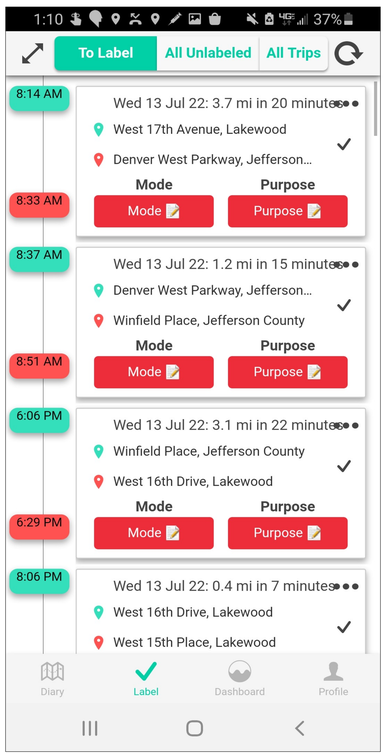
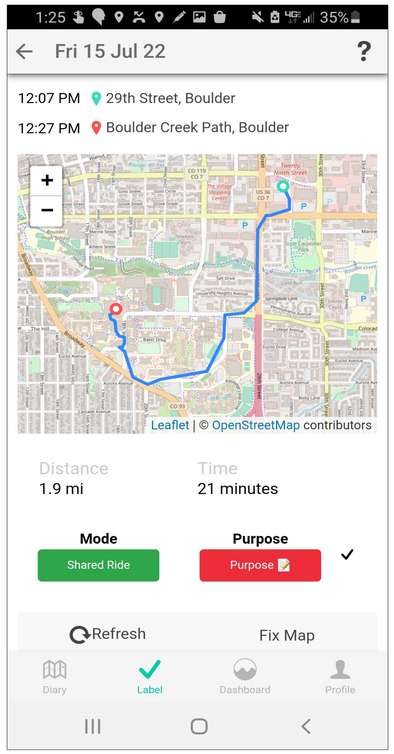
# Visualizing Uncertainty in Energy and Carbon Intervals with Labeled Trips using Human Mobility Tracking App OpenPATH

Kamryn Suh, University of South Florida

## Background

- OpenPATH: an open-source cell phone app to track human travel behavior
- OpenPATH goal: Sustainable mobility goals to limit harmful carbon emissions from transportation in U.S.
- Project goal: Visualize uncertainty in energy footprint, carbon footprint, and total labeled trips
- Uncertainty: Confidence intervals & estimates

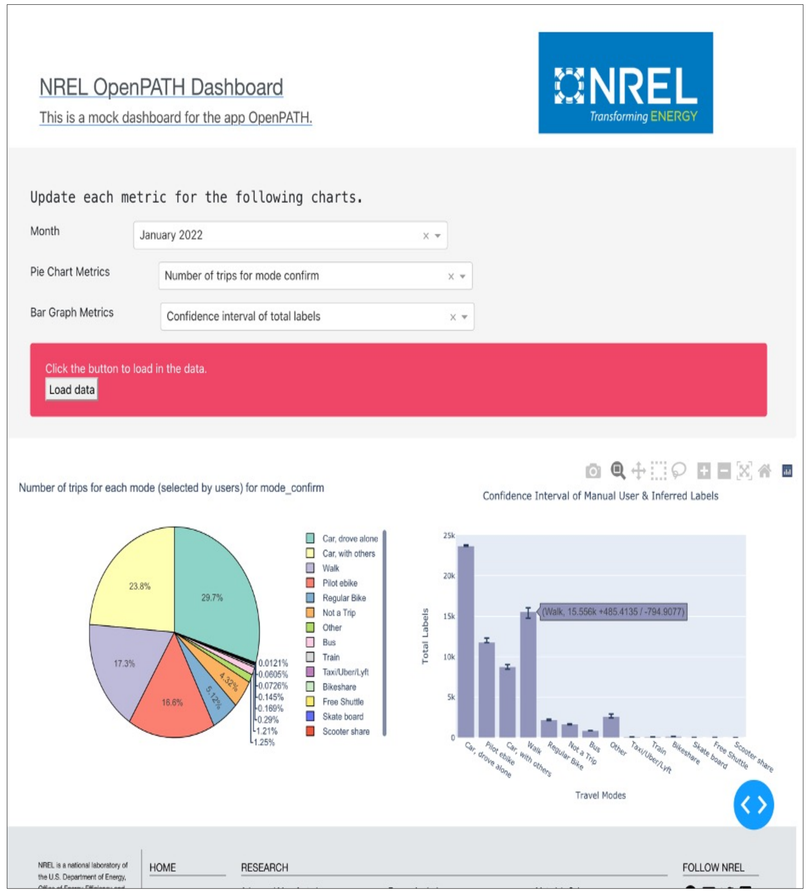



## Data Collection

- Data from collab with Colorado Energy Office (CEO) that provided e-bikes to low-income essential workers, apart of CanBikeCO project
- Confidence intervals for total of manual user & inferred labeled trips
- Confidence intervals for energy & carbon footprints

