PREVENTION OF STREET HARASSMENT USING AN ALGORITHM TO DETERMINE THE SAFEST PATH

UNIVERSIDAD EAFIT®

Presentation of the team

José David Toro Franco
Main author

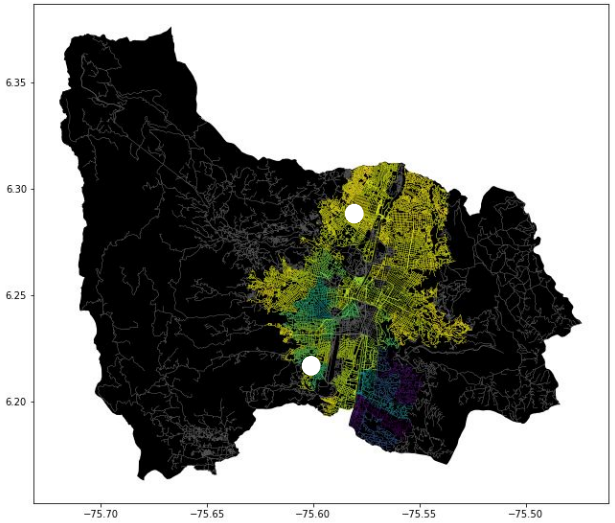
Andrea Serna
Literature review

Mauricio Toro
Data preparation

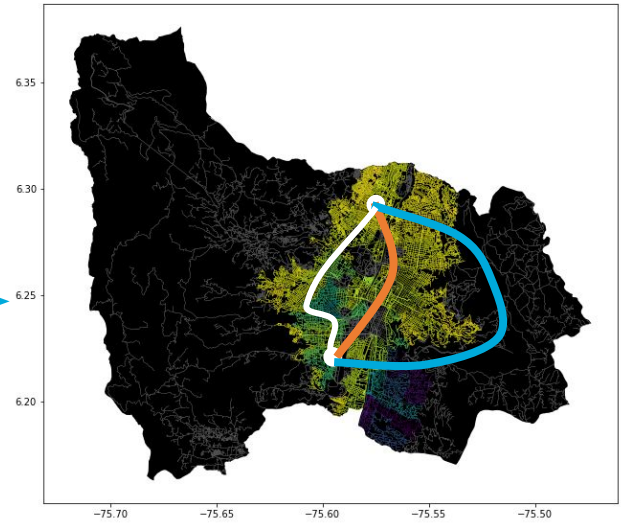
https://github.com/josedtf/PREVENTION-OF-STREET-HARASSMENT-USING-AN-ALGORITHM-TO-DETERMINE-THE-SAFEST-PATH

