



UMD Data Challenge 2020

DC20053



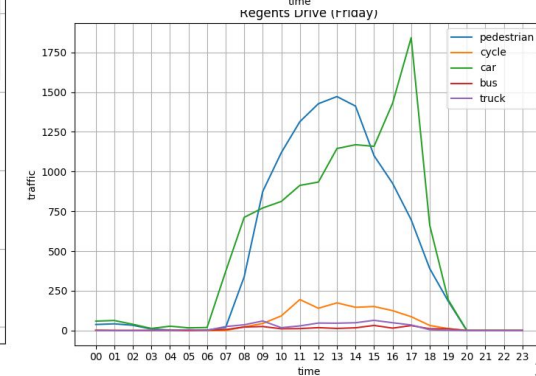
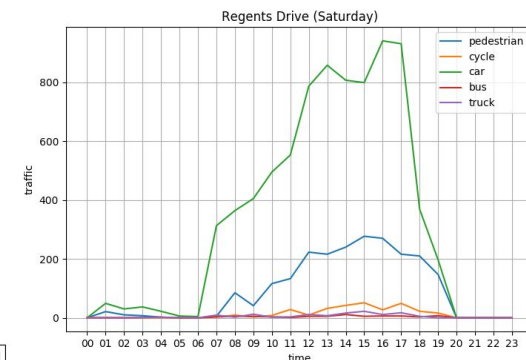
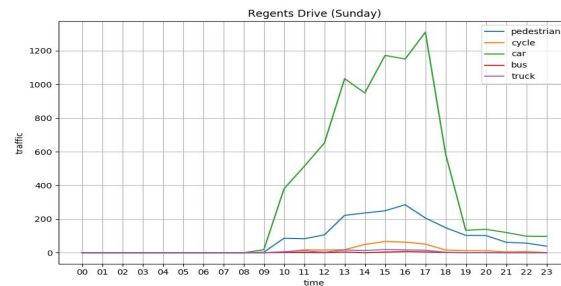
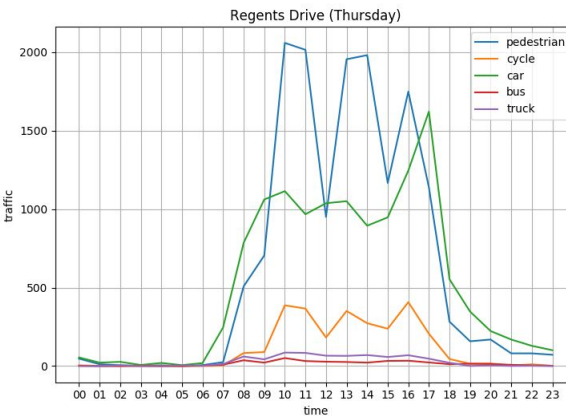
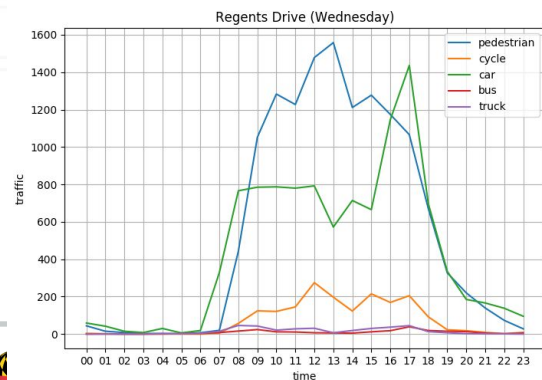
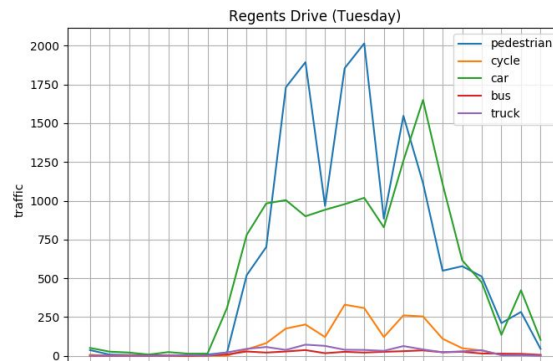
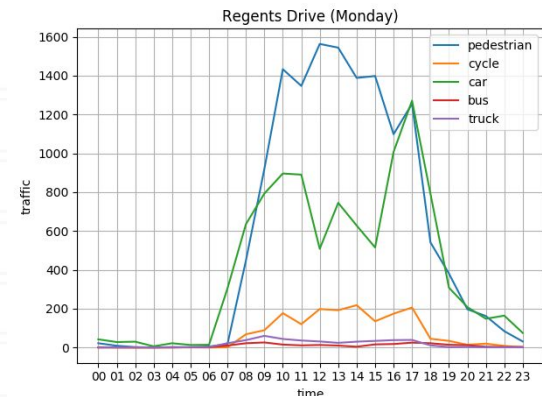
UNIVERSITY OF
MARYLAND

