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Walkway Discovery from Large Scale Crowdsensing

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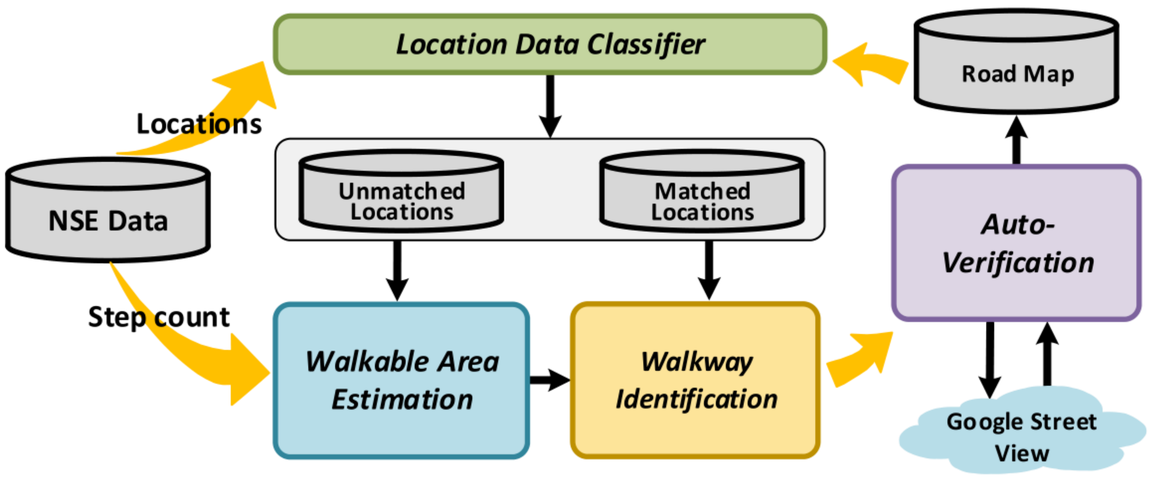
Introduction

Walkway Discovery

- Walkways are essential for maps.
- Provide better walking plans.
- Uncompleted maps provide sub-optimal routes.

Our System

- A statistical method.
- Use the power of crowdsensing.
- Leverage multi-modality data.

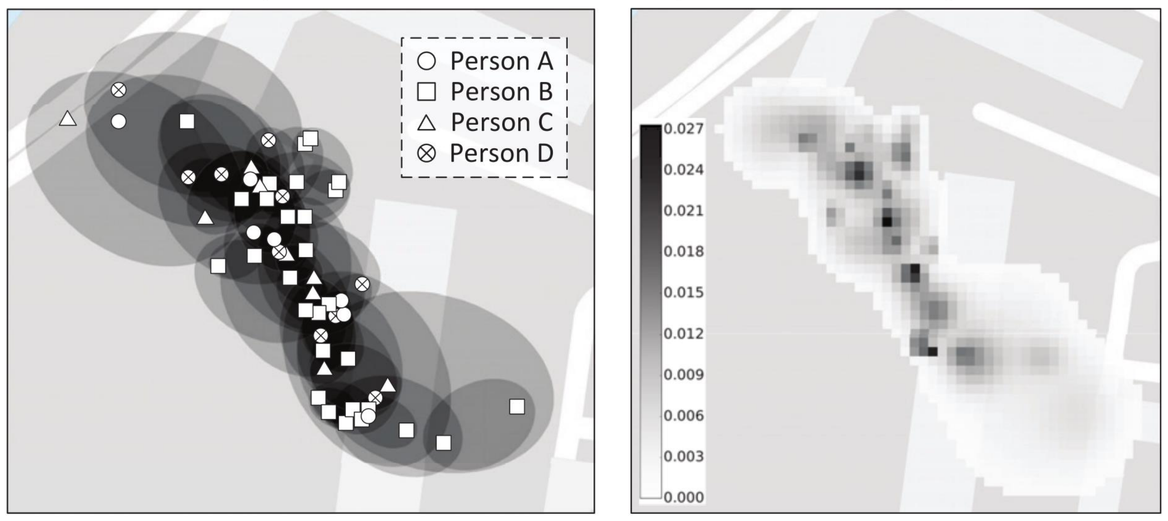


Data Classification

- Clustering to find Sojourn data.
- Map matching to determine whether matched.

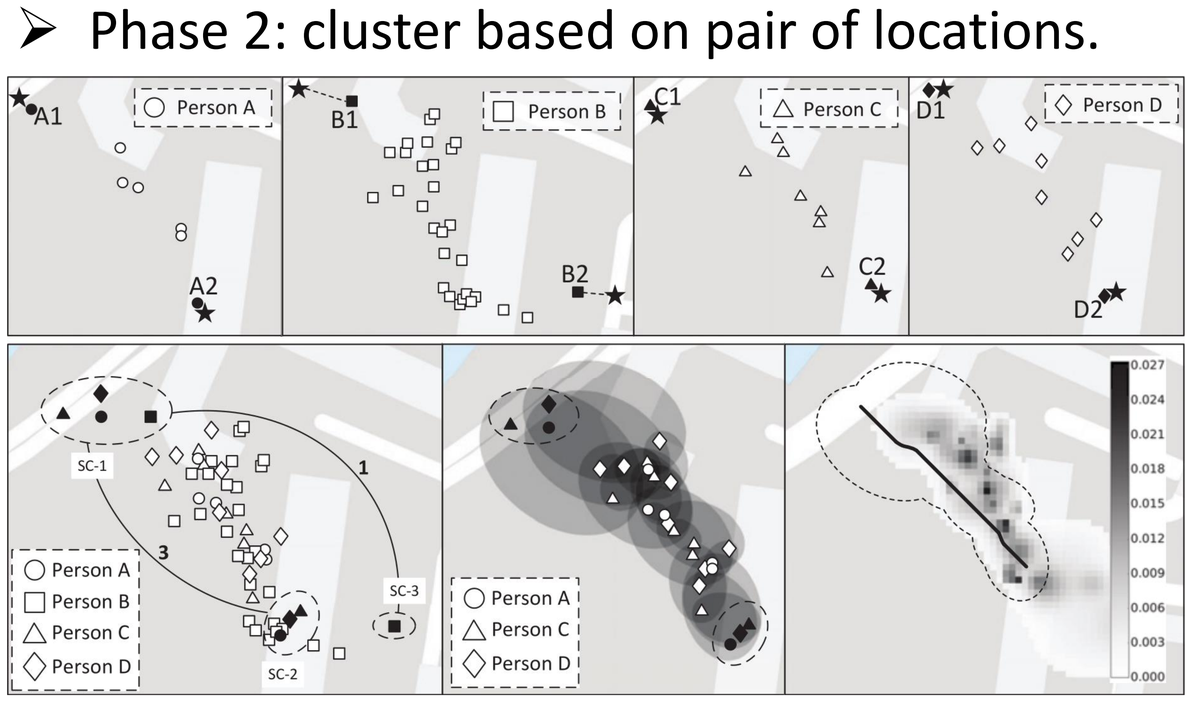
Walkable Area Estimation and Weighting

- Based on unmatched and last matched data.
- Use ellipse to include all possible trajectories.



Representative Walkway Identification

- Phase 1: cluster based on single locations.
- Phase 2: cluster based on pair of locations.



Implementation

Performance of Walkway Discovery

- Accuracy on different lengths and types.