

VACCINE

Visual Analytics for Command, Control, and Interoperability Environments
A U.S. Department of Homeland Security Center of Excellence

Empowering Discovery and Decision Making Through Visual Analytics

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CVADA

Center for Visual Analytics and Data Analytics
A U.S. Department of Homeland Security Center of Excellence

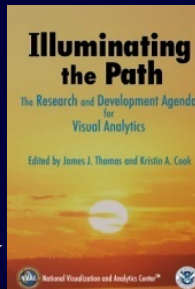
May 2014

What We Do: Visual Analytics

Visual Analytics¹ is the science of **analytical reasoning** facilitated by **interactive visual interfaces**

Interactive visualization, data analysis, exploration, and decision making with human in the loop!

1. *Illuminating the Path: The R&D Agenda for Visual Analytics*, Editors: Thomas and Cook



Big Data: Solution to Global Challenges?



- Big Data is often defined along three dimensions:
 - **Volume** – size
 - **Velocity** – rate of input, update, change
 - **Variety** – different types, sources, variables
- Need:
 - Advanced techniques and technologies to enable the capture, storage, distribution, management and analysis of information (TechAmerica Foundation)
 - **Enable effective, efficient analysis, decision making, planning, and action**

Why VA For Big Data?

(Or What Big Data Analytics Can't Do)

(inspired and adapted from David Brooks, New York Times, 2/18/2013)

- Qualitative, fuzzy, and social data
 - Preferences, significance of one relationship over another; Trust
- Context
 - Data is rarely complete, nor incorporates all relevant information
Humans have extensive information and experience that never make it into the collected data
- Spurious vs. Significant
 - Big data means more statistically significant events and correlations, but they may not have any relevance
 - Increases noise to signal ratio
- **Big problems**
 - **Complex, multifaceted, multiparameter big challenges with unquantified dependencies**

VA Approaches to Big Data

- Don't display all the data!
- Extract relevant information at the appropriate natural scales using analytics and statistical models to reduce data space so that it is mappable to the visual space
- User interaction to guide this process
- Adapt to available hardware for the problem

What Our Visual Analytic Solutions Offer

We enable users to be more effective through innovative interactive visualization, analysis, and decision making tools

- Provide the right information, in the right format within the right time to solve the problem
- Turn data deluge into a pool of relevant, actionable knowledge
- Enable user to be more effective from planning to detection to response to recovery
- Enable effective communication of information

Approach: Partner-driven solutions and research

Our Teams' Benefits

- **Improved Effectiveness:** We enable users to be more effective through innovative, interactive visualization, analysis, and decision making tools
 - Provide the right information, in the right format, within the right time to solve the problem
 - Enable user to be more effective from planning to detection to response to recovery
 - Enable effective communication of information
- **Innovative Fielded Solutions:** We provide innovative visual analytic and scalable solutions to the extended homeland security community
- **People and Partnerships**

- Interdisciplinary world-leading team of researchers and students

“cgSARVA has proven its worth time and again, providing key analytic information for decision makers for large scale projects...”

VADM Robert Parker, 2012 MRS Keynote Address

VADM Robert Parker with VACCINE student researchers (cgSARVA, COAST, iOPAR)



Our Visual Analytics Process

(extended and adapted from Bertin, Normal, Tversky)

Process:

- Define problem / question
- Determine:
 - Workflow and interaction
 - Relevant data
 - Data characteristics (e.g., types, quality)
 - Abstraction/representation level
 - Natural scales
- Map to appropriate visual representation for task

- Utilize iterative refinement with user feedback from the start

Guiding Principles:

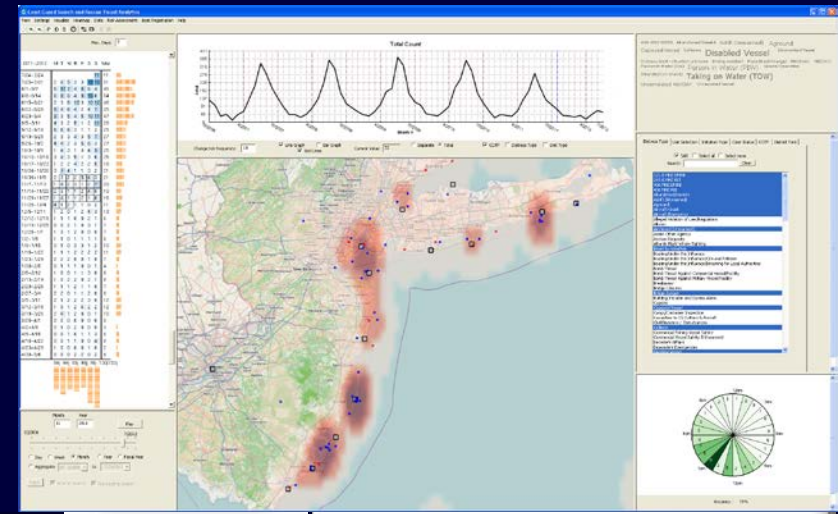
- Appropriateness principle
 - Neither more nor less
- Naturalness principle
 - Match with cognitive models
- Matching principle
 - Match the task, offer action affordances
- Principle of apprehension
 - Content should be accurately and easily perceived

Example of Users With a Problem: Law Enforcement - Tasks and Uses

- **Police Chief/Sheriff - strategic goals**
 - Resource allocation, return on investment
 - Yearly effectiveness (Are we safer?)
 - Emerging trends
- **Police Captain – short-term effectiveness**
 - Force allocation for the day/week
 - Emerging trends and anomalies
- **Officer – improved situational awareness**
 - What happened near me around the same time in the past?
 - What will make me better prepared when I respond to this call?
- **Crime analyst/investigator – connections**
 - Correlations, dependencies, trends

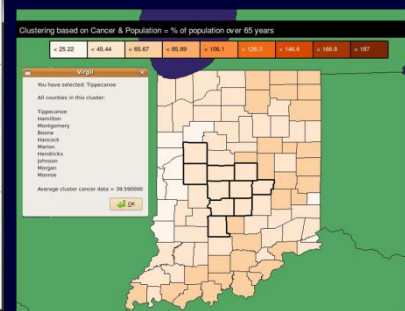
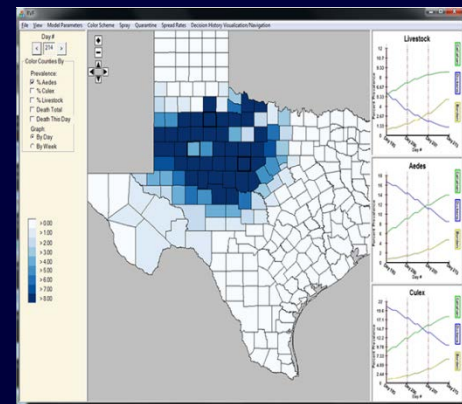
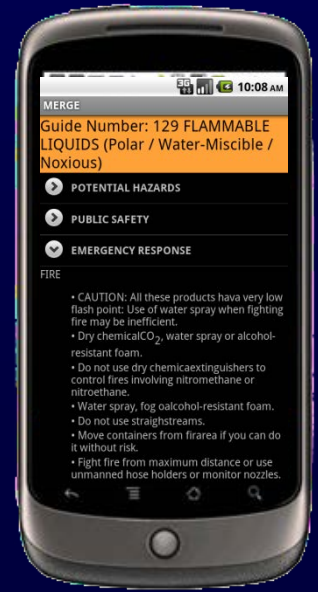
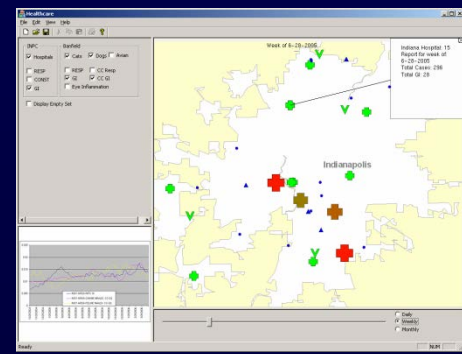
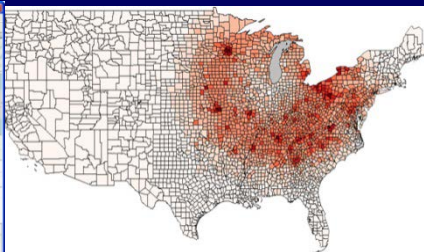
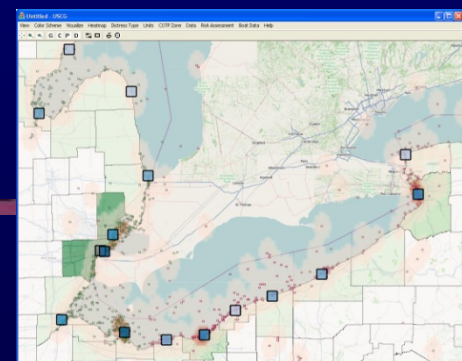
Research Area Overview and Example Projects

- Research applications areas
- Example projects
 - Public safety and law enforcement
 - Social media visual analytics
 - US Coast Guard
 - Additional projects



Public Safety & Health

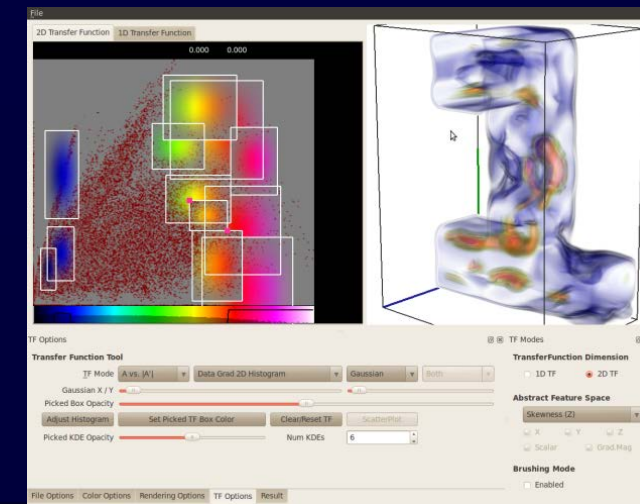
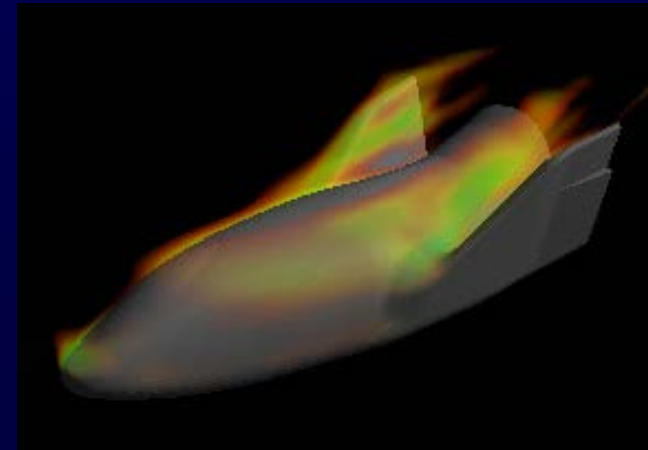
- Public safety visual analytics
 - cgSARVA
 - Coast Guard Search And Rescue Visual Analytics
 - MERGE
 - Mobile Emergency Response Guide
- Public health visual analytics
 - LAHVA
 - Linked Animal-Human Health Visual Analytics
 - RVF
 - Rift Valley Fever
 - Decision support environment for epidemic modeling and responses
 - PanVis
 - Pandemic influenza modeling and visualization tool
 - Cancer Care Engineering



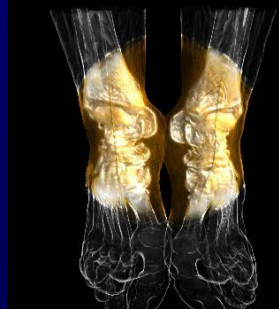
Scientific Discovery



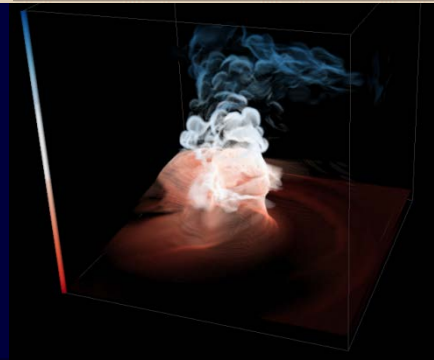
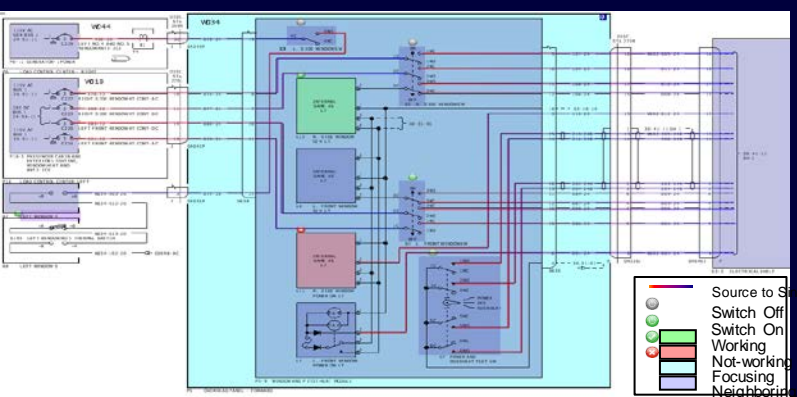
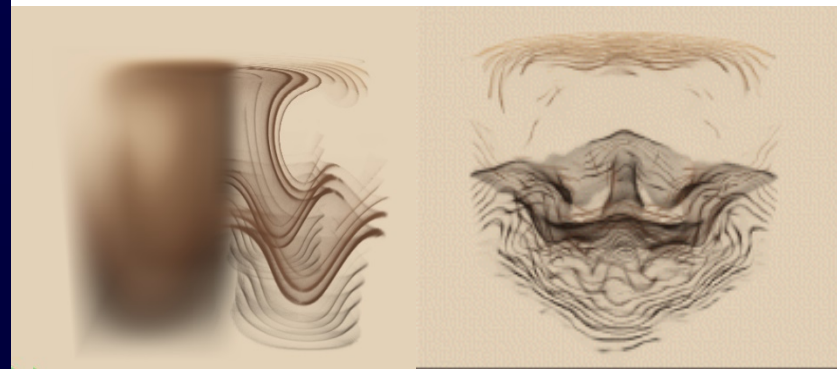
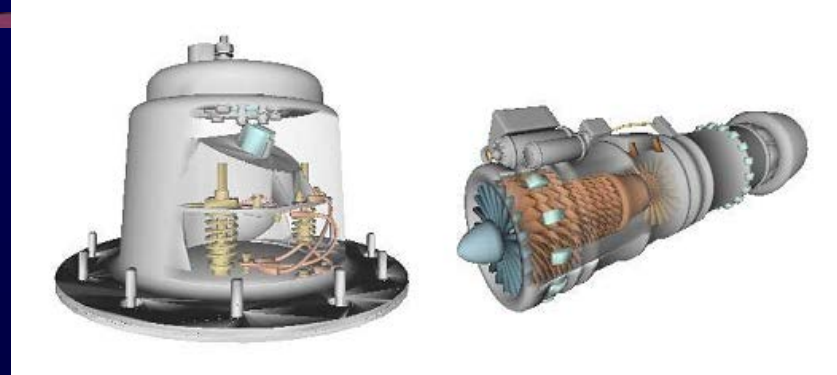
- Flow dynamics visualization (Purdue, TACC)
 - Providing insights on large flow data
 - Visualization linked with simulations
 - Innovative feature visualization
- Nanohub
 - Information-assisted data analysis and visualization of nanoelectronic models



Scientific Discovery

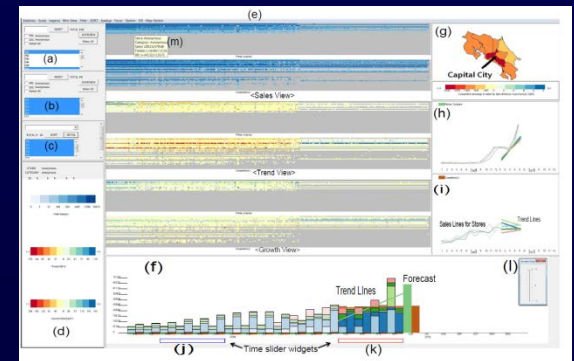


- Illustrative Visualization
 - Mechanical assemblies
 - Schematics and wiring diagrams
 - Illustrative flow visualization
 - Illustrative medical visualization
- Interactive multivariate atmospheric science data visual analytics



Business Visual Analytics

- Risk-based decision making and resource allocation
 - Coast guard operational risk assessment model
 - Helping to prioritize efforts to minimize risk
- Competitive Intelligence
 - Visual analytics system for business intelligence
- EconVIS
 - Visual analytics in various economic problems
 - Improving decision making and identifying key motivations in knowledge creation