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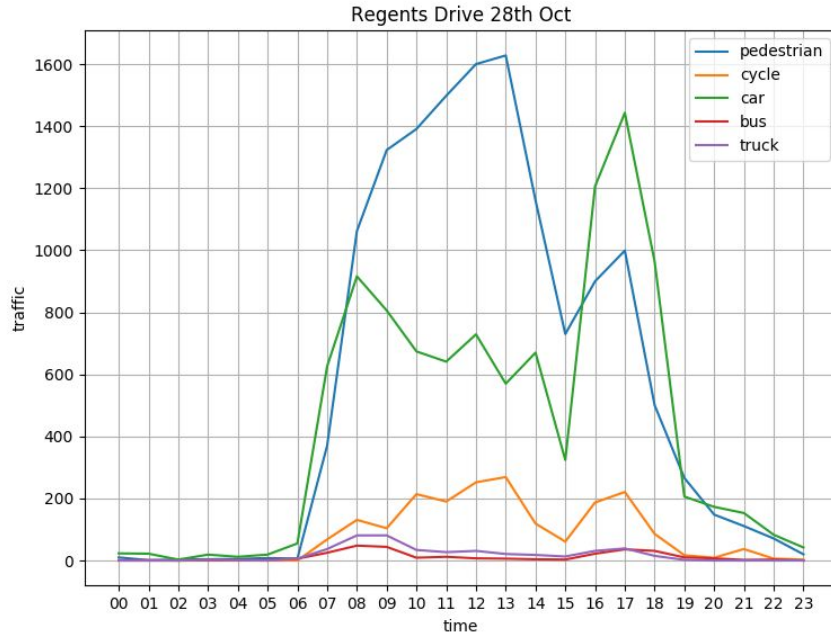
Introduction

- **UMD DOTS DATASET**
- Visualization
- Predictive modeling
- Suggestions
 - Social
 - Economic
 - Environmental

