VeoRide E-Scooter Transportation

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Outline of presentation

01. **Predictions**

Hypothesis of how VeoRide scooters help supplement campus transportation

02. **Methods**

The data sets and methods used to test hypothesis and conduct analysis

03. **Results**

Results from the data analysis

04. **Conclusion**

Summary of findings and recommendations for DOTS

Predictions

1. The majority of scooter rides occur on campus.

2. E-scooter riders avoid traveling in car or bus traffic.

3. E-scooters are also utilized for recreation.

Methods

Frequency Distributions

Spatial Distributions

Boundary Analysis

Google Maps API

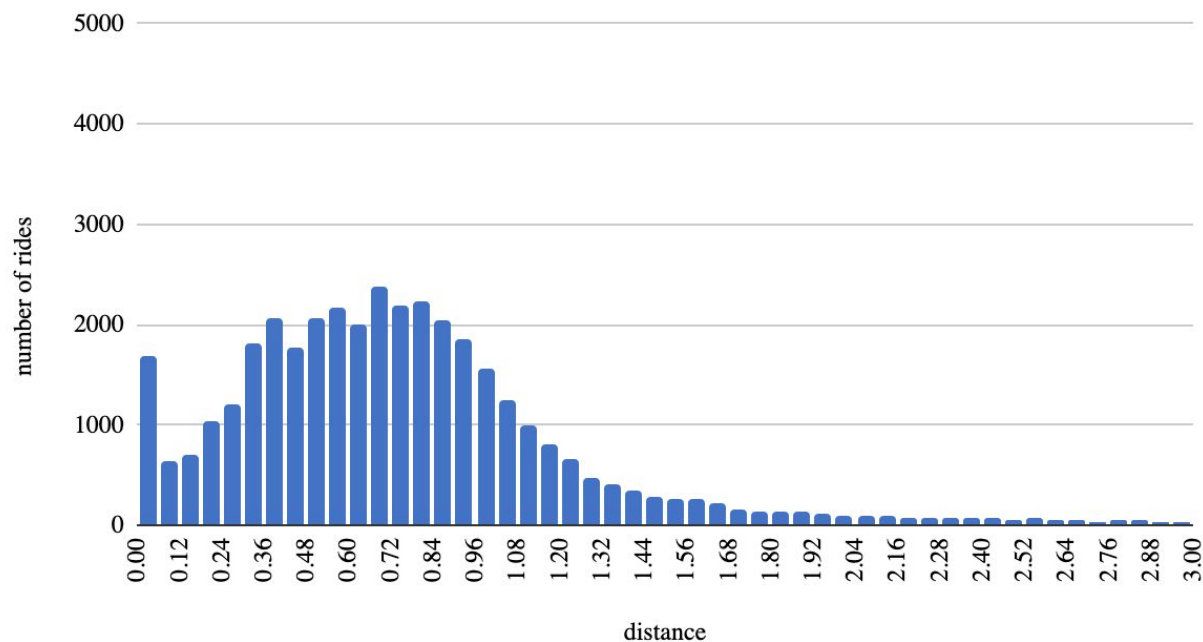**OpenStreetMap**

Python libraries

- We classified rides by start and end location
  - **Type A:** start and end *on* campus
  - **Type B:** start *on* and end *off* campus
  - **Type C:** start *off* and end *on* campus
  - **Type D:** start and end *off* campus

Most rides are under one mile
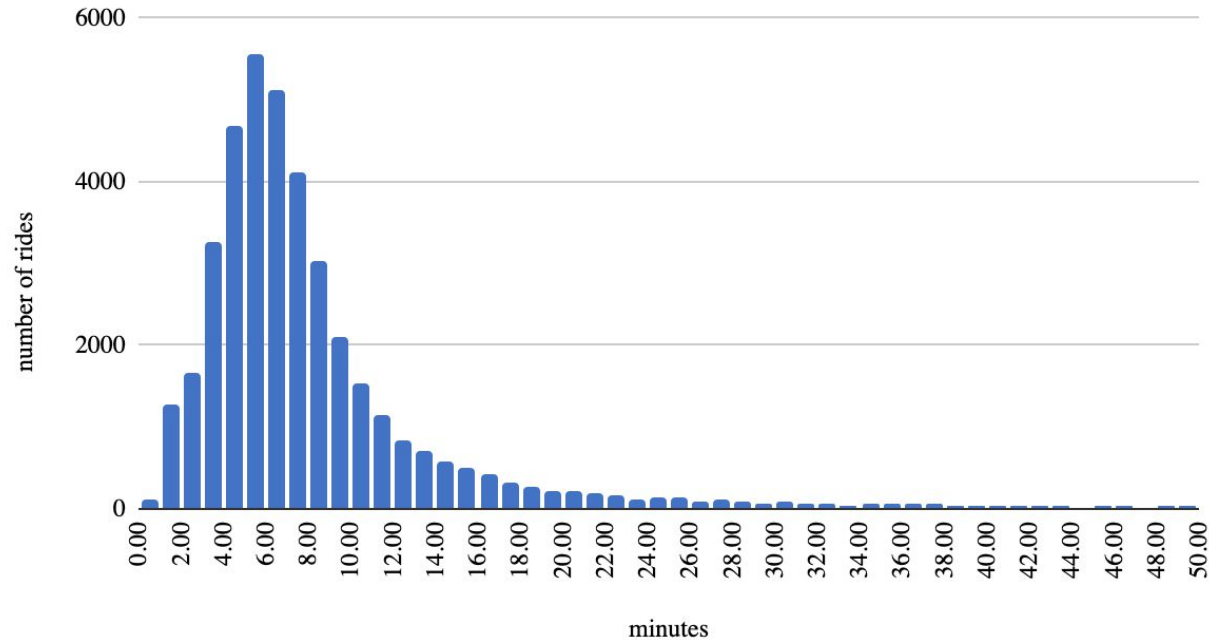
20% of rides are more than one mile

Distribution of ride distance

The most frequent duration is 5 minutes
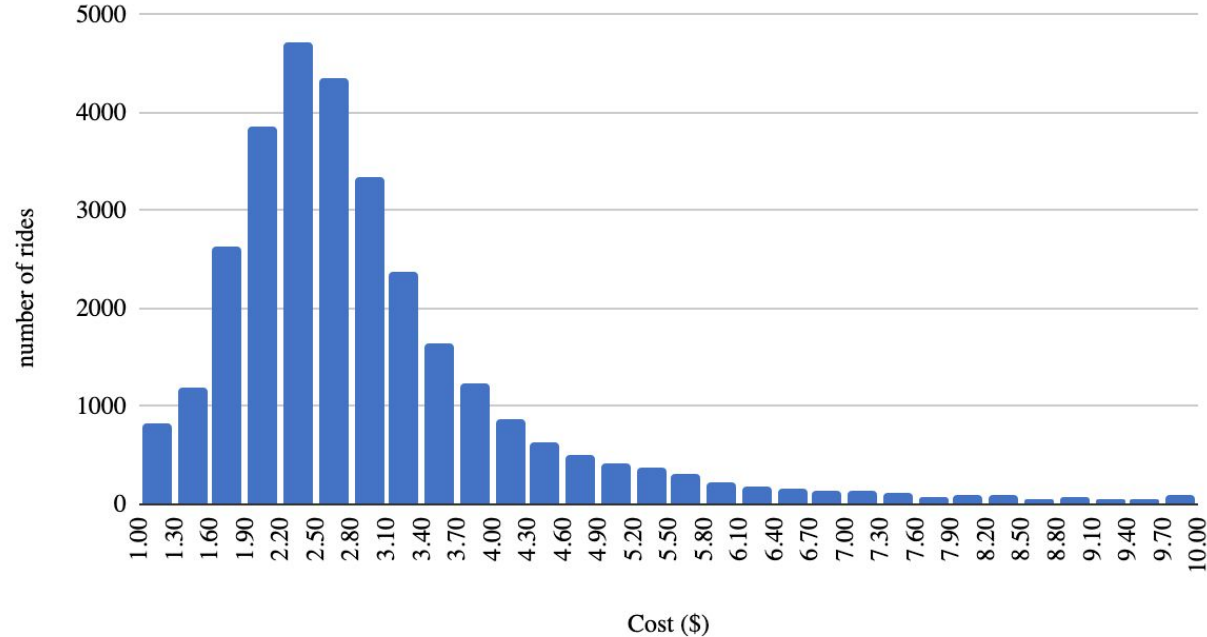
20% of rides are more than 10 minutes

