ALGORITHMS TO FIND THE SHORTEST SAFE ROUTES TO PREVENT SEXUAL HARASSMENT

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Presentation of the team

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Documentation
and research

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Literature review

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Data preparation

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

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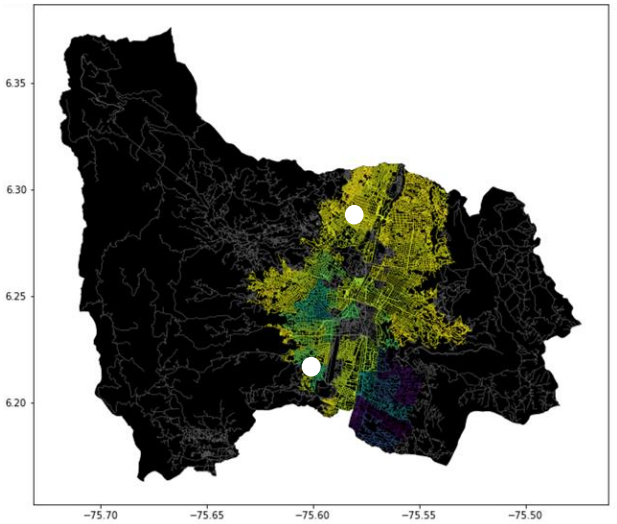
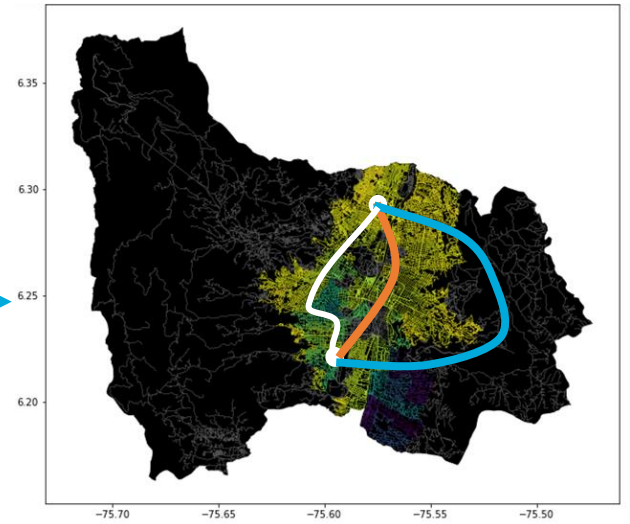
Problem Statement



