

BNPlib for density estimation:

A nonparametric C++ library
(part 2)

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<https://github.com/poliprojects/BNPlib>

Title

Impending extensions





- **Hyperpriors**: objects of class `Hypers` store pointers to objects of class `HypersFixed`
- **Non-conjugacy**: via Stan's HMC sampler
- **R interface**: via **protocol buffers**

Protocol Buffers

- API developed by Google
- Data is saved in XML-like structures, called **messages**, that are defined in `.proto` files
- Each message corresponds to a class in C++
- The `protoc` compiler produces the C++ files that make up the API
- RProtoBuf
- Compromise between efficiency and human-readability

A general library?

Bibliography

-  Muller, Quintana, *Bayesian Nonparametric Data Analysis*
-  Neal (2000), *Markov Chain Sampling Methods for Dirichlet Process Mixture Models*
-  Ishwaran, James (2001), *Gibbs Sampling Methods for Stick-Breaking Priors*
-  <https://developers.google.com/protocol-buffers/docs/cpptutorial>