



Algorithm to generate safe routes in Medellín

Presentation of the team



Ricardo Gandica
Coding and
planning



Sara Quintero
Project analysis



Andrea Serna
Literature review



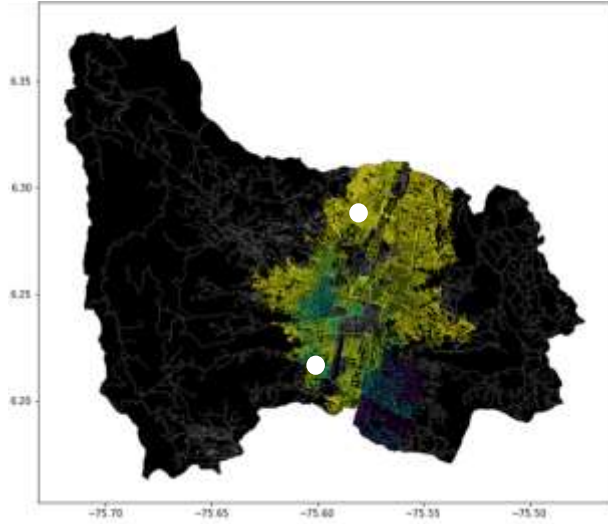
Mauricio Toro
Data preparation



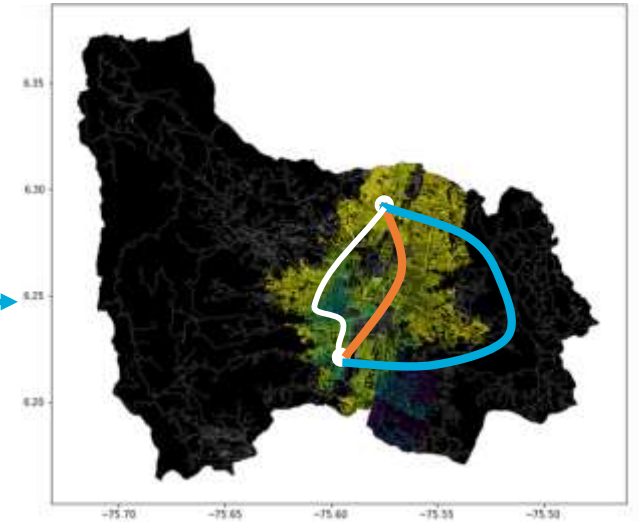
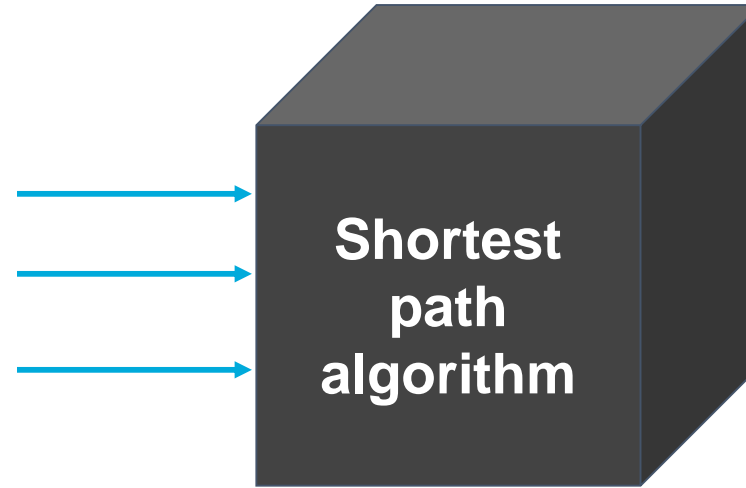
https://github.com/GatosLoco1990/sexual_harassment_project