Distribution of ride duration

Most rides cost under $5

Customers spent a total of $236,477 in two months

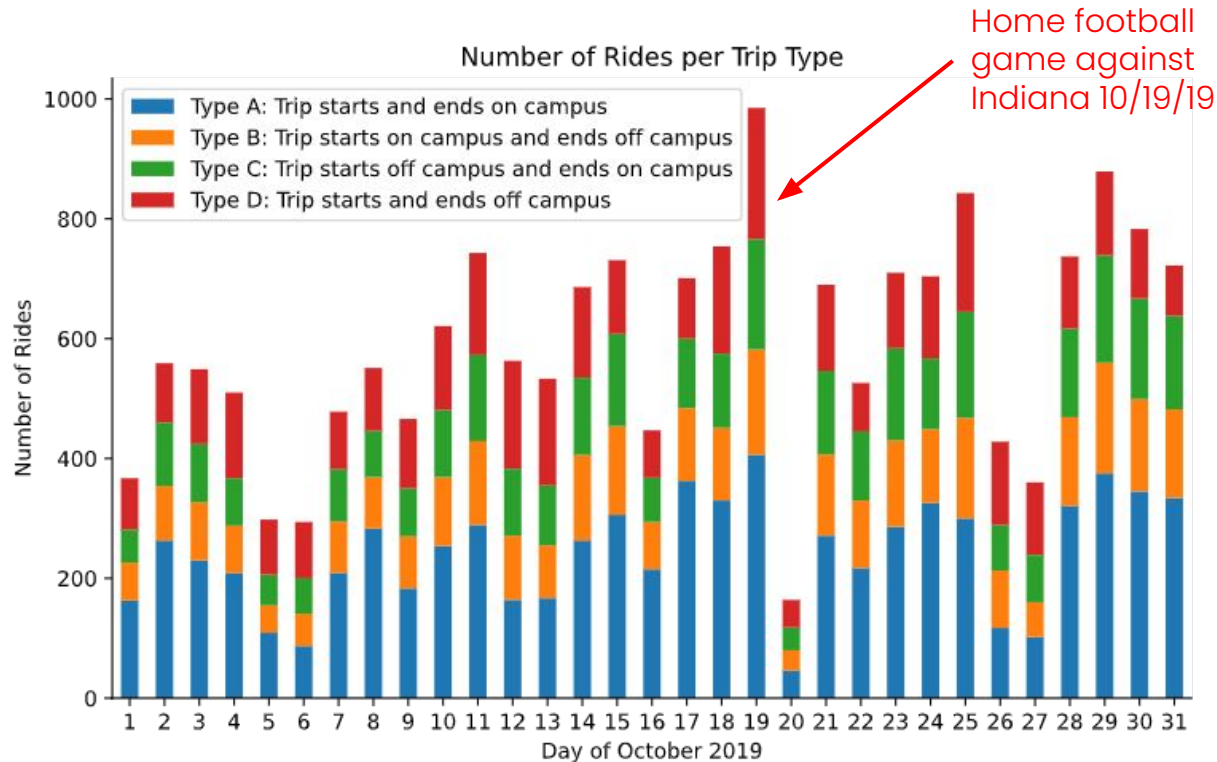## Distribution of ride charges

Campus, commercial, and residential boundaries

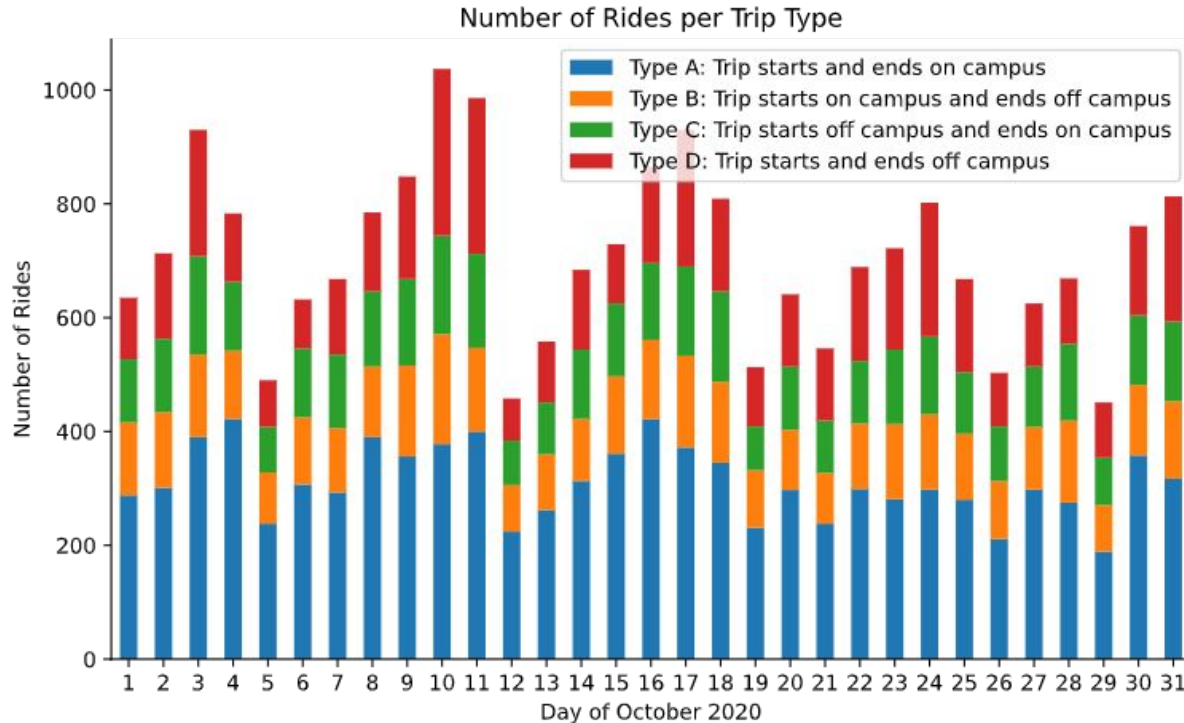Only 4% of rides violated the VeoRide boundary

