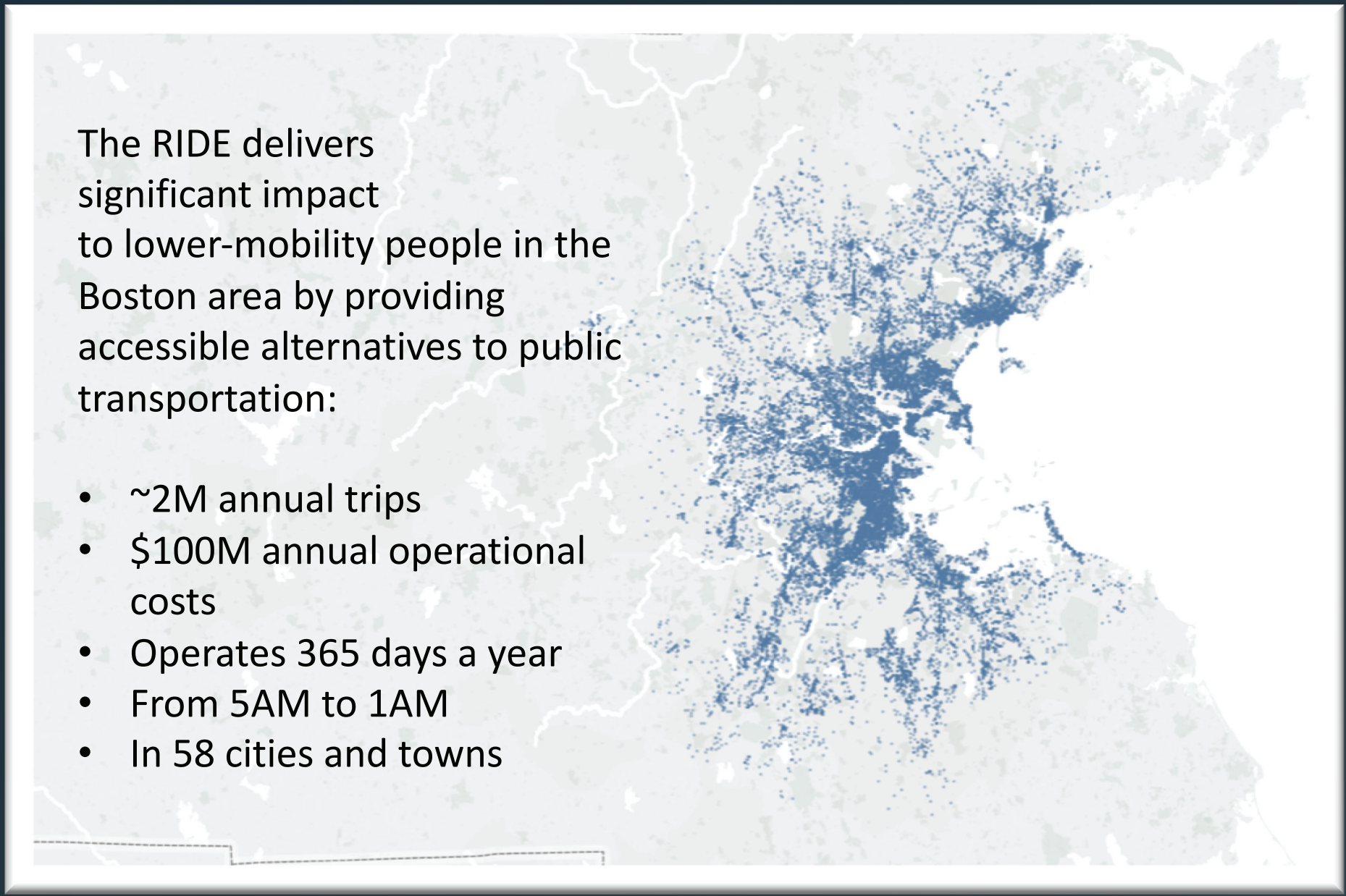
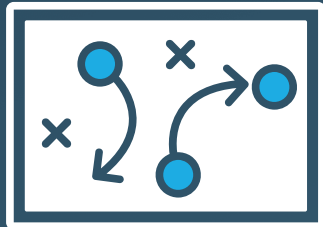




HOW?