Weekly Analysis

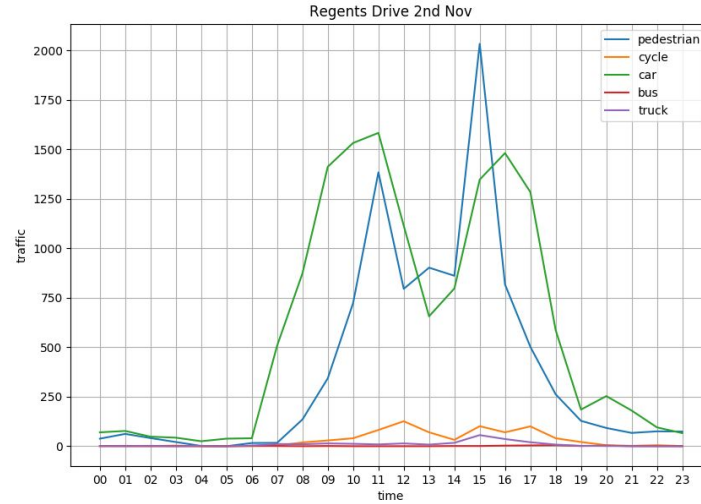


Normal Day

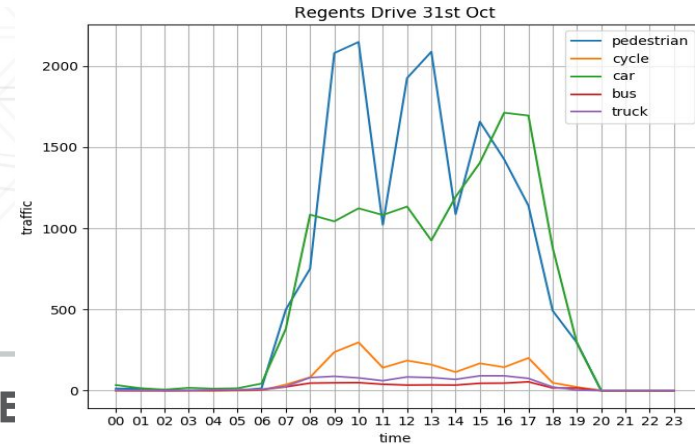


Monday

Event Day

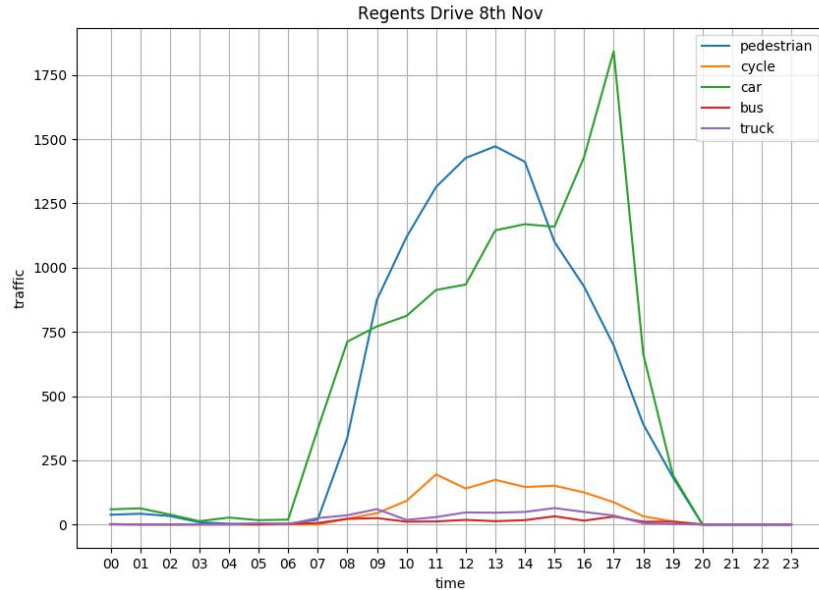


Sunday



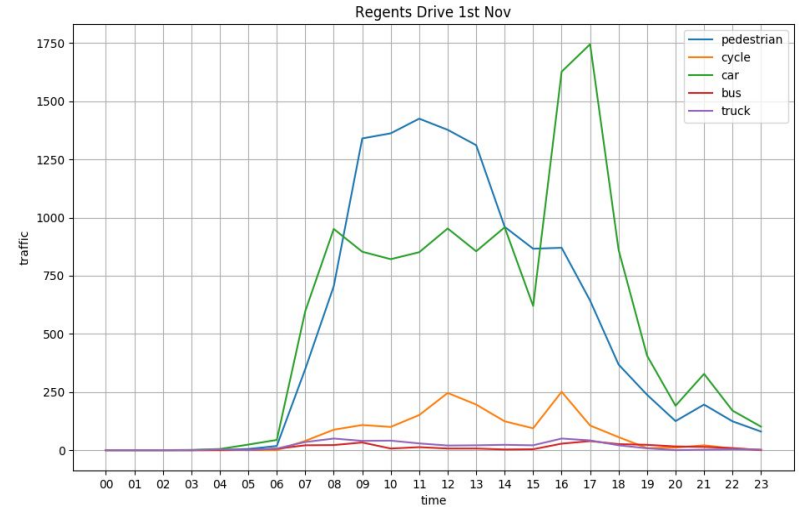
Thursday

Bad Weather



Friday

Good Weather



Friday

Solutions

App

- Personalized traffic app based on location to inform students about traffic
- Traffic data about favourite events

