Pedestrian Tracking in Druid Hill Park

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Parks Funding in Baltimore City

A lack of funding driven by a lack of data

How many people are using the park? When?
A Computer Vision Solution

Real time tracking with live cameras

Pedestrians, bikes, cars
What We Have Done So Far:

- Tried multiple algorithms for isolating and detecting pedestrians
- Installed a camera giving us a continuous live feed of the entrance to Druid Hill Park
Difference of Frames

- Only looking at sections (pixels) of the frame that have changed greatly
Tensorflow Pedestrian Detection

- Able to detect people from far away
- Finds anything else we want, including cars
- Not perfect, but consistent enough for tracking
Challenges Along the Way

Detection:
- Car detection, small pedestrian detection
- Imutils → TensorFlow

Video Feed:
- Blink XT vs. Google Nest
Challenges Along the Way

Tracking:

- Initial frame-by-frame analysis
- Lack of knowledge about field
- Looking into tracking algorithms after meeting with Austin
Final Product Goals

1. Improvement on detection algorithm via background subtraction techniques
2. Implementation of efficient and reliable tracking algorithm
UI Features

- UI design for data analysis display
- Python GUI generated from executable

Video analysis (hidden)
Next Steps

**ASAP:** Installation of more cameras on other entrances of Druid Hill Park for diverse data

**Week 1-2:** Implementation of a tracking algorithm that counts the number of people entering and exiting over multiple frames

**Week 3-4:** Testing of algorithm via data analysis

**Week 5-6:** Develop Python GUI