

```
In [1]: using DataFrames
```

```
In [2]: using Distributions
```

```
In [3]: using(Gadfly)
```

CleanCh1

```
In [4]: CleanCh1 = convert(Array,readtable("/home/nicole/Jupyter/HERdata/data/Clean/
```

```
Out[4]: 1442x40499 Array{Int64,2}:
```

```

1 0 0 1 0 1 1 1 1 1 0 0 0 ... 1 1 1 0 0 0 0 1 0 0
0 0
1 1 1 1 0 0 0 1 0 1 1 1 1 1 1 1 0 0 0 0 0
1 1
1 0 0 1 0 1 1 0 1 1 0 0 0 0 1 0 0 0 1 0 0
0 0
1 1 1 1 0 0 0 1 0 1 1 1 1 1 1 0 0 0 1 0 0 0
1 1
1 0 0 1 0 1 1 0 1 1 0 0 0 0 1 1 0 0 0
0 0
1 1 1 1 0 0 0 1 0 1 1 1 1 ... 1 1 0 0 0 0 1 1 0 0
0 0
1 0 0 1 0 1 1 0 1 1 0 0 0 1 1 1 0 0 0 1 0 0
0 0
1 1 1 1 0 0 0 1 0 1 1 1 1 1 1 0 0 0 1 0 0
0 0
0 1 1 1 0 0 0 0 0 0 1 1 1 1 1 1 0 0 1 0 0
0 0
1 1 1 1 0 0 0 1 0 1 1 1 1 1 1 1 1 0 0 0 0
1 1
1 0 0 0 1 0 1 1 1 1 1 1 1 ... 1 0 1 1 1 0 0 0 0 0
1 1
1 1 1 1 0 0 0 1 0 1 1 1 1 1 1 1 1 0 0 0 1 1
1 0
1 1 1 1 0 0 0 1 0 1 1 1 1 1 1 1 1 0 0 0 1 0 0
0 0
⋮           ⋮           ⋮           ⋮           ⋮           ⋮

0 1 1 1 0 0 0 1 0 1 1 1 1 ... 1 1 0 0 0 0 1 1 0 0
0 0
1 1 1 1 0 0 0 1 0 1 1 1 1 1 1 1 0 0 0 0 1 0 0 0
1 1
0 1 1 1 0 0 0 1 0 1 1 1 1 1 1 1 1 0 0 0 1 1 0 0
0 0
1 0 0 1 0 1 1 0 1 1 0 0 0 1 1 0 0 0 1 0 0 0
1 1
1 0 0 0 1 0 1 1 1 1 1 1 1 1 1 0 0 0 1 0 0 0
1 1
1 1 1 1 0 0 0 1 0 1 1 1 1 1 1 1 1 0 0 0 1 1 0 0
0 0
1 0 0 1 0 1 1 0 1 1 0 0 0 1 1 0 0 0 1 0 0 0
1 1
1 1 1 1 0 0 0 1 0 1 1 1 1 1 1 1 1 0 0 0 1 1 0 0
0 0
0 1 1 1 0 0 0 0 0 0 1 1 1 1 ... 0 1 0 0 0 0 1 1 0 0
0 0
1 0 0 1 0 1 1 0 1 1 0 0 0 0 1 0 0 0 1 1 0 0
0 0
```

```
In [5]: corCleanCh1 = cor(CleanCh1)
        nRows = size(corCleanCh1,1)
```

Out[5]: 40499

```
In [6]: LDMat = zeros(nRows-1,200);
```

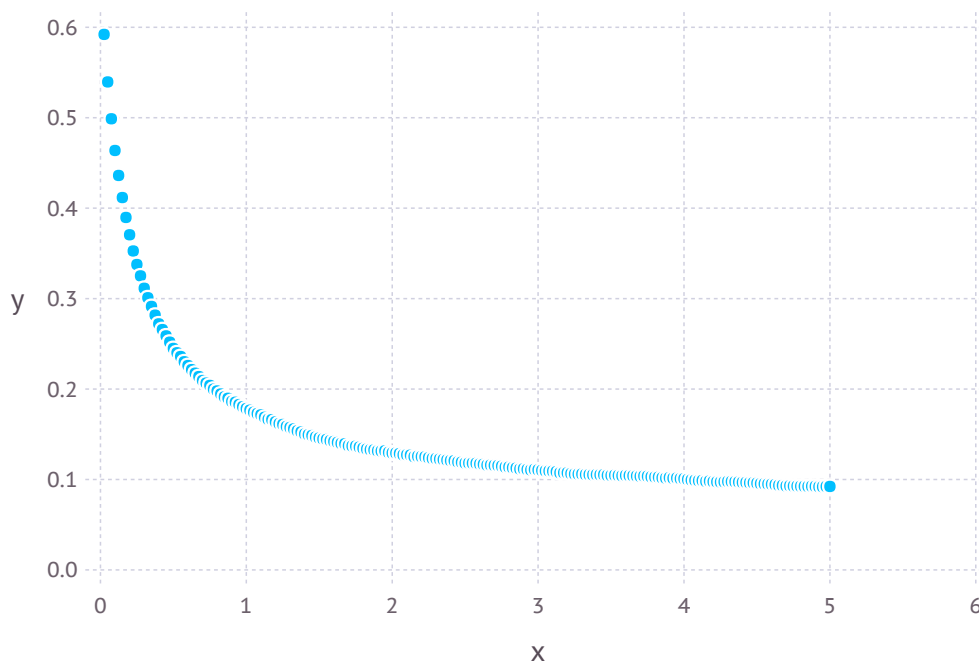
```
In [7]: for i = 1:(nRows-200)
        LDMat[i,:] = corCleanCh1[i,(i+1):(i+200)].^2
        end
```

```
In [8]: y = mean(LDMat,1)
        sort(y,2)
```

```
Out[8]: 1x200 Array{Float64,2}:
         0.0920282  0.0920294  0.092283  0.0922982  ...  0.49888  0.539636  0.59215
         4
```

```
In [9]: plot(x=(1:200)/200*5,y=y)
```

Out[9]:



CleanCh2

```
In [10]: CleanCh2 = convert(Array,readtable("/home/nicole/Jupyter/HERdata/data/Clean/
```

```
Out[10]: 1442x34227 Array{Int64,2}:
```

```

0 0 0 0 0 0 1 0 1 0 0 0 0 ... 0 1 0 0 0 1 0 1 0 1
0 0
0 0 1 0 1 0 1 0 1 0 0 0 0 1 1 0 0 1 1 1 0 1 1
1 0
0 0 0 0 0 1 0 0 1 0 0 0 0 1 1 0 1 1 0 0 0 1 0
1 0
0 0 0 0 0 1 0 0 1 0 0 0 0 0 1 0 0 0 1 0 1 1
1 1
1 1 1 1 1 0 1 1 1 1 1 1 1 1 1 0 0 1 1 1 1 1
1 1
1 1 1 1 1 0 1 1 1 1 1 1 1 ... 0 1 0 0 0 0 1 0 1 1
1 1
0 0 0 0 0 0 1 0 1 0 0 0 0 0 1 0 0 1 0 1 0 1
1 1
0 0 0 0 0 1 0 0 1 0 0 0 0 1 1 1 1 0 1 0 0 1 1
0 0
0 0 0 0 0 1 0 0 1 0 0 0 0 0 1 0 0 1 0 1 0 1
0 0
0 0 0 0 0 1 0 0 1 0 0 0 0 1 1 0 0 0 1 1 1 1
0 0
0 0 0 0 0 0 1 0 1 0 0 0 0 ... 1 1 0 0 0 1 1 1 1 1
0 0
0 0 0 0 0 1 0 0 1 0 0 0 0 1 1 0 0 0 1 1 1 1
0 0
0 0 0 0 0 0 1 0 1 0 0 0 0 0 1 0 0 0 1 1 0 1
1 0
:           :           :           :           :           :
0 0 0 0 0 1 0 0 1 0 0 0 0 ... 1 1 0 0 0 1 0 1 1 1
1 1
0 0 0 0 0 1 0 0 1 0 0 0 0 0 1 0 0 0 0 1 1 1 0 1
1 0
0 0 0 0 0 0 1 0 1 0 0 0 0 0 1 0 0 0 0 1 1 1 0 1
1 0
0 0 0 0 0 1 0 0 1 0 0 0 0 0 1 0 0 0 0 1 1
0 0
0 0 0 0 0 0 1 0 1 0 0 0 0 0 1 0 0 1 0 1
0 0
0 0 0 0 0 1 0 0 1 0 0 0 0 ... 0 1 0 0 0 1 1 0 1 0
1 0
0 0 0 0 0 1 0 0 1 0 0 0 0 0 1 0 0 0 0 1 0
1 0
0 0 0 0 0 1 0 0 1 0 0 0 0 0 1 0 0 1 0 1
1 0
0 0 0 0 0 0 1 0 1 0 0 0 0 0 1 0 0 1 0 1
1 1
0 0 0 0 0 1 0 0 1 0 0 0 0 0 1 0 0 1 0 1
0 0
0 0 0 0 0 1 0 0 1 0 0 0 0 ... 0 1 0 0 0 1 0 1 0 1
0 0
0 0 0 0 0 1 0 0 1 0 0 0 0 1 1 0 0 1 1 1 1
0 0
```

```
In [11]: corCleanCh2 = cor(CleanCh2)
nRows = size(corCleanCh2,1)
```

Out[11]: 34227

```
In [12]: LDMat = zeros(nRows-1,200);
```

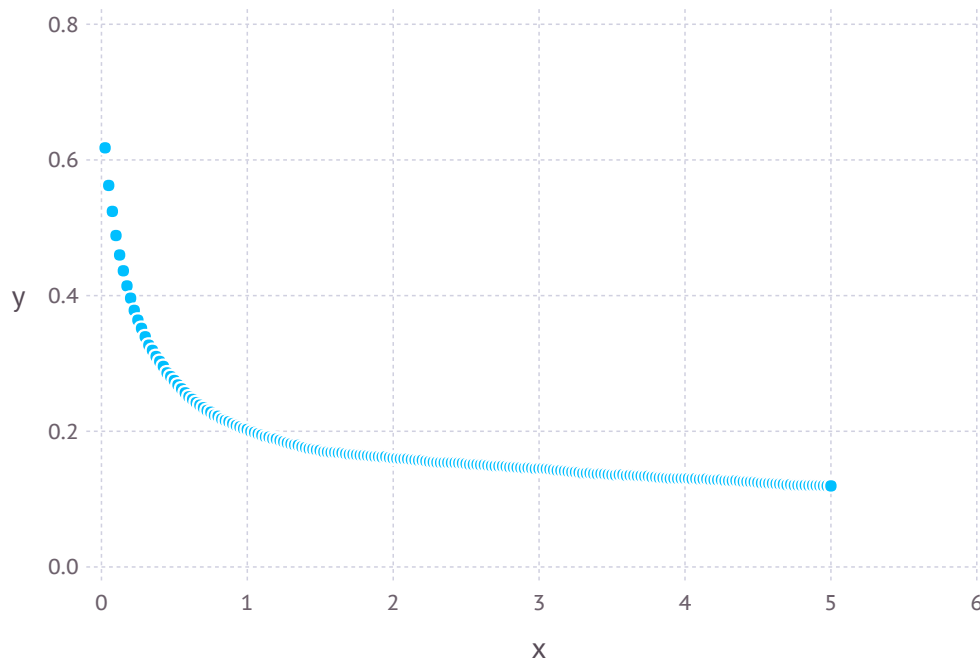
```
In [13]: for i = 1:(nRows-200)
          LDMat[i,:] = corCleanCh2[i,(i+1):(i+200)].^2
        end
```

```
In [14]: y = mean(LDMat,1)
sort(y,2)
```

```
Out[14]: 1x200 Array{Float64,2}:
 0.11939  0.119534  0.119792  0.119949  ...  0.524165  0.562424  0.617796
```

```
In [15]: plot(x=(1:200)/200*5,y=y)
```

Out[15]:



CleanCh3

```
In [16]: CleanCh3 = convert(Array,readtable("/home/nicole/Jupyter/HERdata/data/Clean/
```

```
Out[16]: 1442x31034 Array{Int64,2}:
```

```

0 1 1 0 0 1 0 1 1 0 1 0 0 ... 1 0 0 1 1 0 1 1 1 0
0 1
1 0 1 1 1 0 1 0 0 1 0 1 1 1 0 1 0 0 0 0 1
1 0
1 0 1 1 1 0 1 0 0 1 0 1 1 1 0 1 0 0 0 0 1
1 0
1 0 1 1 1 0 1 0 0 1 0 1 1 1 1 0 1 1 1 0 1
1 0
1 0 1 1 1 0 1 0 0 1 0 1 1 1 0 1 0 0 0 0 1
1 0
1 1 1 0 0 1 0 1 1 1 1 0 0 ... 1 0 1 0 0 1 1 1 0 1
1 0
1 0 1 1 1 0 1 0 0 1 0 1 1 1 0 1 0 0 0 0 1
1 0
1 0 1 1 1 0 1 0 0 1 0 1 1 1 0 1 0 0 0 0 1
1 0
0 1 1 1 1 0 1 0 1 1 1 0 0 1 0 1 0 0 0 1 1 0
0 1
1 0 1 1 1 0 1 0 0 1 0 1 1 1 0 1 1 1 0 1
1 0
1 0 1 1 1 0 1 0 0 1 0 1 1 ... 1 0 1 0 0 1 1 1 0 1
1 0
1 1 1 0 0 1 0 1 1 0 1 0 0 1 0 1 0 0 0 0 1
1 0
1 0 0 1 1 0 1 1 0 1 0 1 1 1 0 1 1 1 0 1
1 0
⋮ ⋮ ⋮ ⋮ ⋮ ⋮
1 0 0 1 1 0 1 1 0 1 0 1 1 ... 1 0 0 1 1 0 1 1 1 0
0 1
1 0 1 1 1 0 1 0 0 1 0 1 1 1 0 1 0 0 0 1 1 0
0 1
1 0 1 1 1 0 1 0 0 1 0 1 1 1 1 0 1 0 1 1 0 1
1 0
1 1 1 0 0 1 0 1 1 0 1 0 0 1 0 0 1 1 0 1 1 0
0 1
1 0 0 1 1 0 1 1 0 1 0 1 1 1 0 1 0 0 0 0 1
1 0
1 0 1 1 1 0 1 0 0 1 0 1 1 ... 1 0 1 0 0 1 1 1 0 1
1 0
1 0 0 1 1 0 1 1 0 1 0 1 1 1 0 1 0 0 0 0 1
1 0
1 0 0 1 1 0 1 1 0 1 0 1 1 1 0 1 0 0 0 0 1
1 0
1 0 1 1 1 0 1 0 0 1 0 1 1 1 0 1 0 0 0 0 1
1 0
1 0 0 1 1 0 1 1 0 1 0 1 1 ... 1 0 1 0 0 1 0 0 0 1
1 0
1 0 0 1 1 0 1 1 0 1 0 1 1 1 0 1 0 0 0 0 1
1 0
```

```
In [17]: corCleanCh3 = cor(CleanCh3)
nRows = size(corCleanCh3,1)
```

Out[17]: 31034

```
In [18]: LDMat = zeros(nRows-1,200);
```

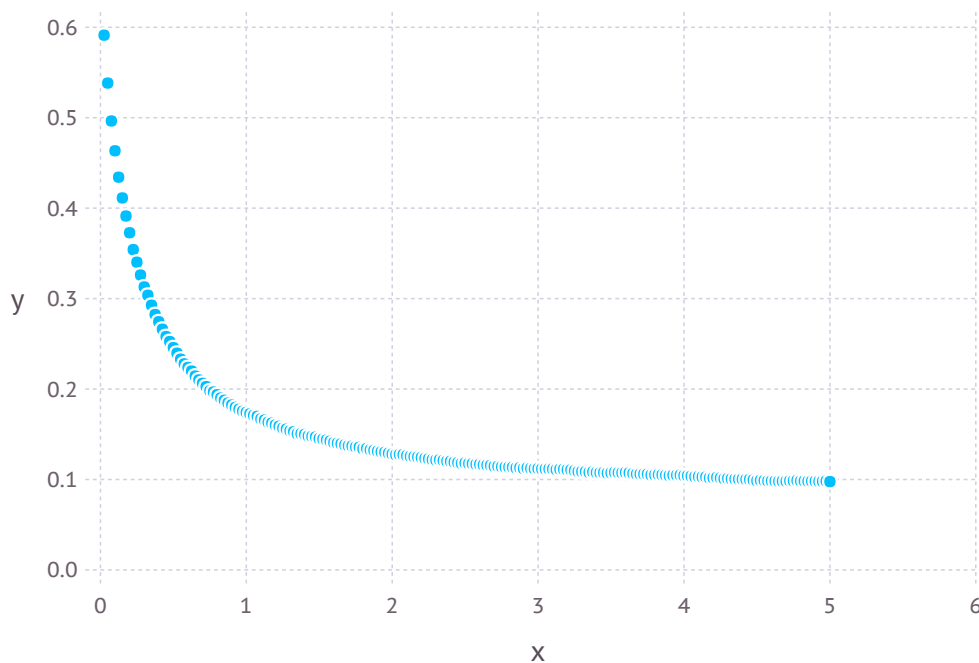
```
In [19]: for i = 1:(nRows-200)
          LDMat[i,:] = corCleanCh3[i,(i+1):(i+200)].^2
        end
```

```
In [20]: y = mean(LDMat,1)
sort(y,2)
```

Out[20]: 1x200 Array{Float64,2}:
0.097714 0.0979027 0.0980327 0.0980433 ... 0.496412 0.538337 0.591284

```
In [21]: plot(x=(1:200)/200*5,y=y)
```

Out[21]:



CleanCh4

```
In [22]: CleanCh4 = convert(Array,readtable("/home/nicole/Jupyter/HERdata/data/Clean/
```

```
Out[22]: 1442x30473 Array{Int64,2}:
```

```

0  1  0  0  1  0  1  0  0  0  1  1  0  ...  1  0  0  0  1  0  0  0  0  1
1  0
1  1  0  0  1  0  1  1  1  1  0  1  1      0  1  1  1  0  1  1  0  1  0
1  0
1  1  0  0  0  1  0  0  0  0  1  1  0      1  0  0  0  1  0  0  0  0  1
1  0
1  1  0  0  1  0  1  1  1  1  0  1  1      1  0  0  0  1  0  0  0  1  0
1  1
0  1  0  0  1  0  1  1  1  1  0  0  1      0  1  1  1  0  1  1  0  1  0
1  0
1  1  0  0  0  0  0  0  0  0  1  1  0  ...  1  0  0  0  1  0  0  0  0  1
1  0
0  1  0  0  1  0  1  1  1  1  0  1  1      1  0  0  0  1  0  1  0  1  1
1  0
1  1  0  0  1  0  1  1  1  1  0  1  1      1  0  0  0  1  0  0  0  0  1
1  0
0  1  0  0  1  0  1  1  1  1  0  1  1      0  1  1  1  0  1  0  1  1  0
1  0
0  1  0  0  1  0  1  1  1  1  0  1  1      0  1  1  1  0  1  1  0  1  0
1  0
⋮              ⋮              ⋮              ⋮              ⋮              ⋮

0  1  0  0  0  0  0  0  0  0  1  1  0  ...  0  1  1  1  0  1  1  0  1  0
1  0
0  1  0  0  1  0  1  0  0  0  1  1  0      1  0  0  0  1  0  0  0  1  0
1  1
0  1  0  0  1  0  1  1  1  1  0  1  1      1  0  0  0  1  0  0  0  0  1
1  0
1  1  0  0  0  0  0  0  0  0  1  1  0      0  1  1  1  0  1  1  0  1  0
1  0
0  1  0  0  1  0  1  1  1  1  0  1  1      1  0  0  1  1  1  0  1  1  0
1  1
1  1  0  0  0  0  0  0  0  0  1  1  0  ...  1  0  0  0  1  0  0  0  0  1
1  0
1  1  0  0  0  0  0  0  0  0  1  1  0      1  0  0  0  1  0  0  0  1  0
1  1
1  1  0  0  1  0  1  1  1  1  0  1  1      1  0  0  1  1  1  0  1  1  0
1  1
1  1  0  0  0  0  0  0  0  0  1  1  0      1  0  0  0  1  0  0  0  0  1
1  0
1  1  0  0  1  0  1  1  1  1  0  0  1      0  1  1  1  0  1  1  1  1  0
1  1
1  1  0  0  0  0  0  0  0  0  1  1  0  ...  1  0  0  0  1  0  0  0  0  1
1  0
1  1  0  0  1  0  1  1  1  1  0  0  1      0  1  1  1  0  1  1  1  1  0
1  1
```



```
In [23]: corCleanCh4 = cor(CleanCh4)
nRows = size(corCleanCh4,1)
```

