

# Geographically Aware Knowledge Mining on Mobile Data

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UCI

2016-5-15

# Introduction

Can we reveal interesting and significant stories between mobile usage, time period, districts so on?

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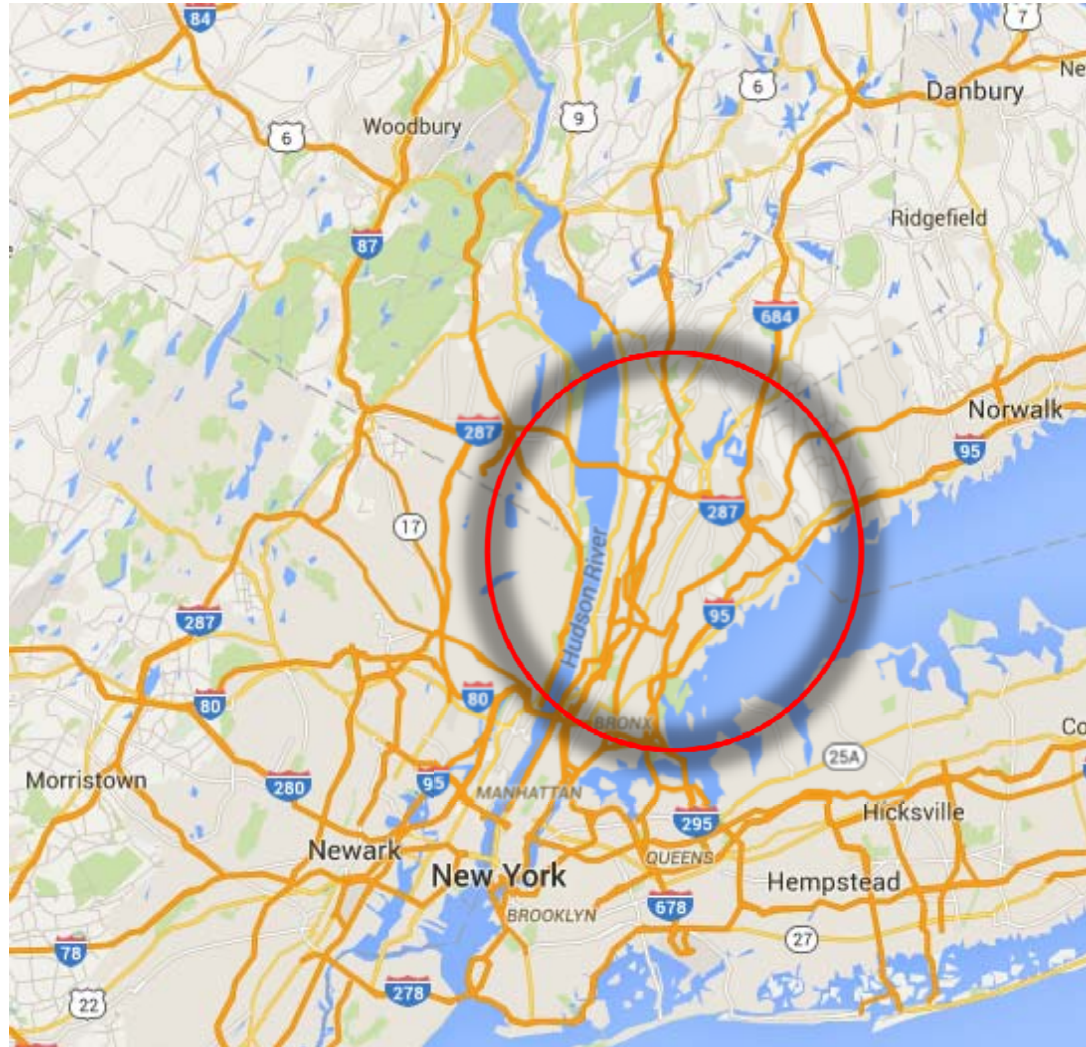
Can we reveal interesting and significant stories between mobile usage, time period, districts so on?

Of course!

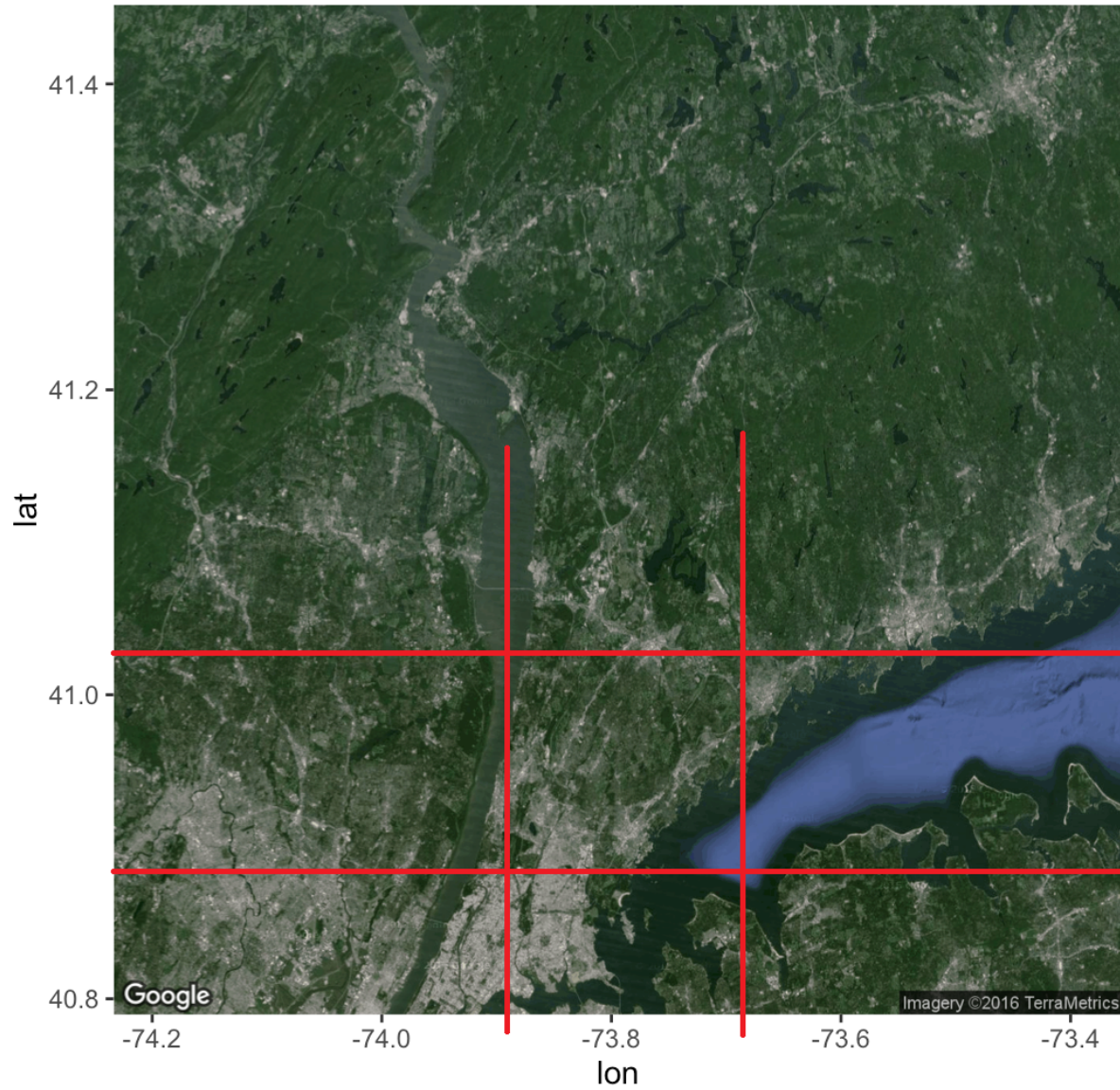
# Outline

1. where we focus
2. visualize through heat maps how the mobile phone usage varied w.r.t the geographic information and time period spanning three months;
3. visualize how the usage of mobile applications distribute geographically at the app category level;
4. new directions to explore as conclusion

# Where

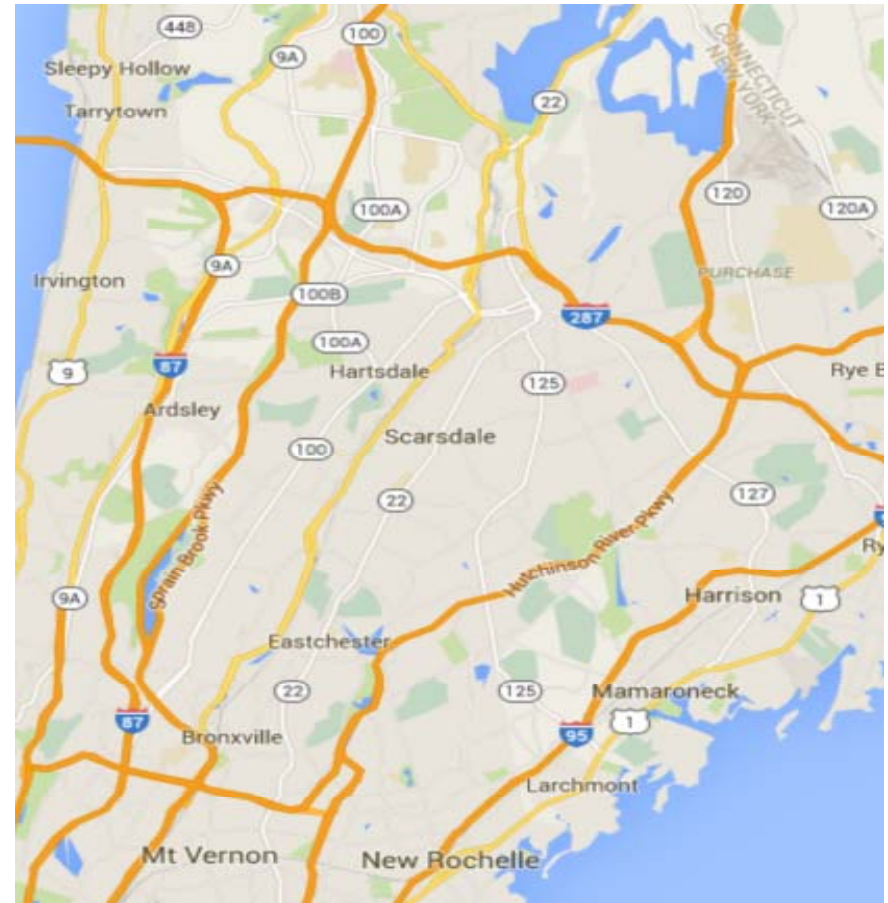
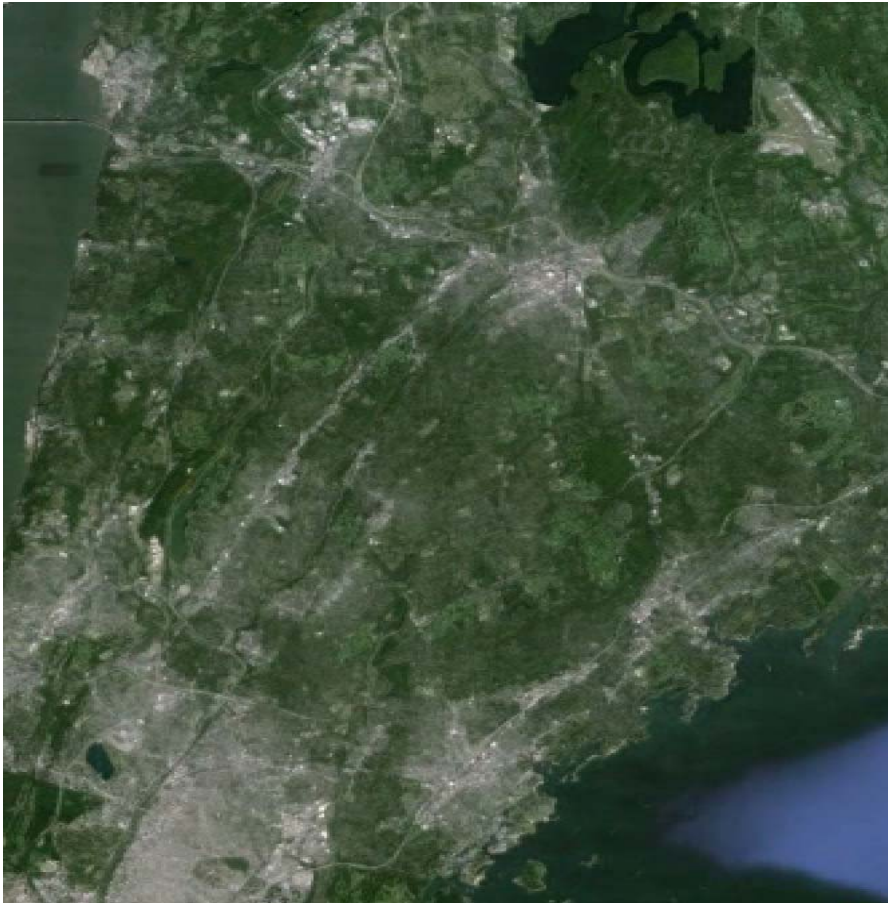