Largest portion of rides start & end on campus

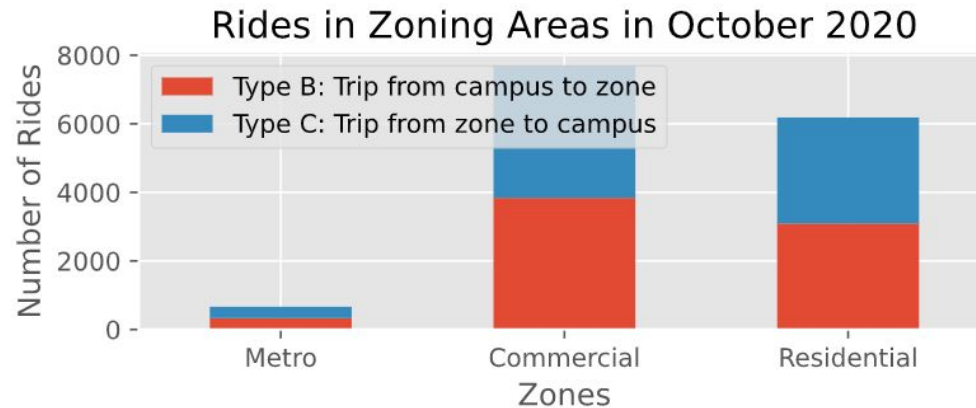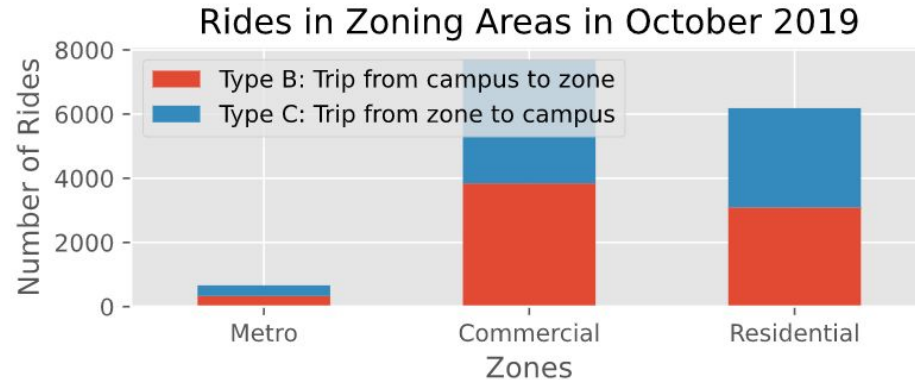Trend is different on weekends and weekdays

Home football game against Indiana 10/19/19

Number of Rides per Trip Type

- Type A: Trip starts and ends on campus
- Type B: Trip starts on campus and ends off campus
- Type C: Trip starts off campus and ends on campus
- Type D: Trip starts and ends off campus

October 2020 shows increased usage

Weekend rides were more prevalent than 2019

Number of Rides per Trip Type

Off-campus rides link to commercial and residential zones more than the Metro

Rides in Zoning Areas in October 2019

Type B: Trip from campus to zone
Type C: Trip from zone to campus

Rides in Zoning Areas in October 2020

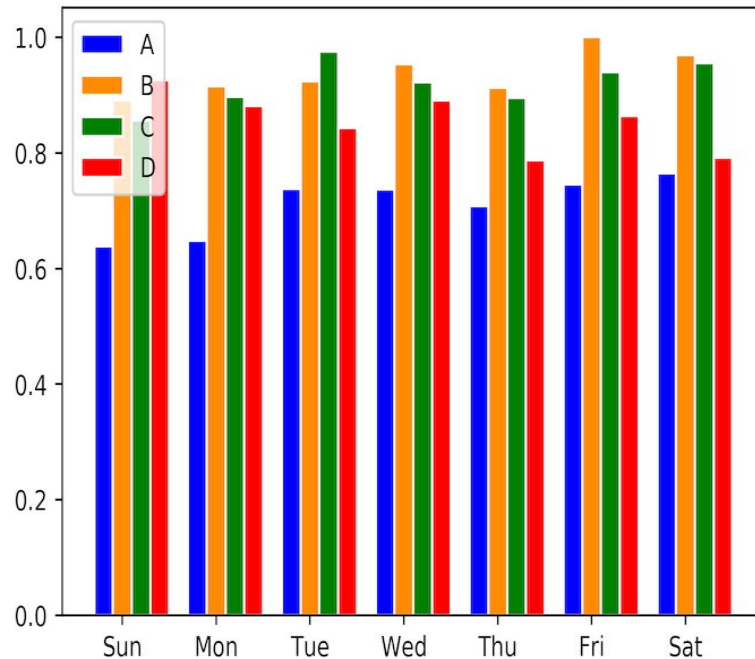Type B: Trip from campus to zone
Type C: Trip from zone to campus

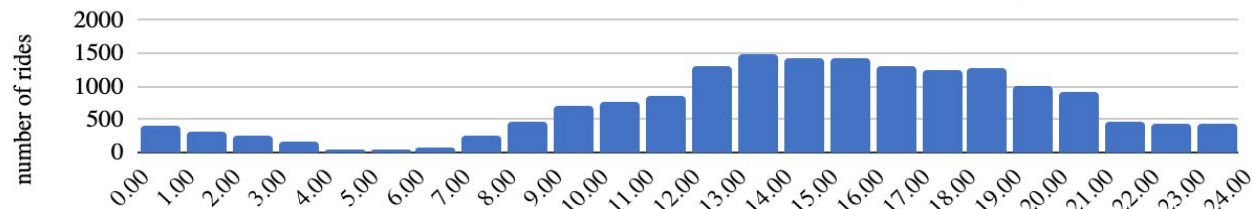# Average distance travelled was shorter for on-campus rides

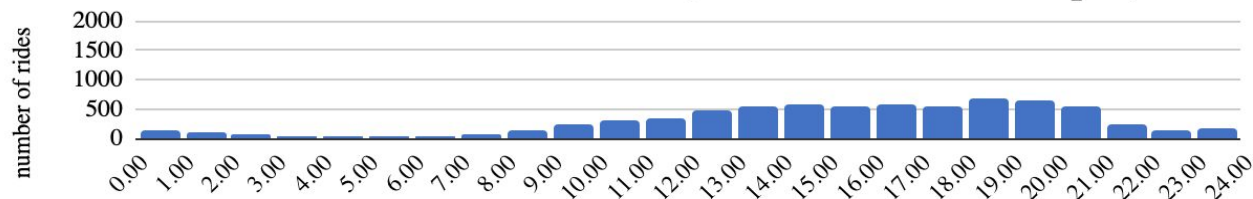Average distance covered by different groups in 2019
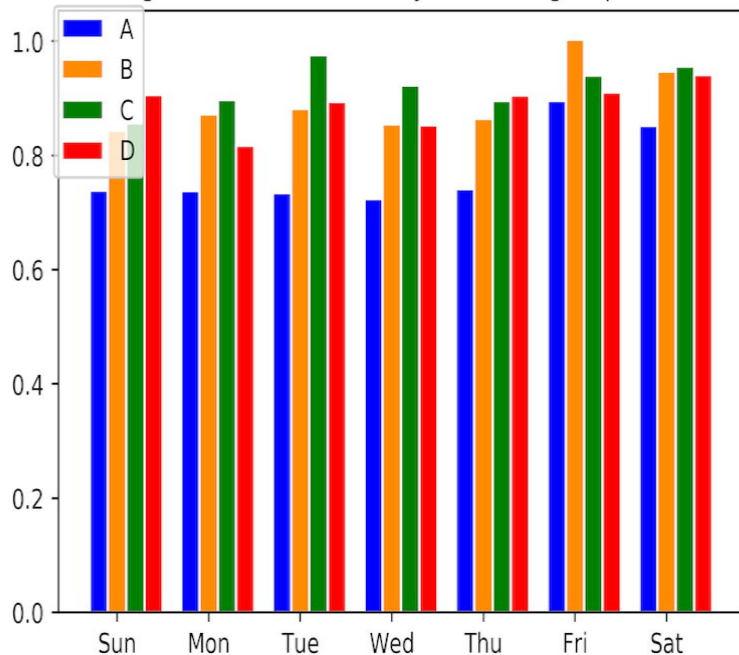
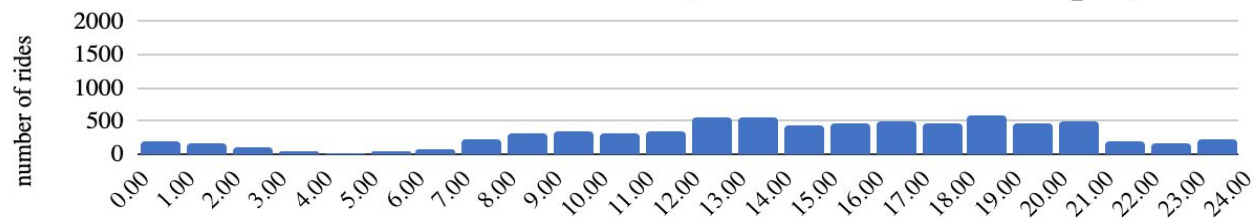Average distance covered by different groups in 2020