Market Analyzer

Geographical View

Pixel-oriented Display Matrix

Statistics Scale Legend Mini View Filter SORT

RESET TOTAL #93

PRE Anonymouse OVERVIEW
SEC Anonymouse Show All
Select All

M1 (a)
M2
M3
M4
M5

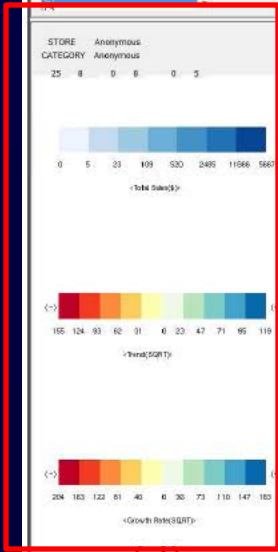
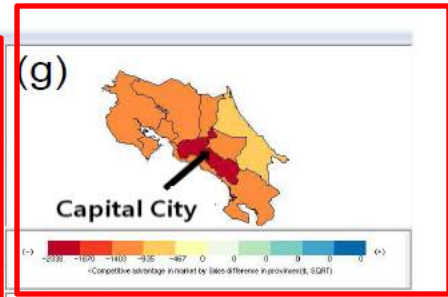
RESET TOTAL #8

PRE Anonymouse OVERVIEW
SEC Anonymouse Show All
Select All

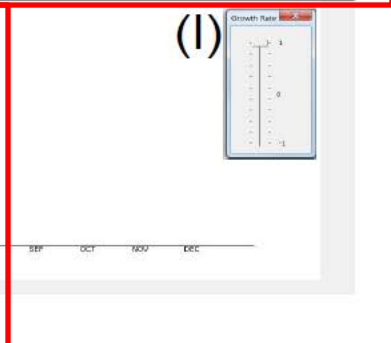
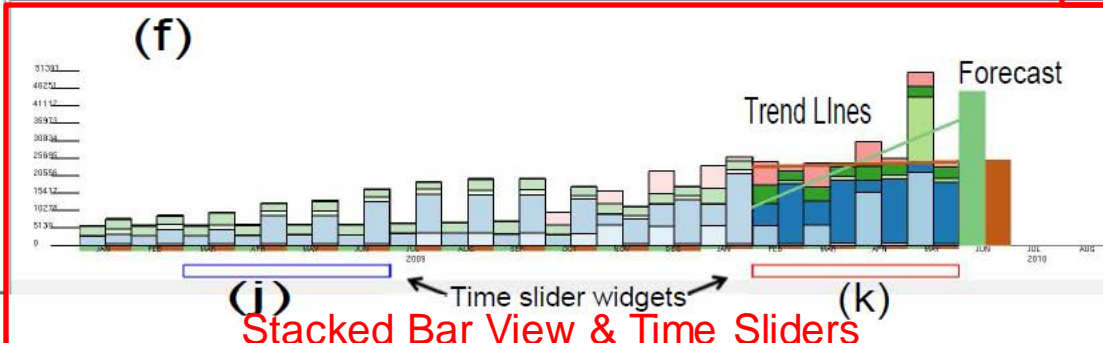
S1 (b)
S2
S3
S4
S5

TOTAL # 36 SORT DETAIL

C1 (c)
C2
C3
C4
C5



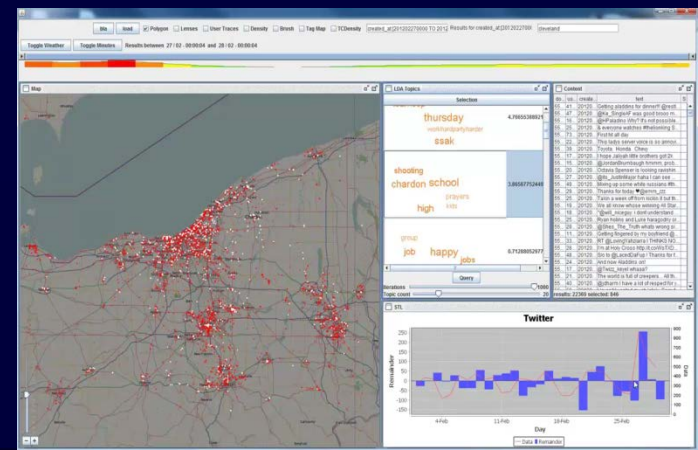
Proportional Legend View



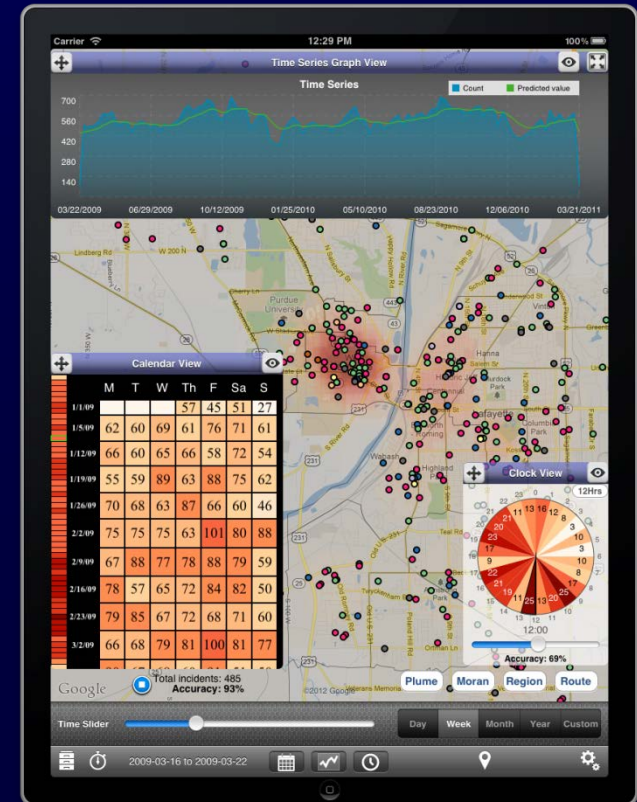
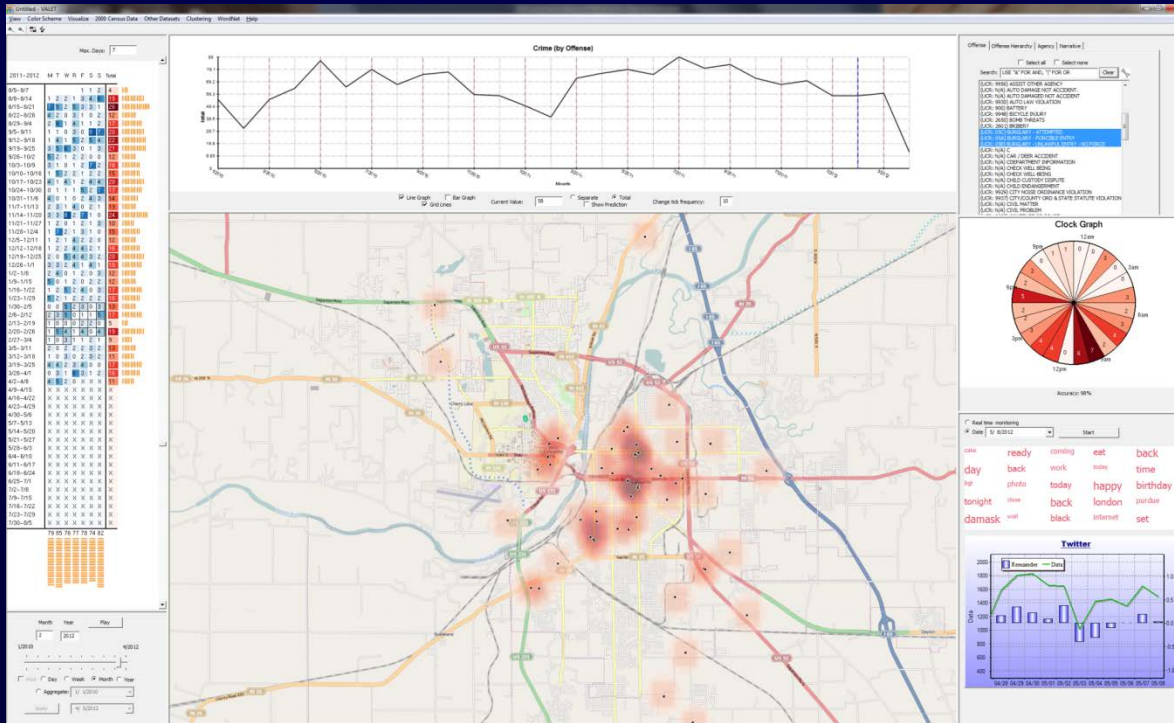
Visual Analytics Uses for Public Safety



- Risk visualization and analysis
- Predictive analytics
- Uncertain decision making
- Alternative evaluation and consequence investigation
- Trend analysis, clustering, anomaly detection
- Multisource, multimedia massive data integration & analysis
- Purpose: Planning for resiliency, training, detection, investigation, response, recovery, remediation



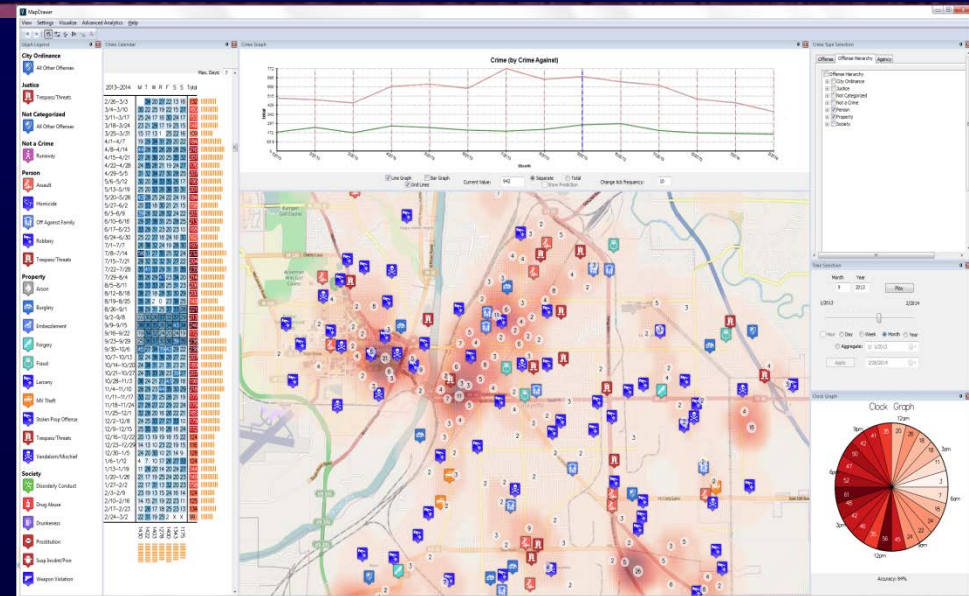
Visual Analytics Law Enforcement Toolkit (i)VALET



Visual Analytics Law Enforcement Toolkit (VALET, iVALET)

Impacts:

- In use to analyze crime patterns in Lafayette, Indiana and to connect strings of activities
- Mobile version being released to public (June 2014) for community-based policing
- Investigating correlation factors
- Analyzing time of day problems and improving accuracy of police record management system
- Novel statistical predictive model incorporated for planning
- Incorporating predictive alerts

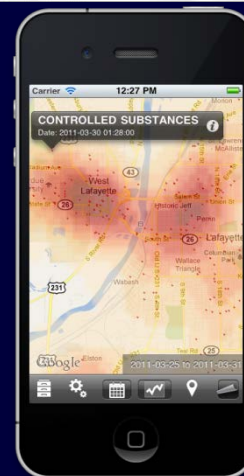


VALET delivered:

- Spring 2011: WL, Lafayette Police
- Fall 2013: NYPD

iVALET delivered:

- October 2011: Purdue, WL Police



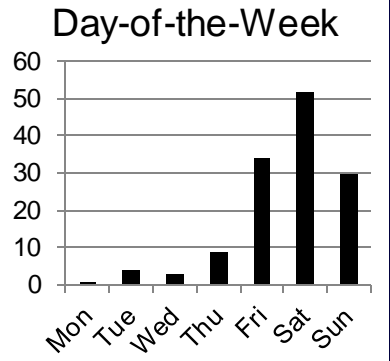
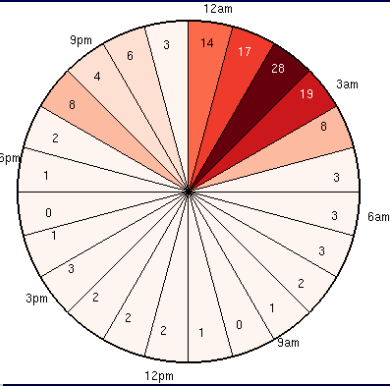
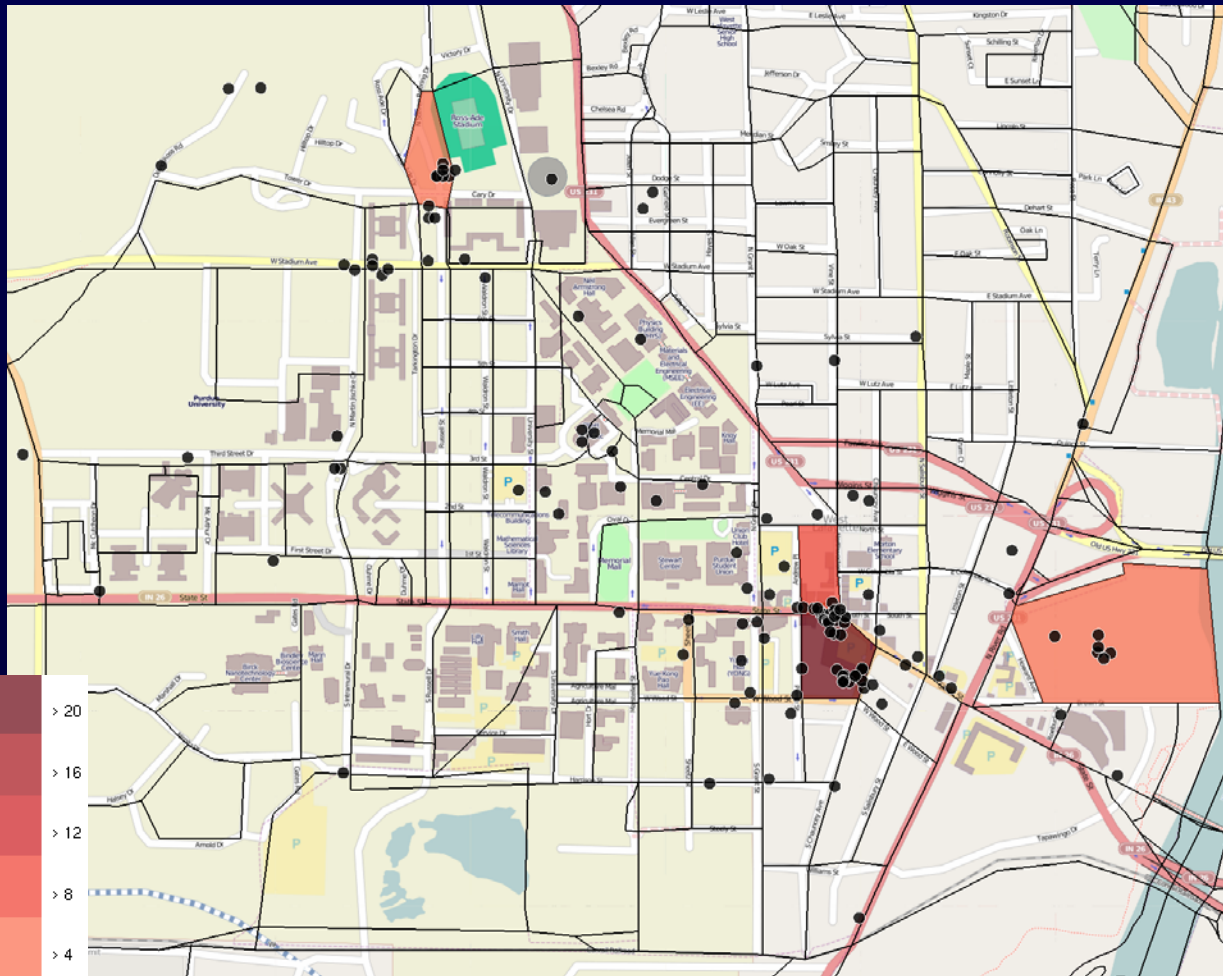
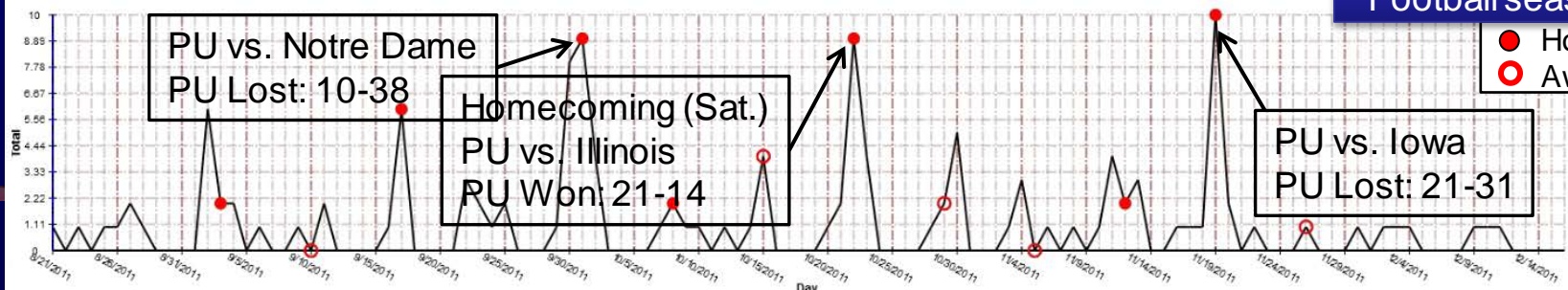
VALET Overview

The screenshot displays the VALET software interface with several key components:

- Time Series View:** A line graph titled "Crime (by Offense)" showing crime rates over time from 2011 to 2012. The y-axis represents the number of offenses, and the x-axis represents months.
- Calendar View:** A calendar grid on the left side showing data for each day from 2011 to 2012, with color-coded cells representing different offense counts.
- Map View:** A geographic map showing a heatmap of crime density across a city area, with major roads and landmarks labeled.
- Twitter monitoring:** A section displaying a grid of tweets, including phrases like "cake ready coming eat back", "day back work today time", and "tonight damask".
- Clock View:** A circular gauge chart showing data distribution across a 24-hour cycle, with an accuracy of 98%.
- Twitter:** A dual-axis chart showing "Data" (blue bars) and "Remainder" (green line) over a period from 04/28 to 05/08.
- Menus:** A dropdown menu on the right side listing various offense categories such as "ASSIST OTHER AGENCY", "AUTO DAMAGE NOT ACCIDENT", and "BURGLARY".
- Time Slider:** A control at the bottom left for navigating through time, showing the current date as 5/8/2012.