## Results & Discussion




- Public dashboard to display charts
- Metrics & month drop-down to filter data from CanBikeCO project
- Added uncertainty charts shown to the right

## Conclusion

- Designed various charts for users of OpenPATH to better understand the emission impact of their travels
- Showed uncertainty within the data
- Future work would be to update and display more charts in public dashboard

Figure 1

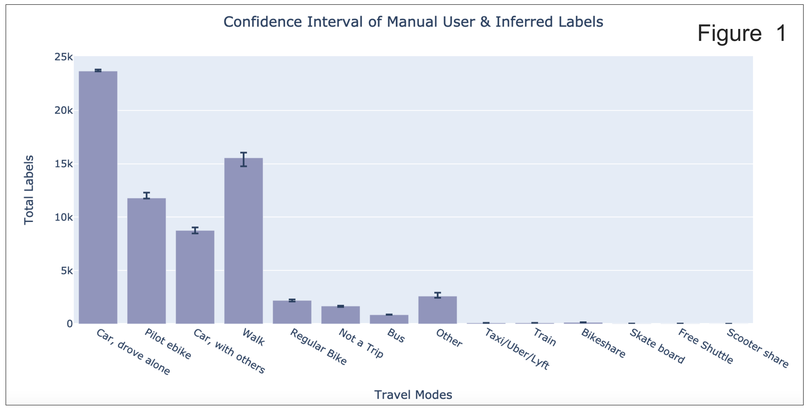



Figure 2

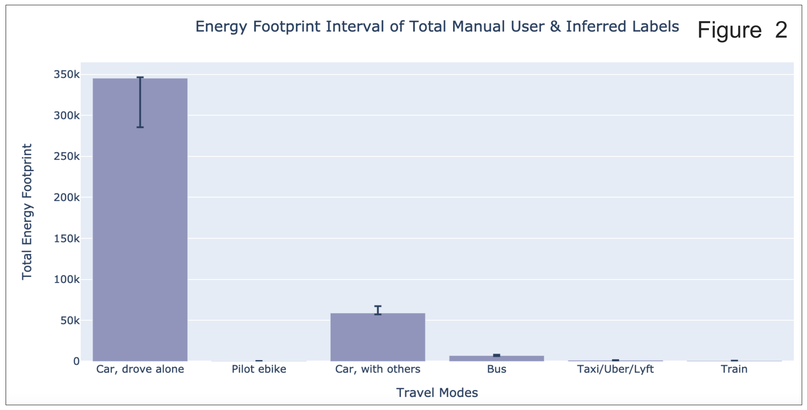
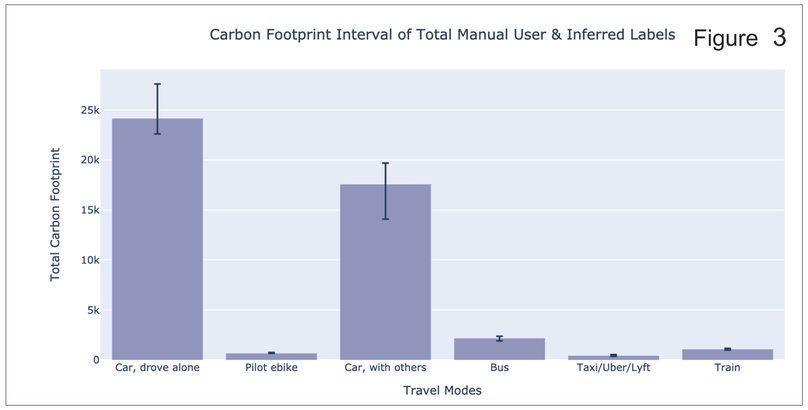



Figure 3




- Figure 1 shows confidence interval of total manual user & inferred labels
- Figure 2 & 3 shows confidence interval of energy & carbon footprint
- Some modes were opted out due to low values

***Acknowledgements***

*This work was supported by the U.S. Department of Energy under the Transportation & Mobility Research at the National Renewable Energy Lab (NREL) and by the Office of Science SULI program.*