UNIVERSIDAD EAFIT

Problem Statement



Shortest path algorithm

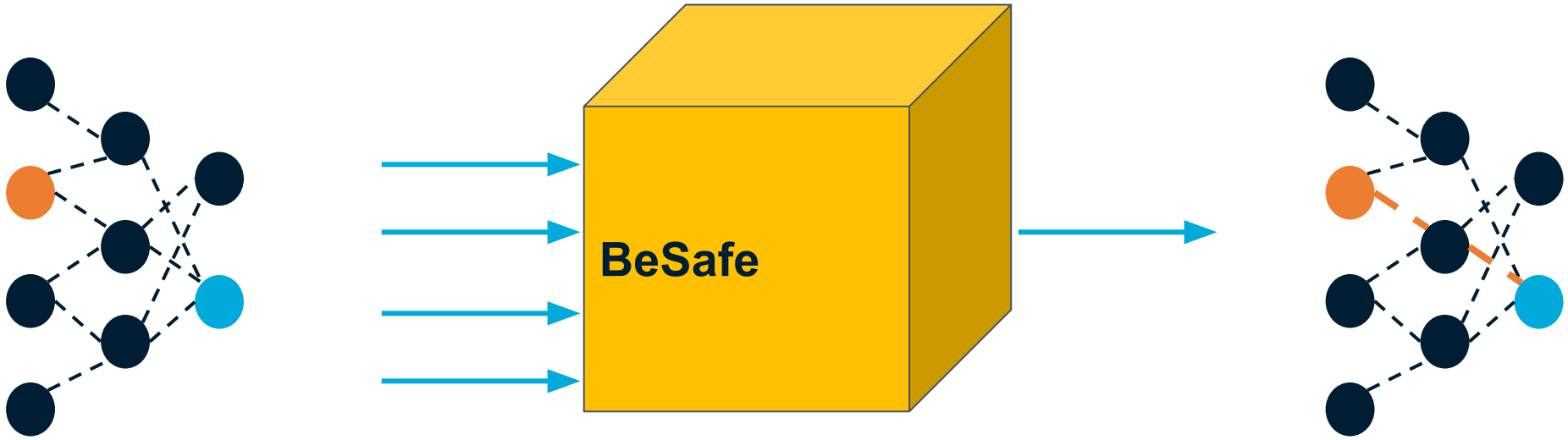


Streets of Medellín, Origin and Destination

Three paths that reduce both the risk of harassment and distance

UNIVERSIDAD EAFIT

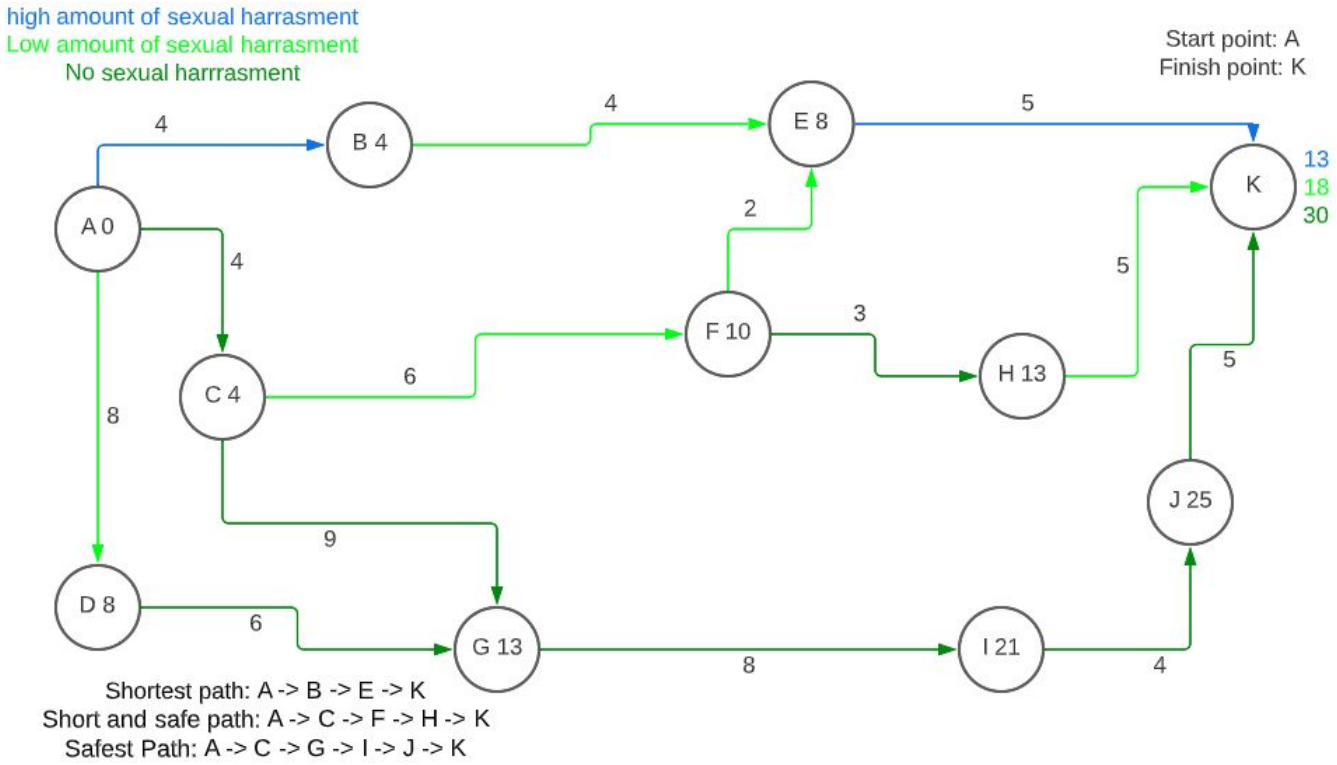
Solution Algorithm



Streets of Medellín, Origin and Destination

A path that reduces both distance and harassment

Explanation of the algorithm



Dijkstra.