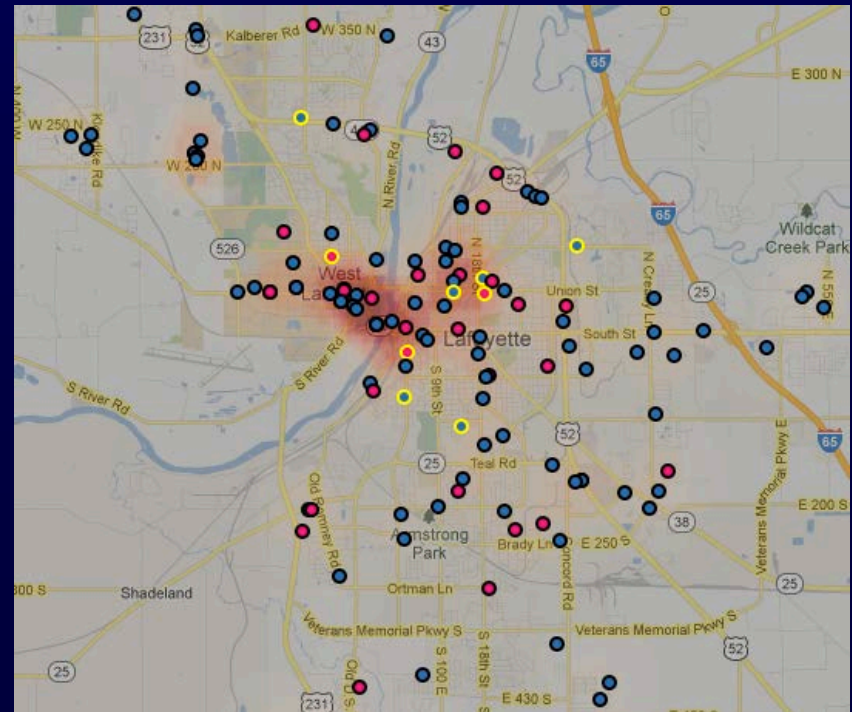
Example: Drunkenness / Public Intoxication

Football season

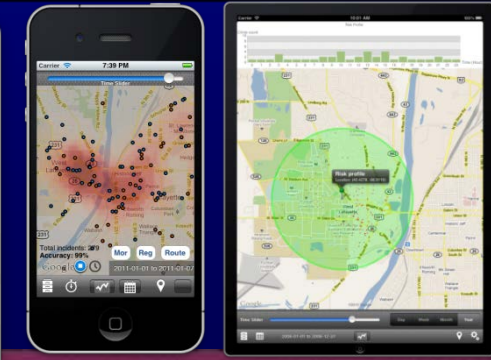
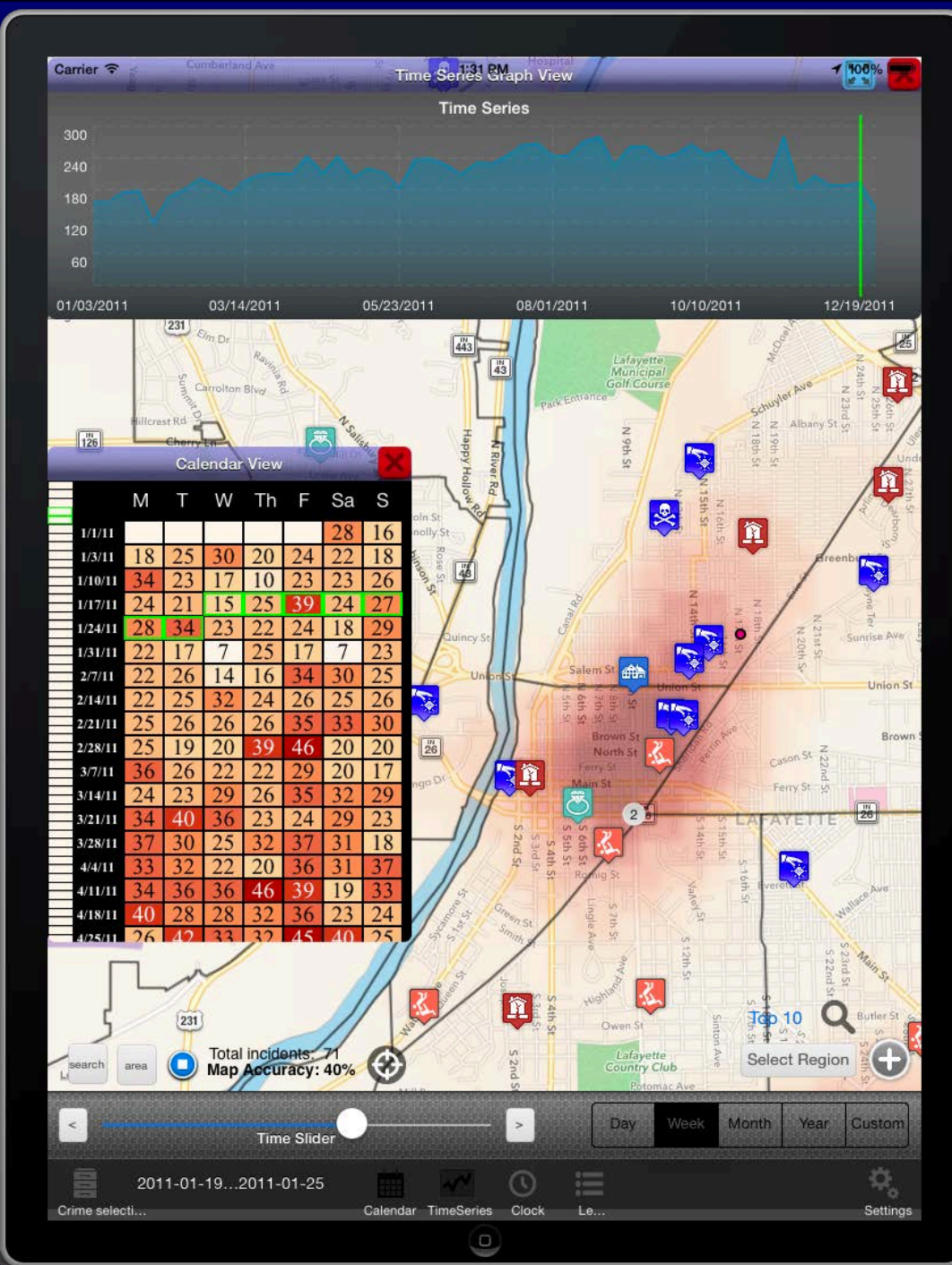


Top 10 Hot Incidents

- Identify unusual localized high-frequency patterns of crimes (near repeats)
- Each data entry is checked for other crimes with similar properties within a 1 block radius of the incident location and a 14-day time period;
- Top 10 incidents with the most number of related incidents in this space-time window are highlighted



iVALET



Explore criminal, traffic and civil data on-the-go

Map assessment

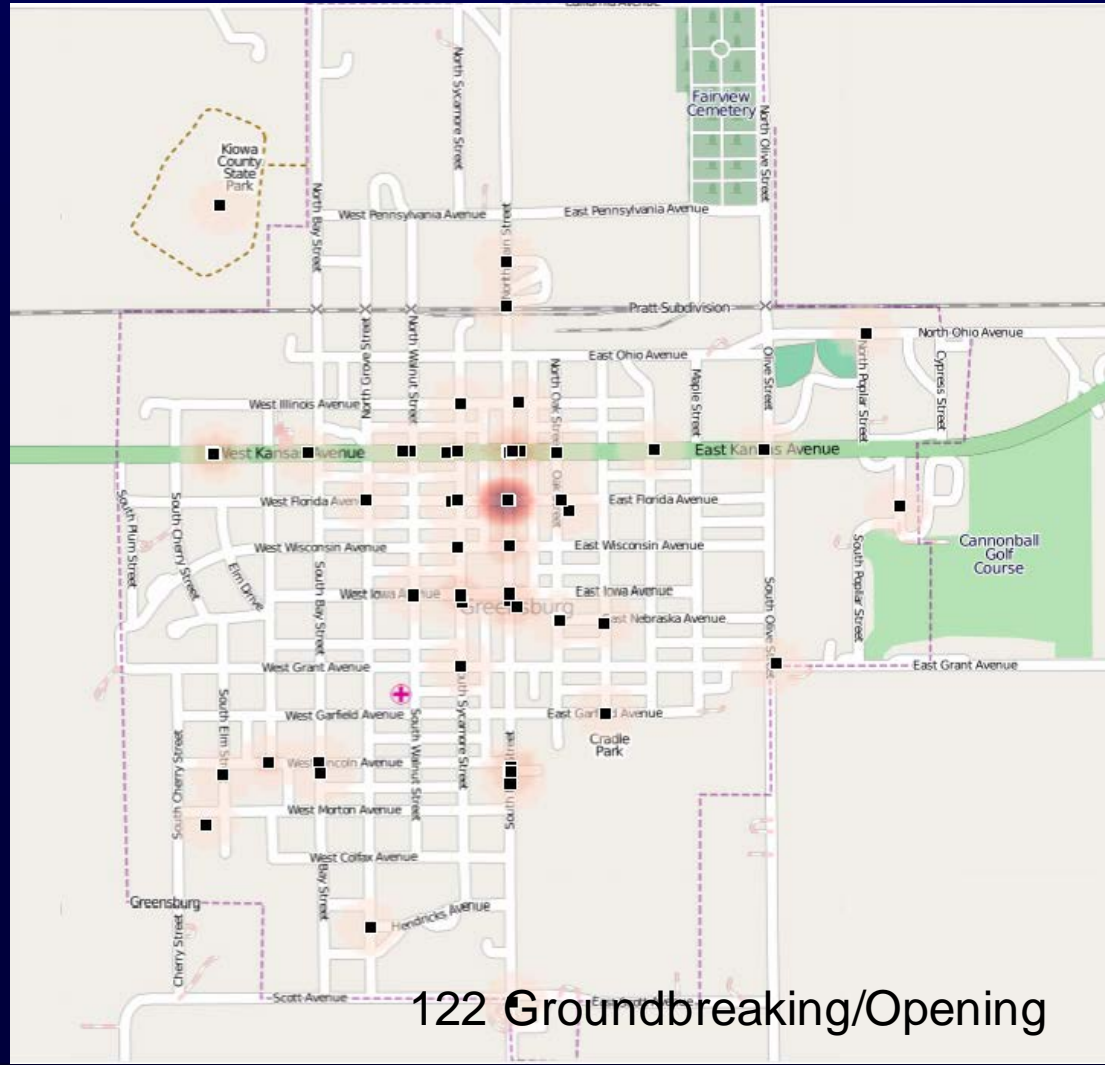
Current potential + temporal context analysis



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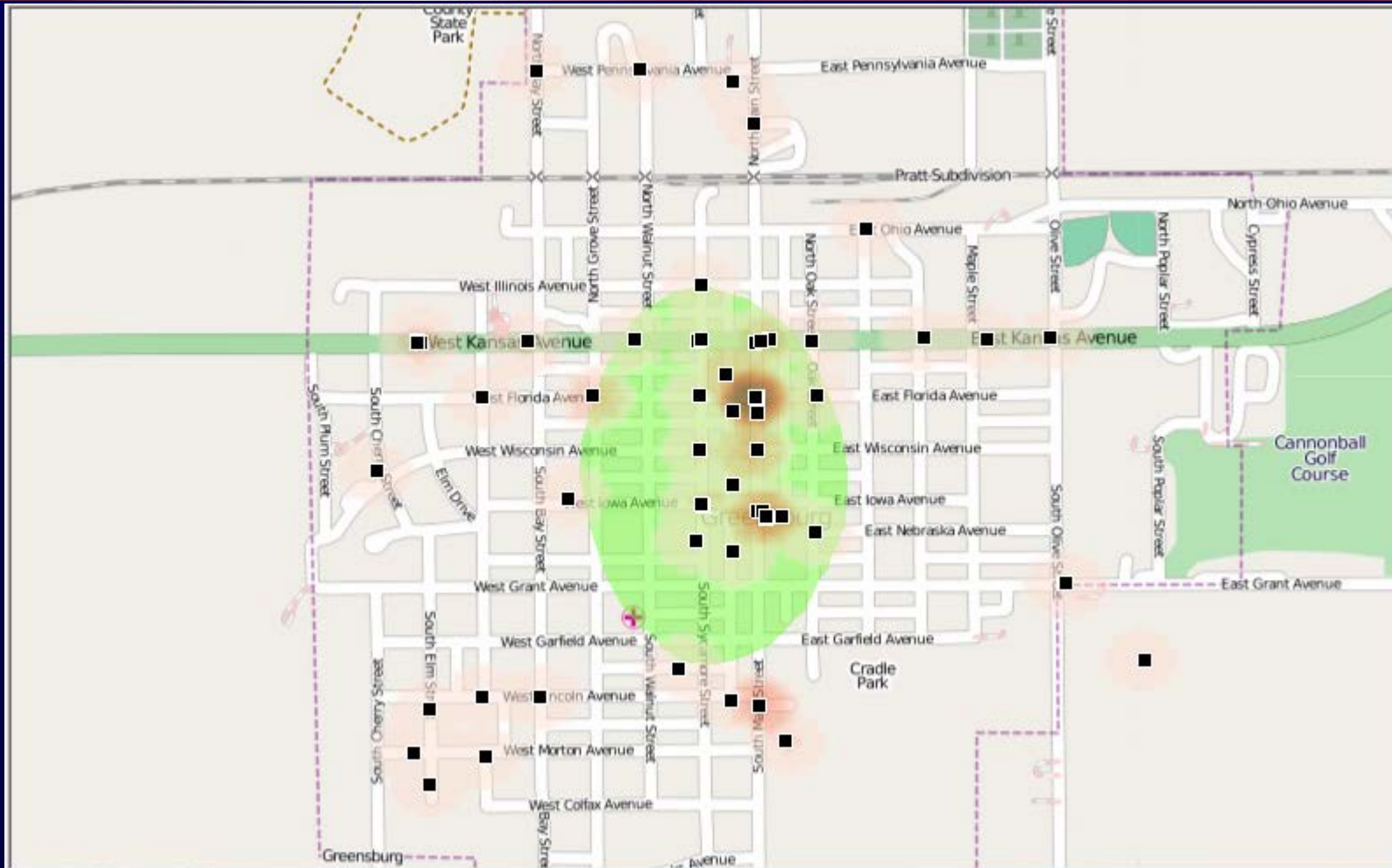
Educational Use of VALET: Greensburg, KS City Rebuilding (2007 EF5 Tornado)