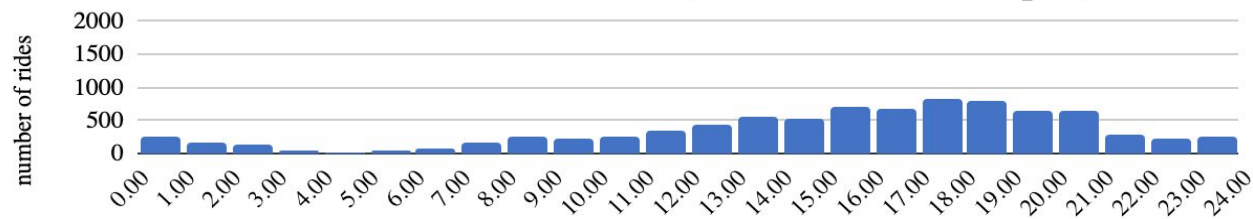Distribution of ride start times: Class A (start & end on campus)

Distribution of ride start times: Class B (start on & end off campus)

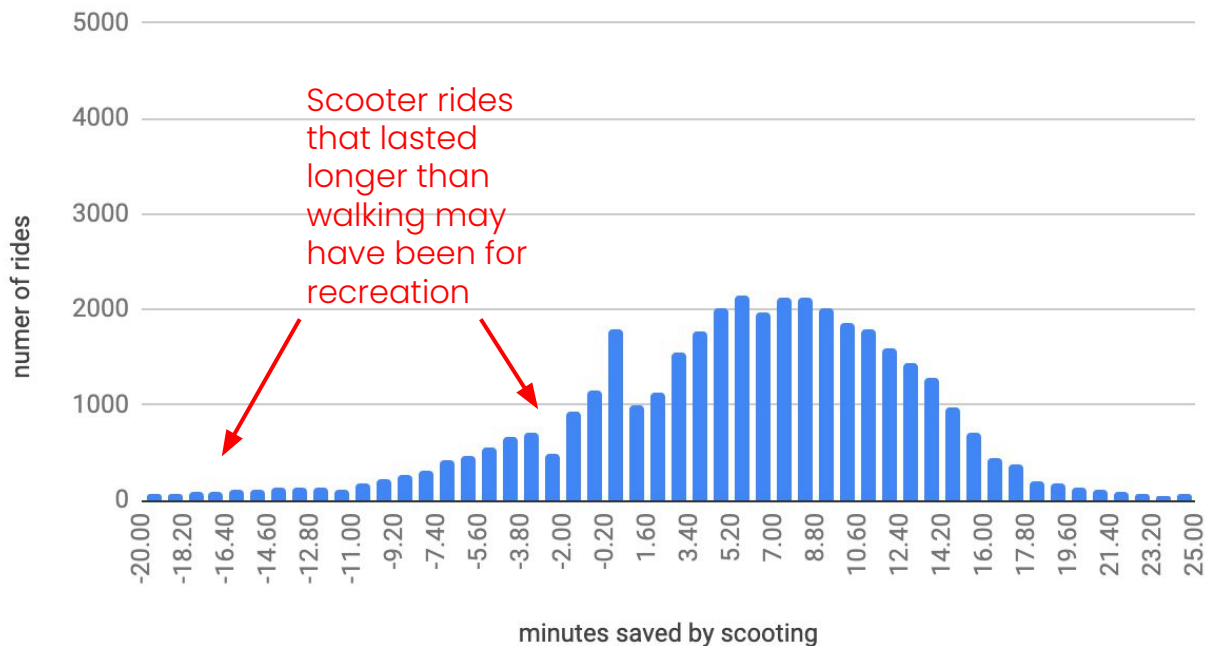Distribution of ride start times: Class C (start off & end on campus)

Distribution of ride start times: Class D (start & end off campus)

Scooting saved time compared to walking

We used the Google Maps API to compute walking times

Distribution of time saved by scooter vs. walking

Scooter rides that lasted longer than walking may have been for recreation

|	Travel time by bus (mins)	Travel time by walking (min)	**Travel time by e-scooter (mins)**
Regents Drive ↔ CP Metro	11	24	9
Stamp ↔ University View	15	15	6
Stamp ↔ University Club Apartments	15	18	8
Stamp ↔ The Varsity	16	12	4.5
Stamp ↔ Leonardtown CC	17	14	8
The Enclave ↔ Mazza Grandmarc	9	20	14