# Where



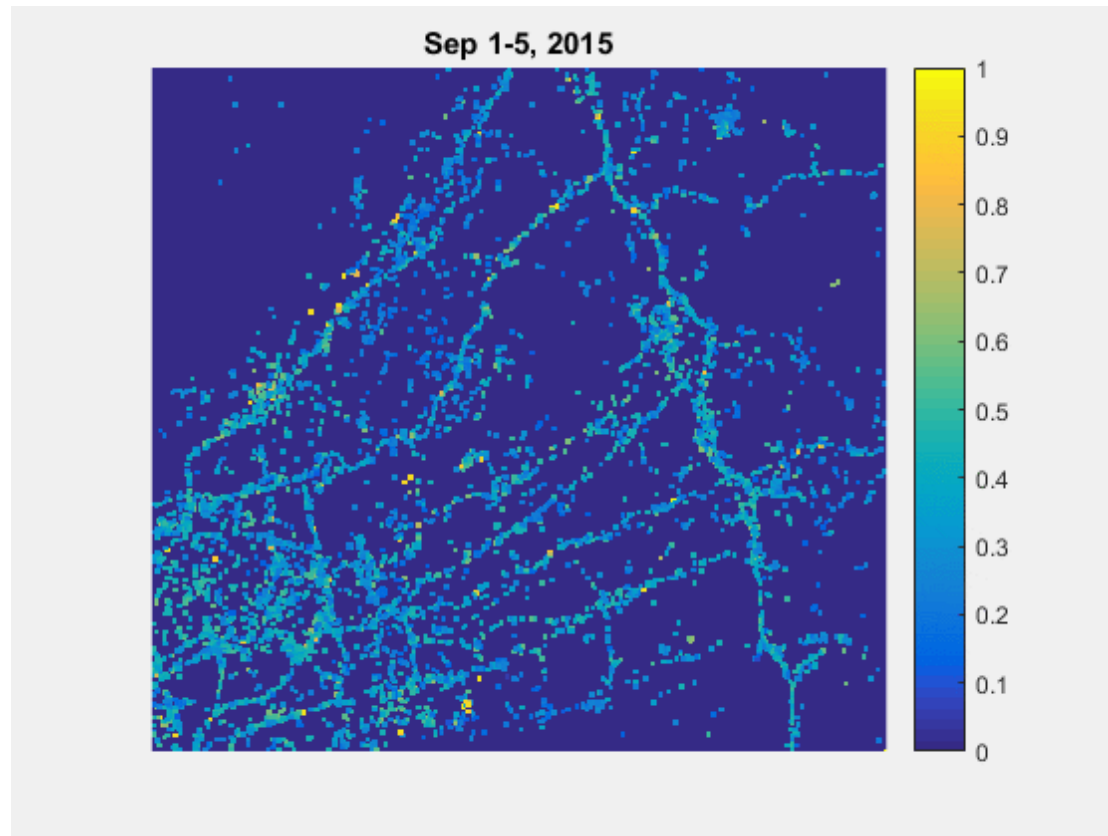
# Where

latitude 40.8756 ~ 41.0985  
longitude -73.8933 ~ -73.6859



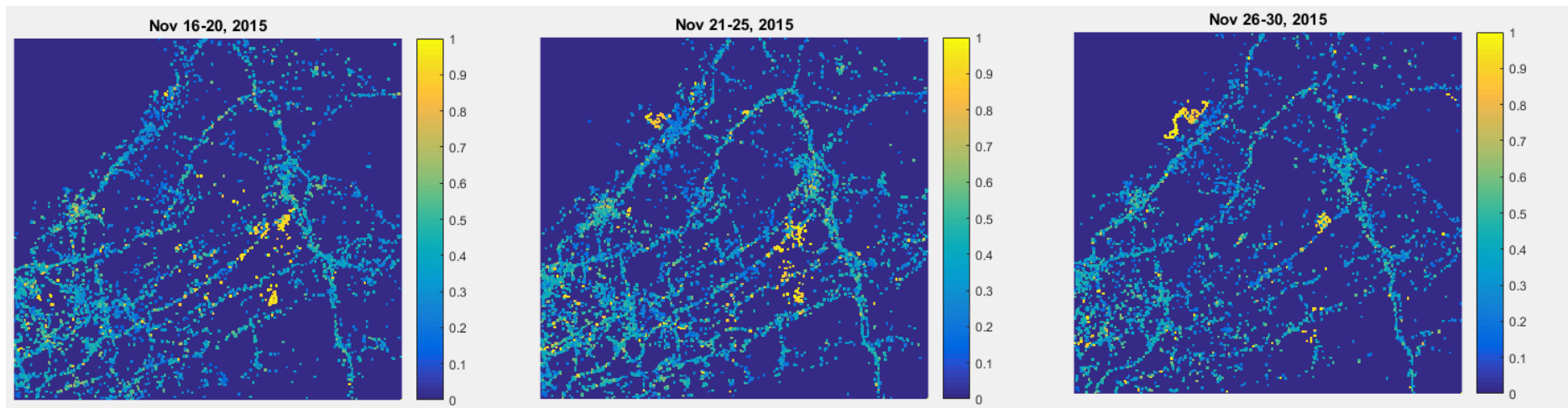
# Mobile phone usage

September 1 ~ November 30, 2015



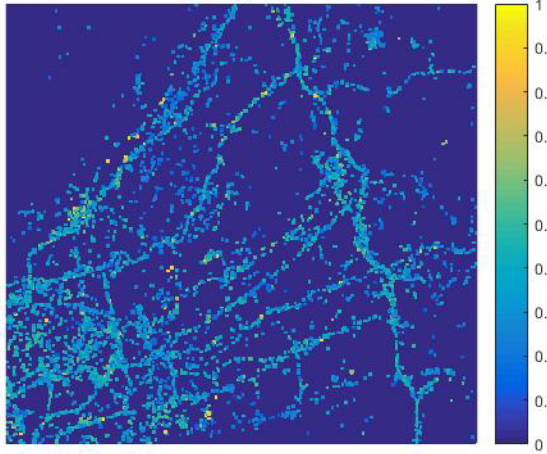


# Wait!

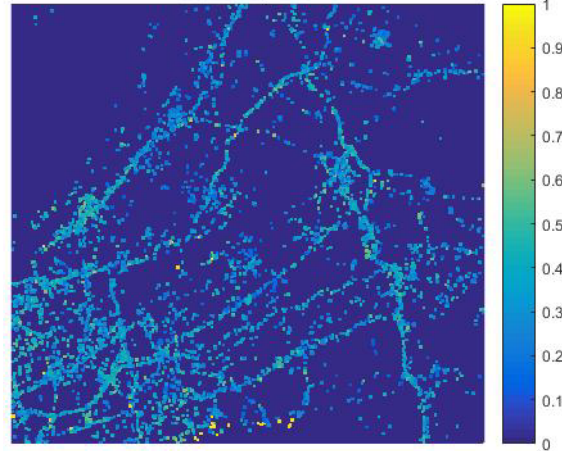


hmm...