Out[23]: 30473

```
In [24]: LDMat = zeros(nRows-1,200);
```

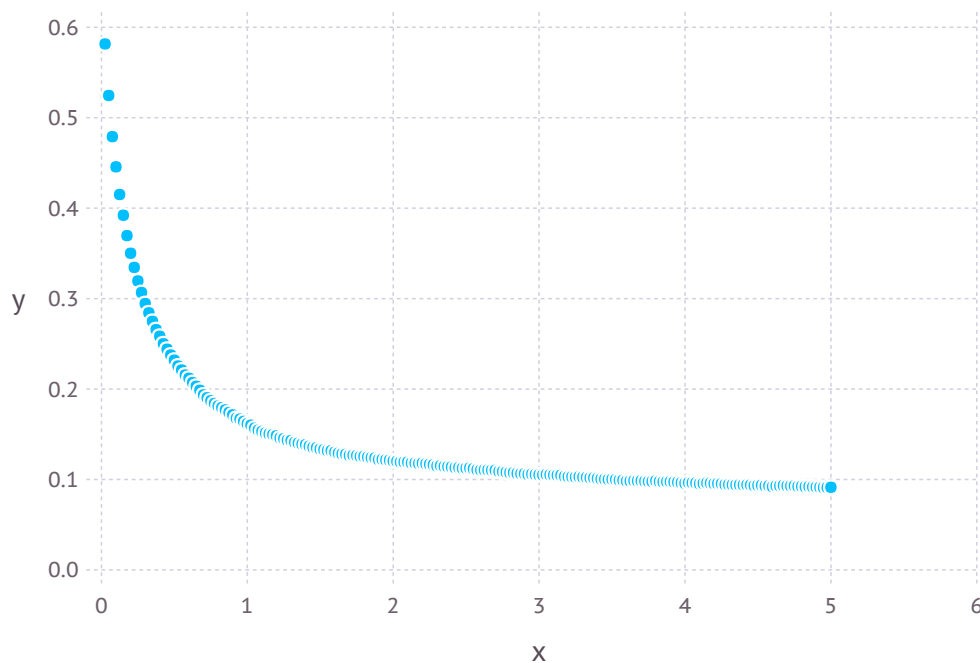
```
In [25]: for i = 1:(nRows-200)
          LDMat[i,:] = corCleanCh4[i,(i+1):(i+200)].^2
        end
```

```
In [26]: y = mean(LDMat,1)
sort(y,2)
```

```
Out[26]: 1x200 Array{Float64,2}:
 0.0910574  0.0911994  0.0913681  0.0913818  ...  0.479081  0.524652  0.581
613
```

```
In [27]: plot(x=(1:200)/200*5,y=y)
```

Out[27]:



CleanCh5

```
In [28]: CleanCh5 = convert(Array,readtable("/home/nicole/Jupyter/HERdata/data/Clean/
```

```
Out[28]: 1442x29888 Array{Int64,2}:
```

```

0 0 0 0 1 1 0 1 1 0 1 1 1 ... 1 1 0 1 1 1 0 0 1 0
1 0
0 0 0 1 0 0 0 1 0 0 1 1 0 1 1 1 0 0 1 0 0 0
1 0
0 0 0 1 0 0 0 1 0 0 1 1 0 1 1 1 0 0 0 0 0 0
1 0
0 0 0 1 1 0 0 1 1 1 1 0 1 0 0 0 0 1 1 0 1 0
1 0
0 0 0 0 1 0 0 1 1 0 1 1 1 0 0 0 1 1 0 0 0 0
0 1
0 0 0 1 1 0 0 0 1 0 1 1 1 ... 1 1 1 1 0 0 0 0 0 0
1 0
0 0 0 1 0 0 0 1 0 0 1 1 0 0 1 0 1 1 0 0 0 0
0 0
1 1 1 1 0 1 1 1 1 1 1 0 1 1 1 1 0 0 1 0 0 0
1 0
0 0 0 0 1 0 0 1 1 0 1 1 1 1 1 1 0 0 1 0 1 0
1 0
1 1 1 1 0 1 1 1 0 0 1 1 1 1 1 0 1 1 0 0 0 0
1 0
0 0 0 0 1 0 0 0 1 0 1 1 1 ... 1 1 1 1 0 0 0 0 0 0
1 0
0 0 0 0 1 0 0 1 1 0 1 1 1 1 1 1 0 0 0 0 0 0
1 0
0 0 0 0 1 0 0 1 0 0 0 1 1 0 1 1 1 1 0 1 0
1 0
⋮ ⋮ ⋮ ⋮ ⋮ ⋮ ⋮ ⋮ ⋮ ⋮ ⋮ ⋮ ⋮ ⋮ ⋮ ⋮ ⋮ ⋮ ⋮ ⋮ ⋮ ⋮

0 0 0 1 1 0 0 1 1 1 1 0 1 ... 0 0 0 0 1 1 1 0 1 0
1 0
0 0 0 1 1 1 0 1 1 1 1 0 1 1 1 1 0 0 0 0 0 0
0 0
0 0 0 1 1 0 0 1 1 1 1 0 1 0 1 0 1 0 0 0 0
0 1
0 0 0 1 1 1 0 0 0 0 1 0 1 1 1 1 1 0 0 0 0 0
0 0
0 0 0 0 1 0 0 1 0 0 1 1 0 0 0 0 1 1 0 1
1 0
0 0 0 0 1 1 0 1 1 0 1 1 1 ... 0 0 0 1 1 0 1 1 0 1
1 0
0 0 0 0 1 1 0 1 1 0 1 1 1 0 1 0 1 0 0 1 0
1 0
0 0 0 1 1 0 0 1 1 1 1 0 1 0 0 0 0 1 1 0 1 0
1 0
0 0 0 0 1 1 0 1 1 0 1 1 1 1 1 1 1 1 1 1 1
0 1
0 0 0 0 1 1 0 0 1 0 1 1 1 ... 0 0 0 0 1 1 0 0 0 0
0 1
0 0 0 1 1 0 0 1 1 1 1 0 1 0 0 0 0 1 1 0 1 0
1 0
```

```
In [29]: corCleanCh5 = cor(CleanCh5)
nRows = size(corCleanCh5,1)
```

```
Out[29]: 29888
```

```
In [30]: LDMat = zeros(nRows-1,200);
```

