Fast greedy search.

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Presentation of the team

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Code, Technical Report, Leadership, and slides

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Research, Technical report

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Literature review

Mauricio Toro
Data preparation

GitHub - MaximilianoSanLa/ST0245-002-MaxiSan: ST0245-002

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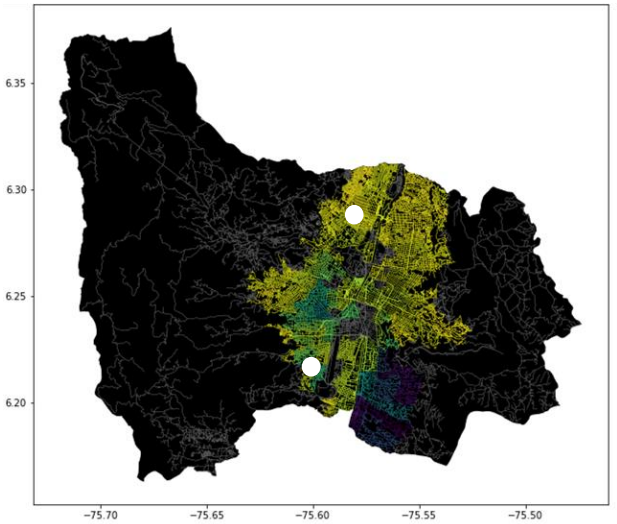
Other Members

