Using social data to understand live festival audiences

Laurissa Tokarchuk[1], Matthew Purver[1,2],
Stuart Battersby[2]
[1]Queen Mary University of London /
[2]Chatterbox Analytics

Digital Buzz

- Electronic or digital buzz is left when:
  - Using a phone
    - Location information about physical location and proximities (GPS, Bluetooth, accelerometer)
  - Comment on an experience (Twitter, Facebook, etc)
    - Comments contain opinions and sentiments of the user experience
  - Uploading a photo (Facebook, Flicker, Instagram)
    - User generated tags associated with a photo

Digiprints

- Digiprints or digital trails can be created from this information that reveal spatiotemporal characteristics:
  - Individual and group activity lines.
  - Detection of hotspots (crowd density, sentiment, movement, etc) .

- Digiprints can:
  - aid planners in distributing footfall to less explored areas and under-utilised services.
  - Can aid the festival experience (navigation).

Data Collection

- Unreliability of data streams
- Processing of social media streams involves NLP.
- Credibility? Hidden biases?

- Device specific.
- Limited in time and participants.
- Scalability?

- Data Alignment.

http://scm-l3.technorati.com/12/01/15/60155/Social-Media-Collage.jpg?t=20120115135657
http://t1.gstatic.com/images?q=tbn:ANd9GcRZvQTCuO5pPCDHc7K6CNdAI-tkJ2QgfoGiOMpFeogS5QDxJo0Z

Language Processing

- Problem 1: conversational context

  @user1: Butterfly Effect on film4 in bed! Night world!x

  @user2: I am watching that!! Immense film.

  @user3: thx let's see if I can make sense of it this time …

- Subsequent messages important:
  - Sentiment, opinions, emotions etc
  - Can only understand them *in context*
  - Dialogue structure models?

Language Processing

- Problem 2: social media language

  Nyt alexx tweetdreamsh RT @JDBAustralia: Goodnight everyone, i will tweet you all tomorrow <3 #loveislouder

  - Non-standard lexicon, spelling
  - Specific conventions (<3, hashtags, mentions etc)
- Data-driven approach important:
  - Robust machine learning (distant supervision)
  - Learn from observation (no assumption about lexicon for sentiment, emotions etc)
  - Adapt quickly to new domains, networks, languages