Best Garage Locations
Reduce time between garage and pick-up

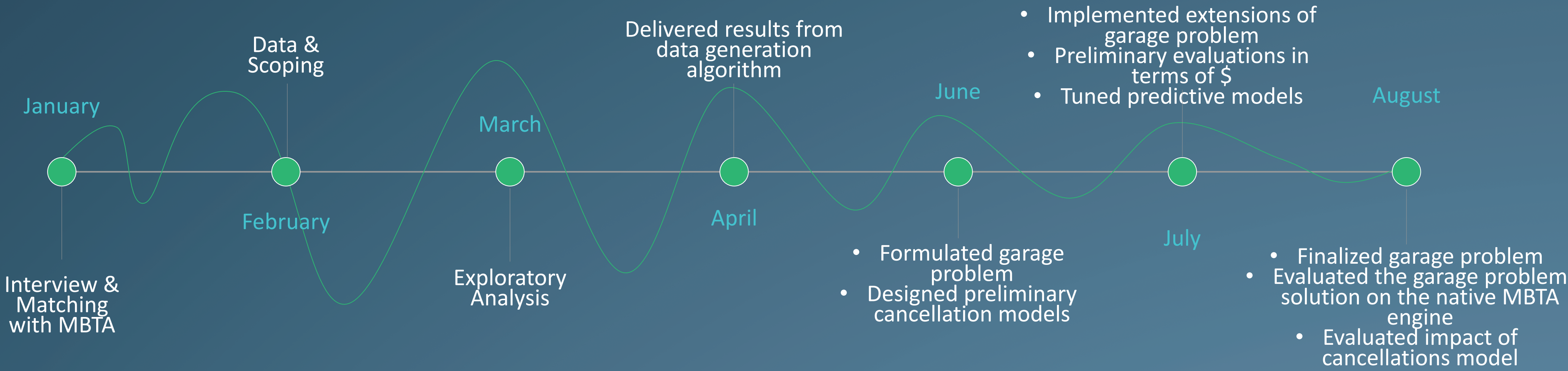
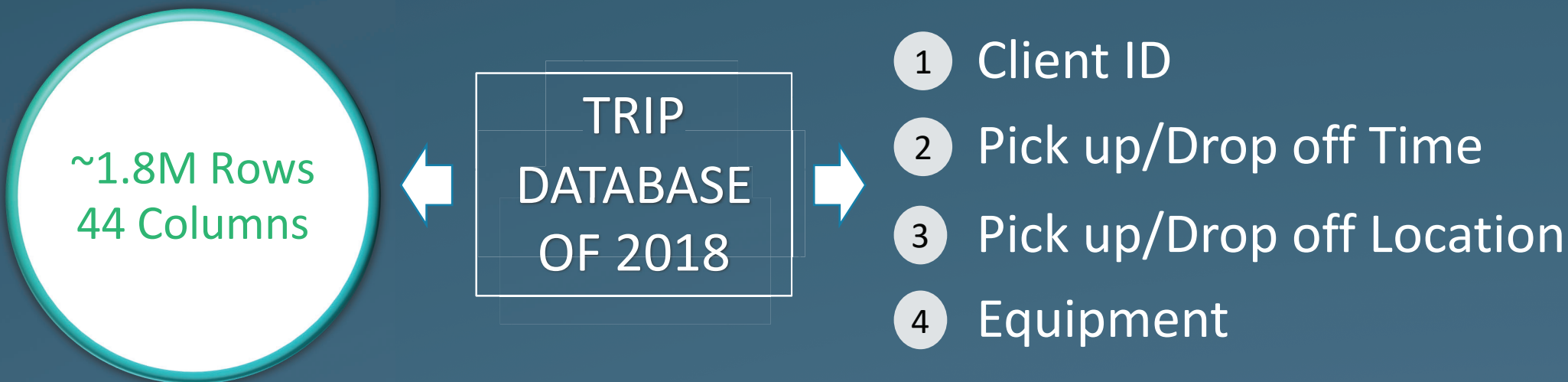