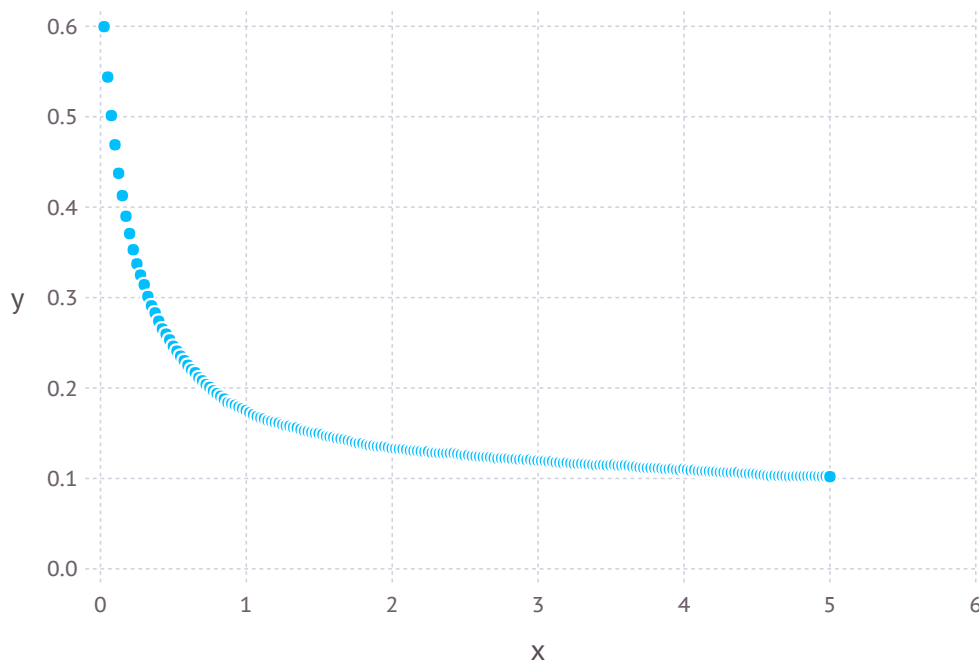
```
In [31]: for i = 1:(nRows-200)
          LDMat[i,:] = corCleanCh5[i,(i+1):(i+200)].^2
        end
```

```
In [32]: y = mean(LDMat,1)
sort(y,2)
```

```
Out[32]: 1x200 Array{Float64,2}:
 0.102004  0.102092  0.102287  0.102314  ...  0.501289  0.543851  0.59954
```

```
In [33]: plot(x=(1:200)/200*5,y=y)
```

```
Out[33]:
```



CleanCh6

```
In [34]: CleanCh6 = convert(Array,readtable("/home/nicole/Jupyter/HERdata/data/Clean/
```

```
Out[34]: 1442x31407 Array{Int64,2}:
```

```

0  1  1  1  1  0  1  1  0  1  0  1  0  ...  0  1  1  1  0  1  1  1  1  1
1  1
0  1  1  1  1  0  1  1  1  0  1  1  0      1  0  0  0  1  0  1  1  0  1
1  0
0  1  1  1  1  0  1  1  1  0  1  1  0      0  1  1  1  0  1  1  1  1  1
1  0
1  0  0  0  0  1  1  0  1  0  1  0  1      0  1  1  1  0  1  1  1  1  1
1  0
0  1  1  1  1  0  1  1  1  0  1  1  0      1  0  0  0  1  0  1  1  0  1
1  1
0  1  1  1  1  0  1  1  1  0  1  1  0  ...  0  1  1  1  0  1  1  1  1  1
1  0
0  1  1  1  1  0  1  1  1  0  1  1  0      0  1  1  1  0  1  1  1  1  1
1  1
0  1  1  1  1  0  1  1  1  0  1  1  0      1  0  0  0  1  0  0  0  0  0
0  0
0  1  1  1  1  0  1  1  0  1  0  1  0      1  0  0  0  1  0  1  1  0  1
1  1
1  0  0  0  0  1  1  0  1  0  1  0  1      1  0  0  0  1  0  1  1  0  1
1  0
0  1  1  1  1  0  1  1  0  1  0  1  0  ...  0  1  1  1  0  1  1  1  1  1
1  0
0  1  1  1  1  0  1  1  1  0  1  1  0      1  0  0  0  1  0  0  0  0  0
0  0
0  1  1  1  1  0  1  1  0  1  0  1  0      1  0  1  1  0  1  1  1  1  0
1  0
0  0  0  0  0  1  1  0  1  0  1  0  1  ...  1  0  0  0  1  0  1  1  0  1
1  0
1  0  0  0  0  1  1  0  1  0  1  0  1      0  1  1  1  0  1  1  1  1  1
1  0
0  1  1  1  1  0  1  1  0  1  0  1  0      1  0  0  0  1  0  0  0  0  0
0  0
0  1  1  1  1  0  1  1  0  1  0  1  0      1  0  1  1  0  1  1  1  1  0
1  0
0  0  0  0  0  1  1  0  1  0  1  0  1  ...  1  0  0  0  1  0  1  1  0  1
1  0
1  0  0  0  0  1  1  0  1  0  1  0  1      0  1  1  1  0  1  1  1  1  1
1  0
```

```
In [35]: corCleanCh6 = cor(CleanCh6)
nRows = size(corCleanCh6,1)
```