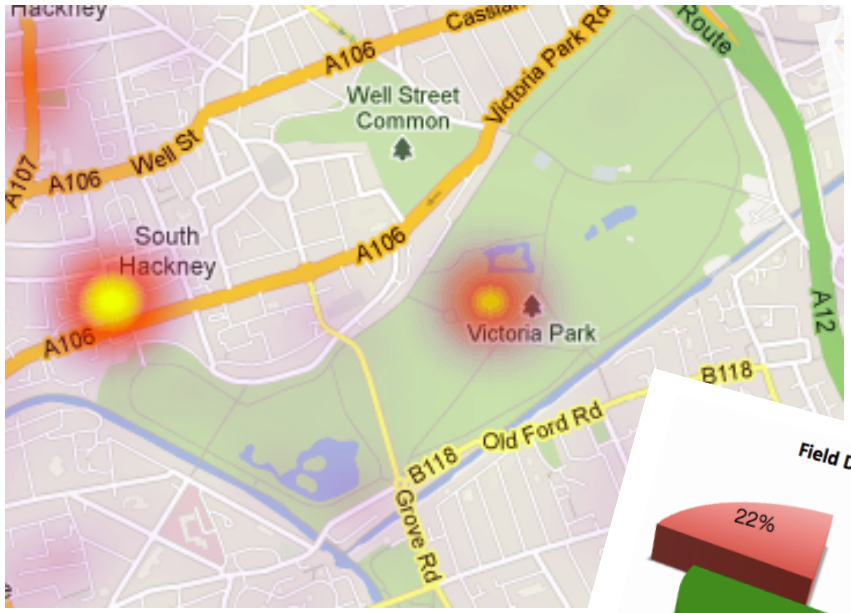
Crowd Vibe Sensor

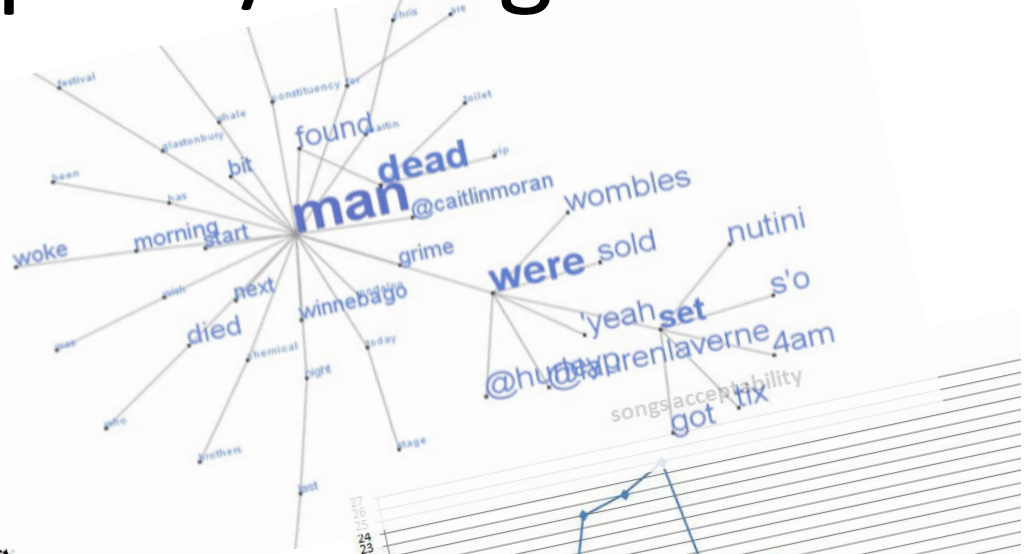
- An interactive feedback loop informing performers, local and remote audience members of what is engaging and exciting people.
  - Interactive installations – wheel of emotion/word cloud
  - Phone info-graphics and Navigational aids
  - Event auto-documentary tool

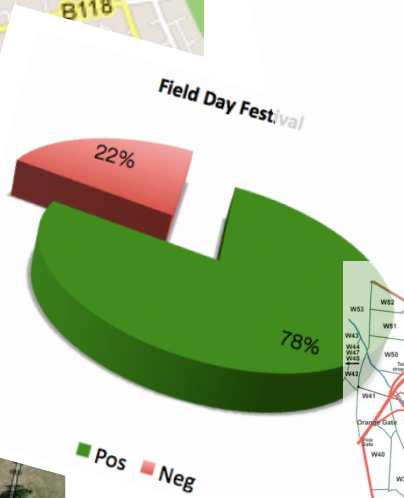
Interactive Installation

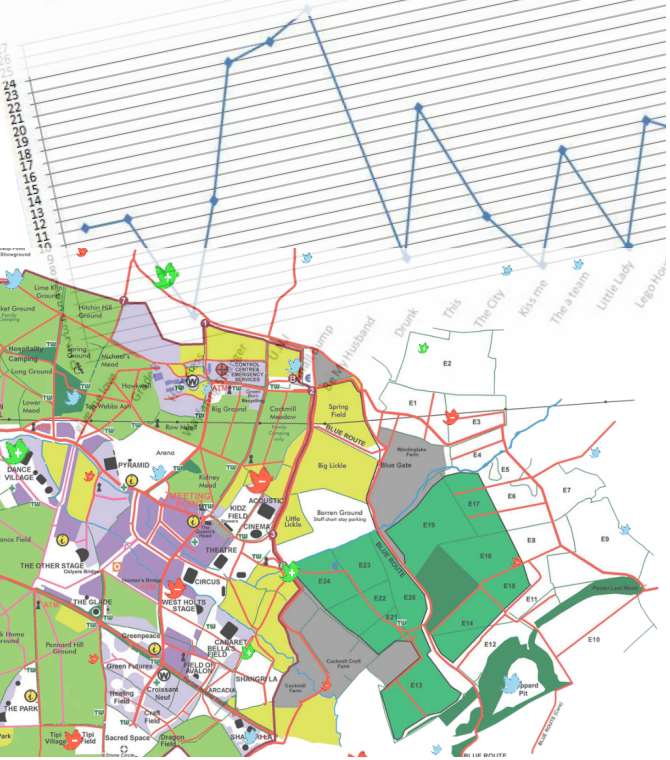
- Photos and social media classification of the festival experience streamed live.