Problem Statement



**Streets
of Medellín,
Origin and
Destination**



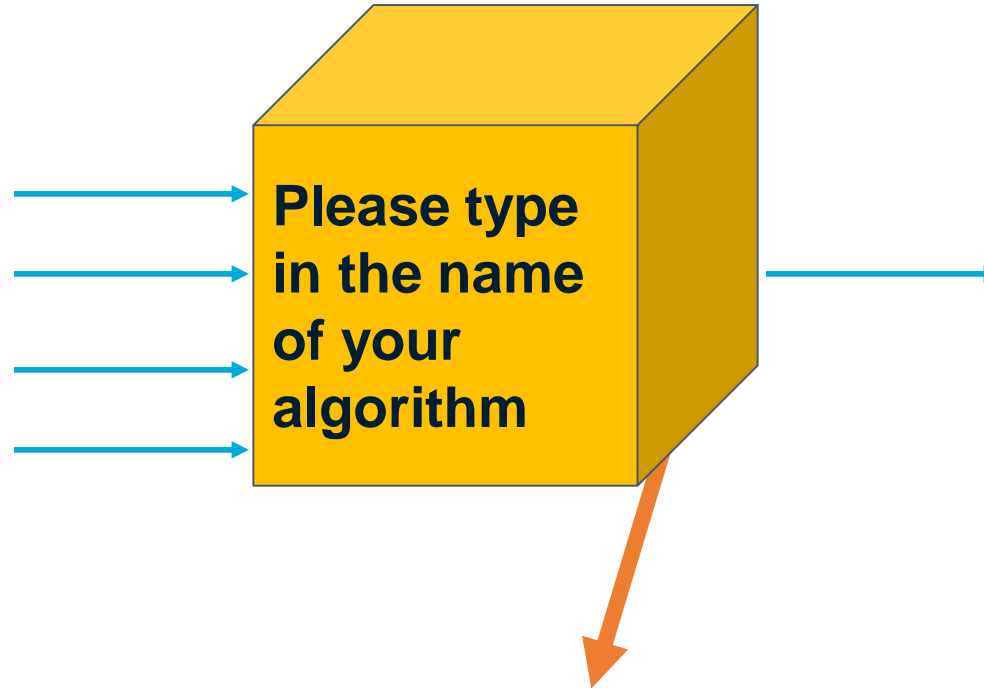
**Three paths that reduce
both the risk of harassment
and distance**



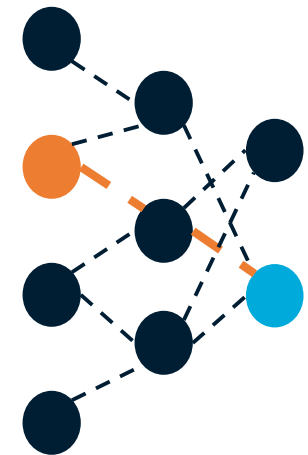
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slides.



**Streets
of Medellín,
Origin and
Destination**



Add the name of your
algorithm



**A path that reduces
both distance and
harassment**

Explanation of the algorithm

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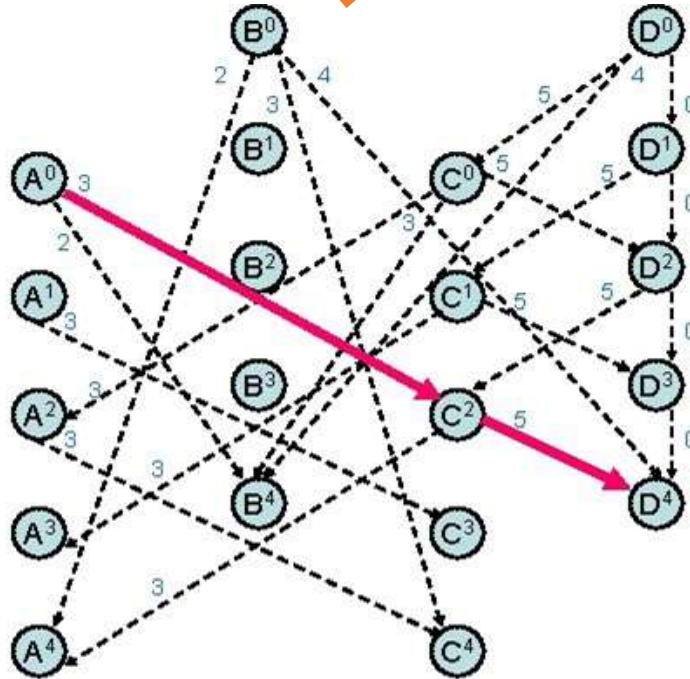
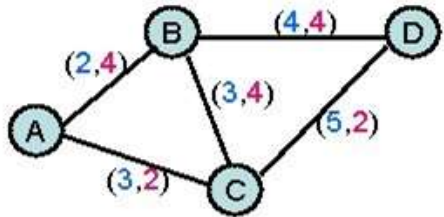
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For the second
installment



Use these
colors for
graphics

Design your own figures in Lucidchart or
equivalent: <https://www.lucidchart.com/>



Name of the algorithm for the path that reduces both
harassment and distance.