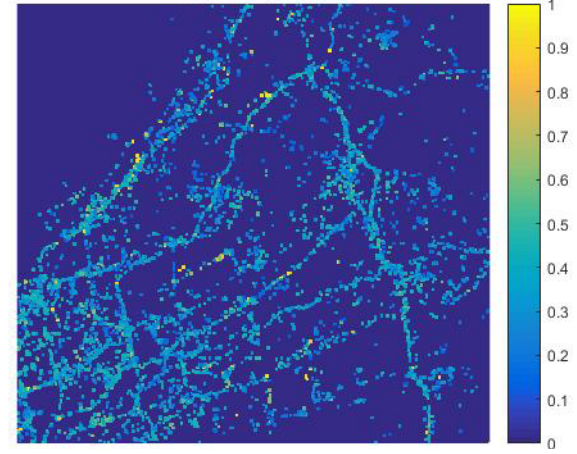
Sep 1-5, 2015



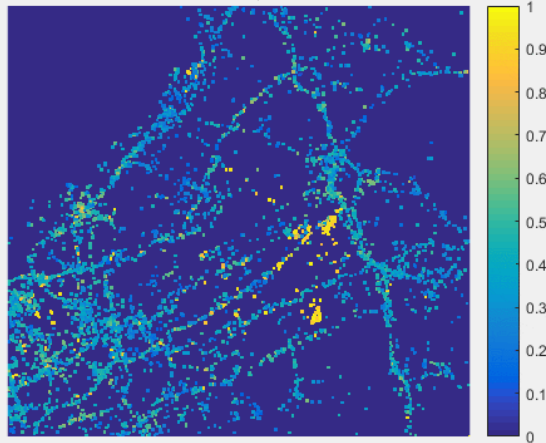
Sep 6-10, 2015



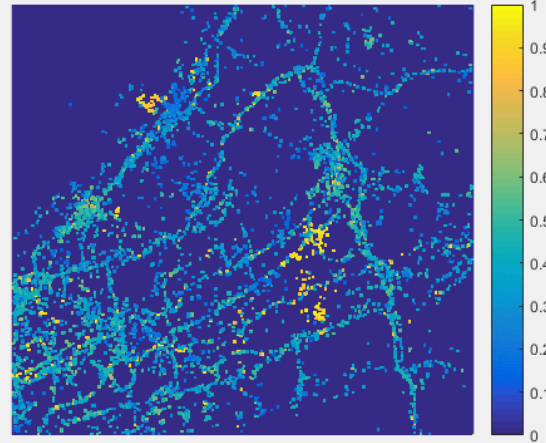
Sep 11-15, 2015



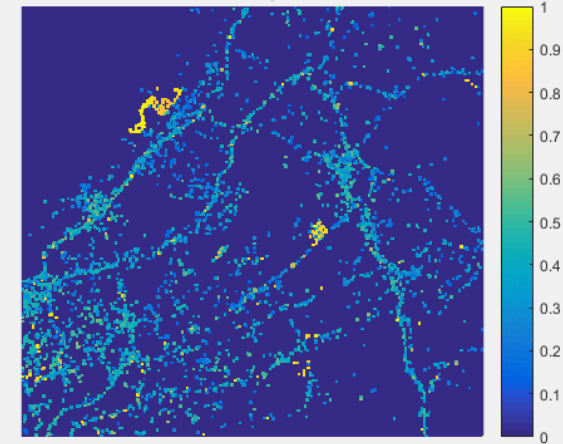
Nov 16-20, 2015



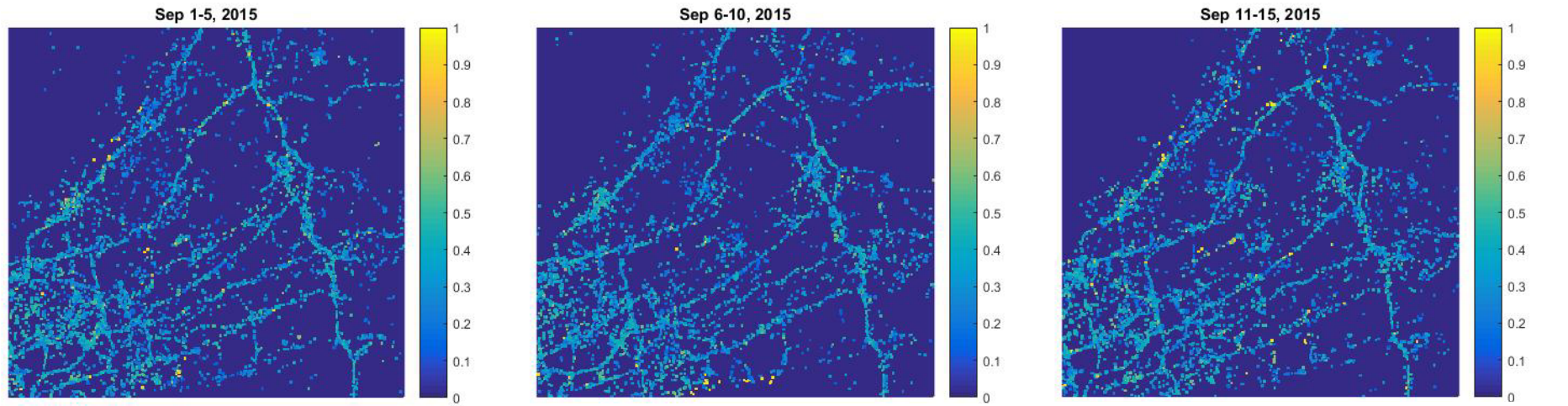
Nov 21-25, 2015



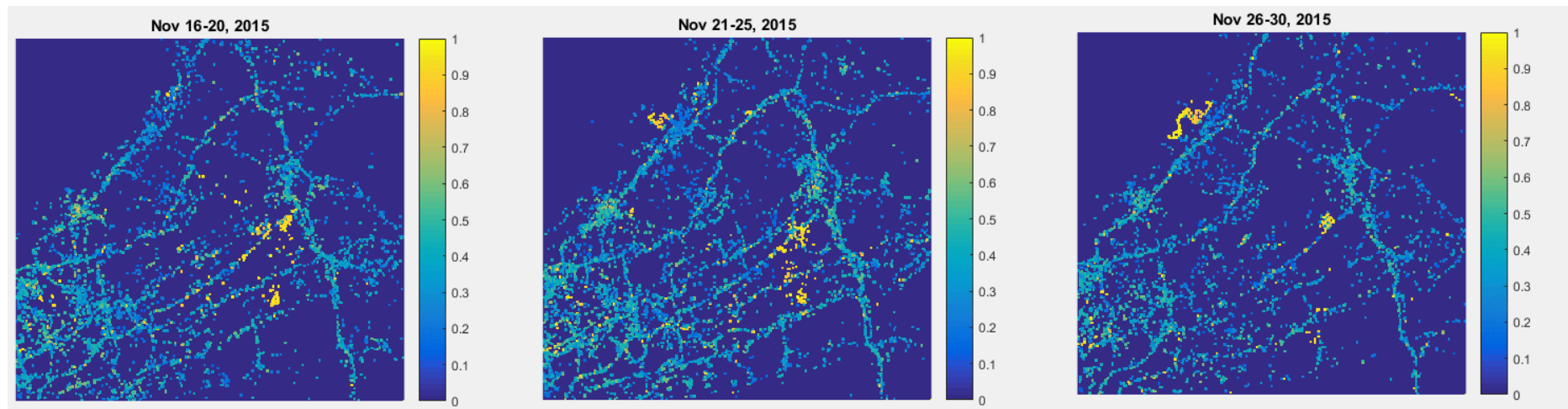
Nov 26-30, 2015



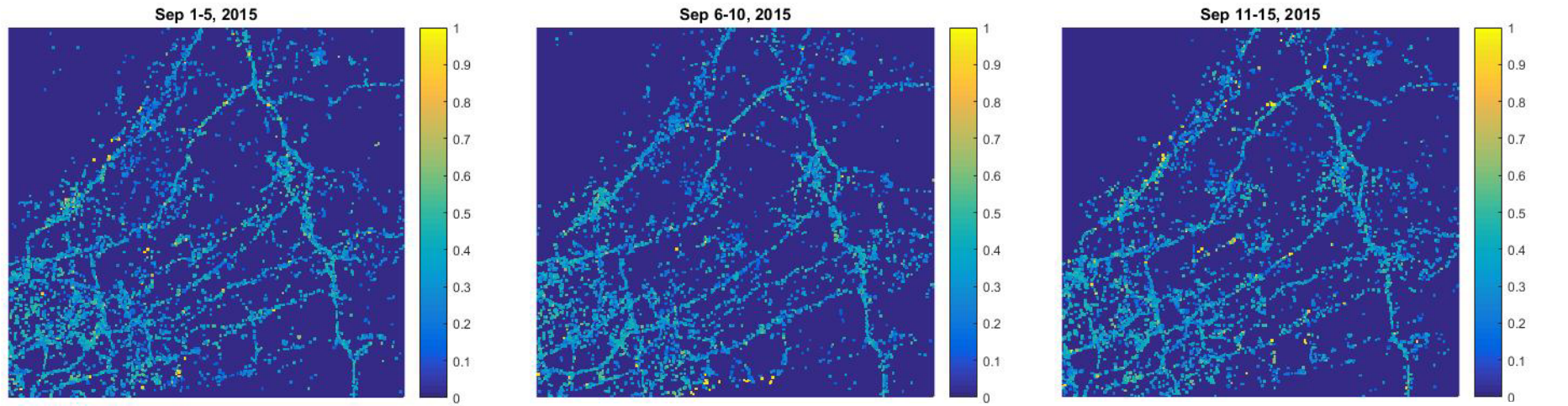
# Why?



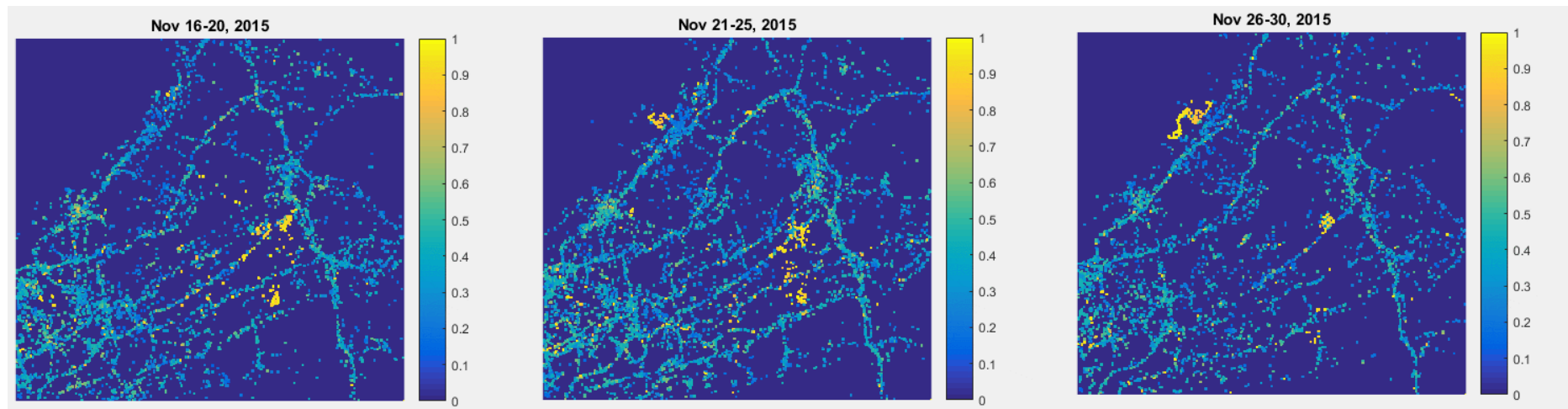
# Thanksgiving? Black Friday?



# Why?

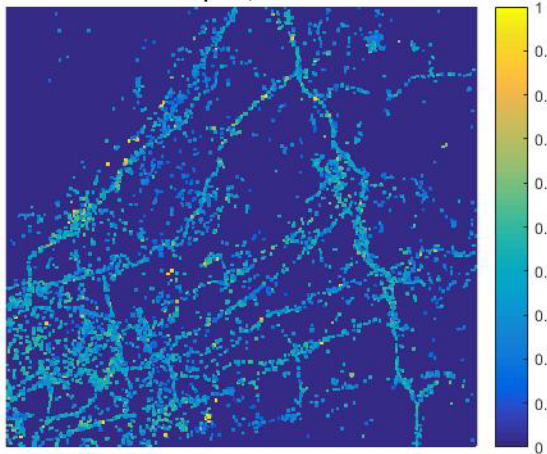


# More to say?!

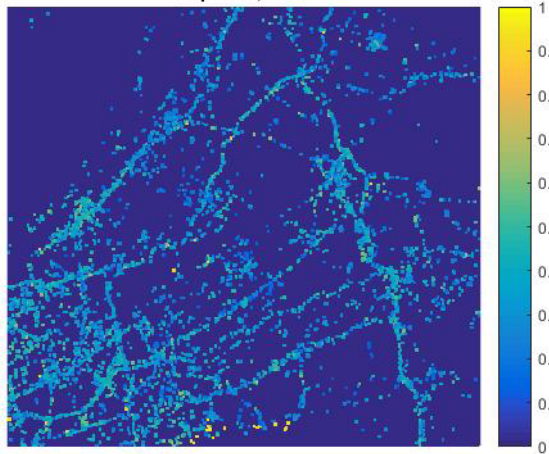


?

