

Autres villes, Communautés, Approx, Effective resistance et quelques clustering

Casser des Graphes

Louis Milhaud

May 28, 2024

Complex Networks - LIP6

Outline

Autres Villes

Communities

Effective Resistance

Grandes attaques

Choix

Nouvelles coupes

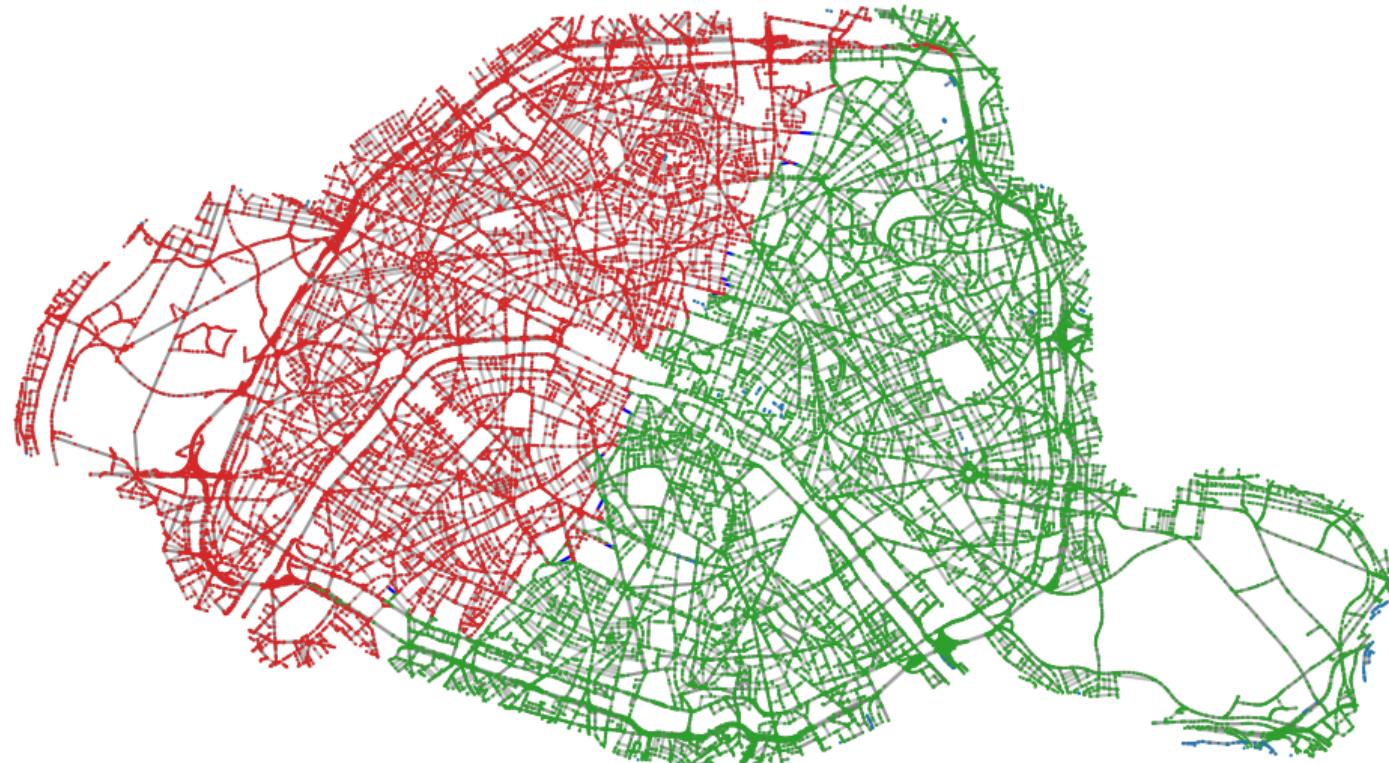
Autres Villes

Shanghai

Manhattan

Communities

Communautés: un autre moyen de trouver des arêtes importantes



cost: ?

Effective Resistance

Definition

The **effective resistance** between two vertices is the electrical resistance measured with the Kirchoff's circuit laws. The **effective graph resistance** is the sum of all effective resistance (for all pairs of vertices).

Kirchoff laws:

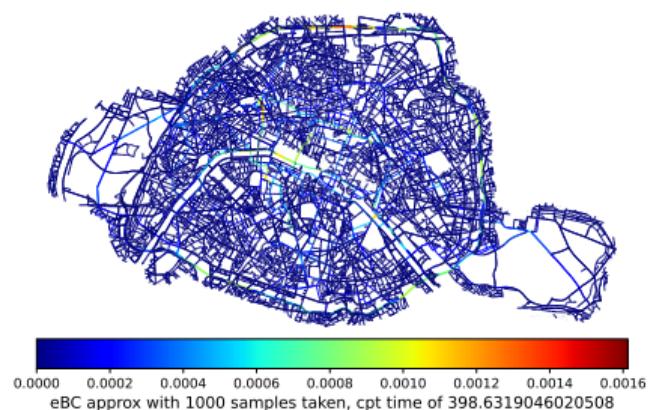
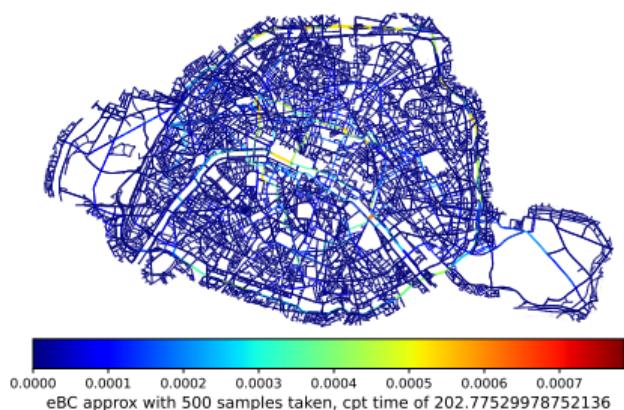
- *current in = current out*
- *voltages of loop = 0*

(computed from Laplacian eigenvalues: $O(n^3)$)

Premiers résultats de effective resistance

Grandes attaques

Choix de l'approximation eBC



Choix du nombre de coupes

Temps sur ma machine pour n coupes:

n	1	200	1000
2 blocs			
3 blocs			
imb = 0.05			
imb = 0.1			
imb = 0.2			
imb = 0.3			
temps (sec)	D1	D2	D3

déséquilibre grand: imb = 0.1

déséquilibre grand: imb = 0.3

déséquilibre grand: imb = 0.3

nblocks = 3