95% of town levelled
Groundbreaking data



122 Groundbreaking/Opening

Statistical Analysis



2007

- Basic and Social Services

- 7

- Business

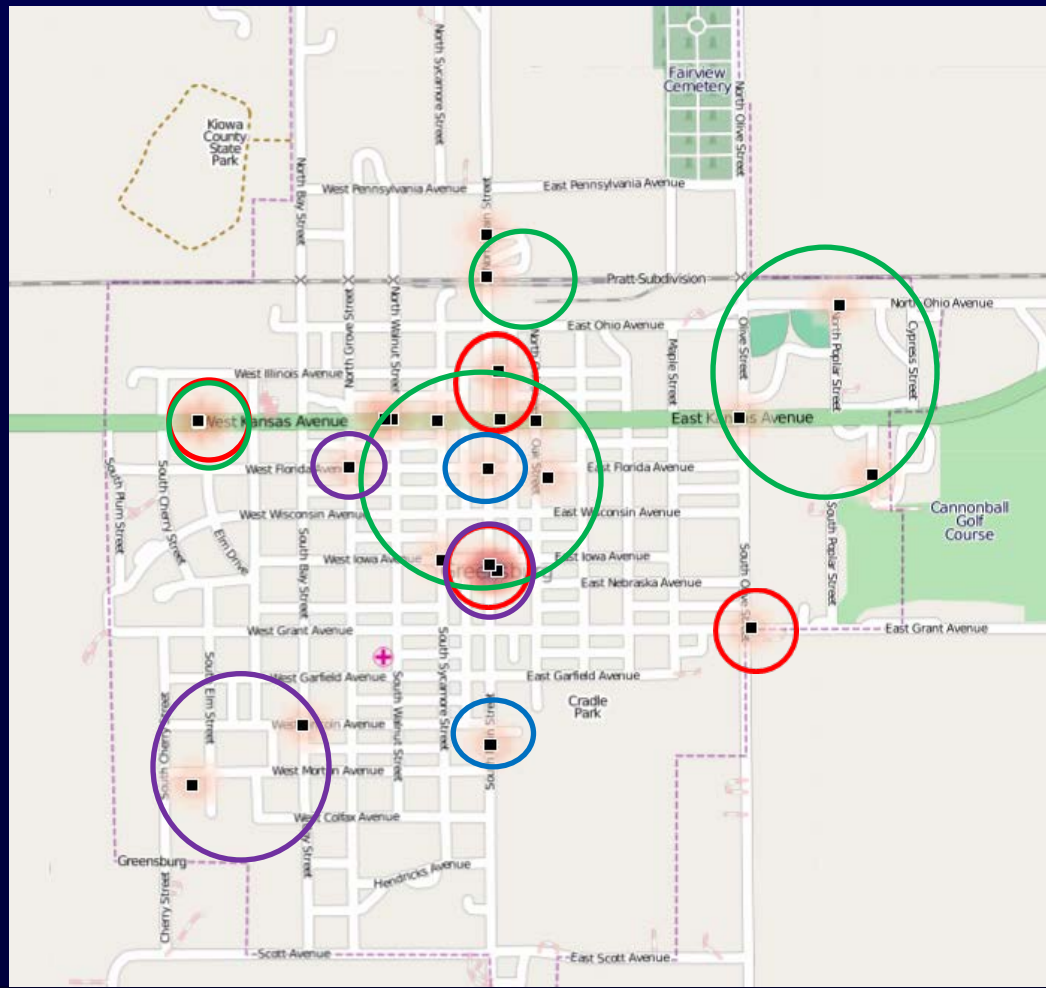
- 16

- Home

- 7

- Third Space

- 2



2008

- **Basic and Social Services**

- 1

- **Business**

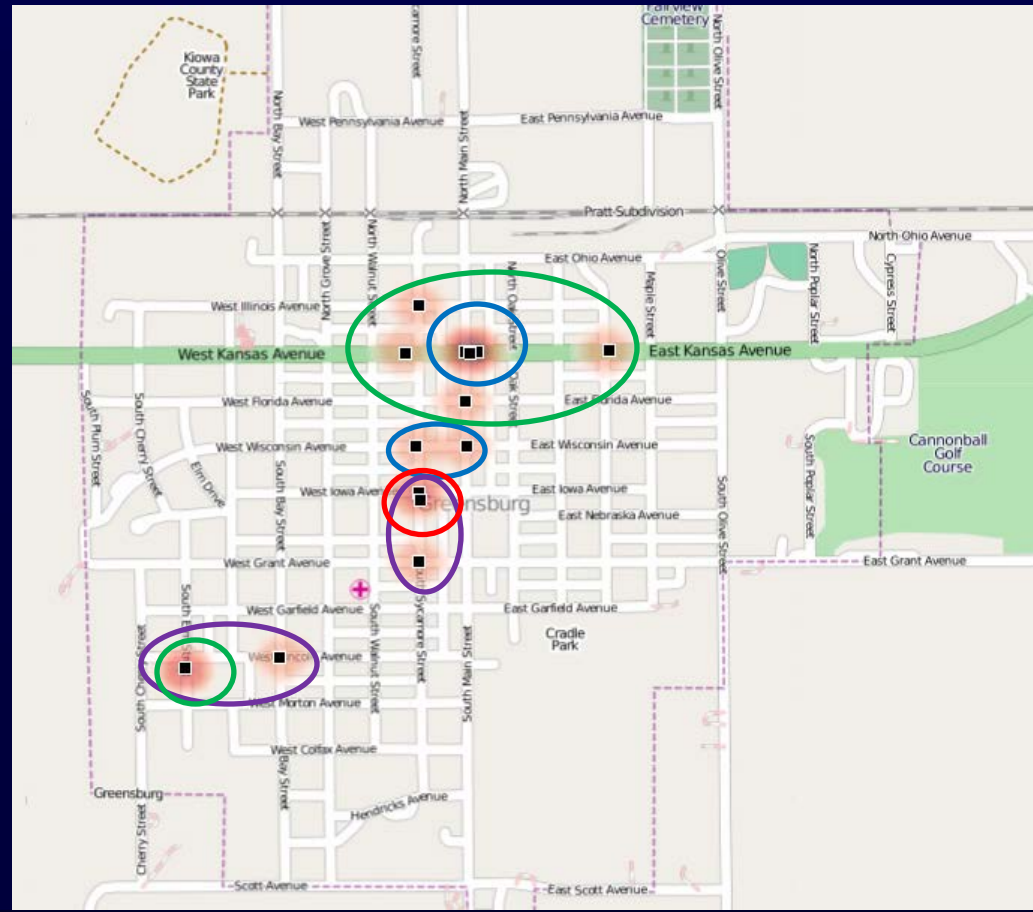
- 8

- **Home**

- 3

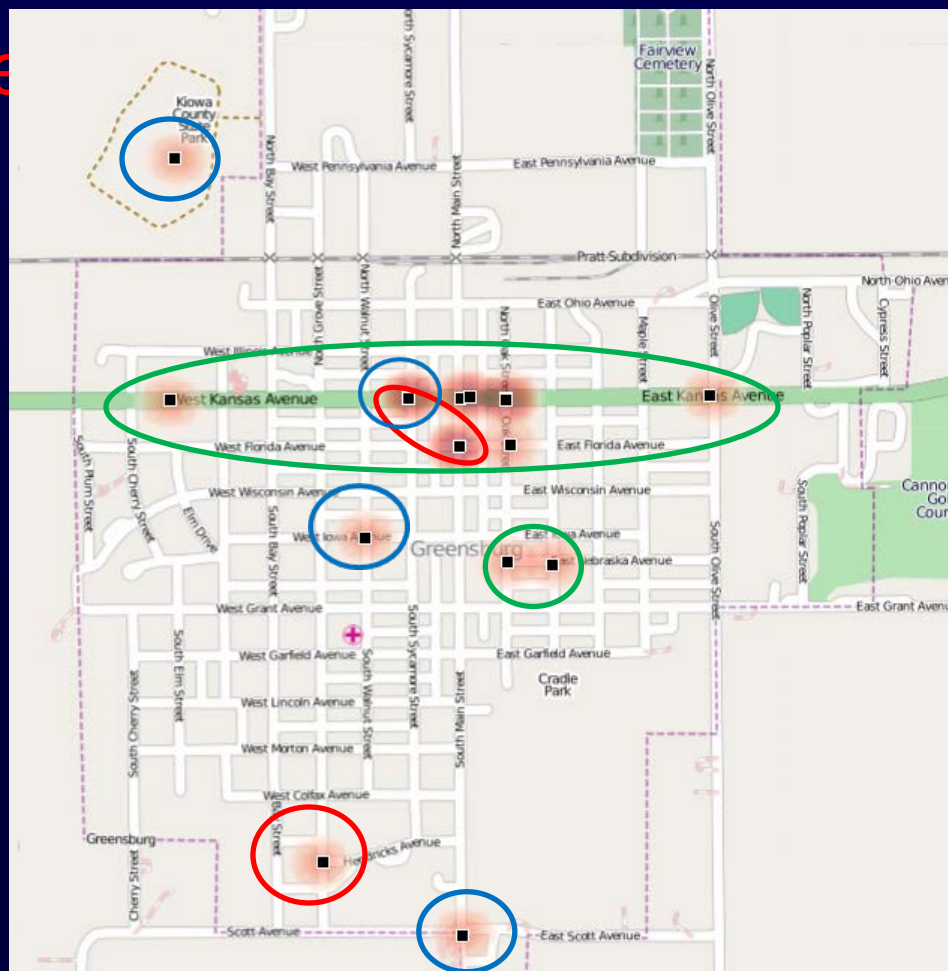
- **Third Space**

- 3



2009

- Basic and Social Services
- 3
- Business
- 10
- Home
- 0
- Third Space
- 4



VACCINE

2010

- Basic and Social S

 - 14

- Business

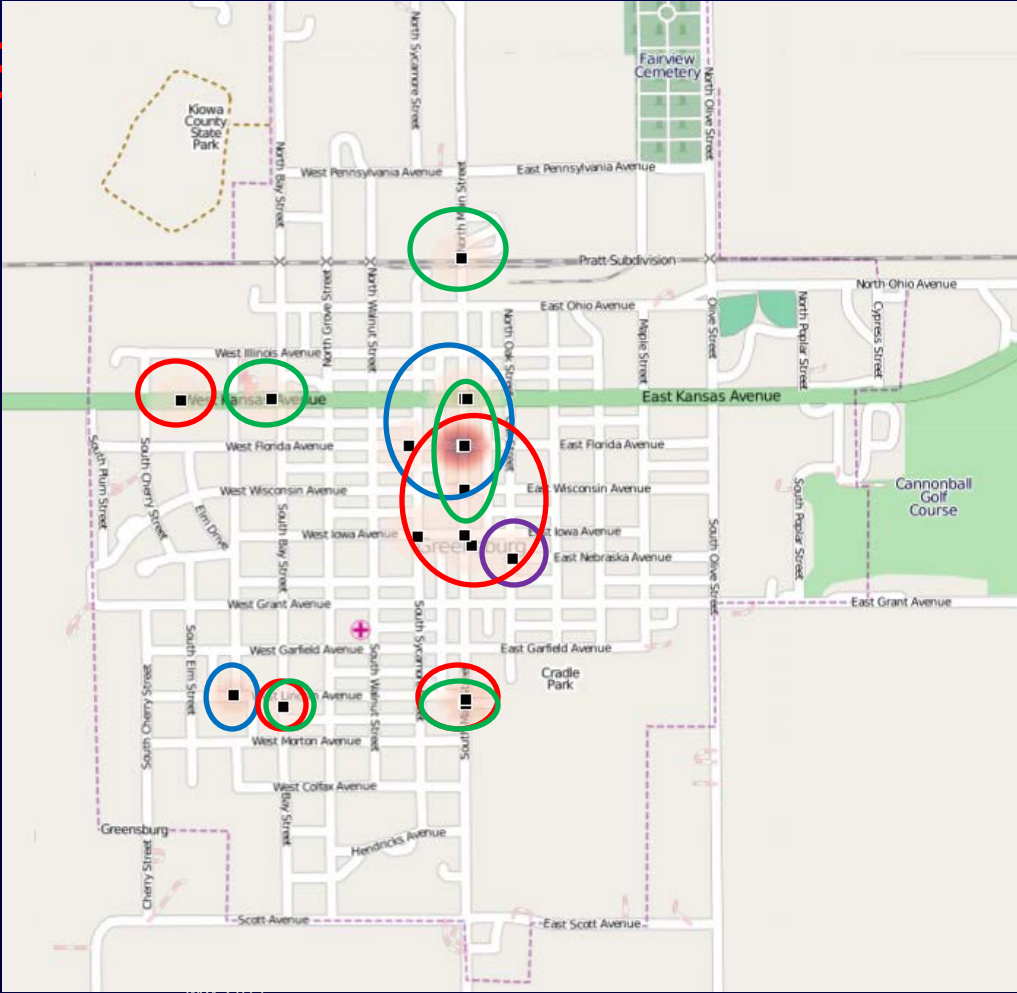
 - 26

- Home

 - 1

- Third Space

 - 5



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2011

- Basic and Social Services

- 4

- Business

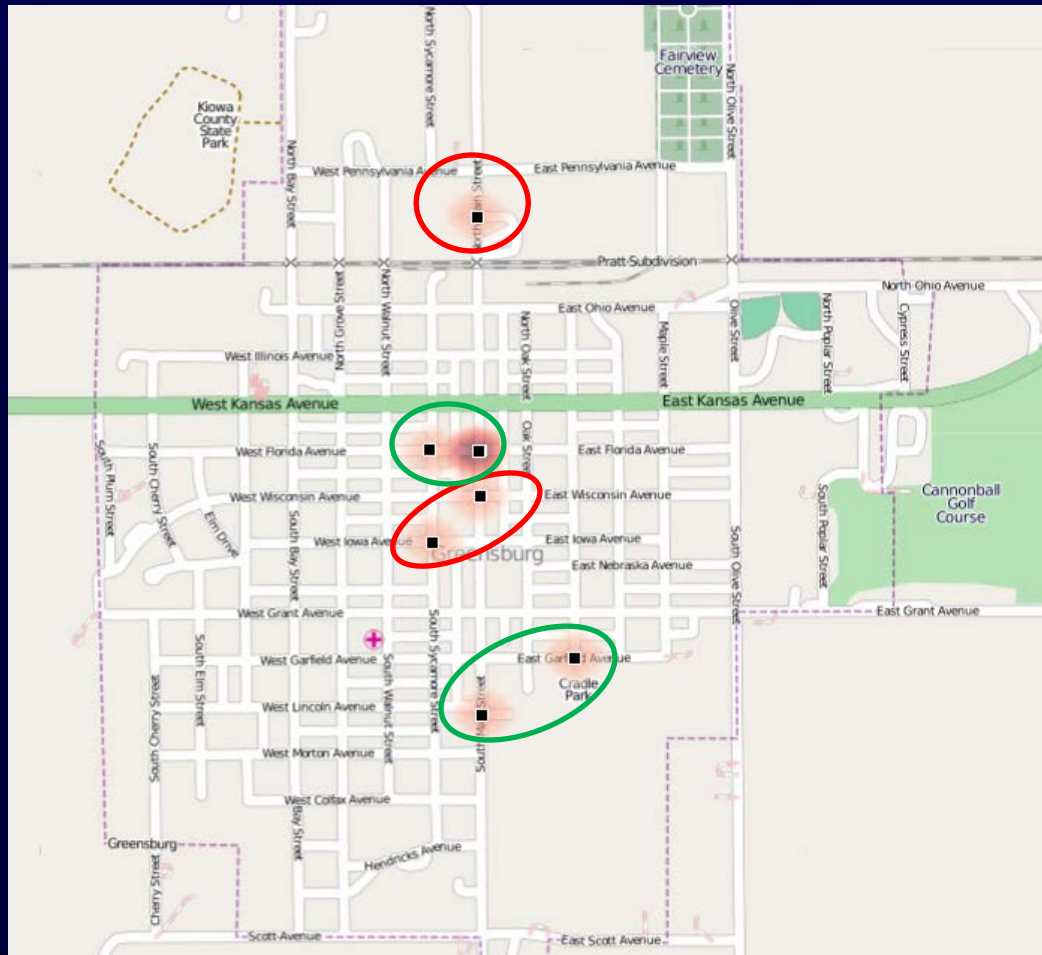
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- Home

- 0

- Third Space

- 0



2012

- Basic and Social Services

- 1

- Business

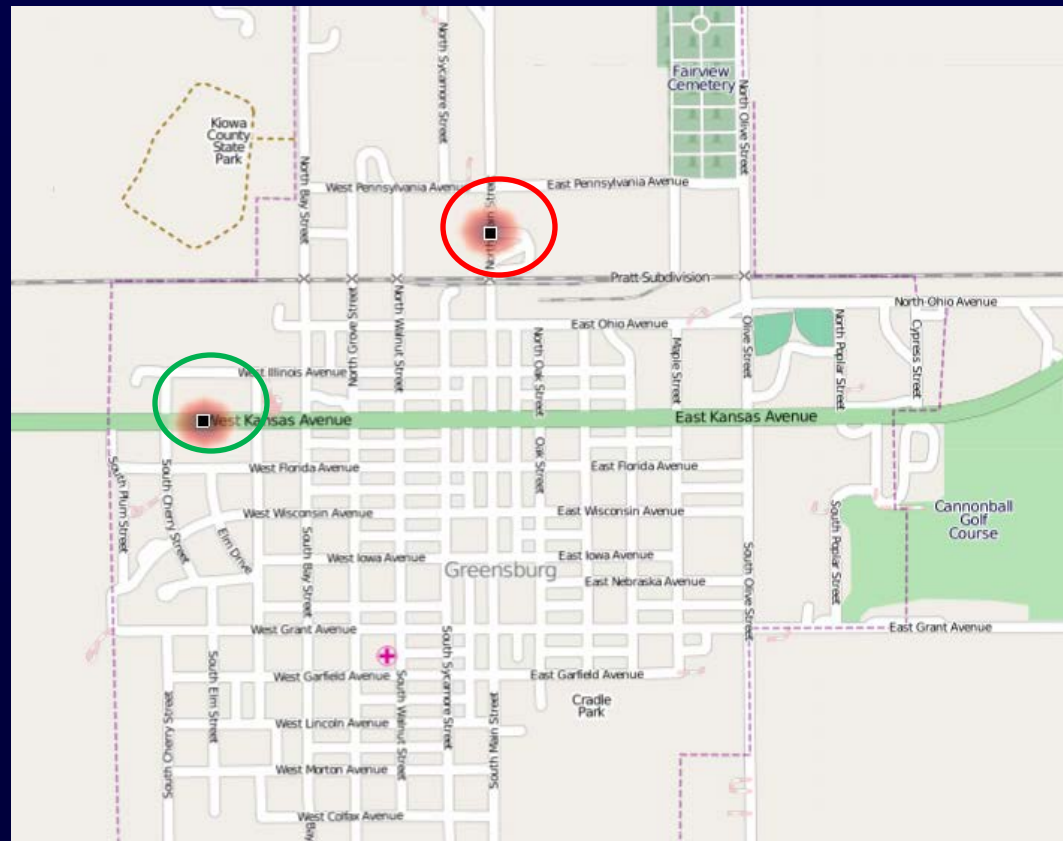
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- Home