Shortest path algorithm



Streets of Medellín, Origin and Destination

Three paths that reduce both the risk of harassment and distance

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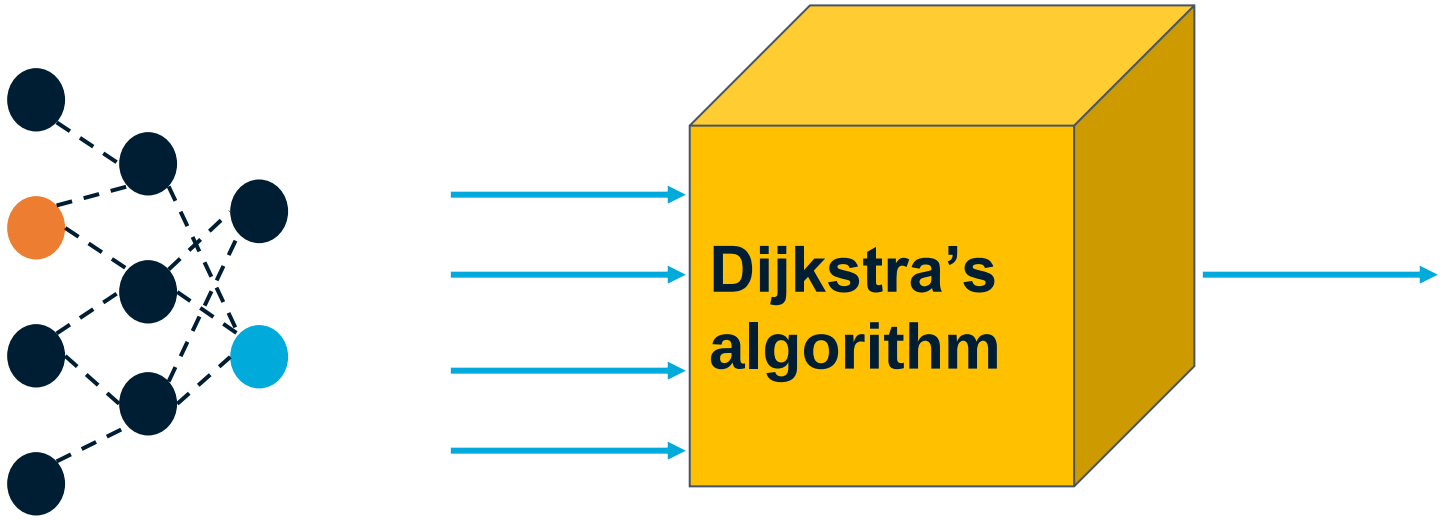
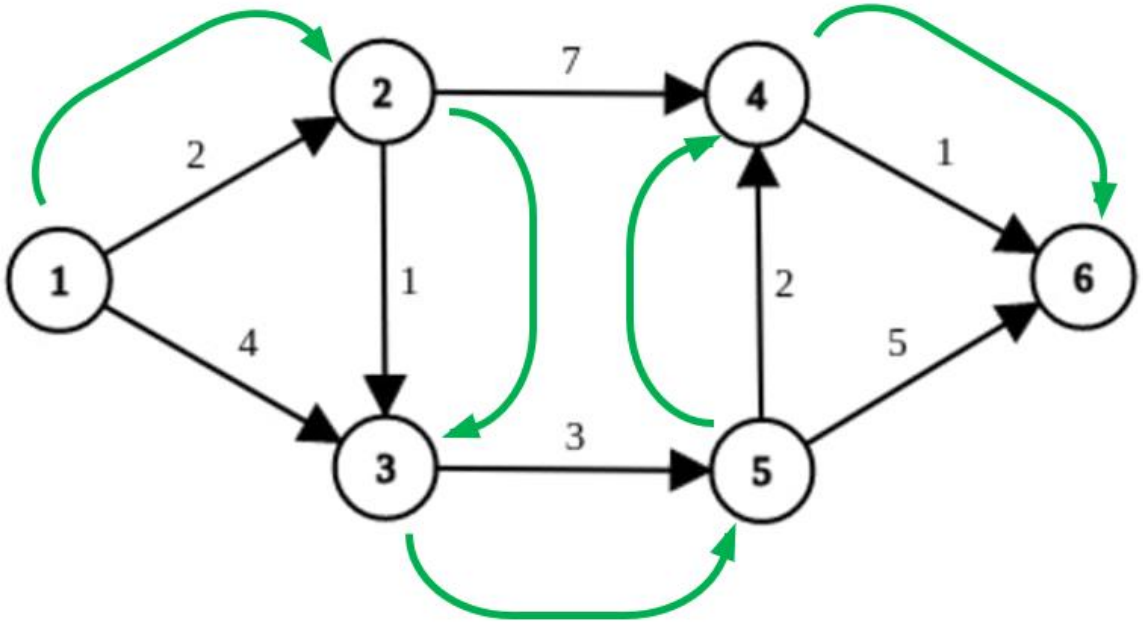
Solution Algorithm



Streets of Medellín, Origin and Destination

A path that reduces both distance and harassment

Explanation of the algorithm



Dijkstra’s algorithm

In the graph shown above, the path found by the algorithm is illustrated with a starting node “1” to a destination node “6” with the lowest distance and risk of harassment

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Complexity of the algorithm

	Time complexity	Complexity of memory
Algorithm name	$O(V^2 * E * 2^V)$	$O(E! * V * E * E * 2^E)$
Algorithm name (if you have tried two)	O(V*V*E*E*E)	O(E!)

Create the table in Powerpoint. Do not copy pixelated screenshots of the white paper, please.

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Time and memory complexity of the algorithm name. V is...E is... (In this semester, it could be DFS, BFS, Dijkstra, A*). Please explain what V and E mean in this problem. **PLEASE, it is not helpful to put 'n'.**

Explain the tables in your own words

Include a high-definition image related to the problem of sexual street harassment.

*Use superscripts to represent exponents. **Do NOT use the ^ symbol.***

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First path minimizing d = ???

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Origin	Destination	Distance (meters)	Risk of harassment (between 0 and 1)
EAFIT University	National University	??	??