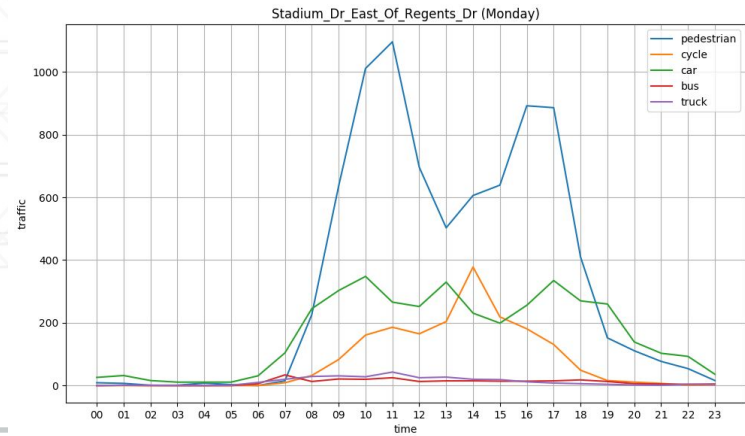
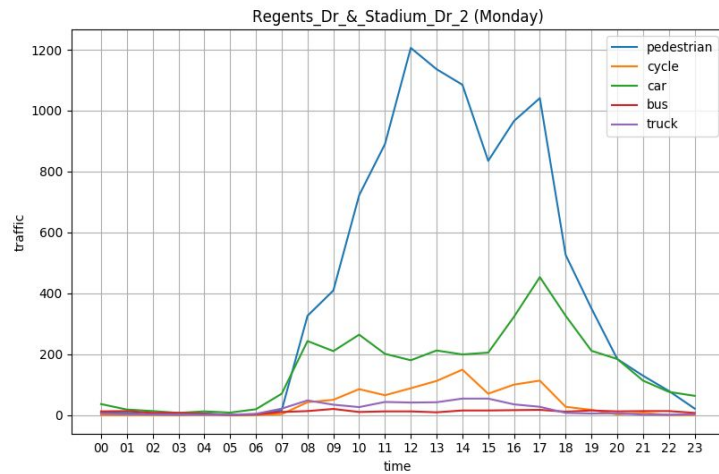
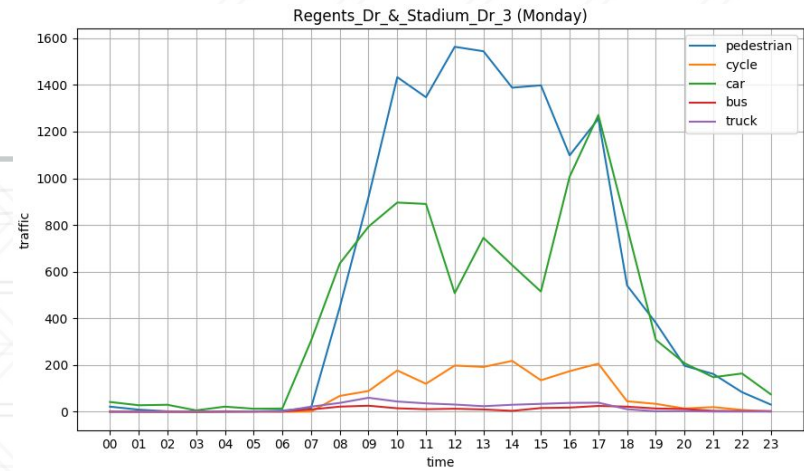
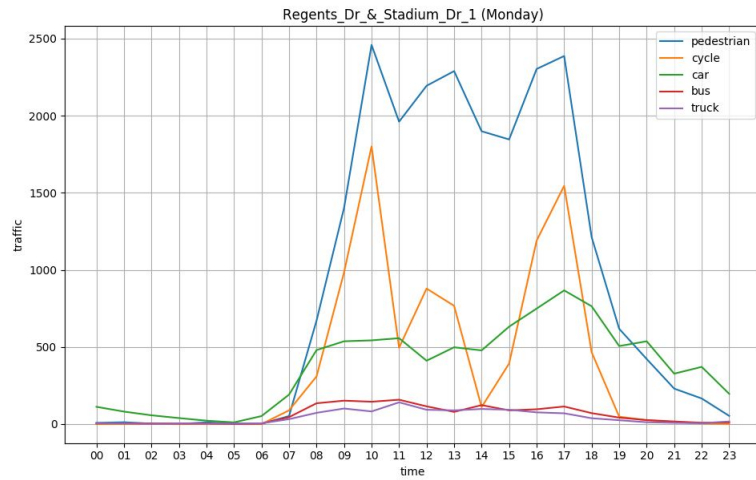
Economic Impact