Scooter rides on and around the campus area
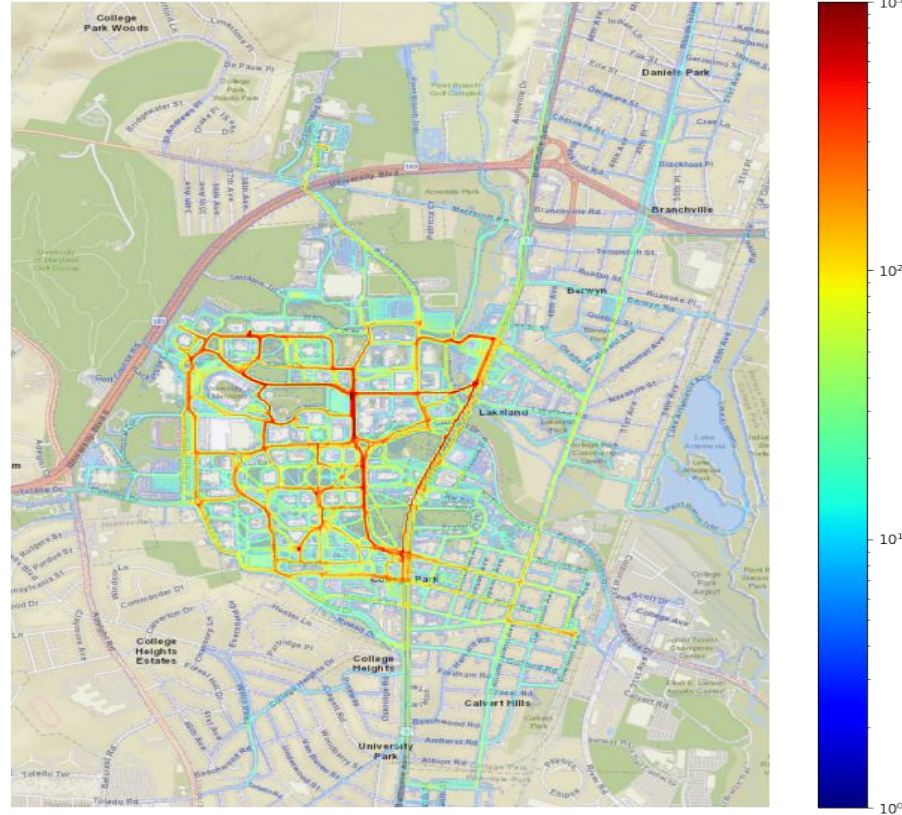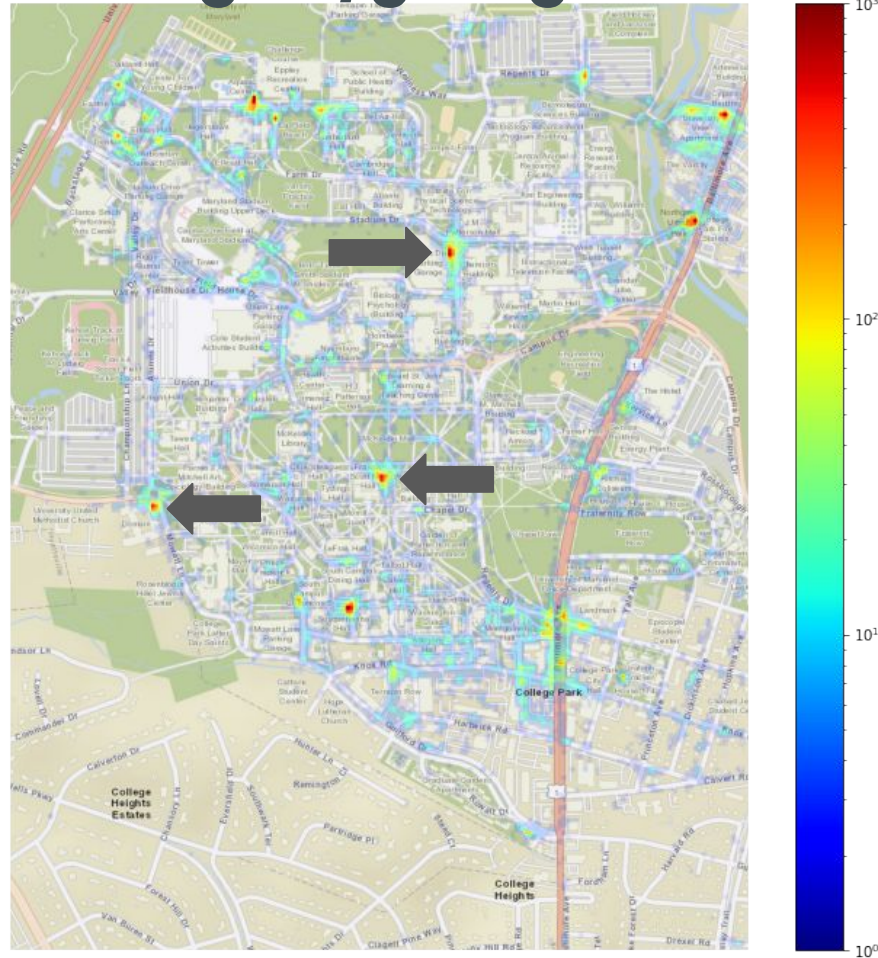
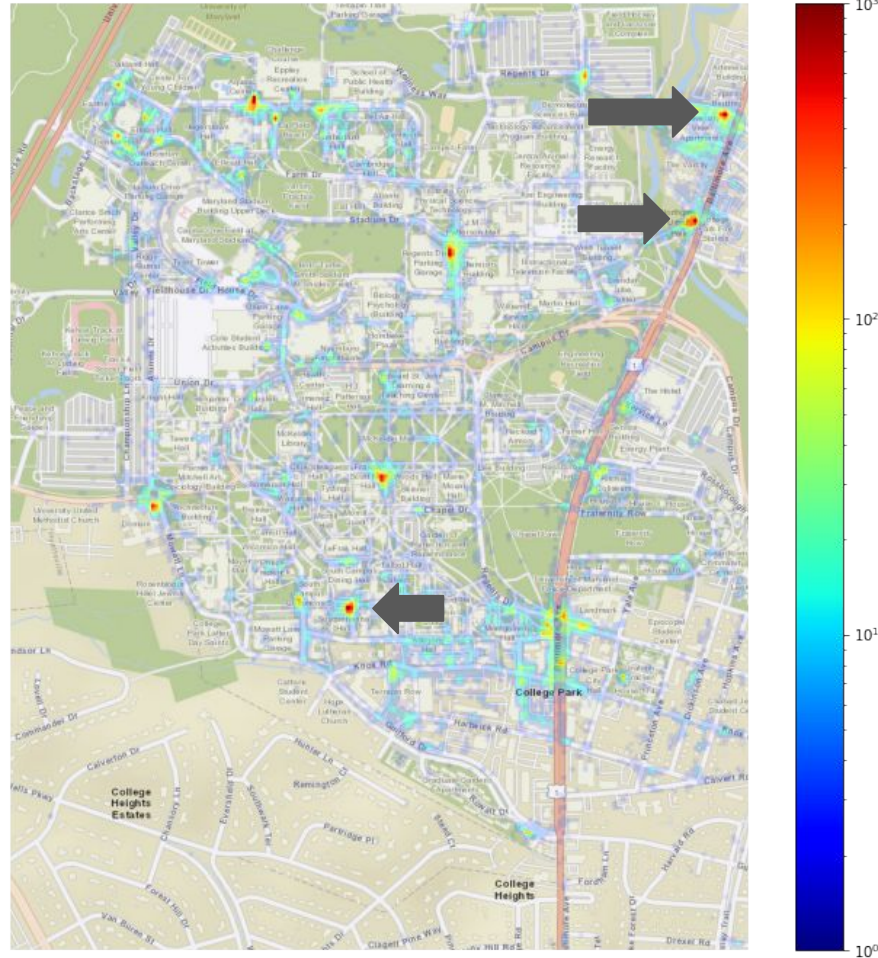# Most commonly used scooter paths in campus area
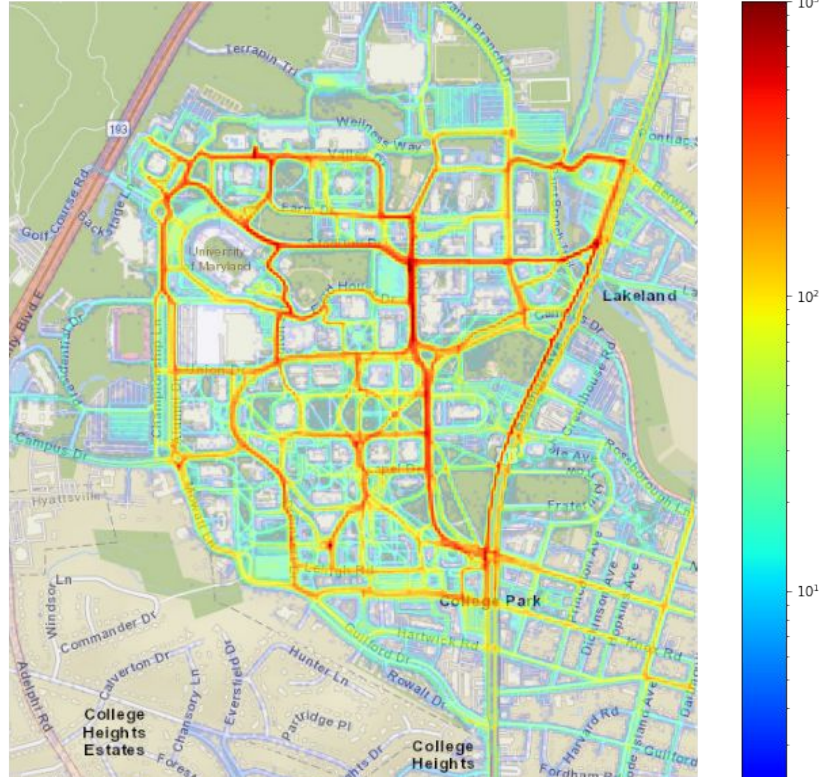
Most commonly used access points