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

Explain the tables in your own words

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Second path minimizing d = ???

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Origin	Destination	Distance (meters)	Risk of harassment (between 0 and 1)
EAFIT University	National University	??	??

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

Explain the tables in your own words

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Third path minimizing d = ???

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Origin	Destination	Distance (meters)	Risk of harassment (between 0 and 1)
EAFIT University	National University	??	??

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

Explain the tables in your own words

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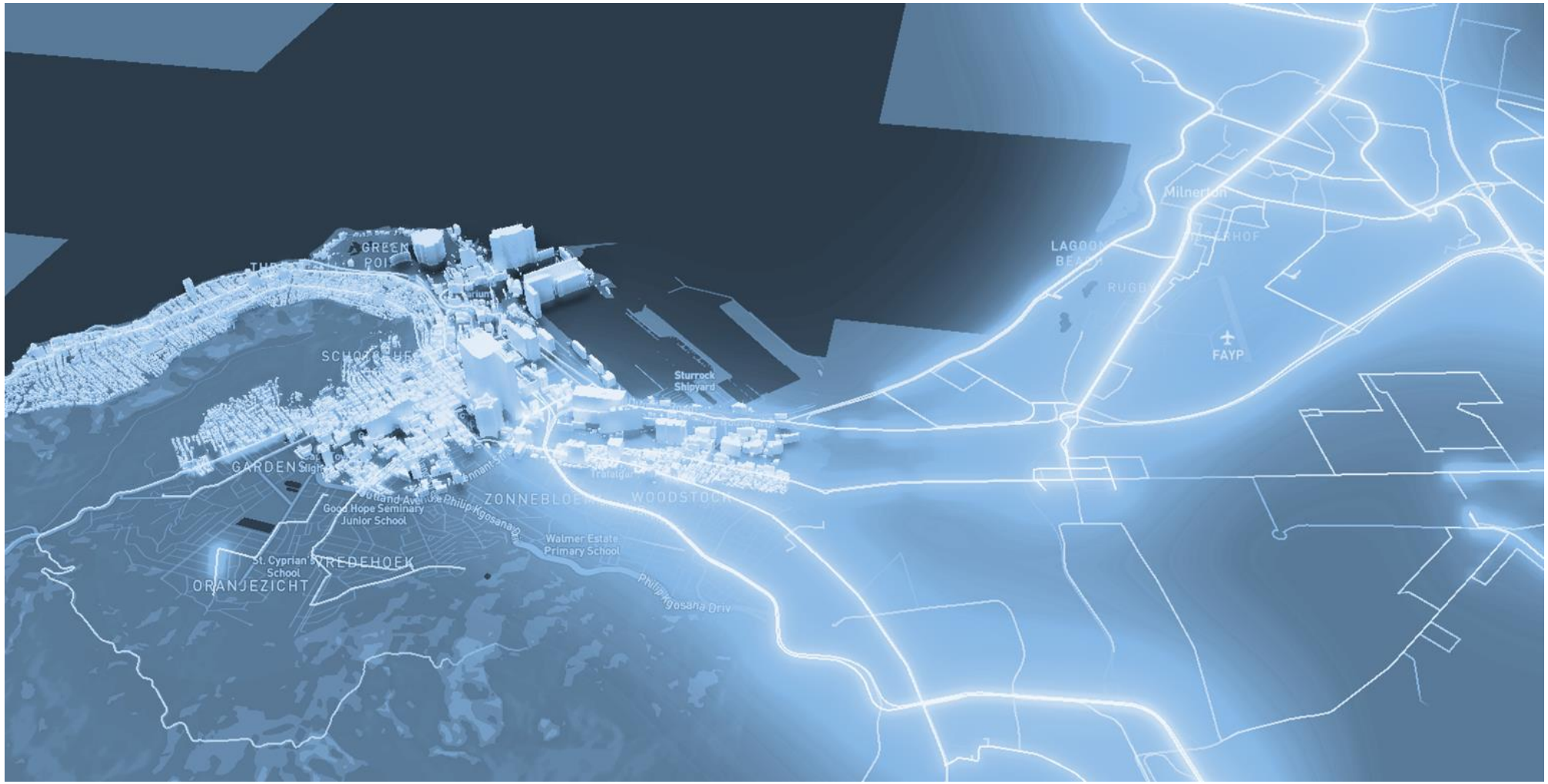
Visual comparison of the three paths

Use a library to draw the map and plot the three roads between Eafit and Universidad Nacional. For example, use geopandas, pydeck or google maps.



