Data Science enlightening the path for resilient cities to fight COVID-19 Case study of Medellin

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Supported by
COVID-19

The greatest “urgent” challenge for our generation
It is a stealth enemy

- It is a suicide enemy
- It operates under the “radar” for at least five days
- It can stop your main supply routes
- It infiltrate your own troops
- If keeps your health system busy and even collapsed it
- When you gage the size of their troops they will be at least 2.5 times bigger than
Our defence tactics monitoring and prediction

Monitoring Estimation and Prediction of Cases and their location

Social and Economical Models

Profile of cases and vulnerabilities

Logistics of UCI and Hospitals
Architecture for decision making

- Static or long term information
- Predicted Impacts
- Prediction models
- Real time information
- Alarms
- Public Policy
Static Information
Vulnerability maps
Typical Mobility
Transport Network Capacity and Routes
Bussiness Location
Real Time Information
Real time Rt monitoring

https://rtcolombia.herokuapp.com/
Location of activity- (Source Google)

Cambio en la ubicación de las personas

- Comercio Minorista y Recreación
- Abarrotes y Farmacia
- Parques y zonas de ocio
- Transporte
- Trabajo
- Casa
Car mobility before and during lockdown

Intensidad de la Movilidad en Vehículos en Medellín
Car mobility during lockdown
Metro and Car Mobility during Lockdown

Comparación uso de vehículos y metro durante la cuarentena

Basado en información de volúmenes de ARS (1 promedio Marzo 1-23 de 2020)
Bus occupation
Metro occupation per economic activity
Passenger/day-bus – Driver’s Risk
Passengers in route

Pasajeros promedio por Recorrido en Rutas de Buses Valle de Aburrá

Azul Nov. 2019 - Naranja Mar. 2020
Prediction Models
Gauging our health system
Future Lockdowns and UCI occupation
Effect of other Strategies
Cumulated inactivity
Projected Deaths

Projected Deaths
Decision Making
Location of Economic Activities
Residence of construction workers and COVID cases
Construction sites and COVID Cases
Conclusion

Without vaccine or antiviral, test, data and models are our best hope
Thank you

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