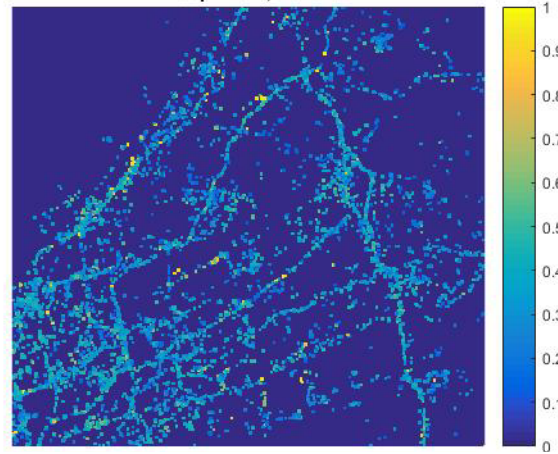
Sep 1-5, 2015



Sep 6-10, 2015

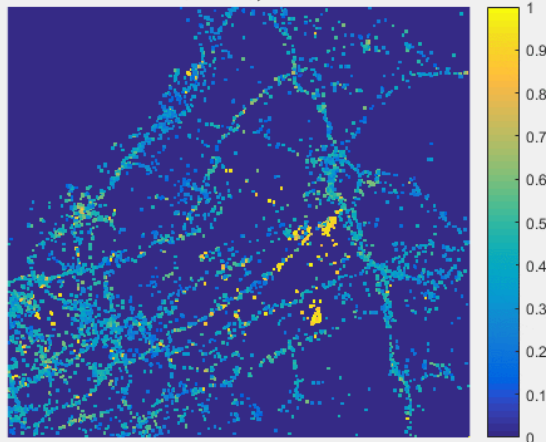


Sep 11-15, 2015

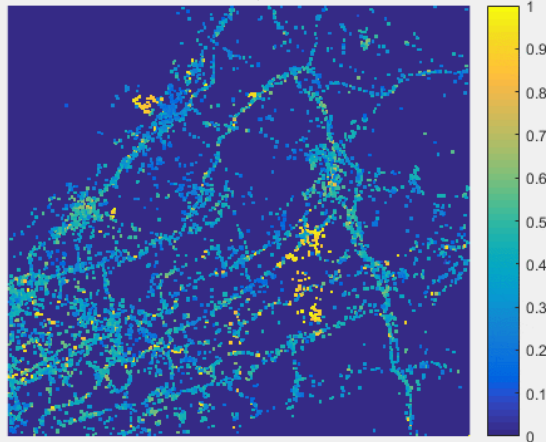


?

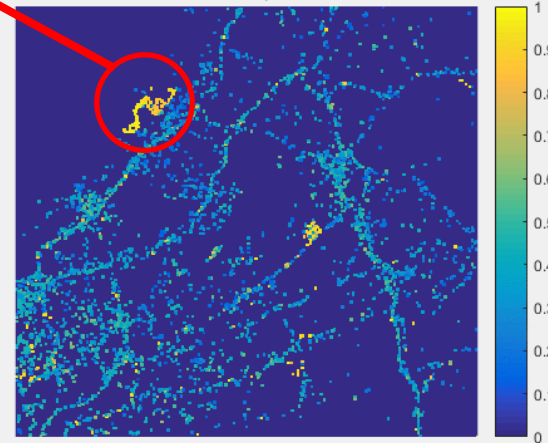
Nov 16-20, 2015



Nov 21-25, 2015

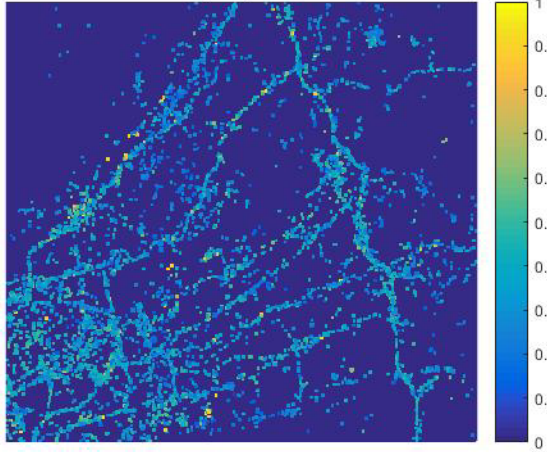


Nov 26-30, 2015



ha...

Sep 1-5, 2015



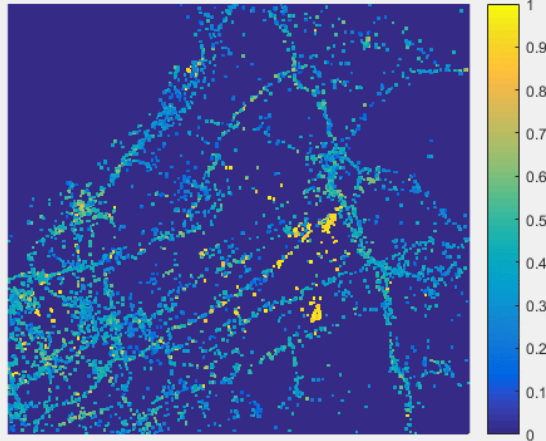
Sep 6-10, 2015



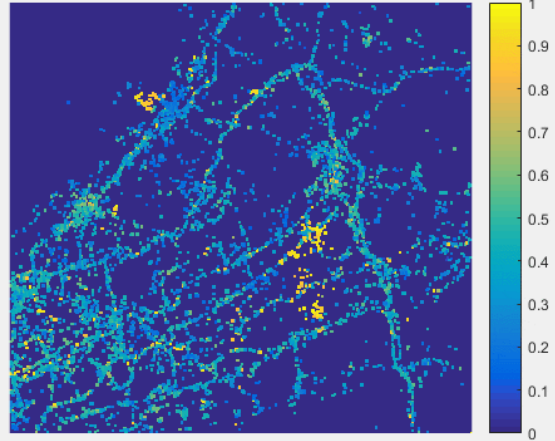
Sep 11-15, 2015



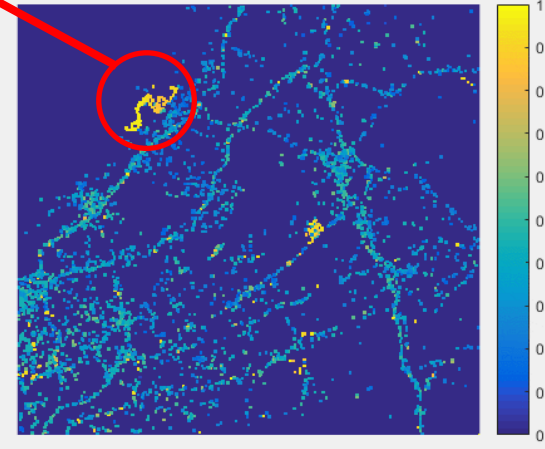
Nov 16-20, 2015



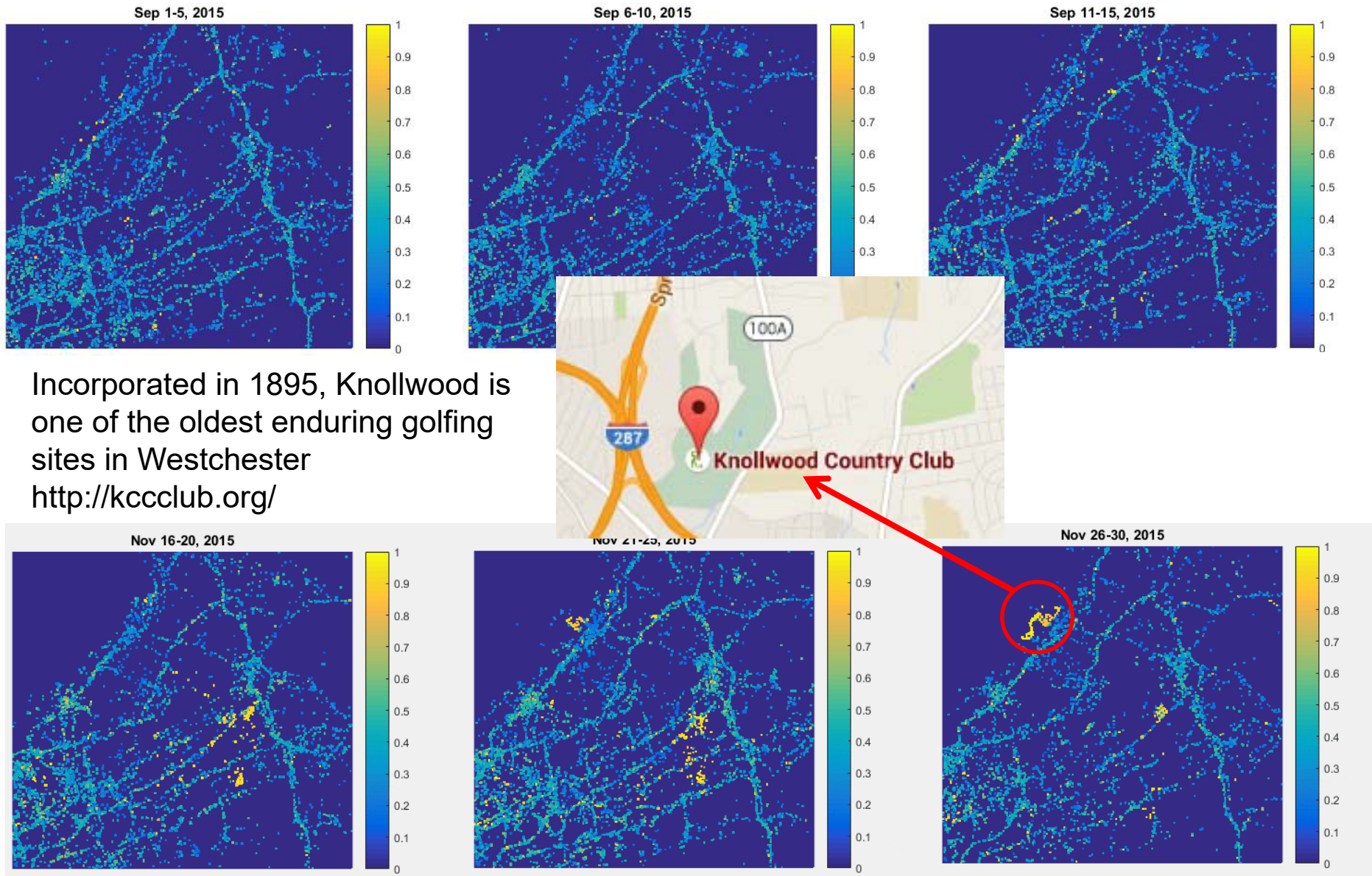
Nov 21-25, 2015



Nov 26-30, 2015



ha...



