Toxic-Free Footprints to Improve Community Health against Respiratory Hazards

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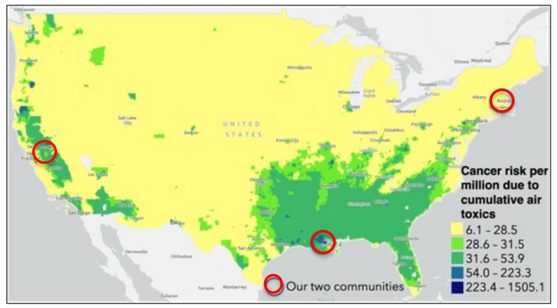


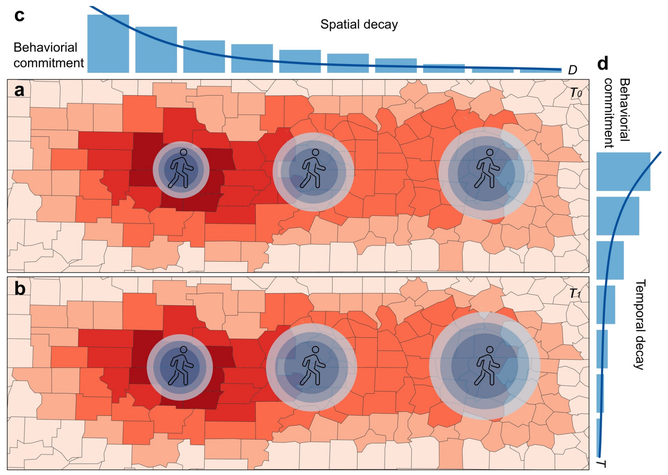
Three communities: Roxbury MA, St. John LA, and San Francisco CA

Technological advances:

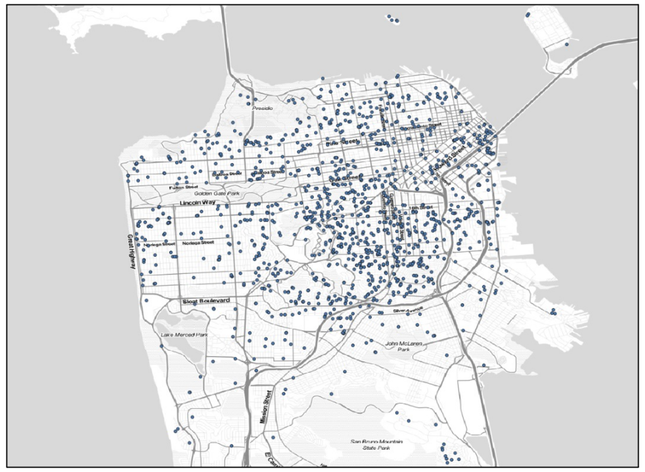
- Linking “Big Data” of mobility and air pollution exposure
- Real-time AI for mobility prediction and privacy preservation.

Social science innovation:

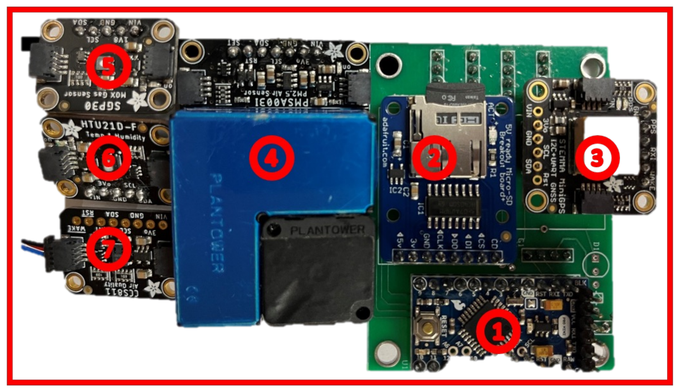
- Multi-modal data fusion to study inequality in pollution exposure.
- Network-based interventions to improve community well-being.



A universal model for mobility changes (*Li et al, 2022, PNAS*)



Air modeling and examination using Purple Air data



1. Micro controller
2. SD card
3. GPS Module
4. PM sensor
5. TVOC/eCO2 Gas Sensor
6. Thermo-hygrometer
7. Air quality sensor

Portable air sensor package

Immediate impact:

- Quantitative understanding of air pollution exposure for the footprints of our participants.
- Functional Toxic-Free App.

Sustained impact:

- Technological and social infrastructure for and improving community well-being.
- Social network-based intervention strategies.

Next steps:

- Model development using field collected air monitoring samples.
- Toxic-Free Life App to predict mobility that runs on smartphones.

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