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Future work directions

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Please name the courses in which you could continue to work on this project.

Probability

Other risk estimates

Optimization 1

Optimization Bi target

Statistics 2

MV risk estimates

M & S 4

Traffic Estimation

Please tell us what you could do, in the following courses, to improve this project.

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Future work directions

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Please name the courses in which you could continue to work on this project.

Databases

- Other variables

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Project 1

- Web application

Software Engineering

- Mobile application

Project 2

- Include ML or VR

Please tell us what you could do, in the following courses, to improve this project.

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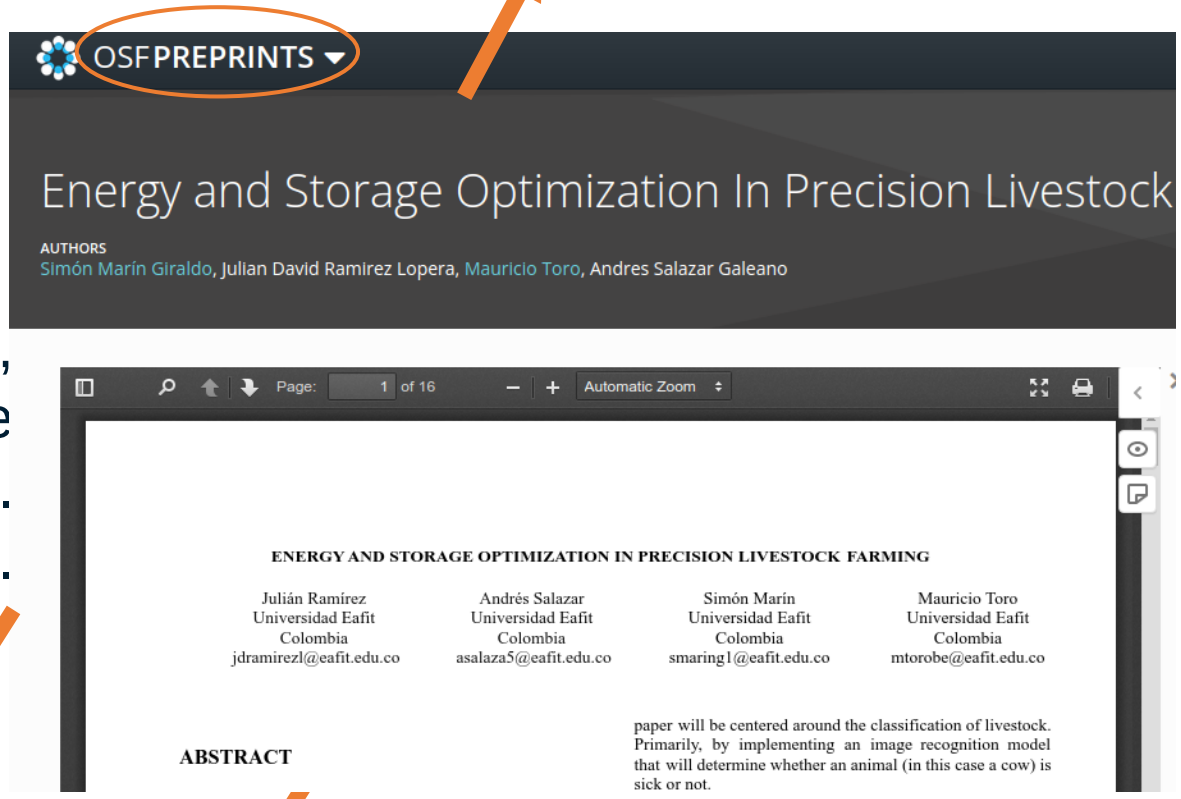

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Include monitors and teachers among the authors, please.

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Don't forget your scholarship acknowledgements (if you have one) For others, for those who pay your tuition fees

THANK YOU!

With the support of

The first two authors were supported by the Sapiencia grant, financed by the municipality of Medellín. All authors are grateful to the Vice Rector's Office for Discovery and Creation, Universidad EAFIT, for their support in this research.

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