- 0

- Third Space

- 0

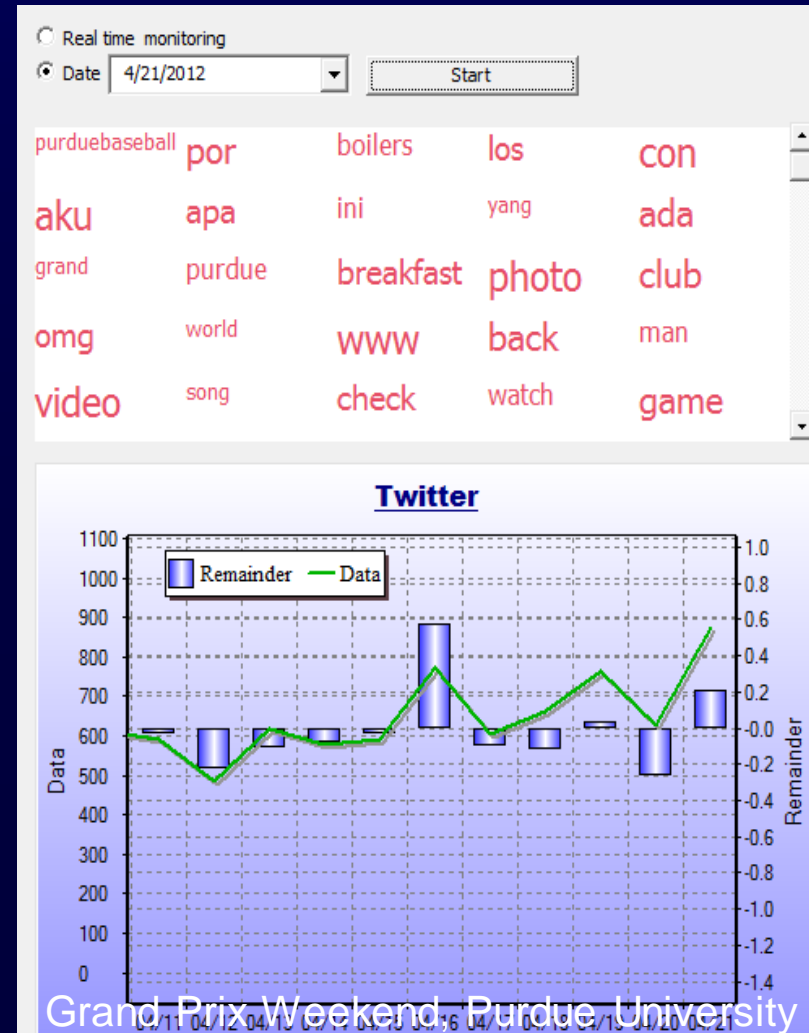


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Social Media: Real-time Twitter Visual Analytics

(Purdue, Stuttgart, Penn St.)

- Anomalous topic extraction using LDA and novel STL based remainder estimation technique
- Dynamically linked views providing options to monitor emerging / emergent twitter feeds
- Topics extracted shown as a dynamic word cloud



Social Media Visual Analytics: Scatterblogs

Web Scatterblogs

Control Panel:

Filter:

Keywords:

Start date:

End date:

Spatial Filter

Visualization:

Topic Model

ContentLens

Tag Map

Heat Map

Tweet Aging

Tweet Classifier

View:

Topic Model View

Tweet Table

Search Places:

Reset Settings:

Time Monitor: 2014-2-14 15:53:15 --- 2014-2-14 16:9:20

Filter Panel

TwitterStream: 5039

Union

Intersection

Reset

Show all

safety 114
 security 484
 super bowl 83
 weather 155
 Operations 809
 Operations 2
 CG GroupA 349
 CG GroupB 332
 CG GroupC 25

Trend and Anomaly Panel

of tweet (left axis)

abnormality (right axis)

02/10/2013 04/01/2013 05/21/2013 07/10/2013 08/29/2013 10/18/2013 12/07/2013 02/09/2014

0 1,000 1,500 2,000 2,524

0.00 0.10 0.20 0.19 0.26

Topic Panel

wanted
 flappy
 hit
 death
 burning
 fire
 snap
 burn
 service
 watching
 show
 nyfw
 live
 nocl
 fashion
 nyc
 olympics
 hurt
 living
 people
 live
 life
 forget
 hearts
 feel
 lost
 baby
 birthday
 video
 miss
 watch

Sorting based on: STL Volume

Tweet Panel

1254976334	14-02-14 11:36:22 EST	Rip to all the virginitys that s all going to be taken today -LMAOO
1122932768	14-02-14 11:36:59 EST	hey youtube. The internet's going crazy about this new video from IceJFish. What's your take? http://t.co/DXKNdySYBr http://t.co/mSiMDEU6HA?
1397442068	14-02-14 11:36:40 EST	?@EARTH_PICTURES Elounda Gulf Villas, Crete, Greece http://t.co/fdxsCV02Fuz wanna go there so bad Attn: PO PUCK NATION - a train is a comin you don t need no luggage,you just get on board, all you need is faith. #PoPuckPride puck drop 6pm
277624022	14-02-14 11:36:59 EST	
28047879	14-02-14 11:37:53 EST	Should I go home now or nah ?
614632418	14-02-14 11:38:55 EST	About to go get food
289124248	14-02-14 11:39:08 EST	Dude are you really that shot? @EDoc10 Lmaooooo woowoo
289370407	14-02-14 11:39:13 EST	@ImeraTee sister the only guys you can miss are Daniel and Dwayne
729501709	14-02-14 11:39:22 EST	My school having rap battles now. http://t.co/QPAmqdzVw
1338139874	14-02-14 11:40:02 EST	Everything seems like a city of dreams, I'll never know why, but I still miss you #cityofdreams #dirlysouth #afesoc
41518674	14-02-14 11:40:14 EST	

Tweeter Info

userID: 2149405257

image:

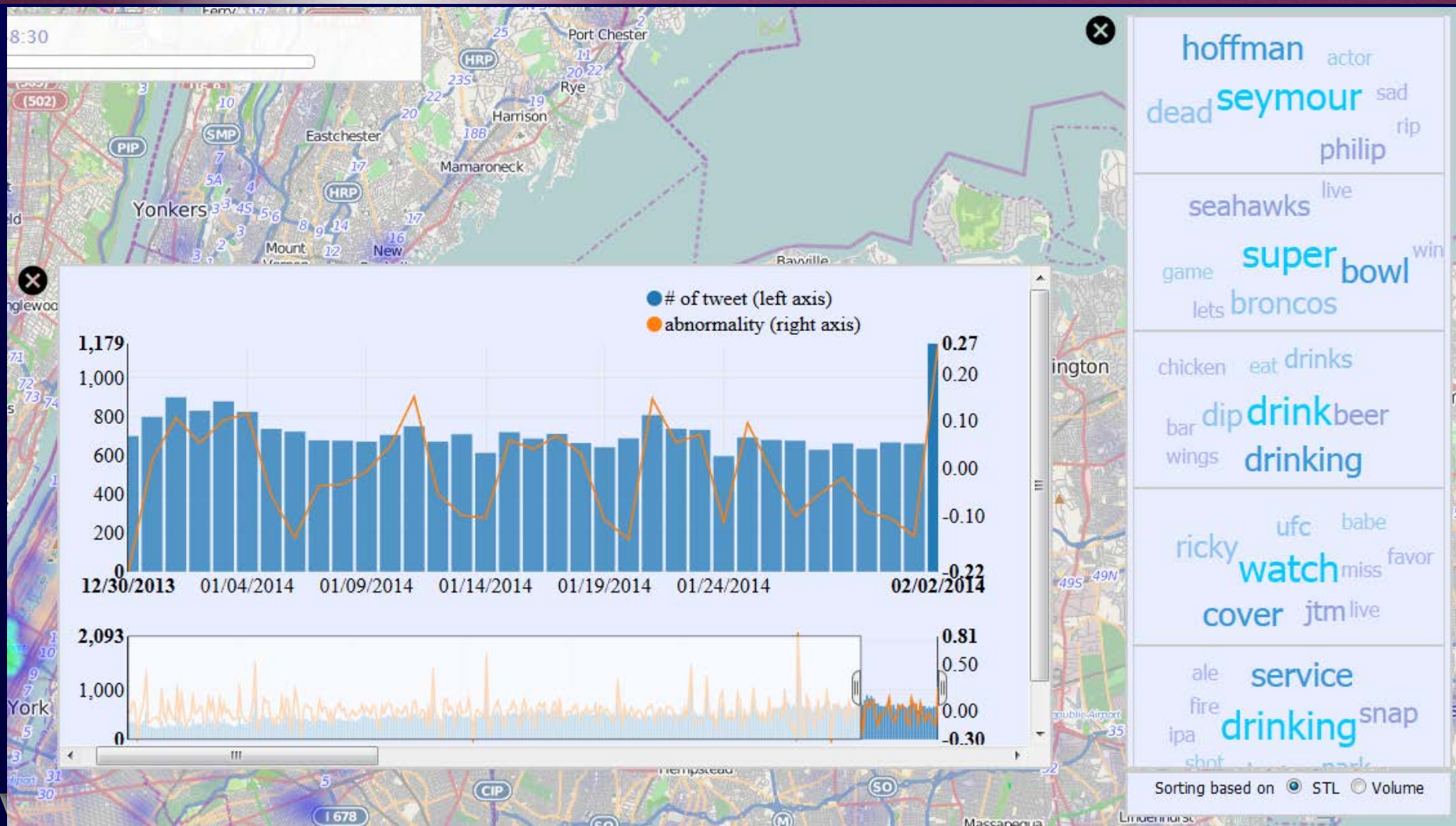
name: 5seconds_ofjb

friends: 1914

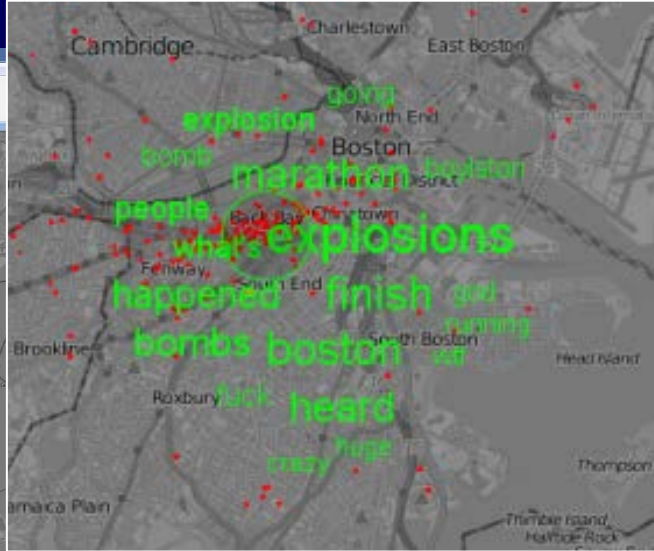
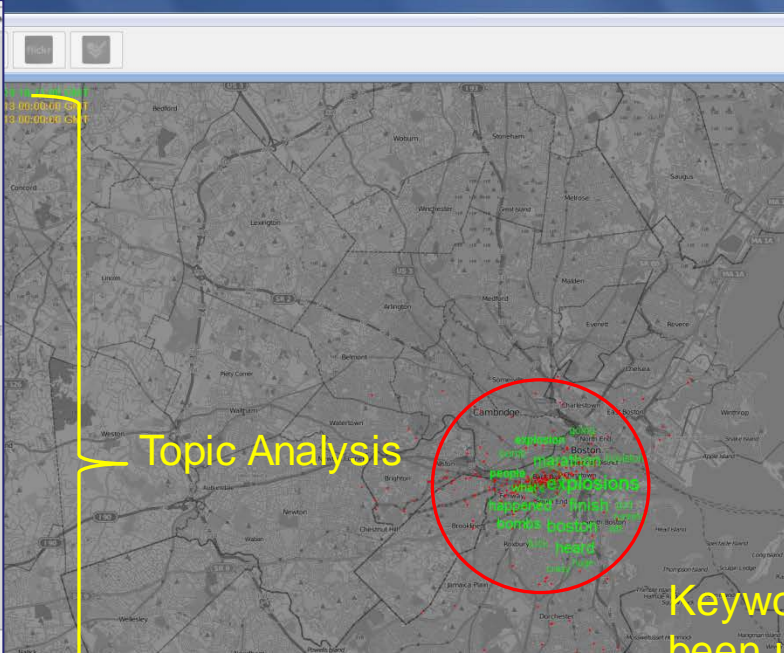
followers: 3408

location: NYC

Anomaly Detection



Explosion Area in Boston



Text	Tweets
Oh my god what just happened	
Something happened at the end of the Boston Marathon. Something bad and there is a lot of chatter on Twitter. What's going on?	
Multiple people are injured near the Boston Marathon finish line after two explosions. The #BostonMarathon has been stopped.	
two bombs just went off on boylston	
BREAKING NEWS: Two powerful explosions detonated in quick succession right next to the Boston Marathon finish line this afternoon.	
What the FUCK was that	
Back in Sept, @croon1 solicited me for \$2000. He now has a music video with William Shatner. If you watch it (god forbid) keep that on mind.	
Literally what the fuck got me out of here	
@DTenenbaum my office right next to it	
@FRANCESCalciO I figured 3 people would get the joke	
Two explosions just rocked the finish line of the Boston Marathon. Sirens galore. People running in fear. Wonder what happened.	
This is crazy i seen that blow up #bostonmarathon	
can someone tell me what that explosion was!?!? #boston #bostonmarathon	

11/11/2013 10:00:00 AM
 11/11/2013 10:00:00 AM
 11/11/2013 10:00:00 AM
 11/11/2013 10:00:00 AM
 11/11/2013 10:00:00 AM
 results: 95 selected: 0

First Response (Tweet & Picture)