Cancellation Predictions
Probability of cancellation for every trip



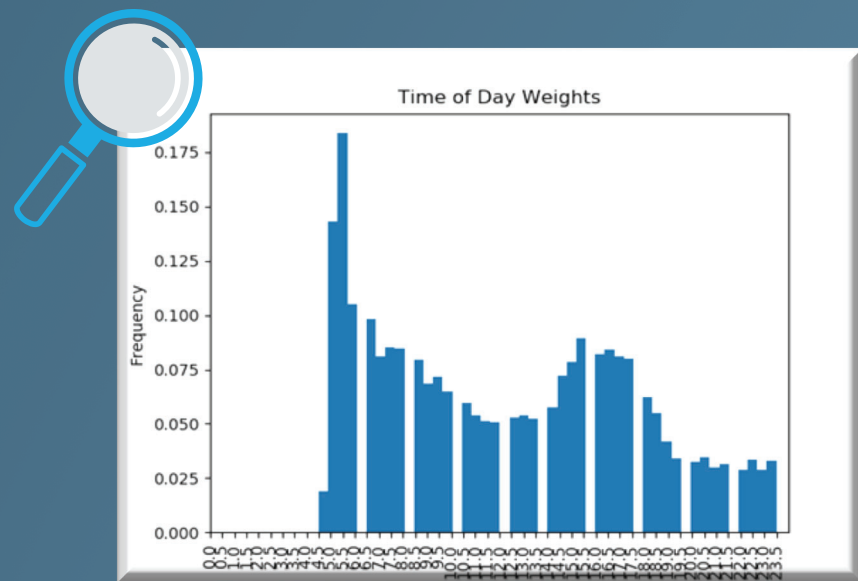
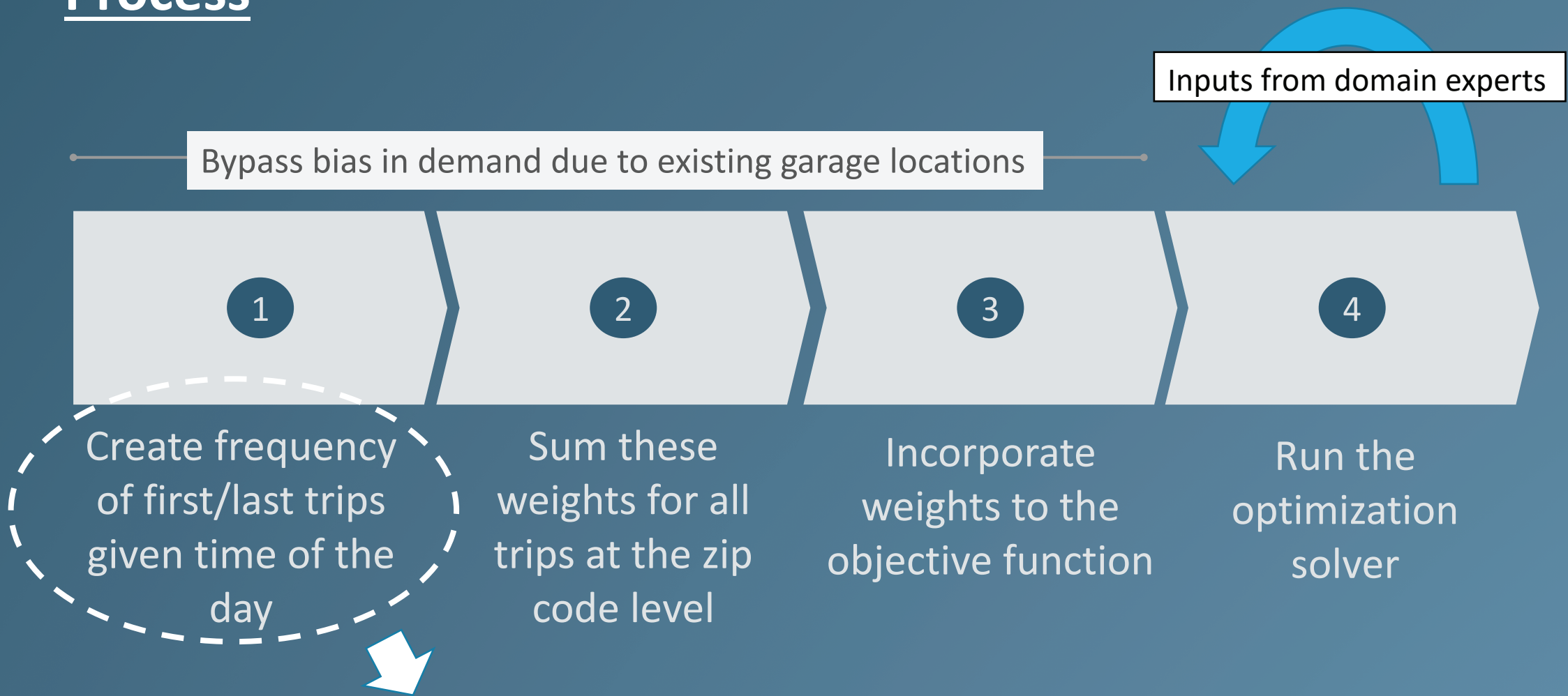
Data Generation
In order to create instant re-routing

DATA



GARAGE LOCATION PROBLEM

Process



Results

According to simulations using Julia Yan's routing software.

\$5.8M

Reduction of total costs

6.5%

Reduction of "dead-head"

Formulation

Objective
Minimize Operational Costs

Constraints

1. Satisfy every demand point
2. Given number of garages
3. 5 sizes of garages
4. Exclude downtown Boston zip codes
5. Certain locations are fixed

Decisions

1. Assign garages to a location
2. Assign demand to a garage



CANCELLATIONS PREDICTION

Features

Trip Features

Weather Features

Client Features

Models & Results

SELECTED MODEL	Model	Out of Sample AUC
	Neural Network	0.79
	Optimal Trees	0.70
	XGBoost	0.63
	CART	0.63
	Random Forest	0.60

Results



NEXT STEPS

- Relocate garages according to the results of the optimization problem
- Operationalize the cancellation prediction model
- Explore different policies regarding trips with high cancellation risk



Amal Rar



Mason Grimshaw



Diogo Lousa



Abhishek Rai



Dimitris Bertsimas



Julia Yan