

Example of intensity estimation for a Poisson process observed with uniform noise

```
library(Rcpp)
library(parallel)

source("Rcpp_functions.R")
source("h_hat_calibration.R")
source("fh_estim.R")
```

Simulation of a dataset

```
n=1000
a=0.05
alpha=2
beta=3
seq_x=seq(0,1,0.01)
Tmax=1

N=rpois(1,n)
X=matrix(rbeta(N,alpha,beta))
true_lambda=dbeta(seq_x,alpha,beta)
eps=runif(N,-a,a)
Y=X+eps
```

Calibration of \hat{h}

```
h_min=(a*Tmax/N)^(1/3)
Hseq=seq(h_min,Tmax,0.1)
etaseq=seq(-0.99,0.99,0.05)
nb_cores=4

h_hat=h_hat_func(Hseq,Y,a,N,nb_cores,Tmax,etaseq)
```

Intensity estimation

```
fh=fh_estim(h_hat,Y,a,N,seq_x)
plot(seq_x,true_lambda,"l")
lines(seq_x,fh,col="blue",xlab=" ",ylab=" ")
```