Distribution of start & end locations
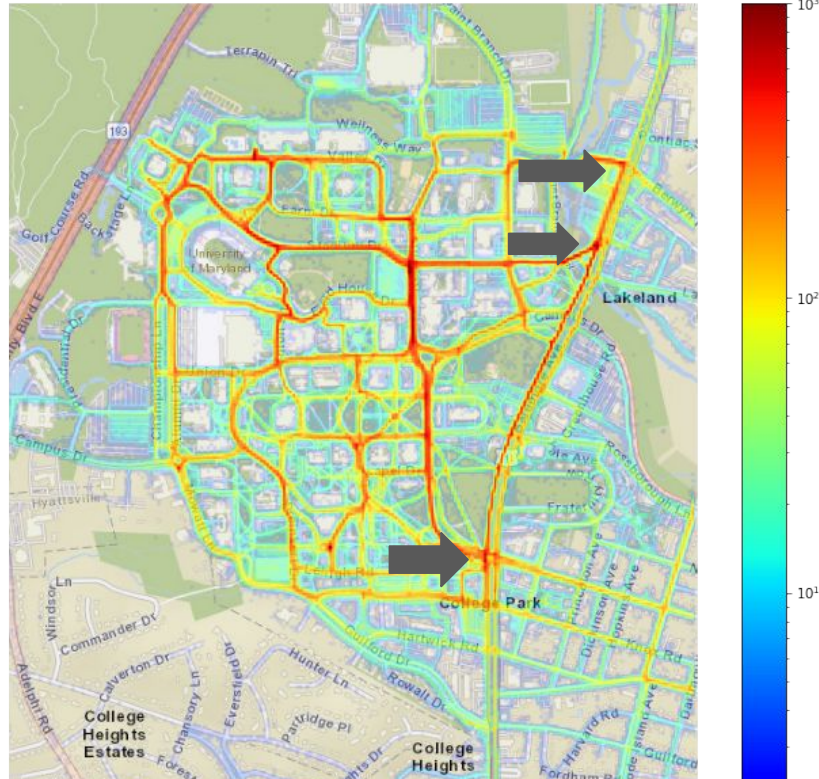
Parking lot/garage locations

Residential areas
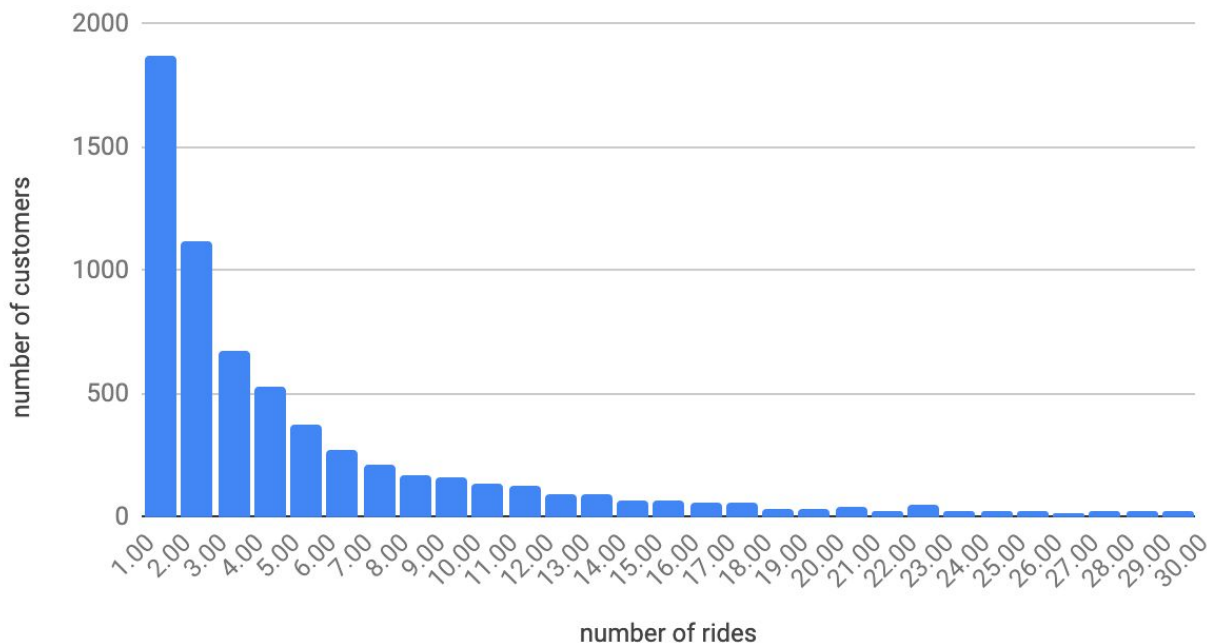
Dining halls, shops, and rec facilities

Most customers only rode a few times

There were 6,605 customers in two months.
150 averaged 0.5+ rides/day; 15 averaged 2+ rides/day

Distribution of number of rides per customer

Conclusion

Summary of findings

- The largest portion of rides started and ended on campus

- Some riders appeared to be using scooters for recreational purposes

- Scooting saves time compared to walking or taking the bus

Recommendations for DOTS

- Fine-grained density analysis would inform where to install bike lanes

- Reliable access to scooters is improved by larger parking hubs

- Challenges remain to increase adoption and usage

VeoRide E-Scooters: How to increase adoption of e-scooters in College Park

Why?

- E-scooters are efficient and non polluting
- Increased adoption would reduce congestion and the need for large parking lots
- Analysis showed that e-scooters actually saved time compared to bussing or walking

How?

- Fine-grained density analysis would inform where to install bike lanes
- Reliable access to scooters is improved by larger parking hubs
- Increase incentives for regular use
- Promotions to help students understand the benefits of e-scooters and safe routes.
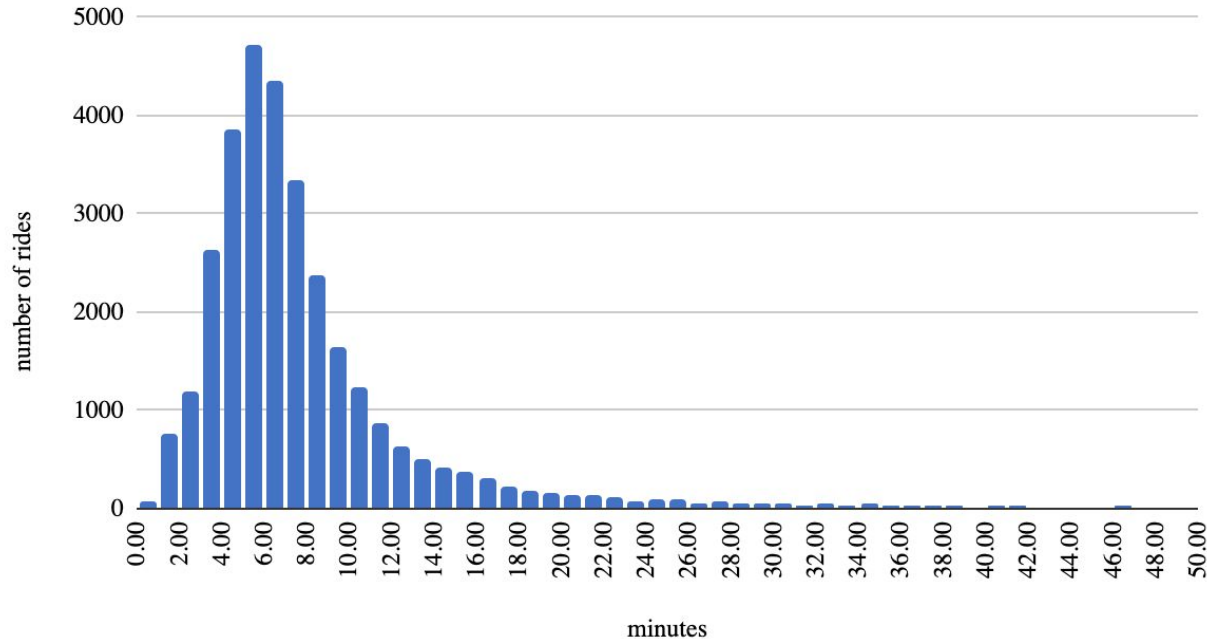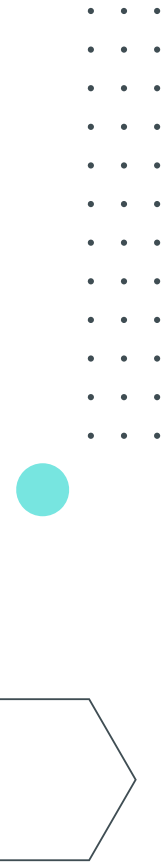
Other Datasets Used in Analysis