Improve data collection

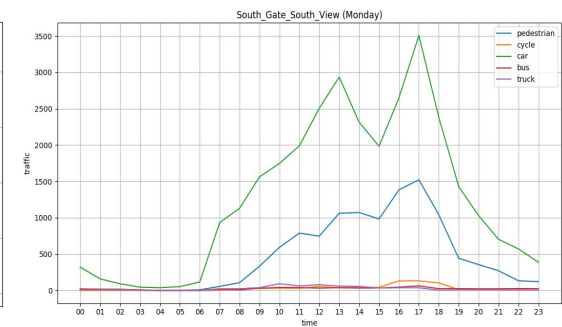
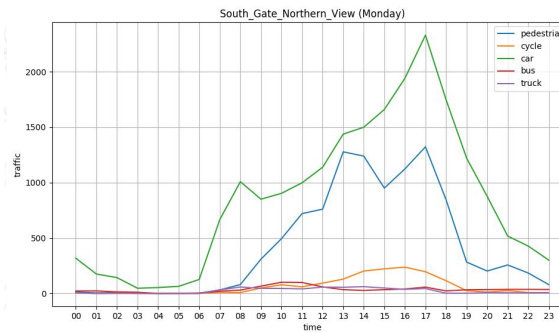
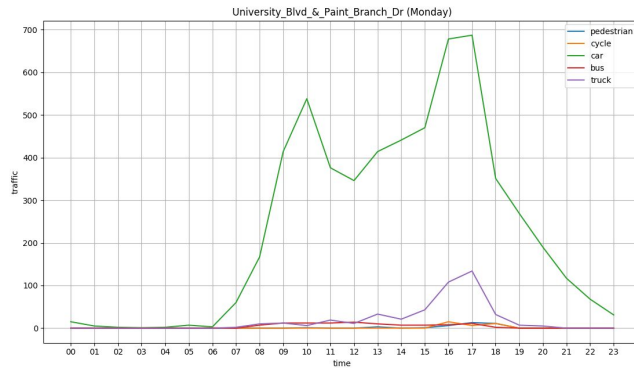
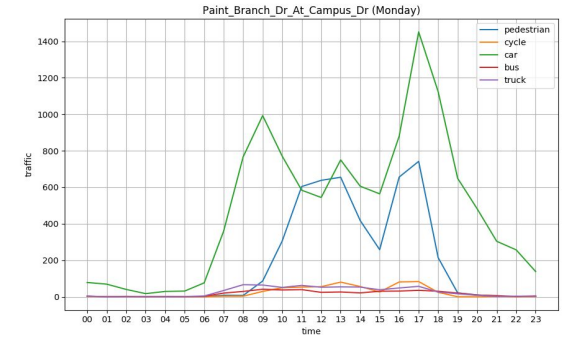
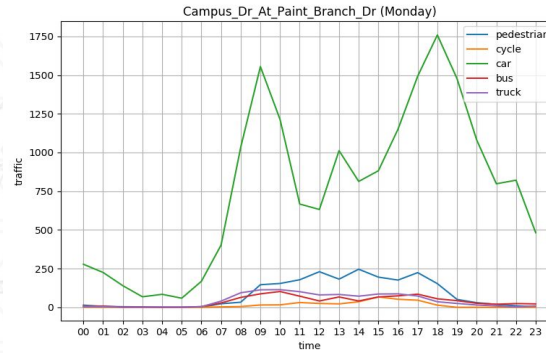
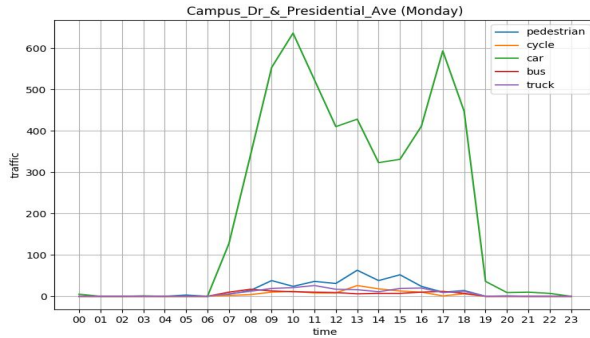
- Cost - Reduced sensors means less cost

Sensor map

https://drive.google.com/open?id=11qw2Vt2FboLJVEOfOXErPogi5ez_T6uh&usp=sharing



Location Analysis



Social Impact

- Health - Student safety during late hours in less crowded areas
- Education - Monitor student activity in library
- Participation - Have students report traffic data

Predictive Models

Neural Network:

Accuracy = 0.72

Logistic Regression:

Accuracy = 0.73

Tomorrow:

bad weather, weekday, has
special event, during rush
hour

Forecast Result:

Heavy traffic!

Environmental Impact



Bring in more shared bikes!

Capital Bikeshare: Washington, D.C

Citi Bike: New York City

Hubway: Boston

Environmental Impact

A separate lane for cyclists



Conclusion

- **Social impact**
 - Inform students of “dangerous” times to walk alone
 - Monitor real time traffic to encourage better time management
- **Economic impact**
 - Design the locations and directions of sensors
- **Environmental impact**
 - Cooperation with bike-share companies
 - Allow people to ride bikes in a separate lane

Contact Information

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Thank You