15 Apr 2013 19:57:01 GMT
15 Apr 2013 00:00:00 GMT
16 Apr 2013 00:00:00 GMT

1 minute right after the incident



Austin, Tx Sunday Morning
May 4, 2014

Safety Classifier: Fire Event Detected
Location: Roger Beasley Collision Center

Time Monitor: 2014-5-4 19:12:30 — 2014-5-4 19:52:26

coast text hand
don missing
lost help hurt
mom hurt

warehouse laid
austinfire body
afd don
helping fan

directions
sad
missing count
simple doesn

calculate
wake friend firetown

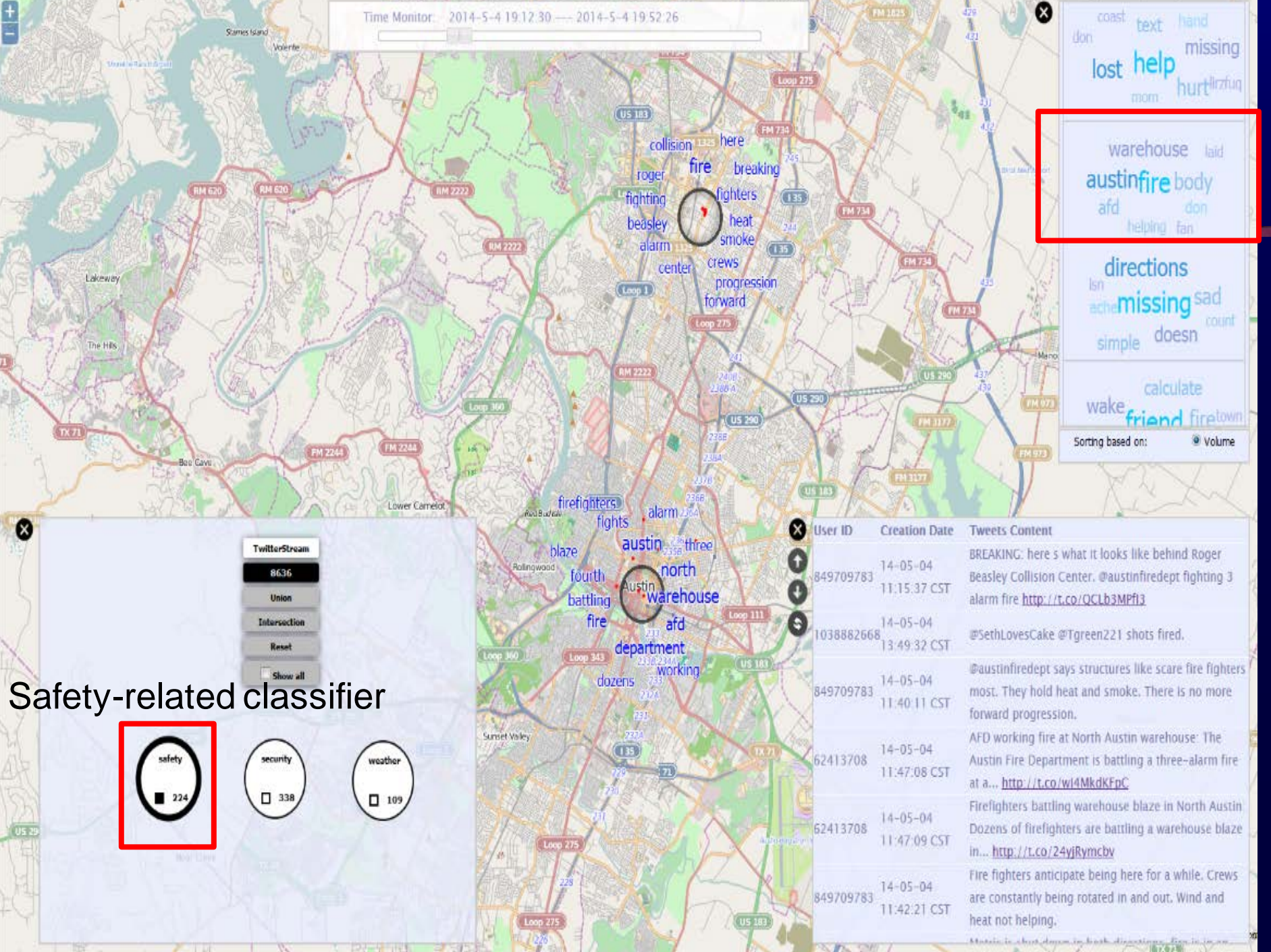
Sorting based on: Volume

Safety-related classifier

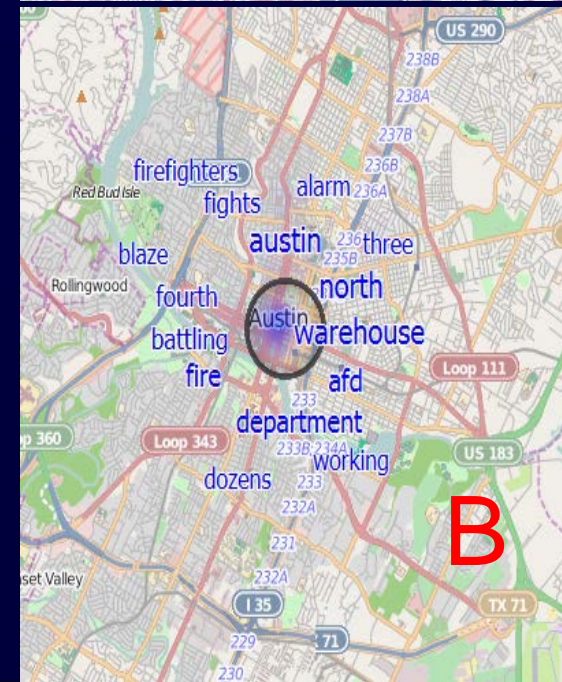
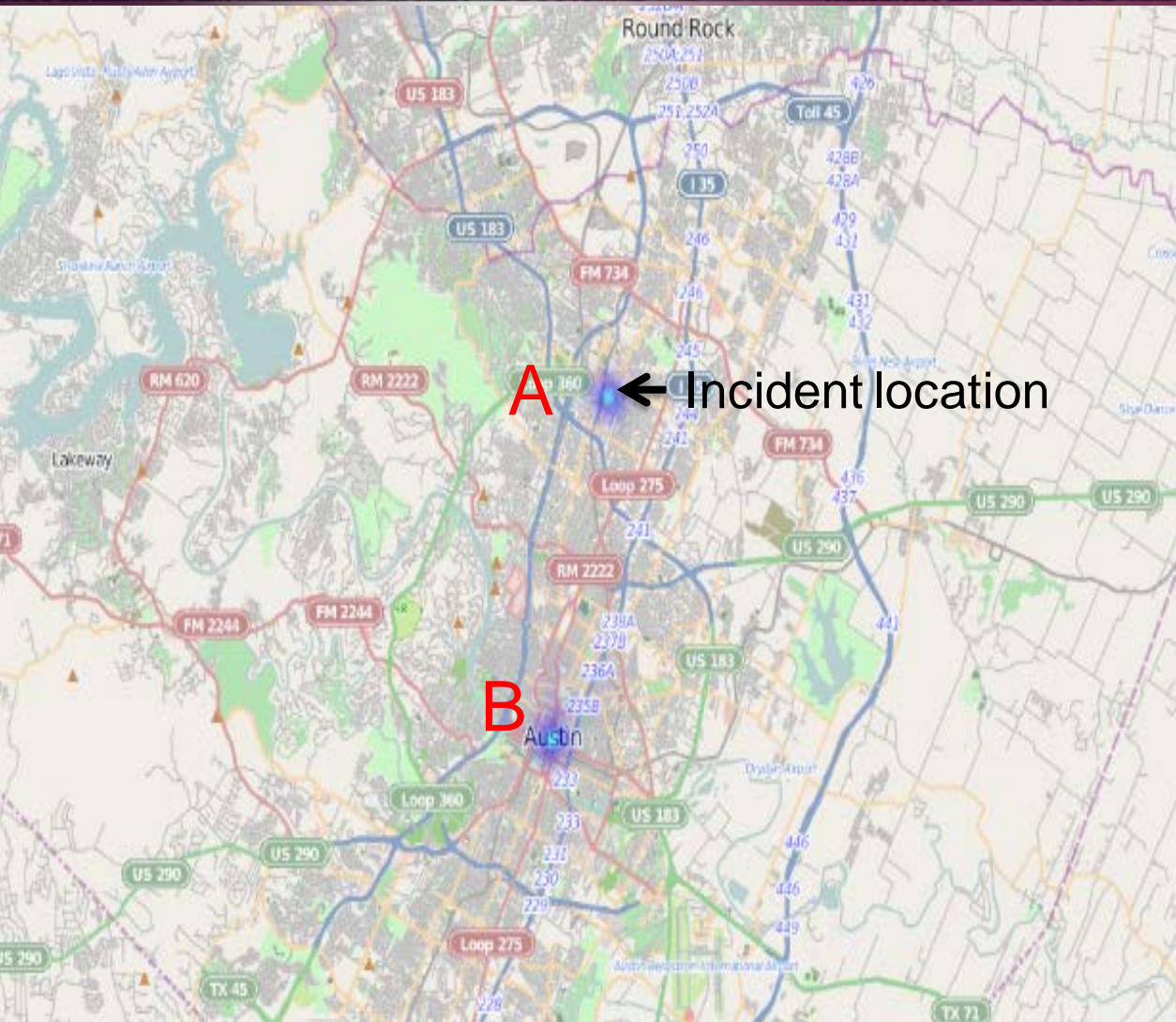
safety 224
 security 338
 weather 109

TwitterStream
 8636
 Union
 Intersection
 Reset
 Show all

User ID	Creation Date	Tweets Content
849709783	14-05-04 11:15:37 CST	BREAKING: here s what it looks like behind Roger Beasley Collision Center. @austinfiredept fighting 3 alarm fire http://t.co/QCLb3MPfj3
1038882668	14-05-04 13:49:32 CST	@SethLovesCake @Tgreen221 shots fired.
849709783	14-05-04 11:40:11 CST	@austinfiredept says structures like scare fire fighters most. They hold heat and smoke. There is no more forward progression.
62413708	14-05-04 11:47:08 CST	AFD working fire at North Austin warehouse: The Austin Fire Department is battling a three-alarm fire at a... http://t.co/wl4MkdKFc
62413708	14-05-04 11:47:09 CST	Firefighters battling warehouse blaze in North Austin Dozens of firefighters are battling a warehouse blaze in... http://t.co/24yjRymcbv
849709783	14-05-04 11:42:21 CST	Fire fighters anticipate being here for a while. Crews are constantly being rotated in and out. Wind and heat not helping.



Spatial Distribution (Heat Map) and Keywords (Content Lens) of Fire-related Tweets




A Local Journalist Kept Updating The Event On The Spot

Roger Beasley Collision Center

User ID	Creation Date	Tweets Content
849709783	14-05-04 11:15:37 CST	BREAKING: here's what it looks like behind Roger Beasley Collision Center. @austinfiredpt fighting 3 alarm fire http://t.co/QCLb3MPf13
849709783	14-05-04 11:40:11 CST	@austinfiredpt says structures like scare fire fighters most. They hold heat and smoke. There is no more forward progression.
849709783	14-05-04 11:42:21 CST	Fire fighters anticipate being here for a while. Crews are constantly being rotated in and out. Wind and heat not helping.
849709783	14-05-04 11:16:25 CST	Metric is shut down in both directions, fire is in an unmarked warehouse. Heavy black smoke still coming from the bundling.
849709783	14-05-04 11:23:53 CST	@ATCEMS has several stretchers set-up near where the fire is. No word of any injuries at this time.
849709783	14-05-04 12:30:54 CST	Fire crews on scene say the roof has sagged a few inches, they aren't concerned of a collapse they are taking calculated risks

userID 849709783



image

name ChrisShadrock

friends 586

followers 499

location Austin,TX

warehouse laid
austinfire body
afd don
helping fan

directions
isn
ache missing sad
simple doesn't count

wake calculate
wake friend fire town

Volume

Chris Shadrock @ChrisShadrock Follow

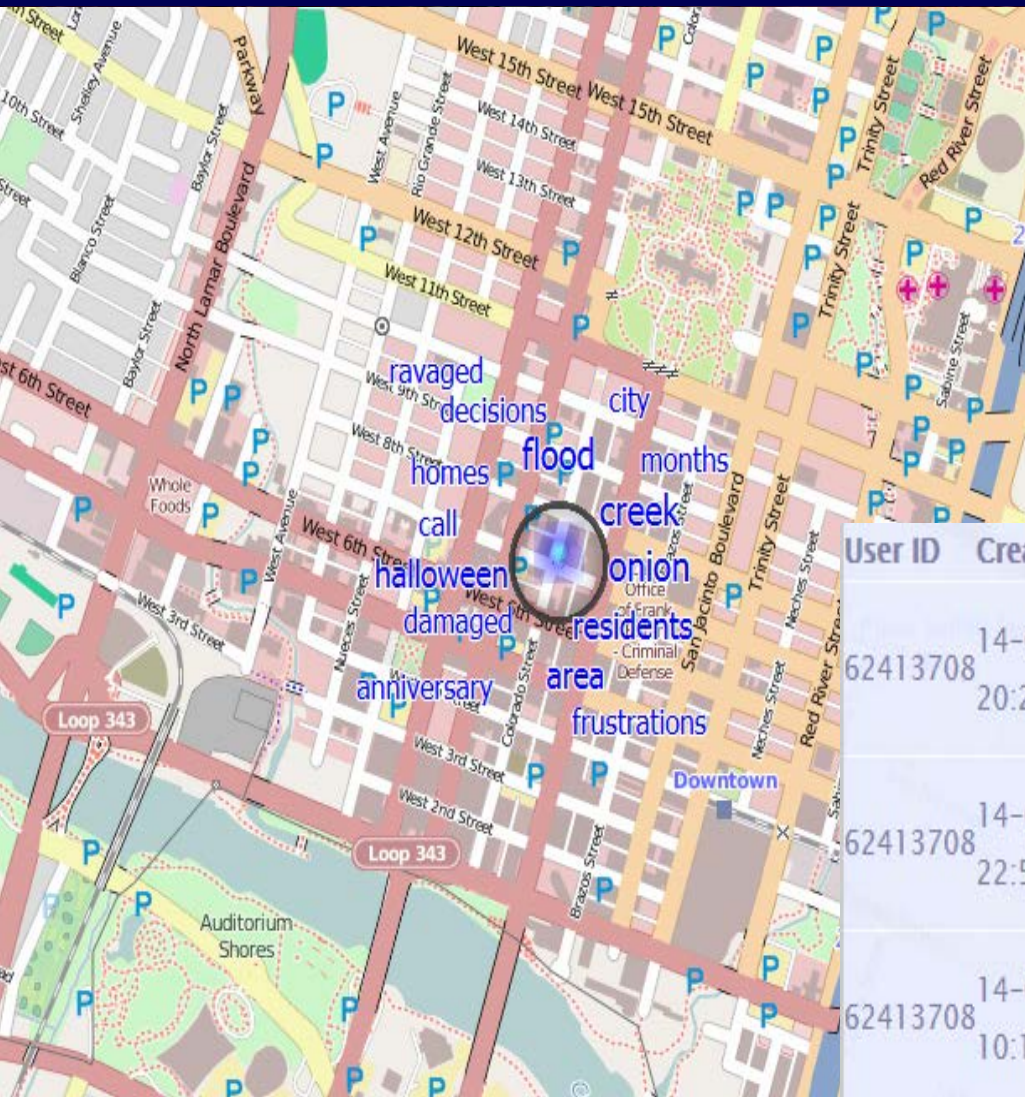
BREAKING: here's what it looks like behind Roger Beasley Collision Center. @austinfiredpt fighting 3 alarm fire pic.twitter.com/QCLb3MPf13

From Austin, TX

Reply Retweet Favorite More

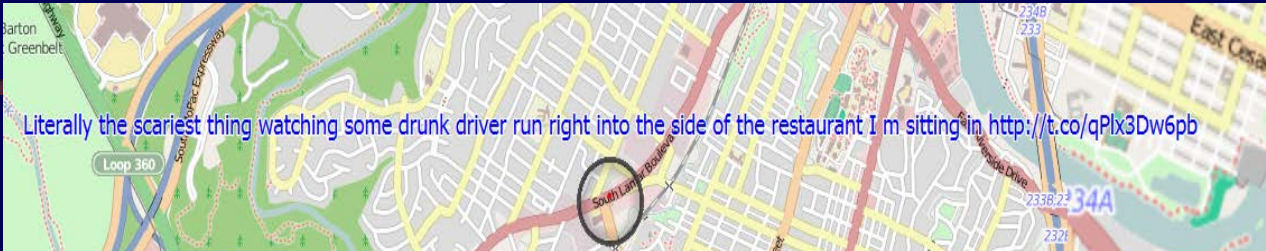



Also Detected This Weekend: Halloween Flood Related Tweets



User ID	Creation Date	Tweets Content
62413708	14-05-03 20:21:25 CST	Onion Creek residents call for city to make decisions on flood-damaged homes: The frustrations of Onion Creek... http://t.co/gPADzk6ppd
62413708	14-05-03 22:59:04 CST	6 month anniversary of the Halloween floods: It s been six months since flood waters ravaged the Onion Creek area... http://t.co/BEIGDV2ODY
62413708	14-05-04 10:13:05 CST	South Austin post-flood needs survey: On Saturday, residents in the Onion Creek area hit hard by the Halloween.. http://t.co/xwMQ8PhVHL

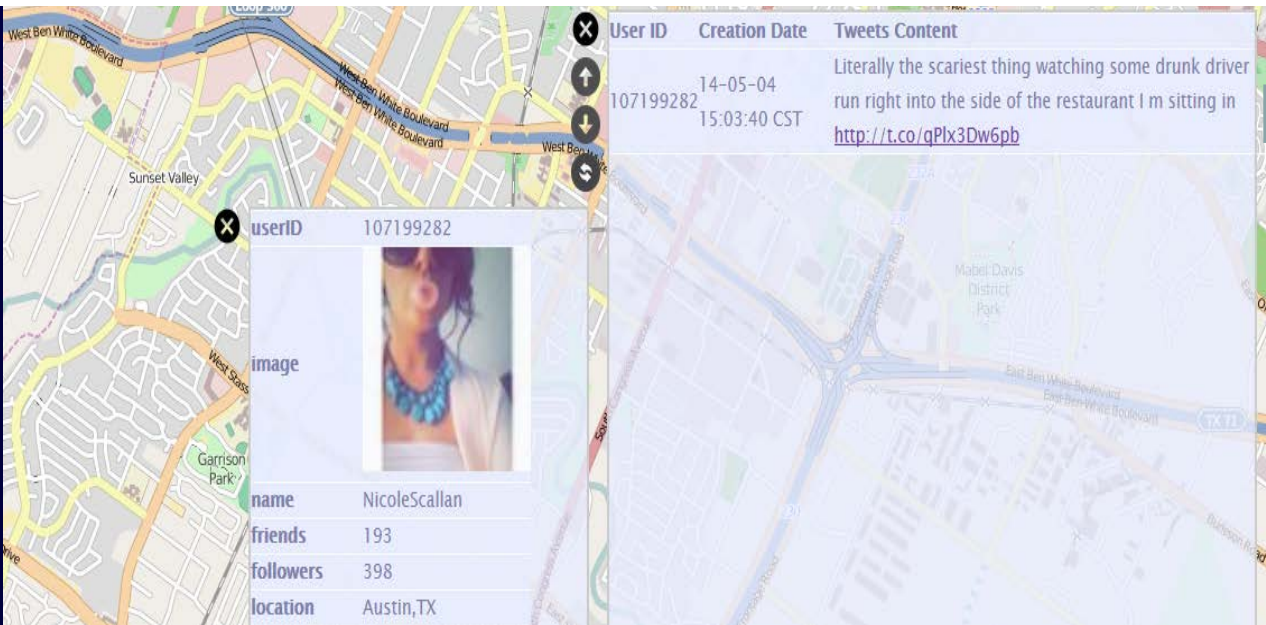
Also Detected This Weekend: Drunk Driving Accident




 **Nicole Scallan**
@NicoleScallan

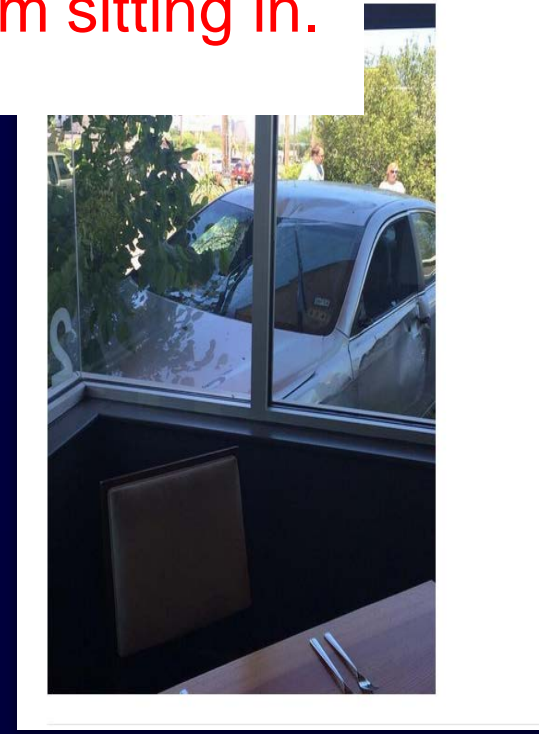
Literally the scariest thing watching some drunk driver run right into the side of the restaurant I'm sitting in

Tweet: Literally the scariest thing watching some drunk driver run right into the side of the restaurant I'm sitting in.