Incorporated in 1895, Knollwood is one of the oldest enduring golfing sites in Westchester  
<http://kccclub.org/>

this one

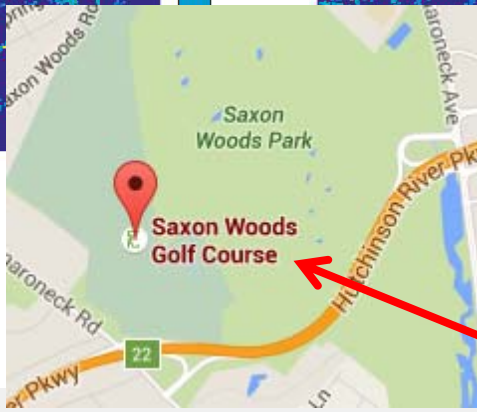
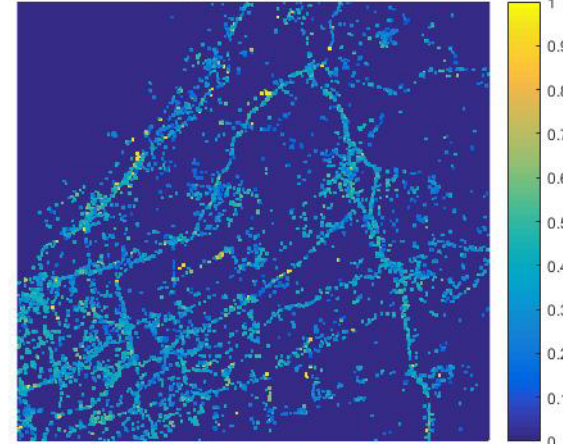
Sep 1-5, 2015