(In this semester, it could be DFS, BFS, Dijkstra, A*... **please choose**).



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

Explain the graphs in your
own words

Complexity of the algorithm

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	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.**

The font size must be at least 22 points.

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

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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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points.



Future work directions



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Probability

• • • • •
Other risk
estimates

Delete this
if you study
Informatics engineering

Optimization 1

• • • • •
Optimization
Bi target

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

Statistics 2

• • • • •
MV risk
estimates

M & S 4

• • • • •
Traffic
Estimation

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points.

You can add, delete or
change some future
work addresses

Future work directions



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Databases

Other
variables

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if you study
Mathematics
Engineering

Project 1

Web
application

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

Software
Engineering

Mobile
application

Project 2

Include
ML or VR

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Report accepted in OSF.IO

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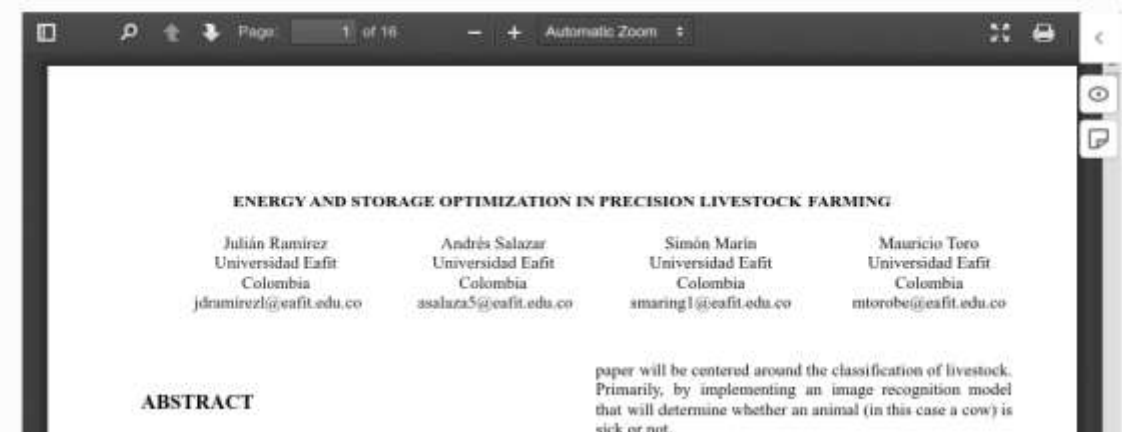
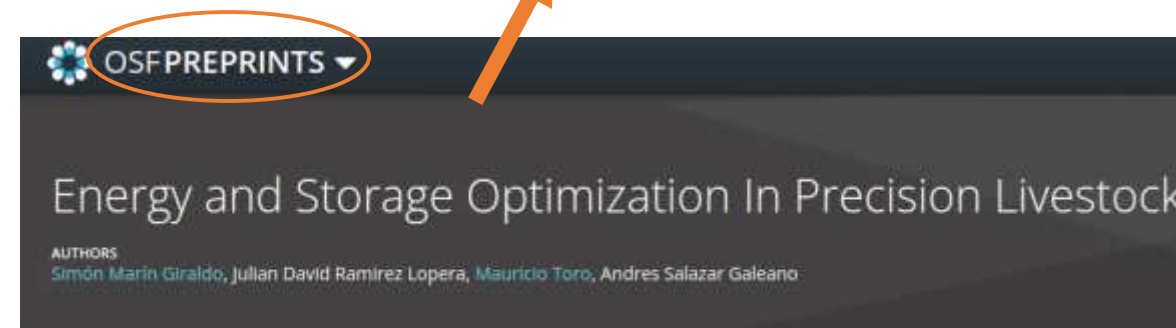
Delete this slide if your report was not submitted to OSF.

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This is an example of a citation from a previous report

Include the report citation in OSF PREPRINTS and the link. No, not in OSF projects, it is in OSF Preprints.

Julián Ramírez, Andrés Salazar, Simón Marín, Mauricio Toro. Energy and Storage Optimization in Precision Livestock Farming. Technical Report, Universidad EAFIT, 2021.
<https://doi.org/10.31219/osf.io/du8yt>



Include a screenshot of your published report on osf.io and remove the circle

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Include monitors and teachers among the authors, please.



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picture*



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



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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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points.*