Out[35]: 31407

```
In [36]: LDMat = zeros(nRows-1,200);
```

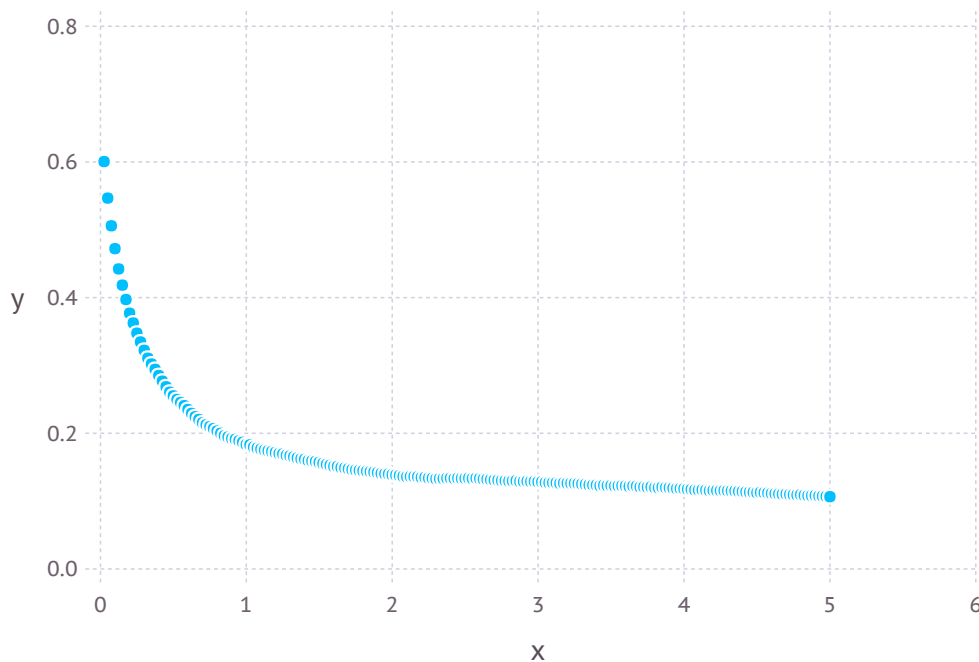
```
In [37]: for i = 1:(nRows-200)
          LDMat[i,:] = corCleanCh6[i,(i+1):(i+200)].^2
        end
```

```
In [38]: y = mean(LDMat,1)
sort(y,2)
```

Out[38]: 1x200 Array{Float64,2}:
0.106514 0.106912 0.107266 0.107473 ... 0.505796 0.546668 0.600595

```
In [39]: plot(x=(1:200)/200*5,y=y)
```

Out[39]:



CleanCh7

```
In [40]: CleanCh7 = convert(Array,readtable("/home/nicole/Jupyter/HERdata/data/Clean/
```

```
Out[40]: 1442x28402 Array{Int64,2}:
```

```

0 0 1 0 0 1 1 1 1 1 1 1 0 ... 0 0 1 1 1 1 1 1 0 0
1 1
0 0 1 0 0 1 1 1 1 1 1 1 1 0 0 1 1 1 1 1 1 0 0
1 1
0 0 1 0 0 1 1 1 1 1 1 1 0 1 1 0 0 0 0 0 1 1
0 0
1 0 0 0 0 1 0 1 1 1 0 0 1 0 0 1 1 1 1 1 0 0
1 1
0 0 1 0 0 1 1 1 1 1 1 1 1 0 0 1 1 0 0 0 0
0 0
0 1 1 1 1 0 1 0 0 0 1 1 0 ... 1 0 1 1 0 1 0 0 1 1
0 1
0 0 1 0 0 1 1 1 1 1 1 1 1 0 0 0 1 1 1 1 0 0
1 1
0 0 1 0 0 1 1 1 1 1 1 1 1 0 0 1 1 1 1 0 0
1 1
0 0 1 0 0 1 1 1 1 1 1 1 1 0 0 1 1 0 0 0 0
0 0
0 1 1 1 1 0 1 0 0 0 1 1 0 0 0 1 1 0 0 0 0
0 0
0 0 1 0 0 1 1 1 1 1 1 1 1 0 ... 0 0 1 1 0 1 1 0 0 0
0 0
0 0 1 0 0 1 1 1 1 1 1 1 1 0 1 1 0 0 0 0 1 1
0 0
0 0 1 0 0 1 1 1 1 1 1 1 1 0 0 0 1 1 0 0 0 0
0 0
0 1 1 1 0 0 1 0 0 1 1 1 1 0 1 1 0 0 0 1 1
0 0
0 0 1 0 0 1 1 1 1 1 1 1 1 0 0 0 1 1 0 0 0
0 0
0 0 1 0 0 1 1 1 1 1 1 1 1 0 ... 0 0 1 1 0 1 1 0 0 1
0 0
0 0 1 0 0 1 1 1 1 1 1 1 1 0 0 0 1 1 0 0 1
0 0
0 0 1 0 0 1 1 1 1 1 1 1 1 0 0 0 1 1 0 0 0
0 0
0 0 1 0 0 1 1 1 1 1 1 1 1 0 1 1 0 0 0 1 1
0 0
0 0 1 0 0 1 1 1 1 1 1 1 1 1 1 1 0 0 0 1 1
0 0
0 0 1 0 0 1 1 1 1 1 1 1 1 0 ... 0 0 1 1 1 1 1 1 0 0
1 1
1 0 0 0 0 1 0 1 1 1 0 0 1 0 0 1 1 1 1 1 0 0
1 1
```

```
In [41]: corCleanCh7 = cor(CleanCh7)
        nRows = size(corCleanCh7,1)
```

```
Out[41]: 28402
```

```
In [42]: LDMat = zeros(nRows-1,200);
```

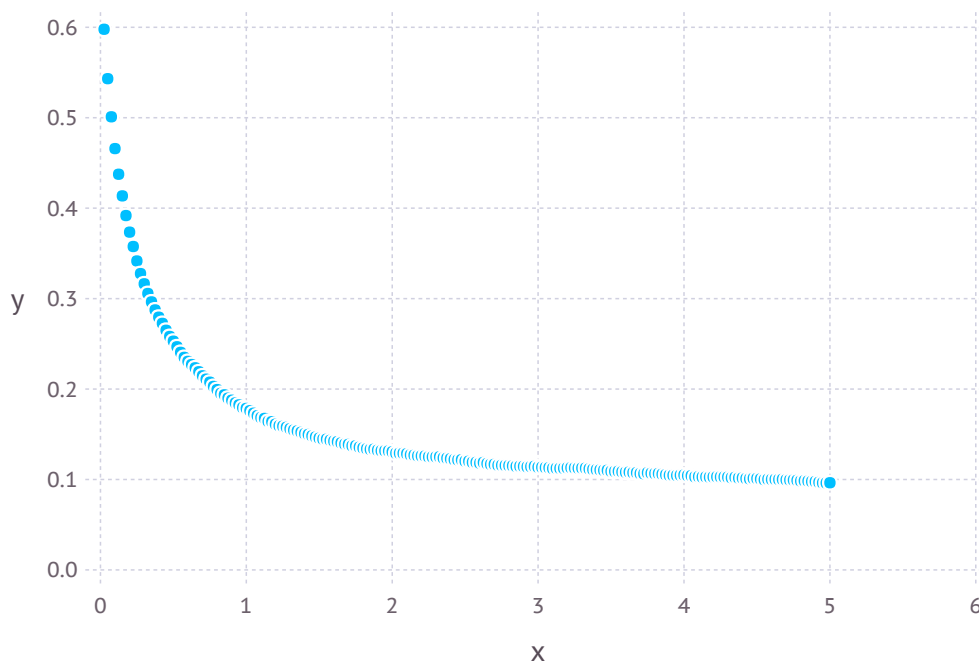
```
In [43]: for i = 1:(nRows-200)
        LDMat[i,:] = corCleanCh7[i,(i+1):(i+200)].^2
    end
```

```
In [44]: y = mean(LDMat,1)
        sort(y,2)
```

```
Out[44]: 1x200 Array{Float64,2}:
        0.096174  0.0962882  0.0964102  0.0969047  ...  0.501061  0.543221  0.5978
        37
```

```
In [45]: plot(x=(1:200)/200*5,y=y)
```

```
Out[45]:
```