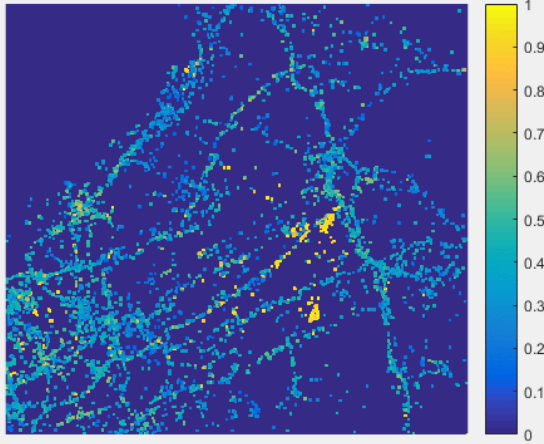
Sep 6-10, 2015



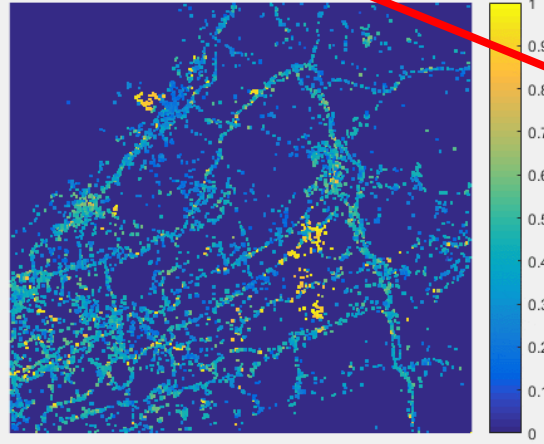
Sep 11-15, 2015



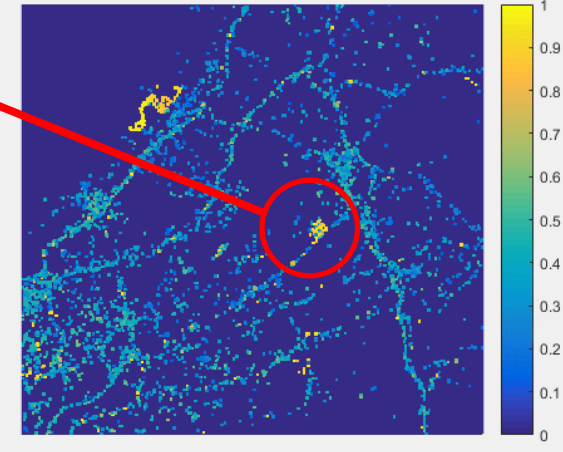
Nov 16-20, 2015



Nov 21-25, 2015

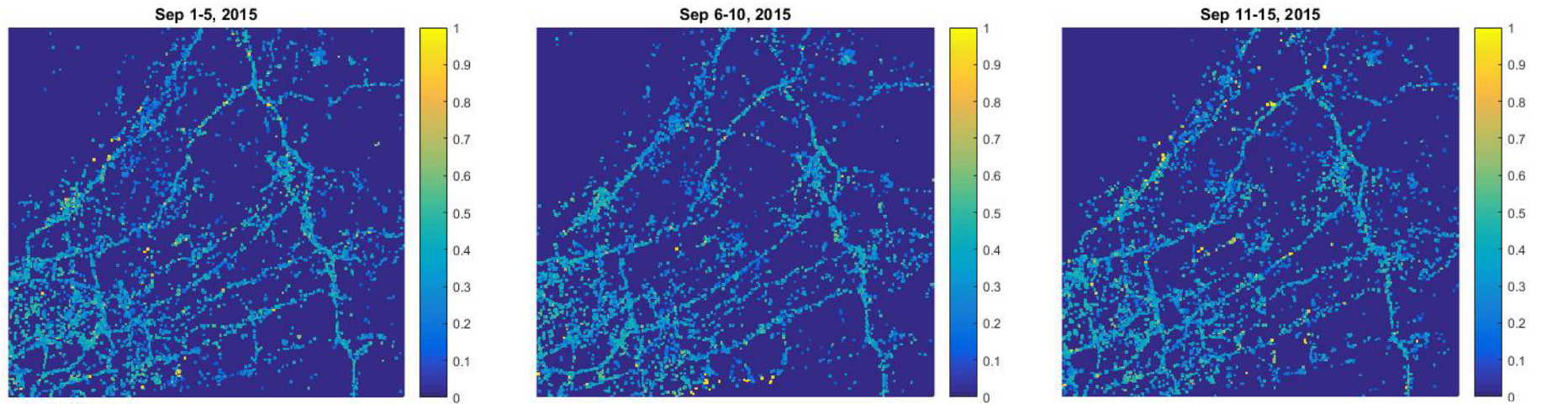


Nov 26-30, 2015

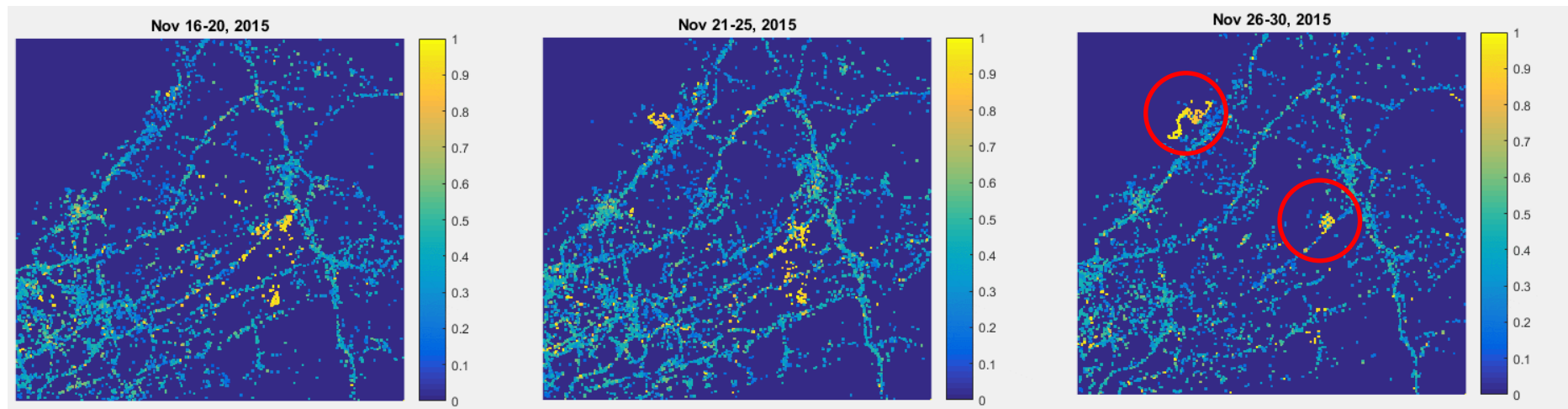




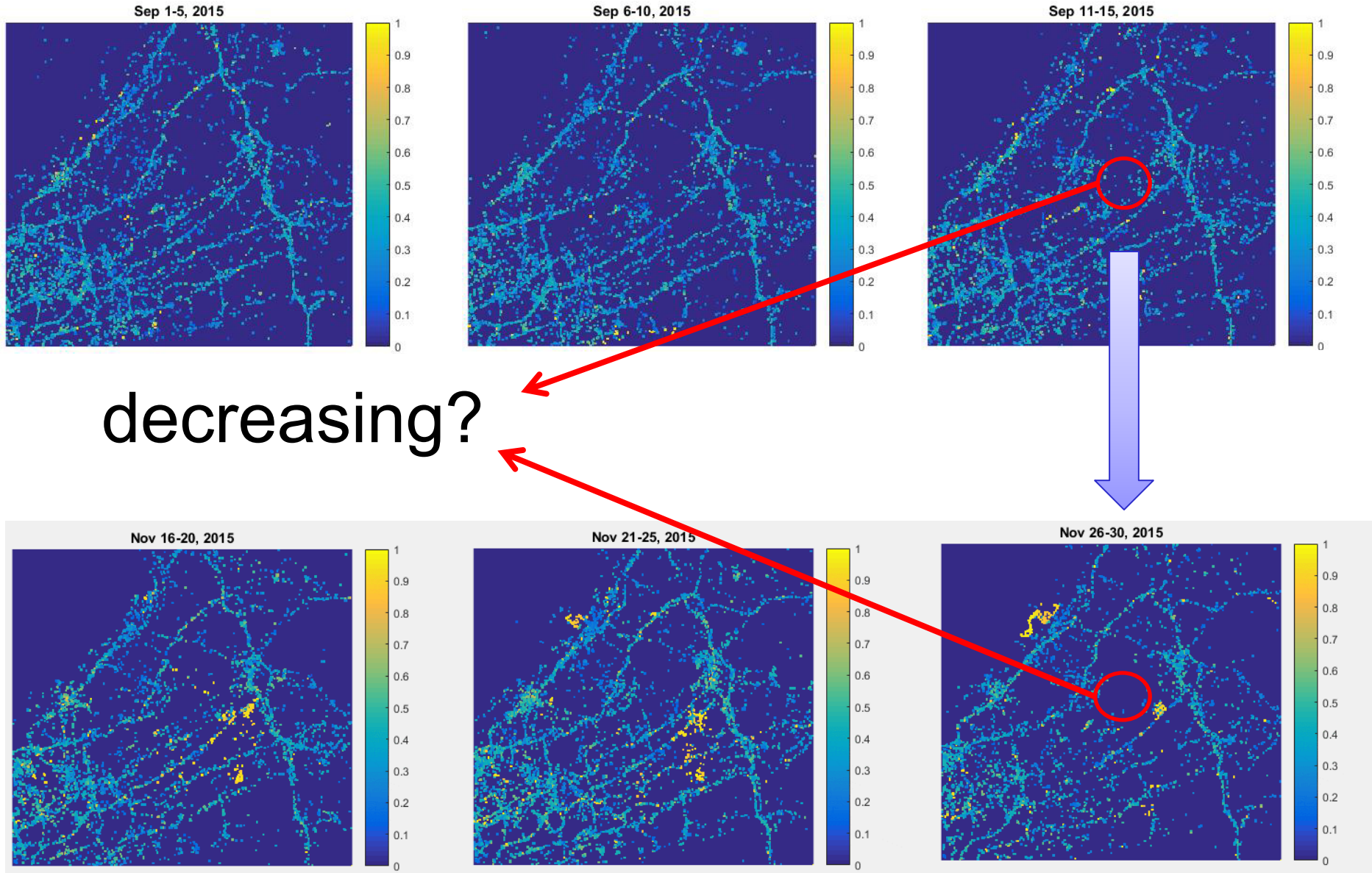
this one



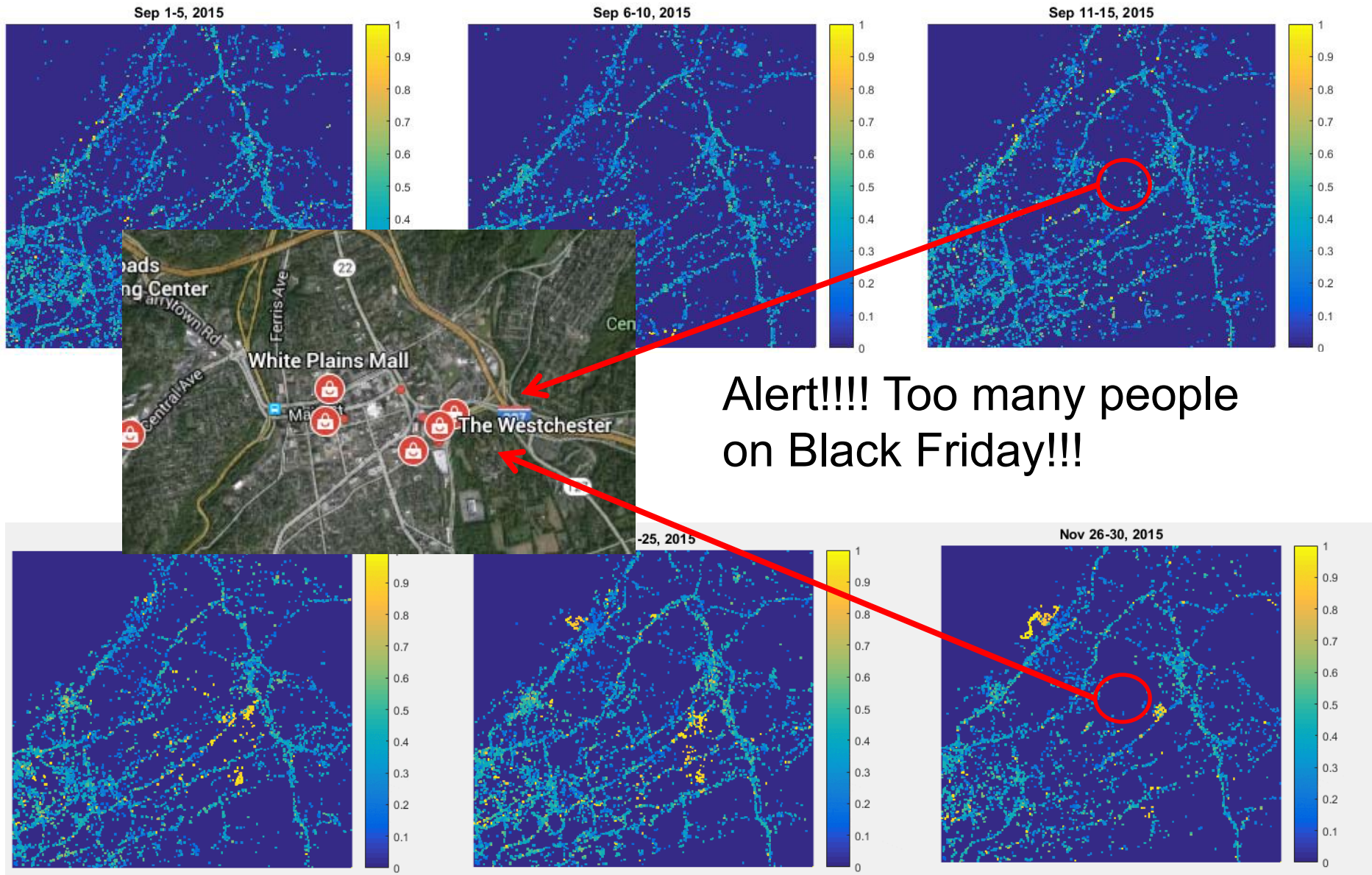
People went to golf during Thanksgiving!



why decreasing?

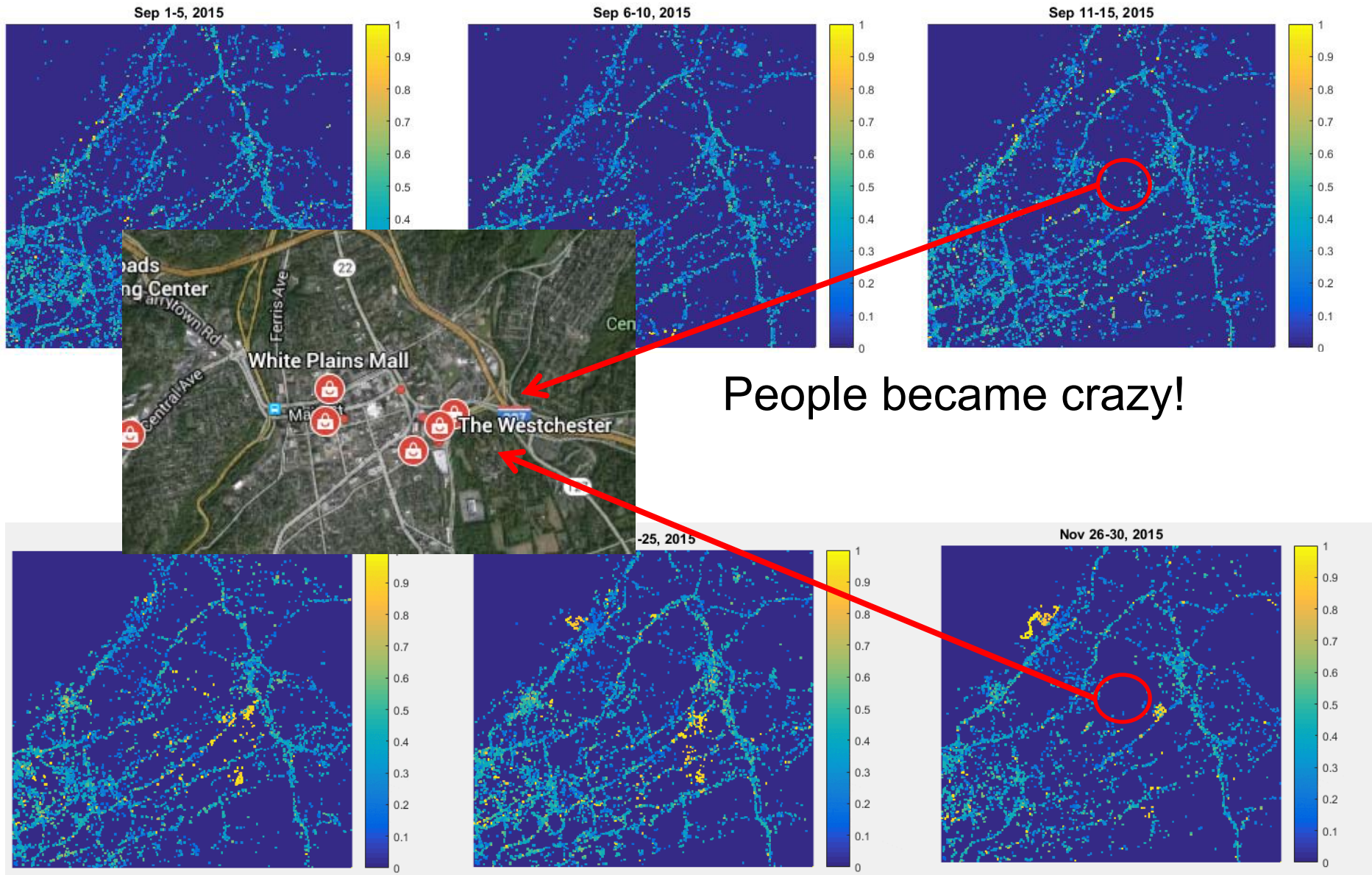


# why decreasing?



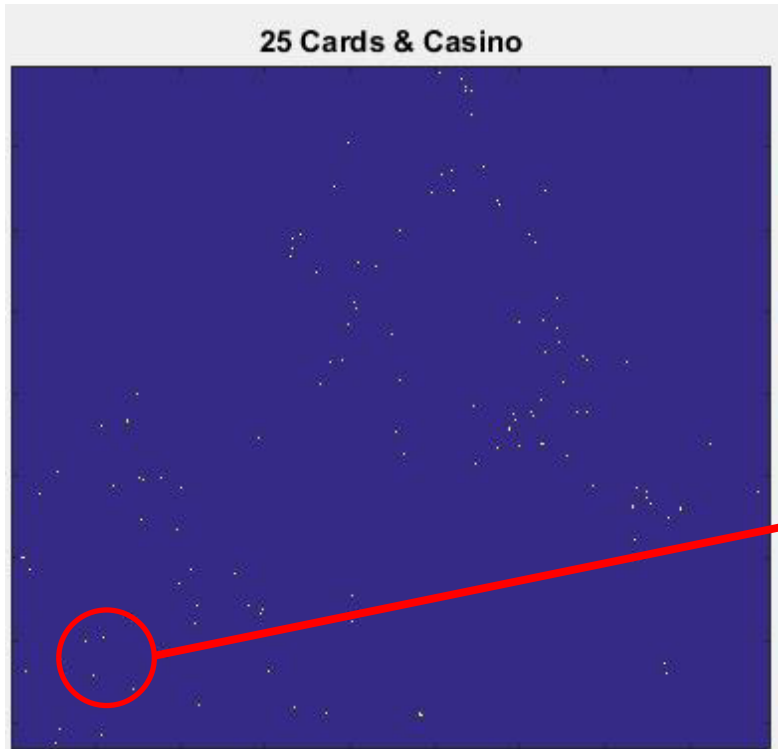
Alert!!!! Too many people on Black Friday!!!

