

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

```
library(Rcpp)
library(parallel)
library(ggplot2)

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

Simulation of a dataset

```
n=500
a=0.05
seq_x=seq(0,1,0.01)
Tmax=1

N=rpois(1,n)
X=matrix(rbeta(N,2,10))
true_lambda=dbeta(seq_x,2,10)
eps=runif(N,-a,a)
Y=X+eps
```

Calibration of \hat{h}

```
h_min=(a*Tmax/N)^(1/3)
Hseq=seq(h_min,Tmax/4,0.1)
nb_cores=2

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

Intensity estimation

```
fh=fh_estim(h_hat,Y,a,N,seq_x)

Data_fh=data.frame(y=c(true_lambda,fh),intensity=rep(c("true","estimated"),
                                                    each=length(seq_x)),x=rep(seq_x,2))

ggplot(Data_fh,aes(x=x,y=y,color=intensity))+geom_line()
```

