SAFETY-BASED PATH FINDING ALGORITHM FOR REDUCTION OF SEXUAL HARASSMENT.

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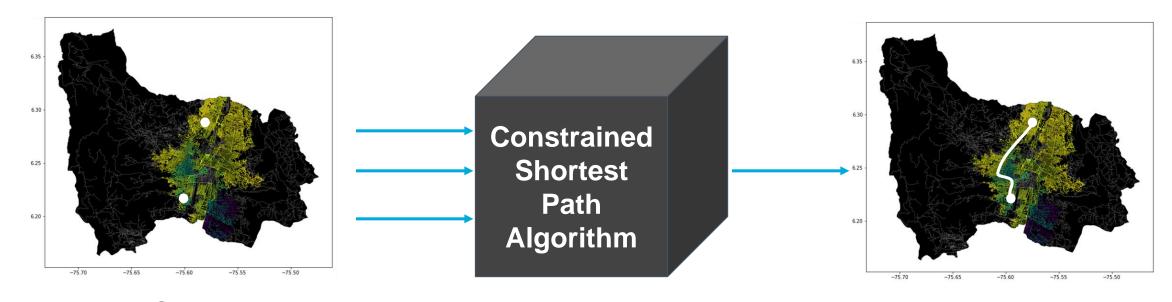
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Literature review
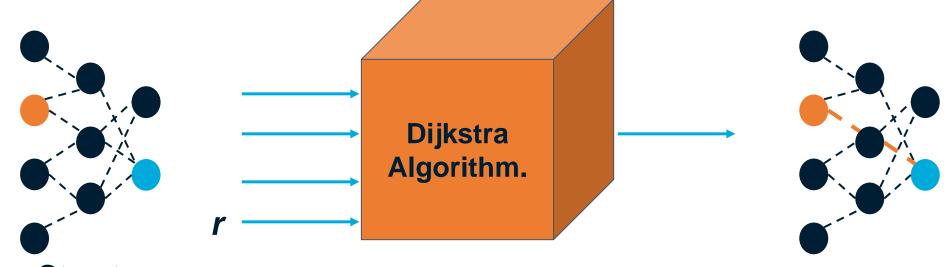
**Mauricio
Toro**
Data preparation

https://github.com/GregorioBermudez/ST0245-001

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Streets of Medellín, Origin and Destination

Constrained Shortest Path Algorithm

Constrained Shortest Paths

Streets of Medellín, Origin and Destination

r

Dijkstra Algorithm.
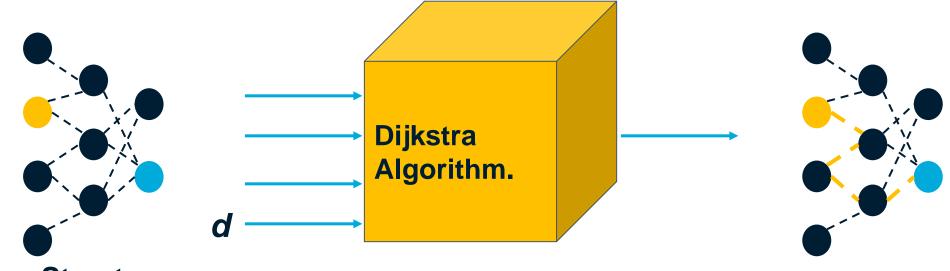
Shortest path without exceeding a weighted-average risk of harassment r

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**Streets
of Medellín,
Origin and
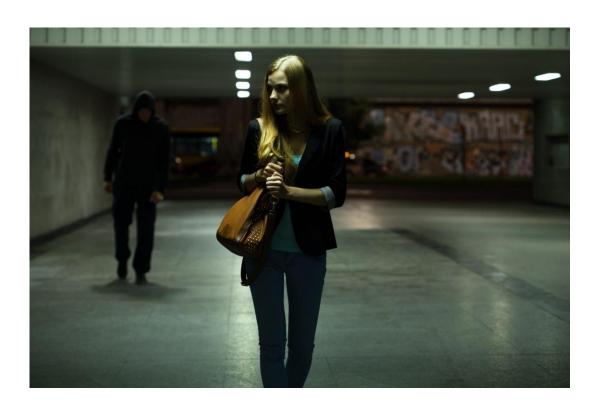Destination**

d

**Dijkstra
Algorithm.**
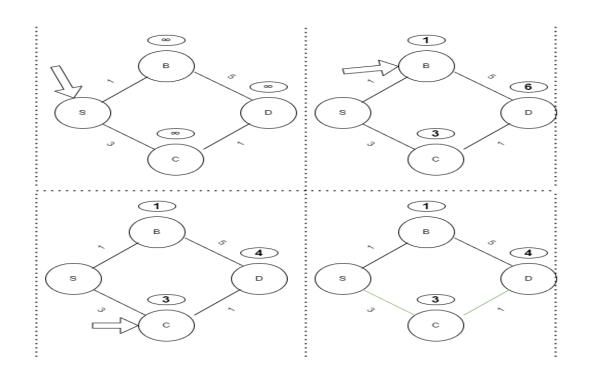
**Path with the lowest
weighted-average risk
of harassment without
exceeding a distance d**

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Dijkstra Algorithm for the Constrained Shortest Path.

Algorithm Complexity

	Time Complexity	Memory Complexity
Dijkstra algorithm	$O(V + E \log E)$	$O(E \log V)$

Time and memory complexity of Dijkstra algorithm. V is the number of nodes and E is the number of edges.

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Shortest Path Results

Origin	Destination	Shortest distance (meters)	Without exceeding a weighted-average risk of harassment
Universidad EAFIT	Universidad de Medellín	6130.017	0.84
Universidad de Antioquia	Universidad Nacional	2192.955	0.85
Universidad Nacional	Universidad Luis Amigó	1467.791	0.85

Shortest distance obtained without exceeding a weighted average risk of harassment *r*.

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Lowest Risk Results

Origin	Destination	Weighted-average risk of harassment	Without exceeding a distance (meters)
Universidad EAFIT	Universidad de Medellín	0.7291	7000
Universidad de Antioquia	Universidad Nacional	0.8435	7000
Universidad Nacional	Universidad Luis Amigó	0.8514	6500

Lowest weighted-average risk of harassment obtained without exceeding a distance d.

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Execution Times

0.18 seconds

0.16 seconds

0.17 seconds

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THANK YOU!

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