# why decreasing?



# Casino

Casino means casino app



casino

Back to results

**Empire City Casino**

3.5 ★★★★★ 236 reviews

Casino

Directions

SAVE NEARBY SEND TO YOUR PHONE SHARE

*Half-mile harness-racing track & a casino with slot machines, electronic games & multiple eateries. - Google*

810 Yonkers Ave, Yonkers, NY 10704

empirecitycasino.com

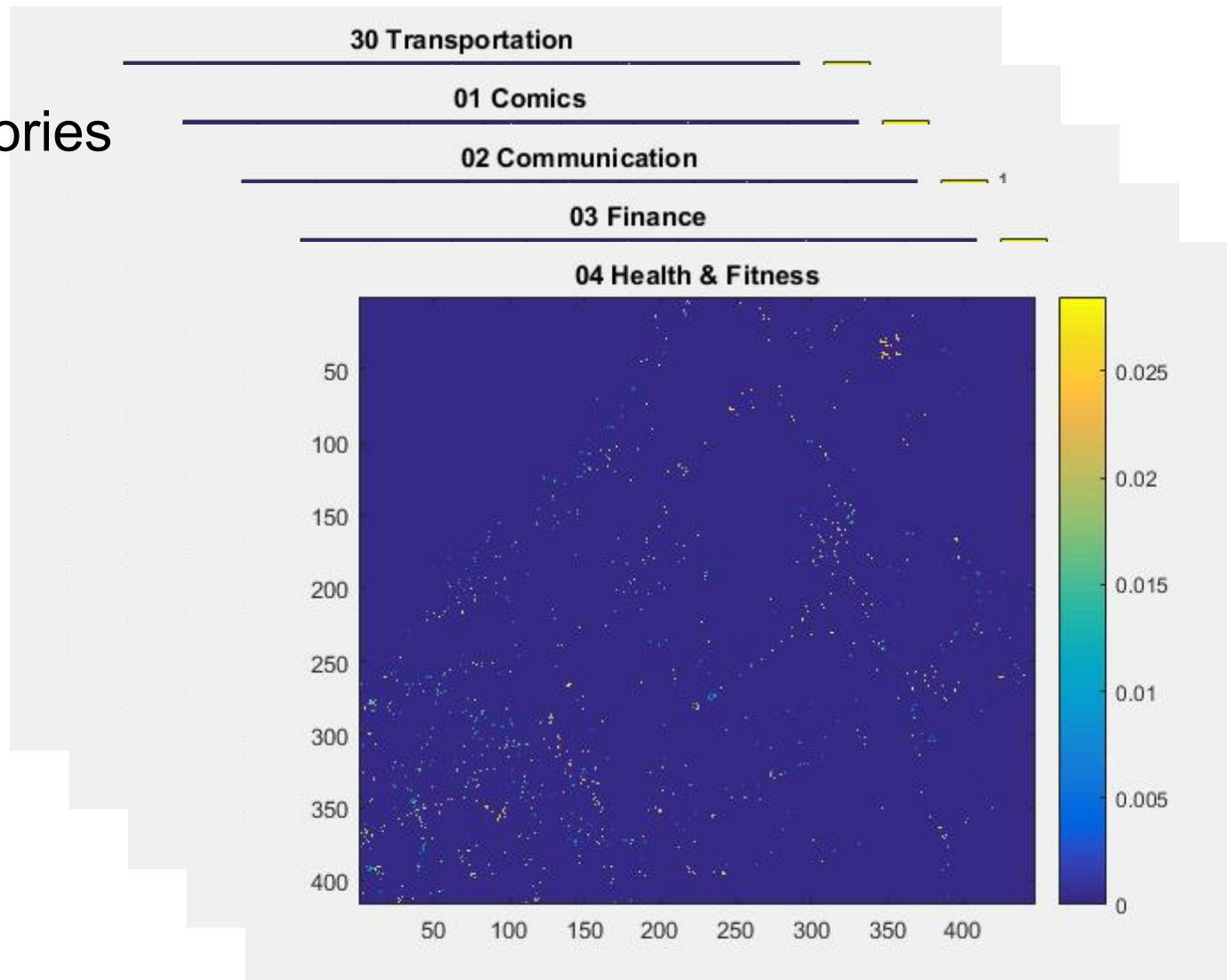
(914) 968-4200

Open now: 10AM-6AM

# Distribution of App Usage

Let's have a look at the distribution of app usages in this area

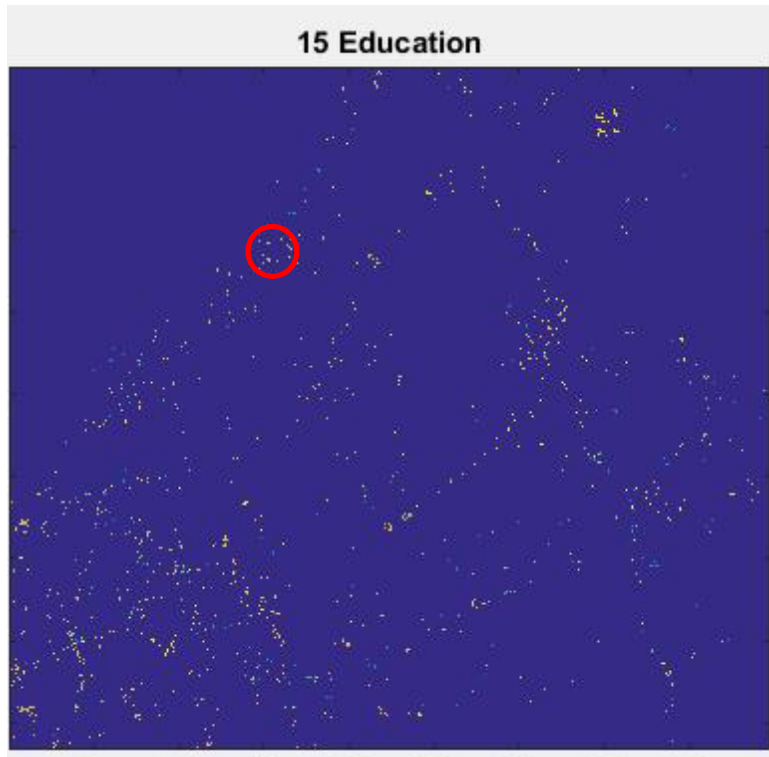
48 categories  
of app



# Examples

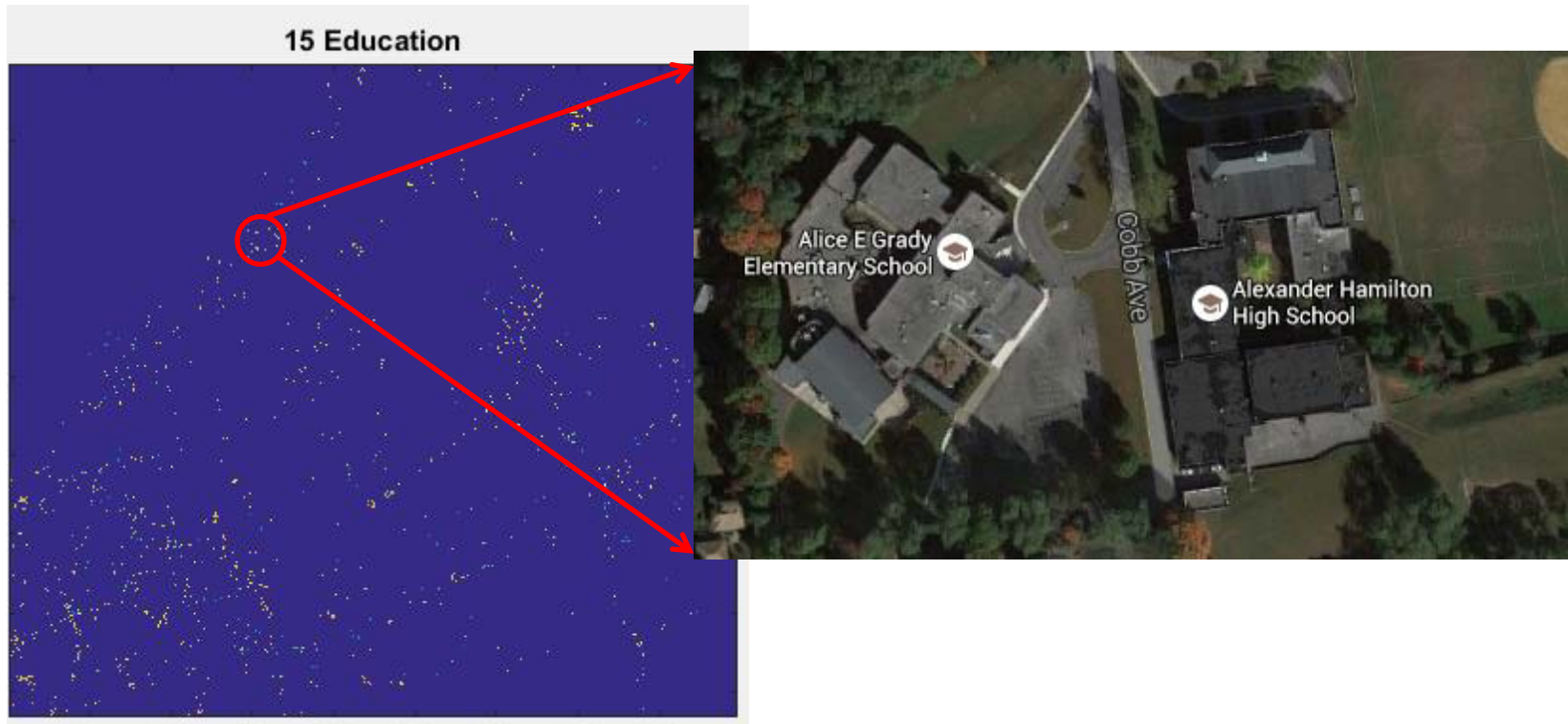
Let's just have a look at several examples

