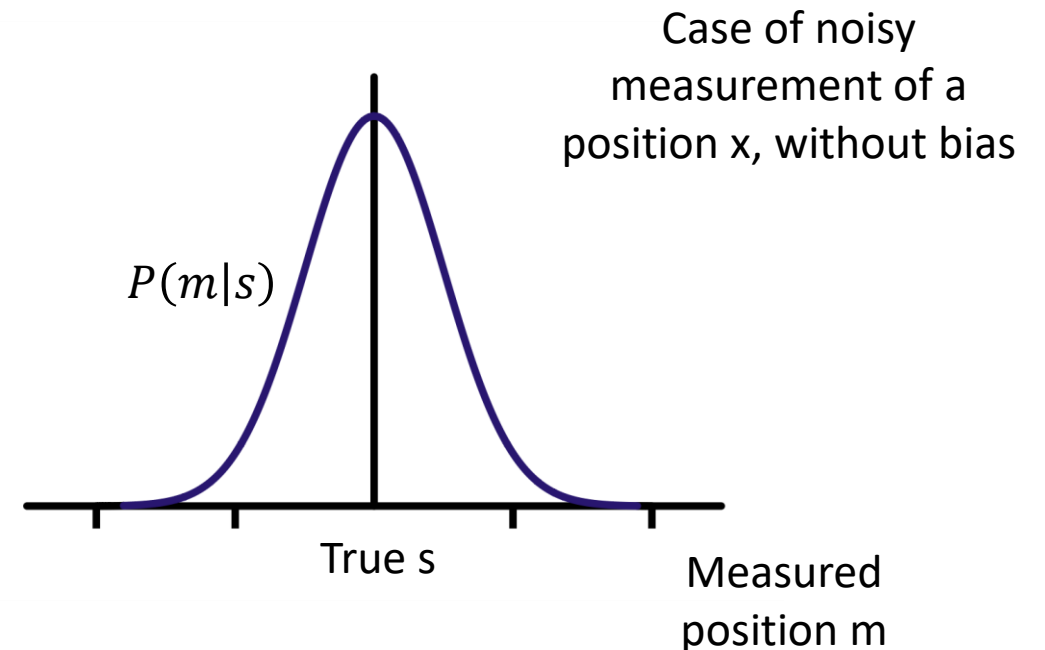
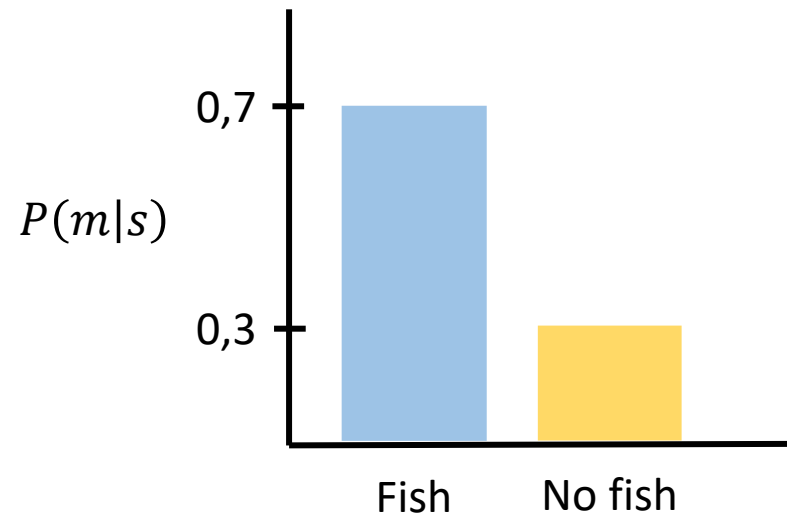
C. Vandamme

Bayes inference :  $P(s|m) = \frac{P(m|s)P(s)}{P(m)}$

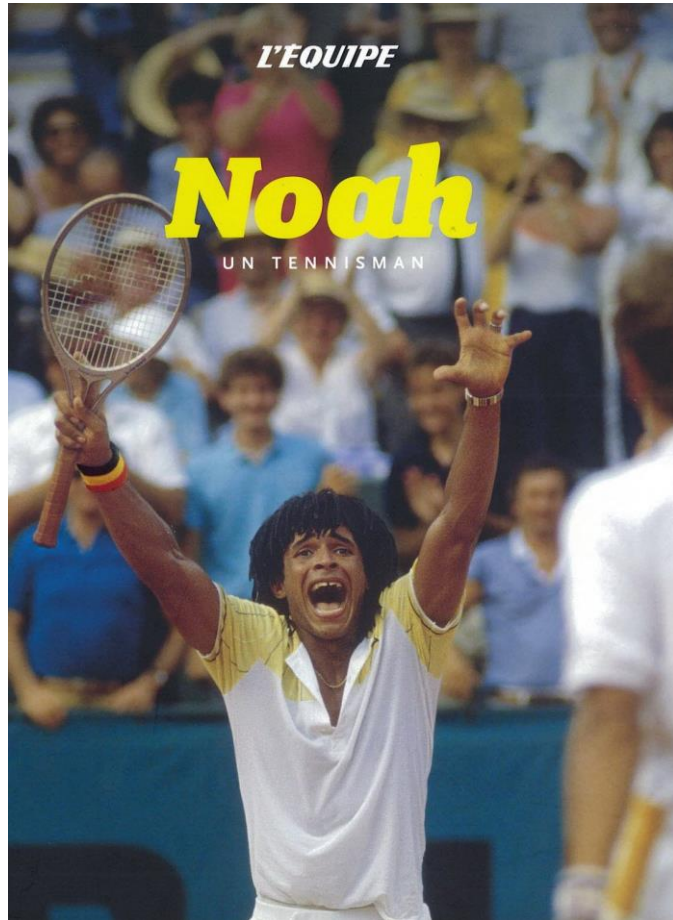
$\swarrow$        $\searrow$   
 State      Measurements

$P(s|m)$  = posterior  
 $P(m|s)$  = likelihood  
 $P(s)$  = prior  
 $P(m)$  = normalization term

Continuous distributions !



Example: Final game of Roland Garros against Noah.



Goal : Estimate where the ball will land

Two sources of information:

- Measurement = visual information
- Prior = Information about his playstyle

# Next week...

## Start of the first project !

- Enroll in a group on Moodle (groups of 2 students)
- Read “*Bayesian integration in force estimation*”, Kording K.P., Ku S. P. & Wolpert D.M. (2004)
- Guidelines of the task next week
- Practical sessions in Week 5&6 dedicated to work on the project