User ID	Creation Date	Tweets Content
107199282	14-05-04 15:03:40 CST	Literally the scariest thing watching some drunk driver run right into the side of the restaurant I m sitting in http://t.co/qPlx3Dw6pb

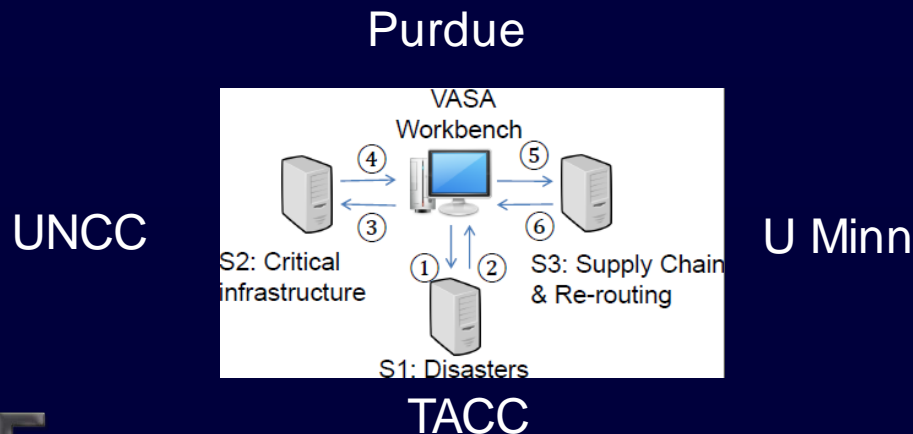
userID: 107199282
image: 
name: NicoleScallan
friends: 193
followers: 398
location: Austin, TX



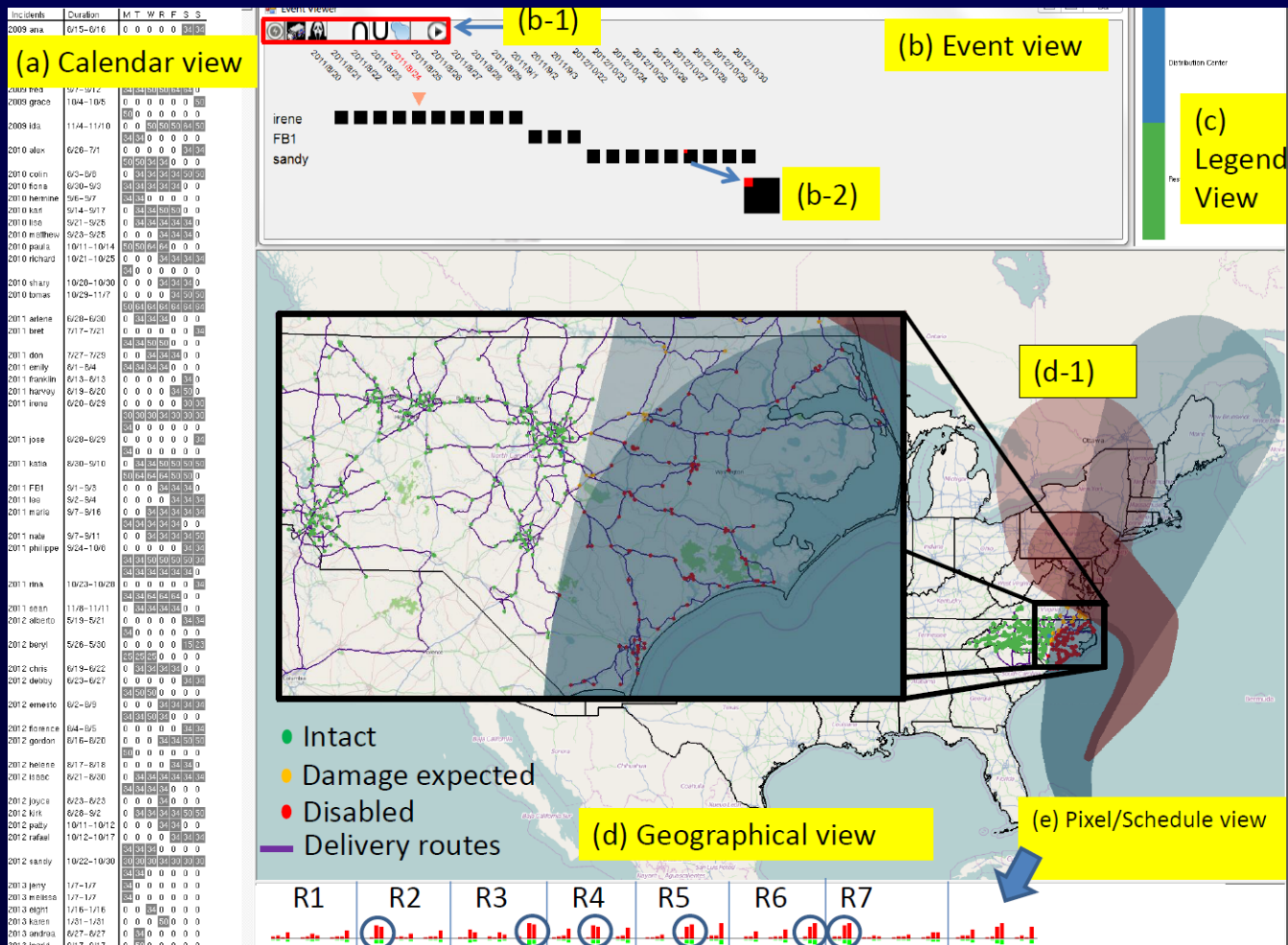
Cascading Critical Infrastructure Resiliency Modeling and Analytics (VASA)



- **Purpose:** Apply visual analytics to the problem of monitoring and understanding cyber networks and critical infrastructures during detrimental cascading effects, and to the management of the ensuing crisis response.
- **Collaborating Institution(s):** Purdue, UNC Charlotte, U. Minn. (NCFPD), U. Texas (TACC), U. Konstanz, U. Stuttgart, Fraunhofer IGD, Siemens, German utilities
- **End-User(s):** Power Suppliers (e.g., Duke Energy), Cyber Community (e.g., Cisco), Quick Service Restaurants and suppliers, food supply



System Interface



Effective Risk-based Decision Making and Resource Allocation Visual Analytics

- Evaluate current and historical mission area:
 - Demands
 - Risks (total, mitigated, residual)
 - Resource allocation
 - Return on investment
- Evaluate courses of action
- Evaluate above at both Strategic and Tactical/Operational level



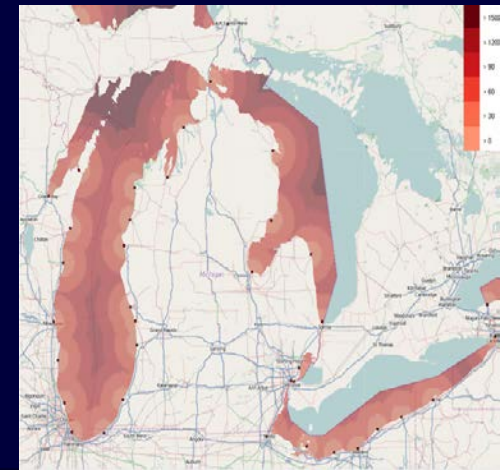
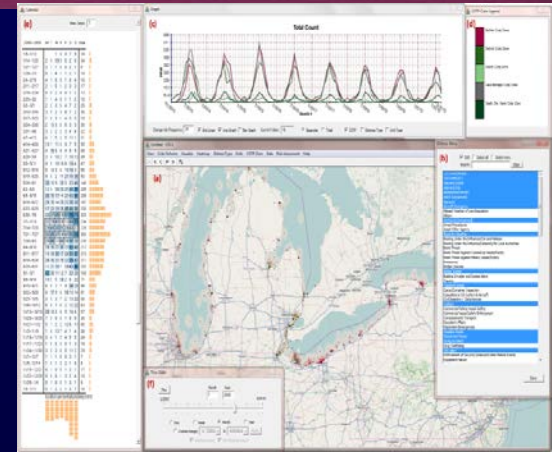
U.S. Coast Guard Search and Rescue VA

(cgSARVA)

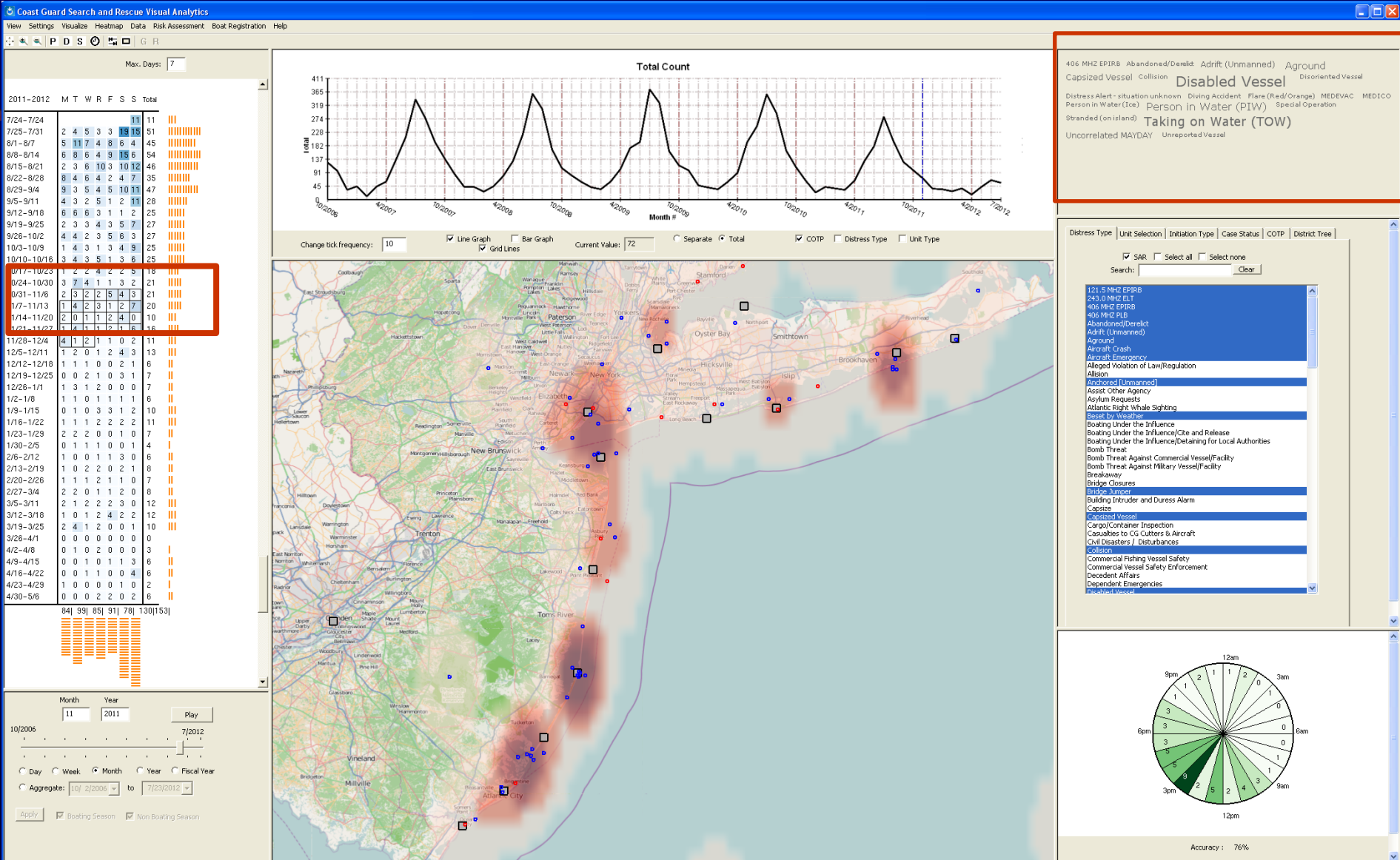
Partners: USCG LANT 7, USCG D9, USCG D5, USCG HQ 771

IMPACTS:

- Analyzed impact of CG auxiliary stations on search and rescue mission in Great Lakes
- Used for resource allocation for SAR
- Provided new insights to SAR mission
- **Hurricanes Sandy and Irene resource allocation decisions based on cgSARVA analysis and visualization**
- **Informed Commandant's budget testimony to Congress**
- Key component of USCG D9 reallocation plan for 2011-12
- Key component of Coastal Operations Allocation Suite of Tools (COAST) – USCG HQ