# Example 1: School & Education App

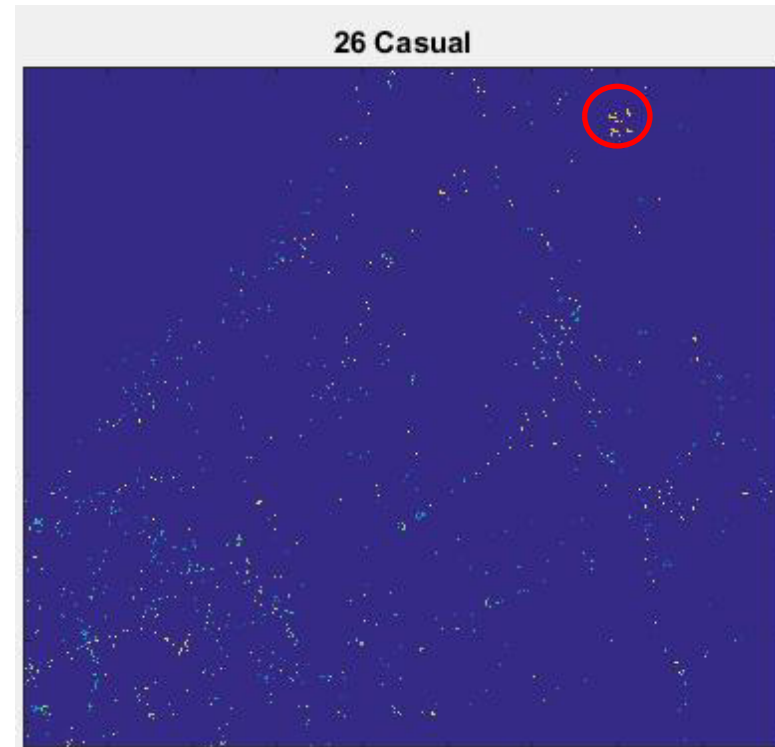




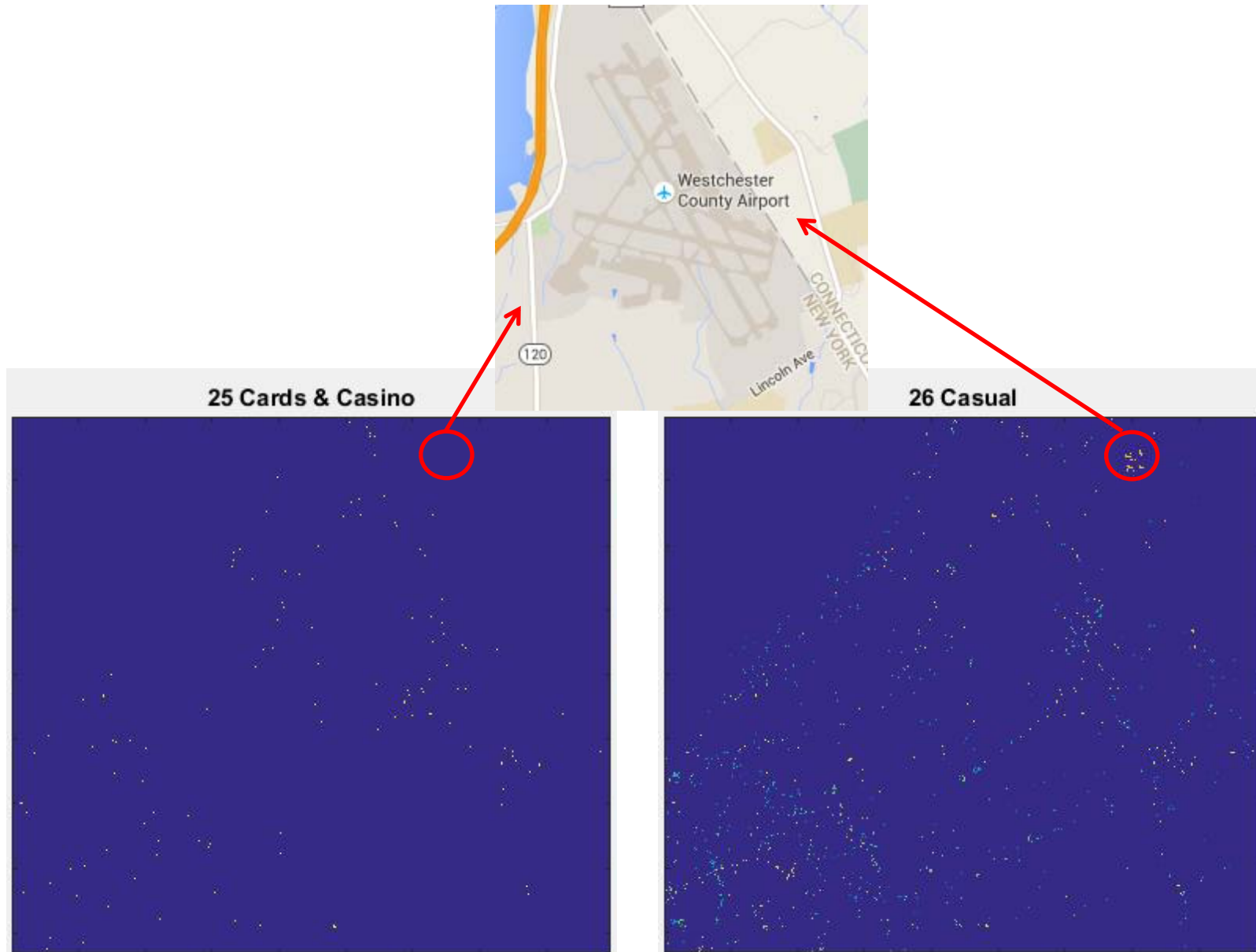
# Example 1: School & Education App



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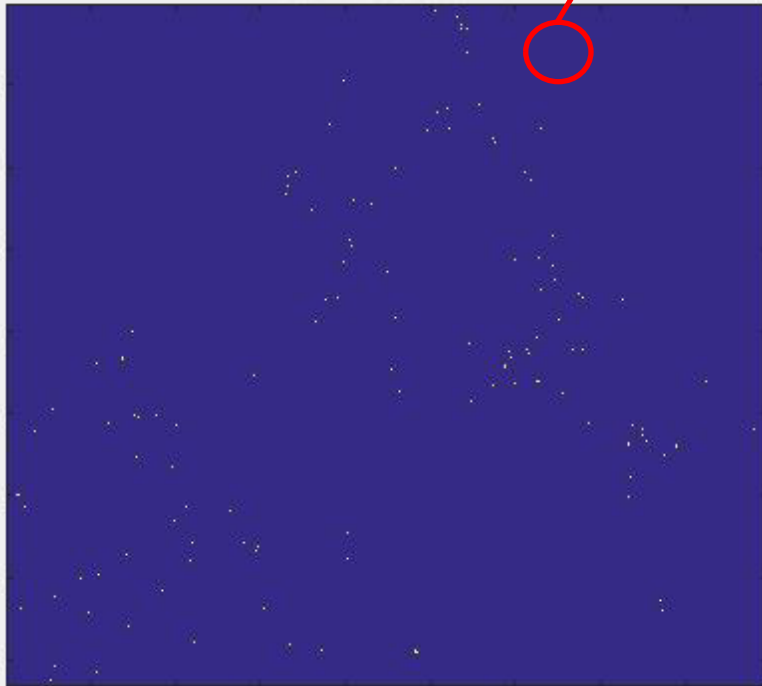


# We compare pairs of feature maps

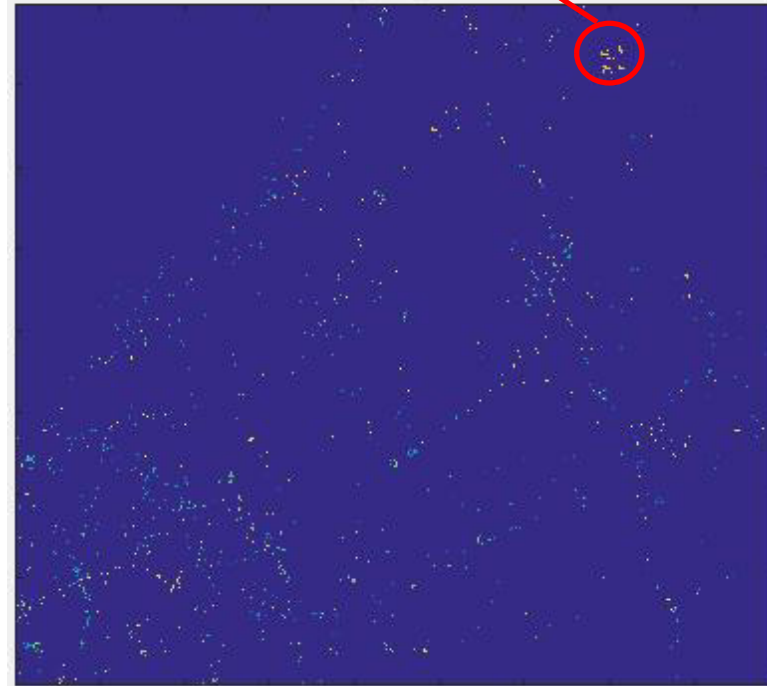
People need to focus to win gambling.



25 Cards & Casino



26 Casual



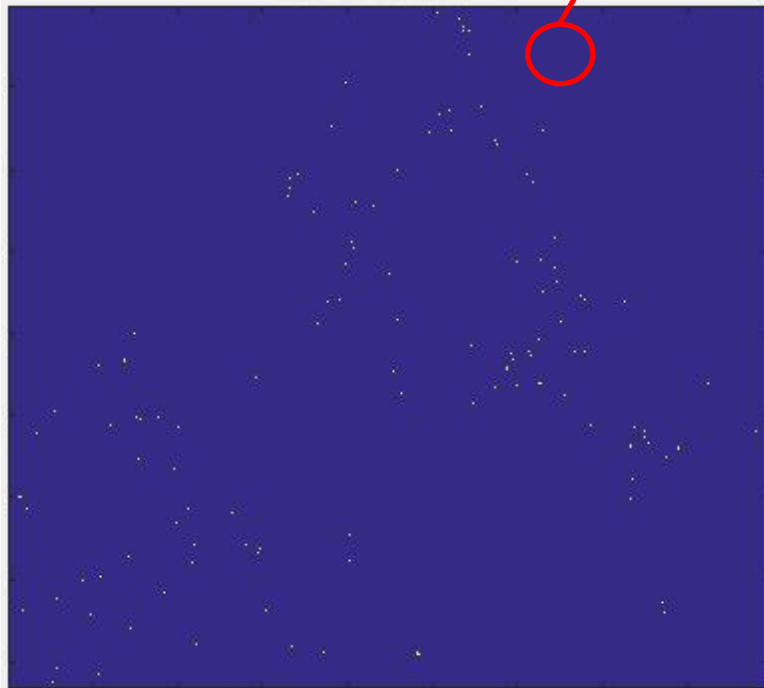
# We compare pairs of feature maps

People need to focus to win gambling.

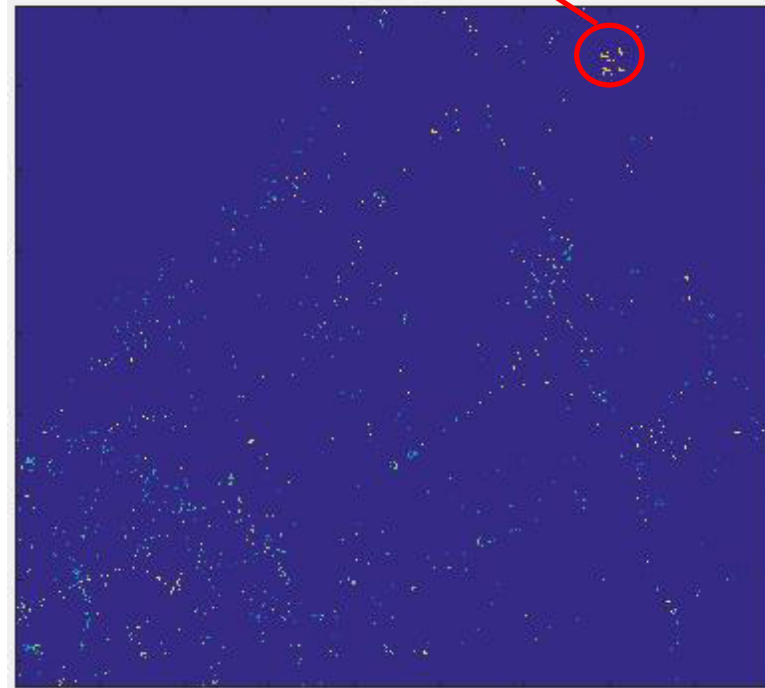
People need to kill time at airport.



25 Cards & Casino



26 Casual



## We have more...

1. Based on census data, we can see how app usage varies from district to district, e.g., people from wealthy communities widely use fitness/health app's;

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3. Focusing on each of 70,000 app's, we can see how its popularity changed over time. This enables the company to improve their product timely.



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2. Similarly, we can see how app usage changes from community to community based on their major ethnicity;
3. Focusing on each of 70,000 app's, we can see how its popularity changed over time. This enables the company to improve their product timely.
4. Based on the study w.r.t geographic information, ethnicity, seasonal information, suggestions can be made on when/what/where/to whom to place advertisement on their mobile phone.

# Team

