**Algorithm 1 – selection of optimal smoothing parameter**

**Input**: Hi-C raw contact map $C_{nxn}$

**Output**: Optimal span $\hat{h}$

**Initialization**: h=0

**1. For a given h,**

a. Obtain smoothed map $X(h)$ by computing

$$x_{ij}(h) = \frac{\sum_{m=\max(1,i-h)}^{\min(i+h,n)} \sum_{l=\max(1,j-h)}^{\min(j+h,n)} C_{ml}}{(1+2h)^2}$$

for i, j=1, …, n

b. For t=1, …, $T$

(i) Obtain $X_t(h)$ by randomly sampling *10%* reads from $X(h)$

(ii) Calculate $SCC_t(h)$ for $X_t(h)$ using (7)

c. Compute $SCC(h) = \frac{\sum_{t=1}^{T} SCC_t(h)}{T}$

2. **Let h= h+1, do Step 1**

3. **If** *SCC(h) – SCC(h-1) < 0.01*, **then go to Step 4**

   **Otherwise do Step 2**

4. **Return** $\hat{h} = h - 1$