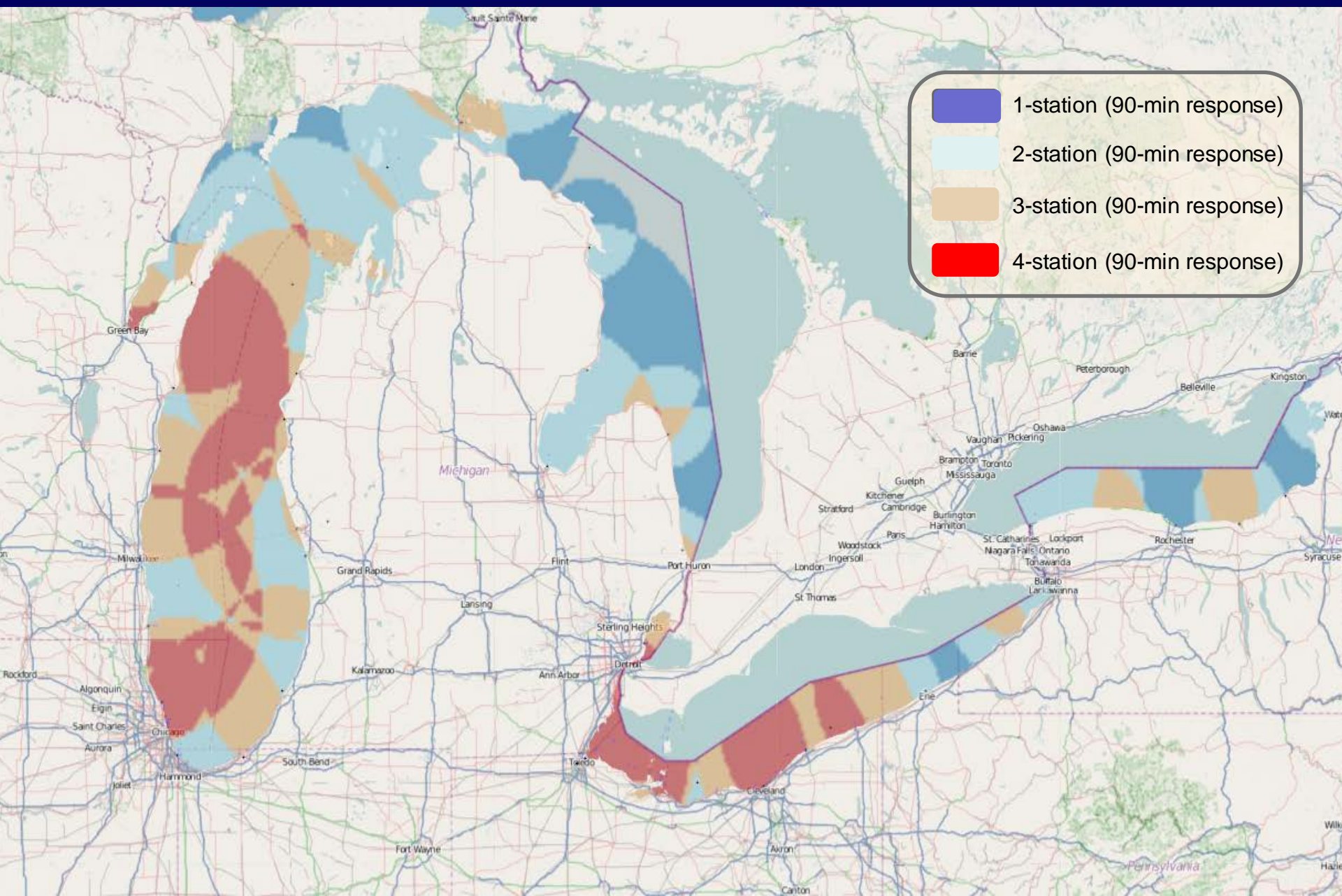


Example: Risks and Consequences From Sandy: SAR Cases November 2011 NJ/NYC Area



VACCINE

Response Efficiency – Potential Future Assets

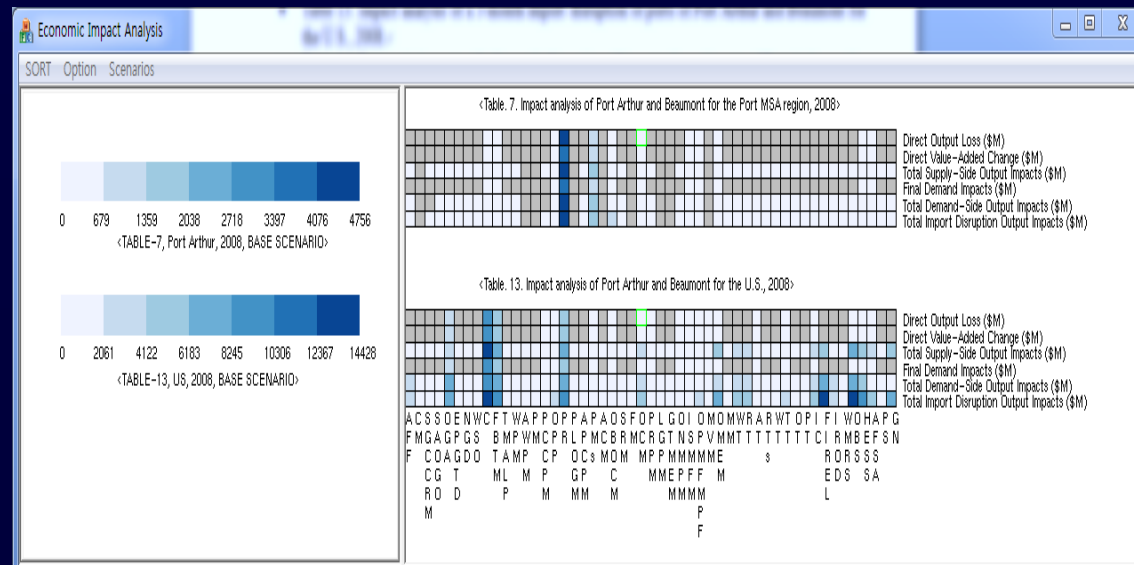


USCG Port Closure Economic Impact VA

Partners: USC CREATE, USCG RDC, USCG D7, USCG LANT

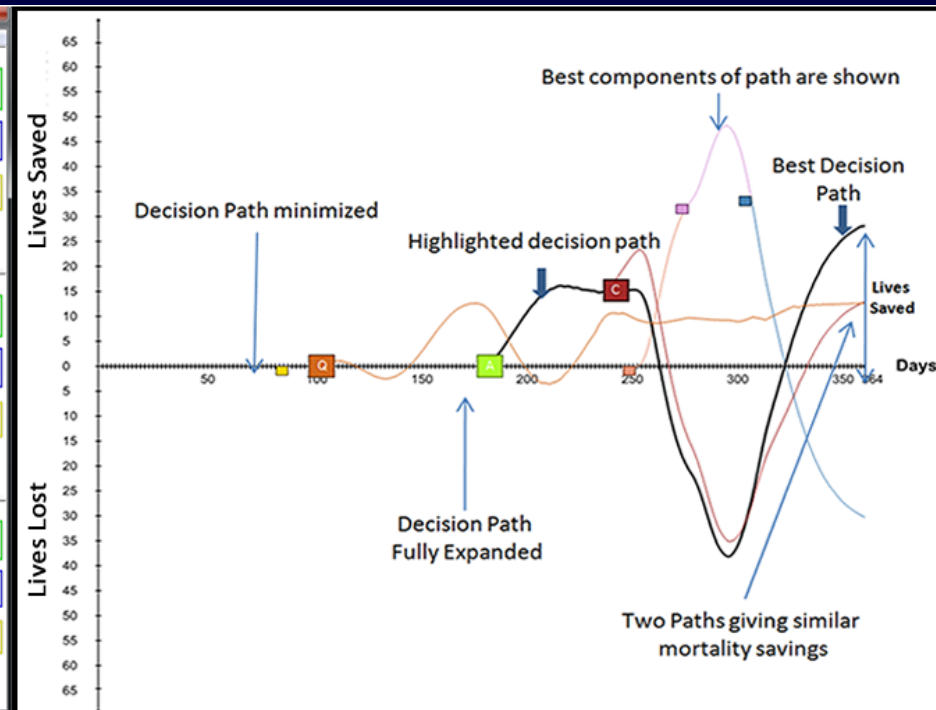
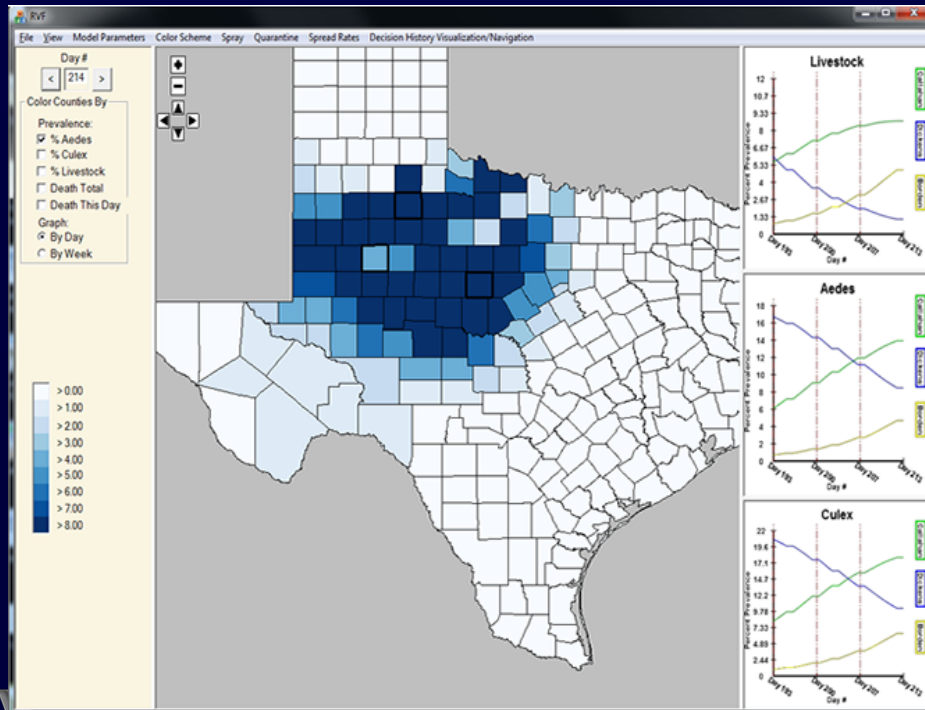
IMPACT:

- Provided tool for use analysis and planning for impact of port closure in Port Arthur, Tx
- Economic sector impact, local and national impact
- Impact and effectiveness of alternative mitigation strategies



Complex Decision Making: Advanced Decision Support Tools (e.g., Rift Valley Fever)

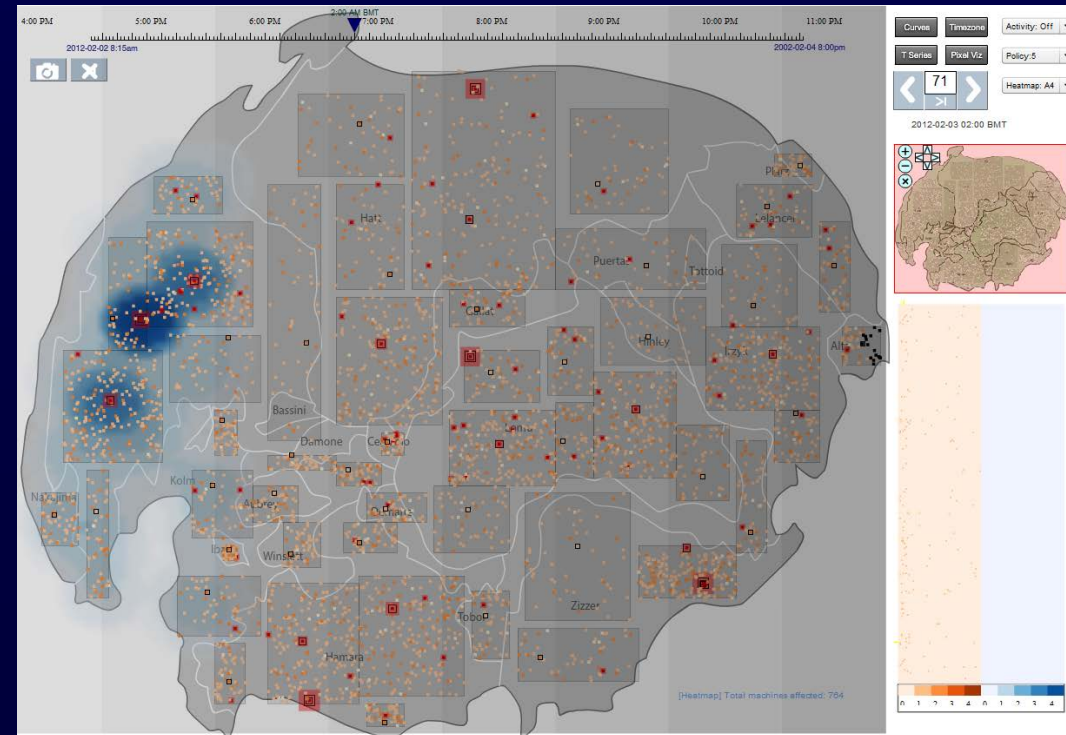
- Integrated simulation models
- Explore alternative courses of action in decision space and real space



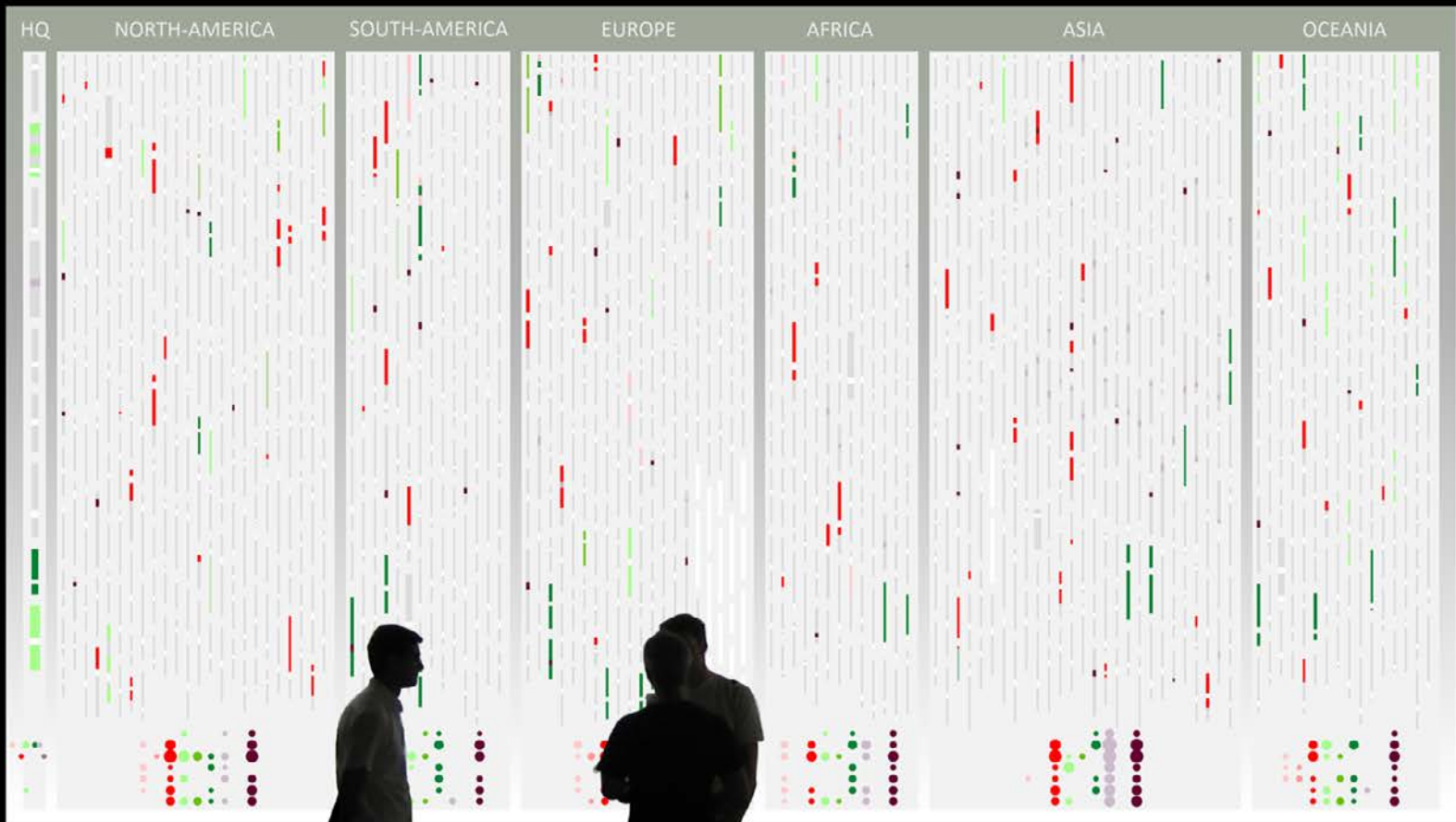
SemanticPrism: A Multi-aspect View of Large High-dimensional Data (Purdue University)

- VAST 2012 Mini Challenge 1 Award: Outstanding Integrated Analysis and Visualization

- Geo-Temporal
- Time-serial
- Pixel-based
- Semantic Zoom



Victor Yingjie Chen, Ahmad M Razip,
Sungahn Ko, Cheryl Zhenyu Qian,
David S.Ebert



2013 VAST Challenge MC2 Award
Outstanding Creative Design

www.interactiondesign.us/vast2013/SpringRain

Spring Rain

A Visual Analytics System with an Ambient Information Display +



Visual Analytics: Remember...

- We need to be cognizant of parameters for visual representations
- Appropriate analysis can guide users to interesting features in the data
- Refined analysis through user interaction and their domain knowledge can help discover hidden problems
- There is no single catch-all visual representation or analysis

Keys for Success

- User and problem driven
- Balance human cognition and automated analysis and modeling
 - Often applied on-the-fly for specific components identified by the user
- Interactivity and easy interaction
 - Utilizing HPC and novel analysis approaches
- Understandability of why predicted value is what it is
- Intuitive visual cognition
- Not overloaded with features

For Further Information

www.VisualAnalytics-CCI.org

The screenshot shows the VACCINE website homepage. At the top, the VACCINE logo is displayed in large, bold letters, with the tagline "Visual Analytics for Command, Control, and Interoperability Environments" and "A U.S. Department of Homeland Security Center of Excellence" below it. To the right of the logo are social media icons for Twitter, Facebook, and YouTube, and a Google Custom Search bar. Below the header is a navigation menu with links for Home, About, Research, Education, Team, Publications, Resource Links, Videos, Reports, and VACCINE Events. The main content area features a section titled "Visual Analytics for Command, Control, and Interoperability Environments". On the left, there are two news items: "Coast Guard Visual Analytics Research Collaboration" and "Purdue students contribute to Coast Guard". The main content area is dominated by a large image showing a graffiti-covered wall and a chalkboard with a complex diagram. Below this image is a caption: "GARI in Discovery Magazine Sept, 2012" with a date of "October 19, 2012". To the right of the main image is a small text box: "G, T, and L denote G, and B, the G, T, and L letters of the alphabet, which stand for Bruna Gangster Disciples, a faction of a Chicago gang. The star and circle also represent the United States." Below the main image is a pagination bar with numbers 1 through 13. On the left side of the main content area, there is an "Overview" section with a sub-section "VACCINE Newsletter" listing "Volume 10: November 2013", "Volume 9: October 2013", and "Volume 8: September 2013". To the right of the main content area, there is an "About VACCINE" section with the text: "VACCINE's goal is to help this nation's 2.3 million extended homeland security personnel, including first-responders, perform their jobs more effectively by turning mass amounts of data into manageable information." and a "Learn More..." link. Below the "About VACCINE" section is a video player titled "VACCINE promo 1.0" with a play button icon.