- DOTS Bus Schedule
- City of College Park | Complete Streets Policy and Implementation Plan
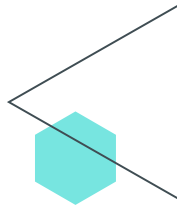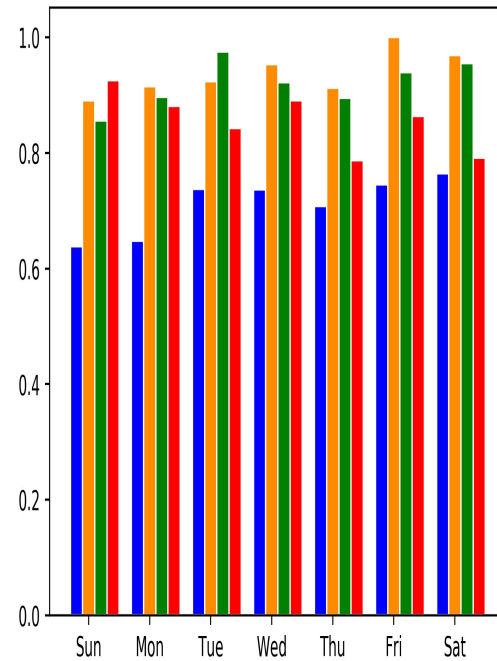- VeoRide Geofence and Restricted Parking Zones

Average speed is under 10 mph
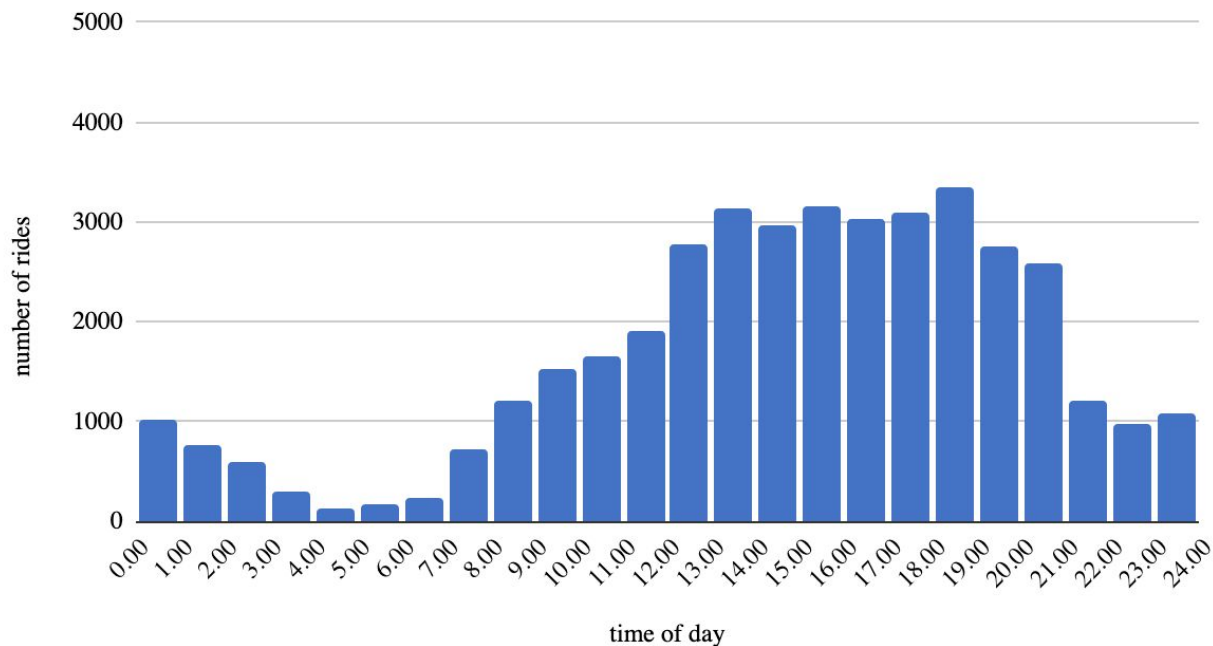
Distribution of ride duration