The graph shows some possible paths, they differ in length and amount of street harassment. The user can select the path he or she would rather use to avoid street harassment or to save time using a shorter one.

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	O(V*V*E*E*E)	O(E!)

Time and memory complexity of the algorithm name. V is...E is...

First path minimizing d = ???

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.

Second path minimizing d = ???

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

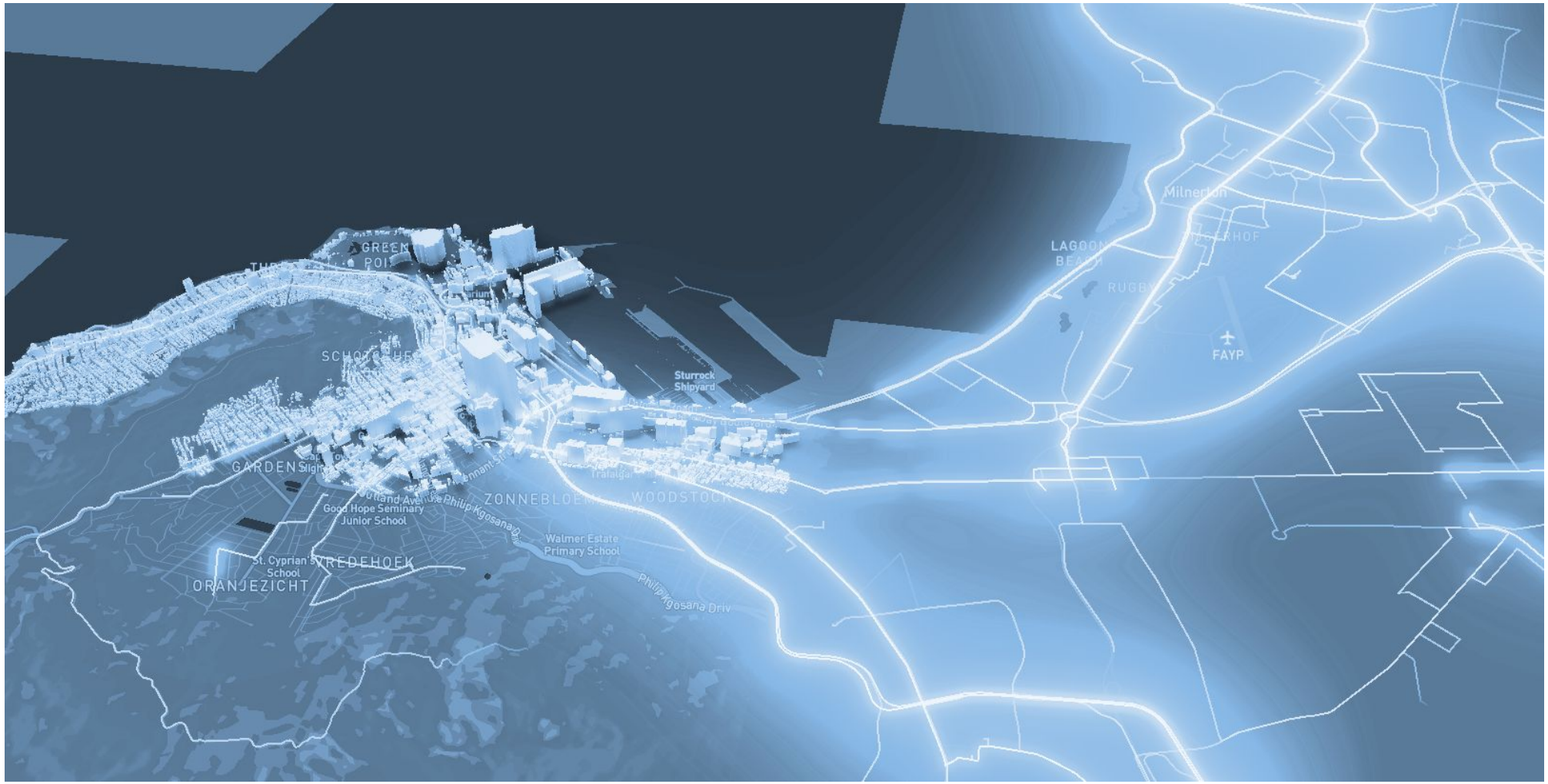
Distance and risk of harassment for the path that minimizes d = ??. Execution time of ?? seconds.