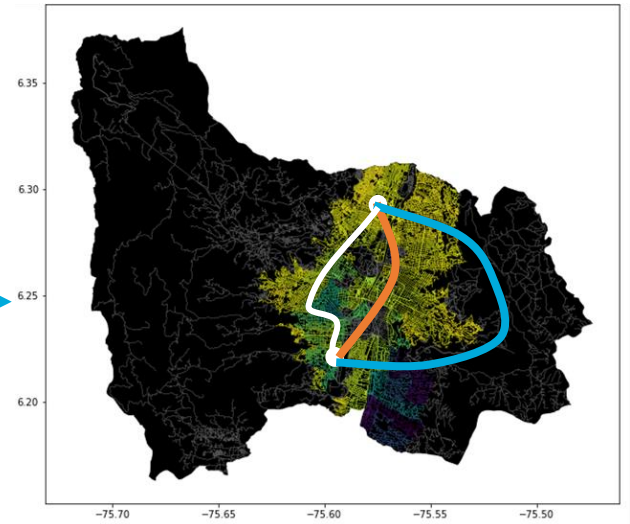
Felipe Gomez Daza

Technical Report

Problem Statement



Shortest path algorithm



Streets of Medellín, Origin and Destination

Three paths that reduce both the risk of harassment and distance

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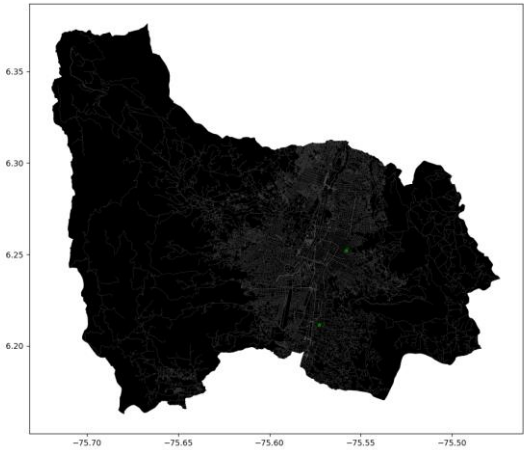
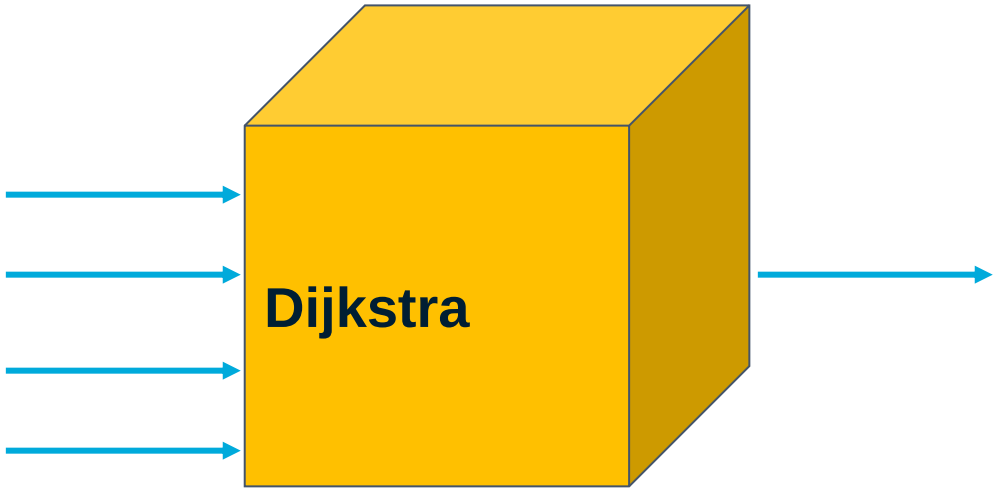
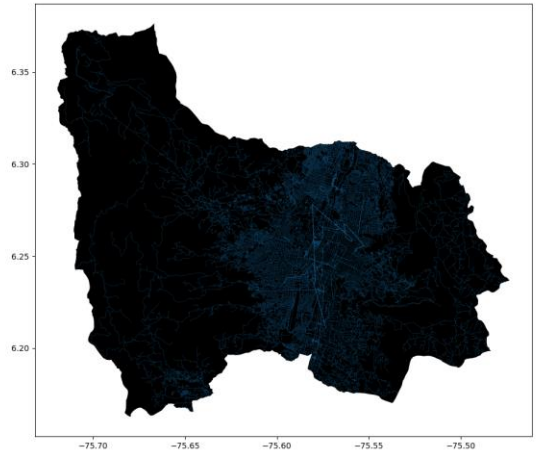
Solution Algorithm



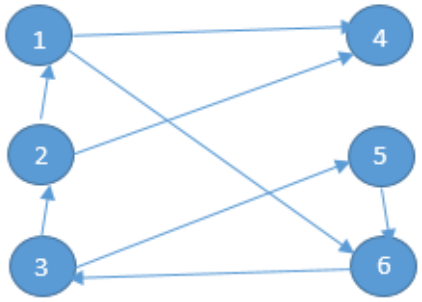
Streets of Medellín, Origin and Destination

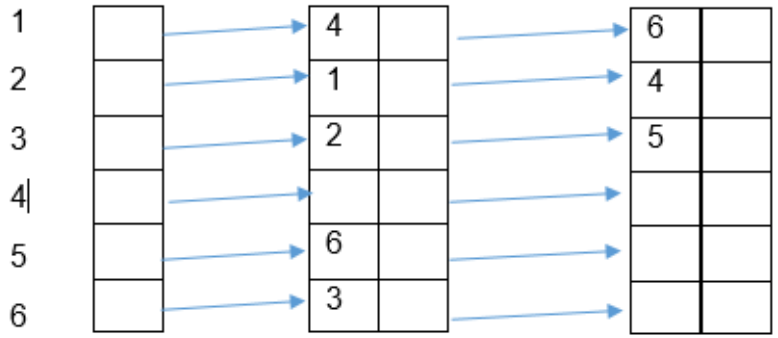




A path that reduces both distance and harassment

Explanation of the algorithm





By: Maximiliano Sánchez and Santiago Celis

Image extracted from: https://www.bbc.com/news/world-latin-america-57553316

Adjacent Dijkstra

Complexity of the algorithm

Algorithm Name	Time complexity	Complexity of memory
Adjacent Disktra	O((E+V)log(V)	O(V)

In our algorithm V represents every node in our heap and E represents every node in our graph that changes accordingly to the node we are in.

Image extracted from: https://www.bbc.com/news/world-latin-america-57553316

First path minimizing d = ???

Origin	Destination	Distance (meters)	Risk of harassment (between 0 and 1)
Entrada a El Tesoro	UN Medellin	8809.7229	0.6551682125112448

Distance and risk of harassment for the path that minimizes d =8809.7229. Execution time of 0.67 seconds.

Second path minimizing d = ???