Average distance covered by different groups in 2020

The most rides are between 12:00–8:00 PM

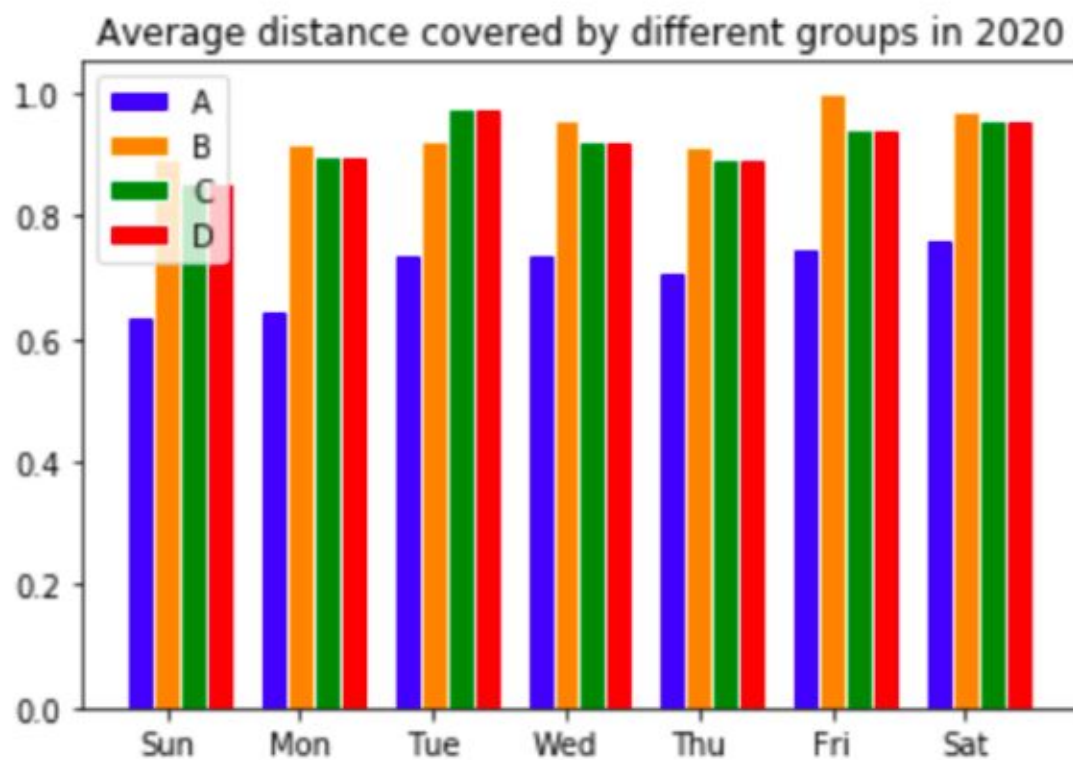## Substantial overnight usage not for commuting
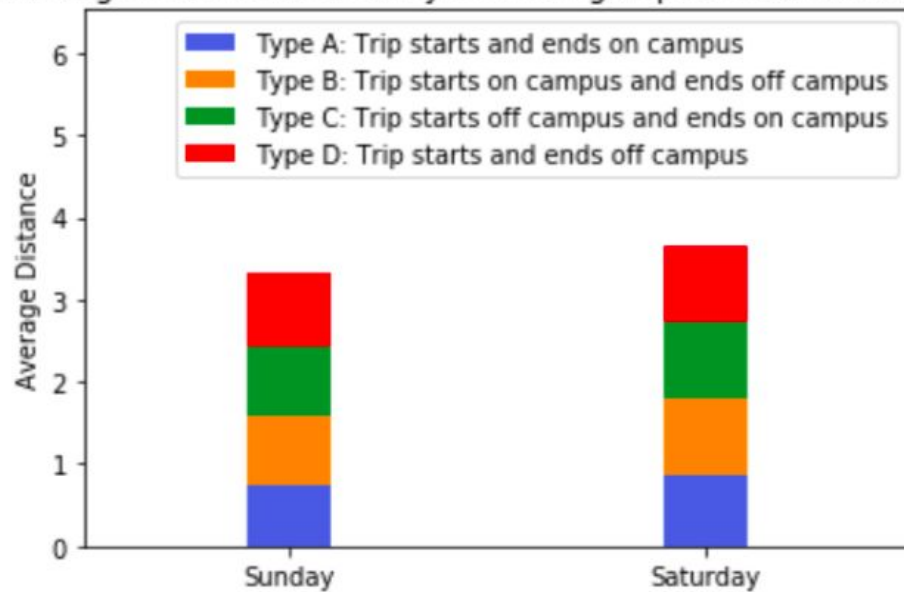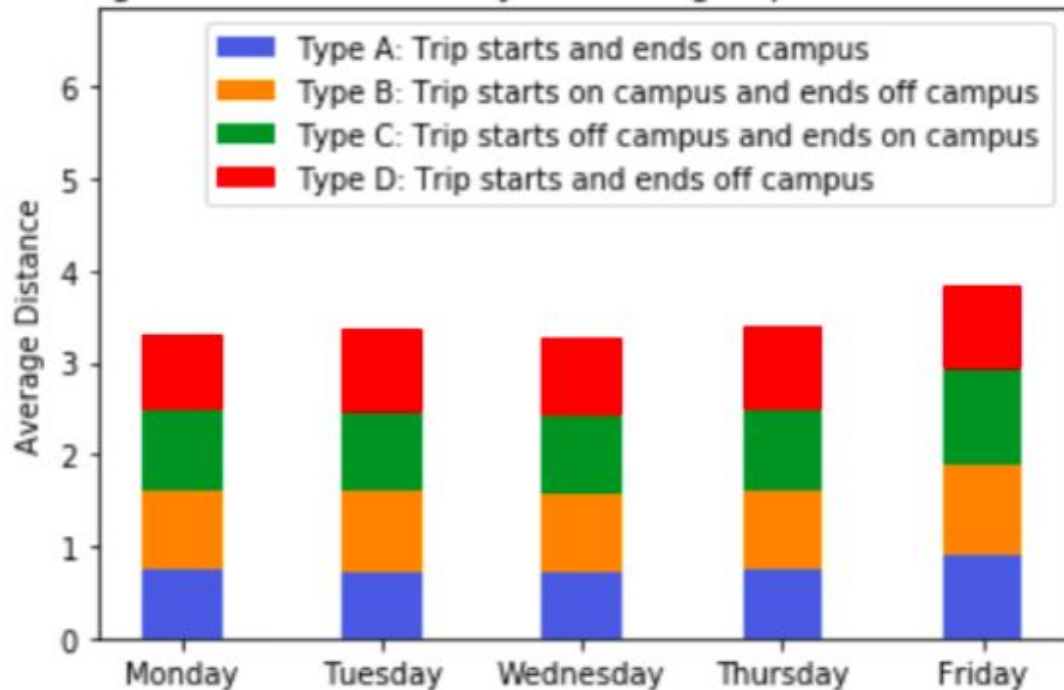

Distribution of ride start times

Conclusion

Summary of findings:

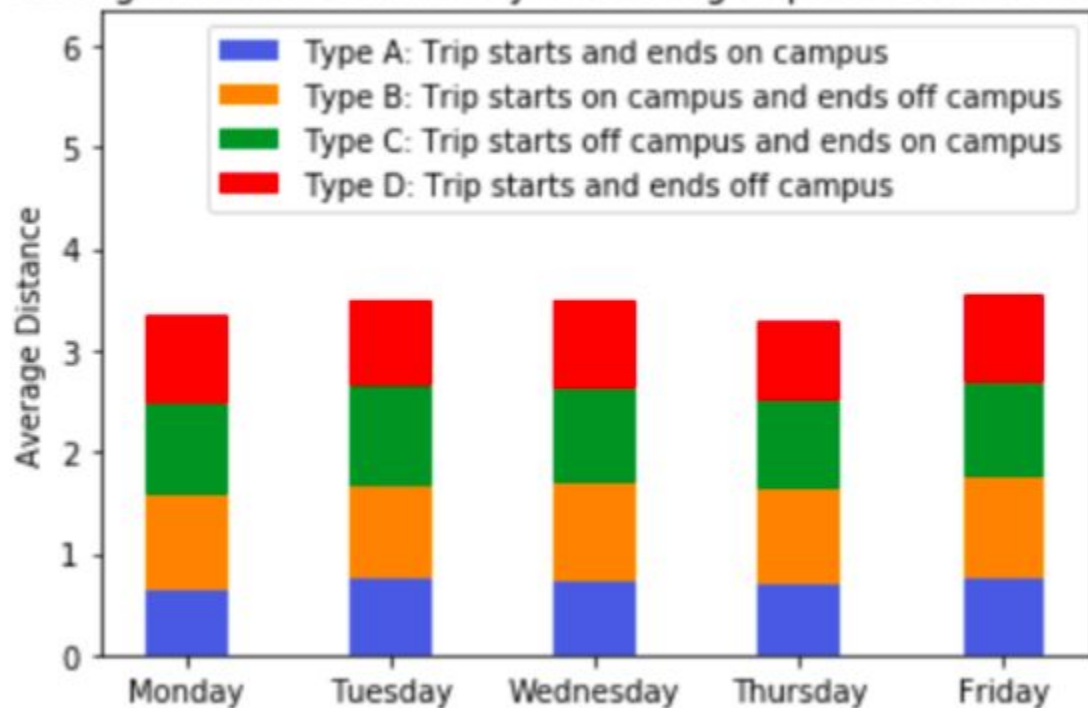Average distance covered by different groups in 2020

Average distance covered by different groups on 2019 Weekends

Average distance covered by different groups on 2019 Weekdays

Average distance covered by different groups on 2020 Weekdays

Average distance covered by different groups on 2020 Weekends