CleanCh8

```
In [46]: CleanCh8 = convert(Array,readtable("/home/nicole/Jupyter/HERdata/data/Clean/
```

```
Out[46]: 1442x23922 Array{Int64,2}:
```

```

1 0 0 1 1 1 1 0 1 1 1 1 0 ... 1 0 1 0 1 1 0 1 1 1
1 0
1 0 1 1 1 0 1 0 1 1 1 1 0 0 0 0 1 1 0 1 0 0
0 1
0 1 1 0 0 1 1 0 1 1 1 1 0 1 0 0 0 0 1 0 1 1 0
0 0
1 0 0 1 1 0 0 1 0 0 1 0 0 1 1 1 0 1 1 0 1 1 1
1 0
1 0 0 1 1 1 1 0 1 1 0 1 0 1 0 0 0 0 1 0 1 1 0
0 1
1 0 1 1 1 0 1 0 1 1 1 1 0 ... 1 1 1 0 1 0 1 1 1 0
0 0
1 0 0 1 1 1 1 0 1 1 1 1 0 0 0 0 1 1 1 0 1 0 0
0 1
1 0 0 1 1 1 1 0 1 1 1 1 0 1 0 1 0 1 1 0 1 1 1
1 0
0 1 1 1 1 1 1 0 1 1 1 1 1 1 0 1 0 1 1 0 1 1 1
1 1
1 0 0 1 1 0 0 1 0 0 1 1 0 1 1 0 1 1 0 1 0 0
1 1
0 1 1 0 0 1 1 0 1 1 1 1 0 ... 1 1 0 0 0 1 0 1 1 0
0 1
1 0 1 1 1 0 0 1 1 1 1 1 0 1 0 1 0 1 0 1 0 1 1
1 1
1 0 0 1 1 1 1 0 1 1 0 1 0 1 1 0 0 1 1 0 1 1 0
0 1
: : : : : : :
1 0 0 1 1 1 1 0 1 1 0 1 0 ... 1 1 0 1 1 0 1 1 1 0
0 1
1 0 0 1 1 1 1 0 1 1 0 1 0 1 1 0 0 1 1 0 1 1 0
0 1
1 0 0 1 1 1 1 0 1 1 0 1 0 1 1 0 1 1 0 1 1 0
0 1
1 0 0 1 1 1 1 0 1 1 0 1 0 1 0 0 0 1 1 0 1 1 0
0 0
0 1 1 0 1 1 1 0 1 1 1 1 1 1 0 0 0 1 0 1 1 0
0 1
1 0 0 1 1 1 1 0 1 1 0 1 0 ... 1 0 0 0 1 1 0 1 1 0
0 0
1 0 0 1 1 0 1 0 1 1 1 1 1 1 0 1 1 0 1 1 1 0
0 1
1 0 0 1 1 1 1 0 1 1 0 1 0 1 0 1 0 1 1 0 1 1 1
1 0
1 0 0 1 1 1 1 0 1 1 1 1 1 1 1 0 1 1 0 1 1 0
0 1
1 0 1 1 1 0 0 1 1 1 1 1 0 1 0 0 0 1 0 1 1 0
0 1
0 1 1 0 0 1 1 0 1 1 1 1 0 ... 1 1 0 0 0 0 1 1 1 1
1 1
1 0 0 1 1 1 1 0 1 1 0 1 0 1 1 0 0 1 1 0 1 1 0
0 1
```



```
In [64]: corCleanCh8 = cor(CleanCh8)
        nRows = size(corCleanCh8,1)
```

```
Out[64]: 23922
```

```
In [65]: LDMat = zeros(nRows-1,200);
```

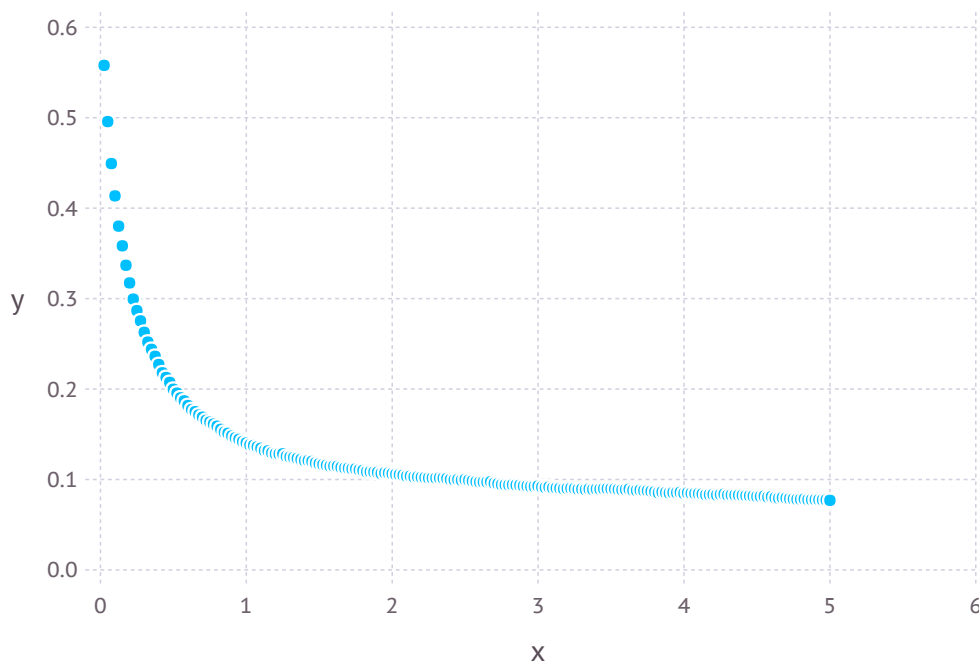
```
In [66]: for i = 1:(nRows-200)
        LDMat[i,:] = corCleanCh8[i,(i+1):(i+200)].^2
    end
```

```
In [67]: y = mean(LDMat,1)
        sort(y,2)
```

```
Out[67]: 1x200 Array{Float64,2}:
        0.0769498  0.0774655  0.0774703  0.0777046  ...  0.449342  0.49577  0.5578
        85
```

```
In [68]: plot(x=(1:200)/200*5,y=y)
```

```
Out[68]:
```