Origin	Destination	Distance (meters)	Risk of harassment (between 0 and 1)
Entrada a El Tesoro	UN Medellin	9839.547	0.6731124501596933

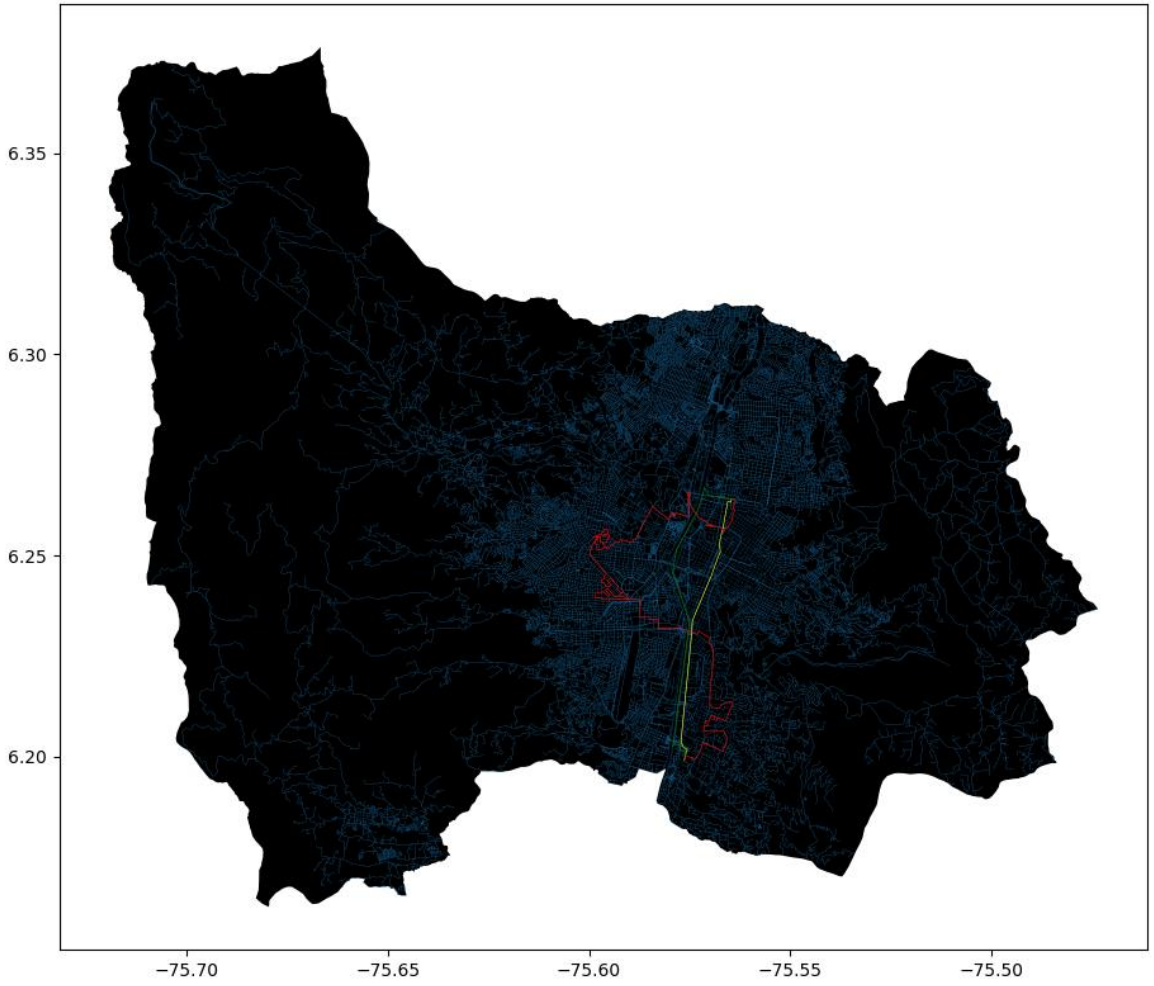
Distance and risk of harassment for the path that minimizes d =134.355. Execution time of 0.57 seconds.

Third path minimizing d = ???

Origin	Destination	Distance (meters)	Risk of harassment (between 0 and 1)
Entrada a El Tesoro	UN Medellin	23194.528	0.6462234930749653

Distance and risk of harassment for the path that minimizes d =0.6462234930749653.
Execution time of 0.82 seconds.

Visual comparison of the three paths



Future work directions

Databases

- Other variables

Electronic digital languages

- Web application

Software Engineering

- Mobile application

Information Systems

- Include ML or VR

THANK YOU!

Special thanks

We are grateful to our families for funding our studies and for their continuous emotional support with them to, Universidad EAFIT, for their support in this research.