Third path minimizing d = ???

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.

Visual comparison of the three paths



Future work directions

Probability

- Other risk estimates

Optimization 1

- Optimization Bi target

Statistics 2

- MV risk estimates

M & S 4

- Traffic Estimation

Future work directions

Databases

- Other variables

Project 1

- Web application

Software Engineering

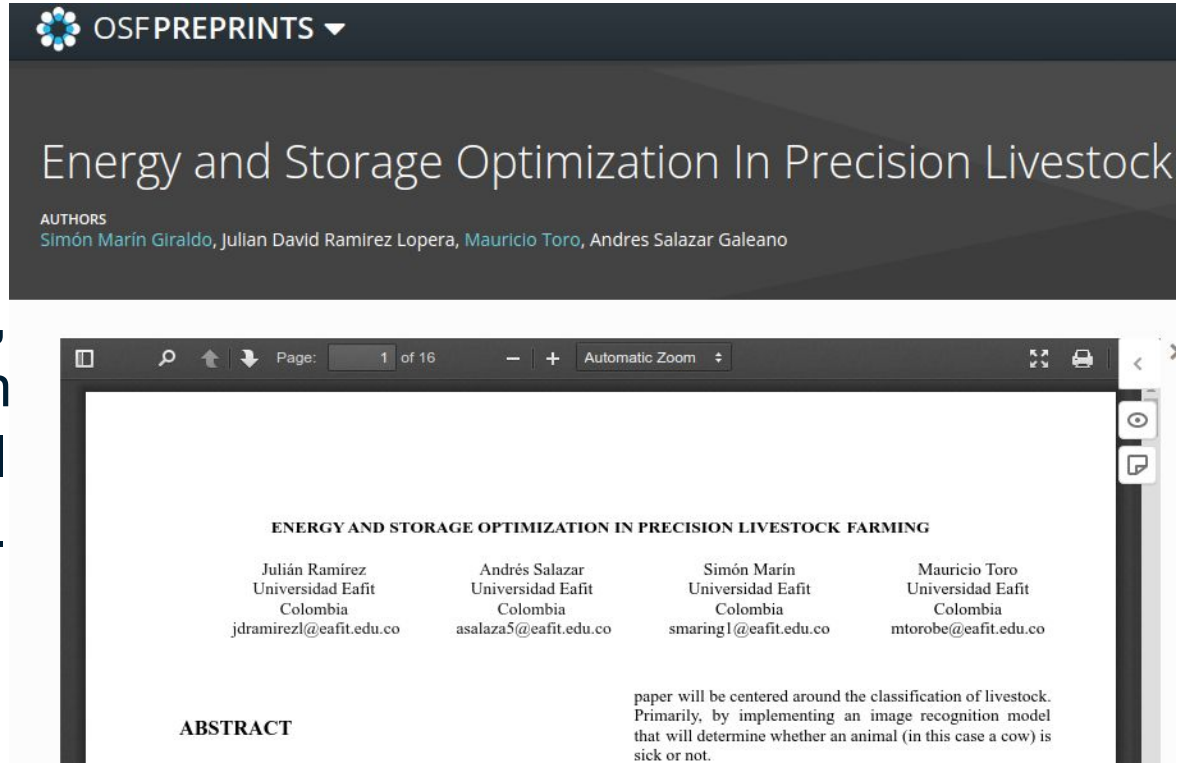
- Mobile application

Project 2

- Include ML or VR

Report accepted in OSF.IO

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



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.