CleanCh9

```
In [52]: CleanCh9 = convert(Array,readtable("/home/nicole/Jupyter/HERdata/data/Clean/
```

```
Out[52]: 1442x26852 Array{Int64,2}:
```

```

0 1 0 0 1 1 1 1 1 0 0 1 1 ... 1 0 1 0 0 1 1 0 1 1
1 0
1 1 0 0 1 0 1 0 1 0 0 1 1 1 0 1 0 0 1 1 0 1 1
1 1
0 1 1 0 1 0 1 0 1 0 0 1 1 1 0 1 0 0 1 1 0 1 1
1 1
1 0 1 1 0 1 0 1 0 1 1 0 0 1 0 1 0 0 1 1 0 1 1
1 1
0 1 0 0 1 1 1 1 1 0 0 1 1 0 1 0 1 1 0 0 1 0 0
0 0
1 0 1 1 0 1 0 1 0 1 1 0 0 ... 0 1 0 0 1 0 0 1 0 0
1 0
0 1 1 0 1 0 1 0 1 0 0 1 1 0 1 0 1 1 0 0 1 0 0
0 0
1 0 1 1 0 1 0 1 0 1 1 0 0 0 1 0 1 1 0 0 1 0 0
0 0
0 1 0 0 1 0 0 0 1 1 1 1 1 1 0 1 0 0 1 1 0 1 1
1 1
0 1 1 1 0 1 0 1 0 1 1 0 0 0 1 0 1 1 0 0 1 0 0
0 0
1 0 1 1 0 1 0 1 0 1 1 0 0 ... 1 0 1 0 0 1 1 0 1 1
1 1
1 0 1 1 0 1 0 1 0 1 1 0 0 0 1 0 1 1 0 0 1 0 0
1 0
1 0 1 1 0 1 0 1 0 1 1 0 0 0 1 0 1 1 0 0 1 0 0
0 0
0 0
1 0 1 1 0 1 0 1 0 1 1 0 0 1 1 0 1 1 0 1 1
1 0
1 1 0 0 1 0 0 0 1 1 1 1 1 ... 1 0 1 0 0 1 1 0 1 1
1 0
1 1 0 0 1 0 0 0 1 1 1 1 1 0 1 0 0 1 0 0
1 0
1 1 0 0 1 0 1 0 1 0 0 1 1 0 1 0 1 1 0 0 1 0 0
0 0
1 0 1 0 0 1 0 1 0 1 1 0 1 0 1 0 1 0 0 1 0 0
0 0
1 0 1 1 0 1 0 1 0 1 1 0 0 1 1 0 0 1 0 0
0 0
1 0 1 0 0 1 0 1 0 1 1 0 1 ... 0 1 0 1 1 0 0 1 0 0
0 0
1 0 1 1 0 1 0 1 0 1 1 0 0 0 1 0 1 0 0
0 0
```

```
In [53]: corCleanCh9 = cor(CleanCh9)
        nRows = size(corCleanCh9,1)
```

```
Out[53]: 26852
```

```
In [54]: LDMat = zeros(nRows-1,200);
```

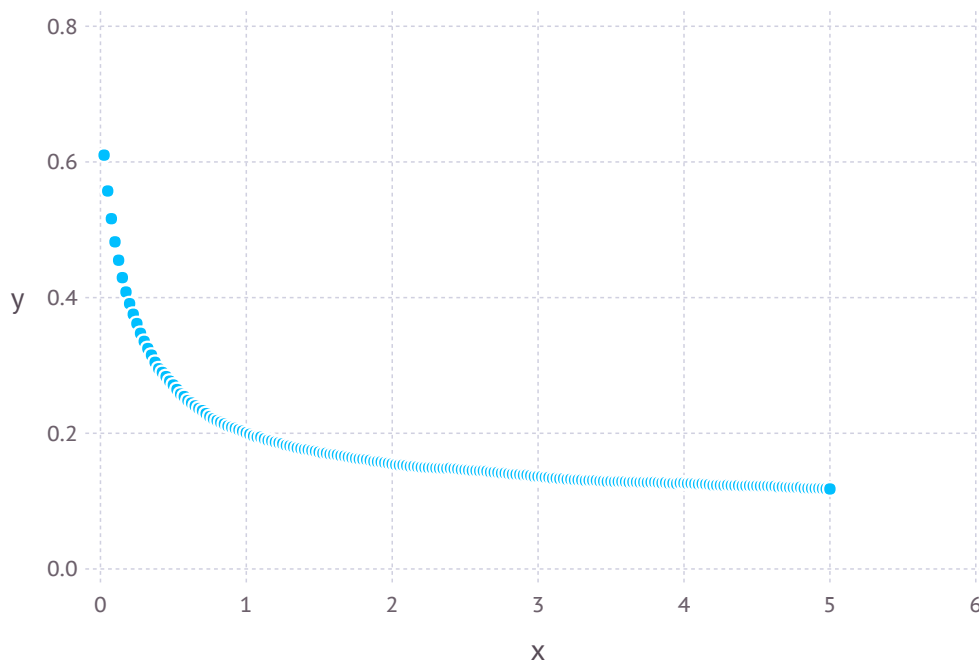
```
In [55]: for i = 1:(nRows-200)
        LDMat[i,:] = corCleanCh9[i,(i+1):(i+200)].^2
    end
```

```
In [56]: y = mean(LDMat,1)
        sort(y,2)
```

```
Out[56]: 1x200 Array{Float64,2}:
        0.117801  0.118041  0.118502  0.118806  ...  0.516369  0.557127  0.609997
```

```
In [57]: plot(x=(1:200)/200*5,y=y)
```

```
Out[57]:
```



CleanCh10

```
In [58]: CleanCh10 = convert(Array,readtable("/home/nicole/Jupyter/HERdata/data/Clean.
        ...
```

```
In [69]: corCleanCh10 = cor(CleanCh10)
        nRows = size(corCleanCh10,1)
```

```
Out[69]: 27478
```

```
In [70]: LDMat = zeros(nRows-1,200);
```

```
In [71]: for i = 1:(nRows-200)
          LDMat[i,:] = corCleanCh10[i,(i+1):(i+200)].^2
        end
```

```
In [72]: y = mean(LDMat,1)
          sort(y,2)
```

```
Out[72]: 1x200 Array{Float64,2}:
          0.0988432  0.0989587  0.0991968  0.0994513  ...  0.488313  0.530514  0.583
          231
```

```
In [73]: plot(x=(1:200)/200*5,y=y)
```

```
Out[73]:
```