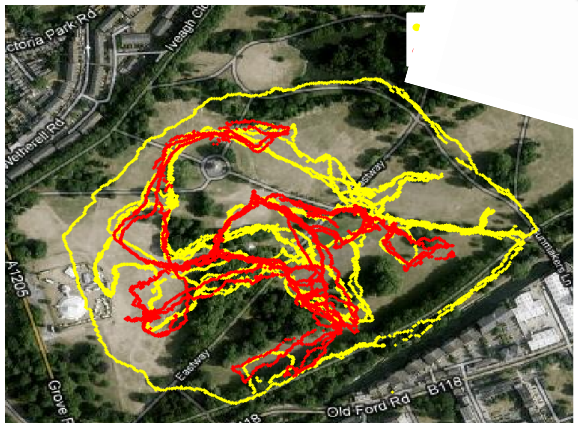
Phone Infographics/Navigation











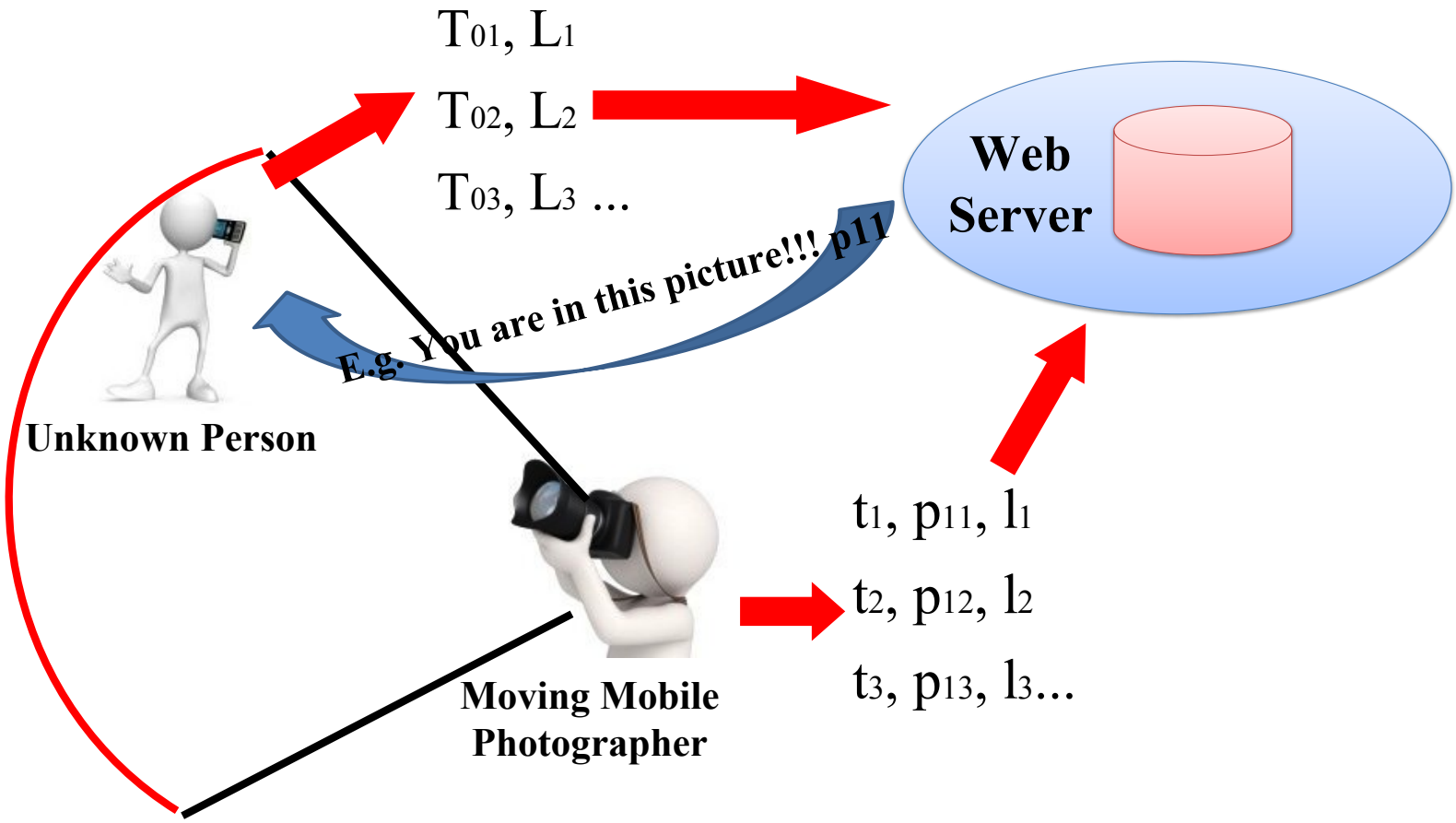
Auto Documentary tool

a work in progress

- Photo Story Board
  - Users are automatically tagged in photos/videos they are in.
  - Story boards can be automatically generated for all

Photo Positioning Experiment

- A More Elaborate Example: Moving Camera
  - Moving mobile photographer
    - Record his/her GPS information and a taken photo within every T period
  - Unknown Person with Phone
    - Record GPS location within every T period



Summary

- What we can do:
  - Does user X like Z?
  - What is the buzz in area
- Questions:
  - How does technology enhance the audience experience?
    - Facilitating collaborative experience
  - How do we influence audience behaviour?