## **BNPlib** for density estimation:

A nonparametric C++ library (part 2)

Bruno Guindani Elena Zazzetti

January 8<sup>th</sup>, 2020



https://github.com/poliprojects/BNPlib

## part 1

structure algoritmh/neal2/neal8 hierarchies: NNIG/MultiDummy

hypers: Fixed

mixtures: Pit-Yor/Dirichlet

## part 2

factories collectors input

## Bibliography

- 🥦 P. Muller, F. A. Quintana, Bayesian Nonparametric Data Analysis
- R. M. Neal (2000), Markov Chain Sampling Methods for Dirichlet Process Mixture Models
- H. Ishwaran, L. F. James (2001), Gibbs Sampling Methods for Stick-Breaking Priors
- K. P. Murphy (2007), Conjugate Bayesian analysis of the Gaussian distribution
- Stan documentation: http://mc-stan.org/math. Code found at https://github.com/stan-dev/math (version 3.0.0 was used) and it also includes other needed libraries: Boost, Eigen, SUNDIALS, Intel TBB
- Eigen documentation: https://eigen.tuxfamily.org/dox. Code is included in the Stan package (version 3.3.3 is used there)
- Protocol Buffers Tutorial for C++: https://developers.google.com/protocol-buffers/docs/cpptutorial

Guindani, Zazzetti (PoliMi) BNPlib 2020/01/08 4/4