"New York State-of-Mind"

Large Scale Interactive Public Art

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Basic Concept

- The installation exhibits large scale *photo-realistic digital animated human faces* capable of conveying fine shades of gradually and *continuously changing emotions* and placed in high visibility, high traffic public spaces (e.g. Fulton Street subways station, Grand Central station, Guggenheim, Times Square, Broadway or 5th Avenue shop window – see Figure1 1&2).

- All these faces are *linked and synchronized* to simultaneously express the same affect and emotions, thereby *reflecting New York's Collective State-of-Mind* at any given moment.

- *Multiple faces* of different ethnic origin, gender and age are used to *convey the multi-cultural aspect* of NYC and the *synchronization symbolizes how all individuals are linked* together and depend on one another in our complex society. *"When they smile ... I smile."*

- The digital face models are constructed on the grounds of sound *scientific principles* to represent affect on a psychologically valid circular display of emotions, called the *Emotion-Disc*. At a first glance, faces appear still, but gradually and imperceptibly *change expression over time as data is gathered* from the collective via mobile and social media applications.

- To reflect the collective "state-of-mind" of the people living in New York or a given geographic area *individuals "submit" their current mood anonymously* to a central server via a custom *mobile application* (Iphone/Android), *on-line desktop* interface or *FaceBook* social media App.

- This "New York State-of-Mind" mood App employs the same circular animated interface of a *Smiley-like character*, where (instead of words) users can represent and submit their contributions multiple times a day. This is also based on scientifically grounded principles (*Momentary Assessment of Emotions*).

- This *normalized emotion representation* is then *transformed on all output faces*, each conveying the *same expression* and amplitude (e.g. Neutral, Happy, Sad, Angry, Fearful or Surprised) *but each in a different way*. Additional expressions, such as a kiss, wink, bored, flirty, etc. can also be created.

- The application, in addition to the mood coordinates, *also records the users' physical location* (GPS or Wifi-based) and *collates this data in the form of a map projected on the areas or buildings of NYC*, effectively creating a real-time varying mood map of areas (such as Chelsea, Financial District, etc. or possibly even finer resolution at the level of buildings). This map will also be updated in real-time and published at certain intervals and form the basis of further visualization techniques of the city's emotions.

- Data is gathered in an anonymous fashion, but *users may register to follow the current status of the NYC collective emotions and also receive their animated mood video* (a time series of mood frames they submitted) on a monthly basis. They may also be motivated with campaigns and further rewards for their regular contributions. Apart from locals living in NYC the *system is also available to all tourists* or anybody visiting the area, since the apps will filter data based on the physical location captured.

- To support the uptake of the idea, a *viral marketing and social media campaign* will be launched in addition to TV interviews, press publicity etc. to increase the scope and effect of the installation and make it a truly collective public experience.
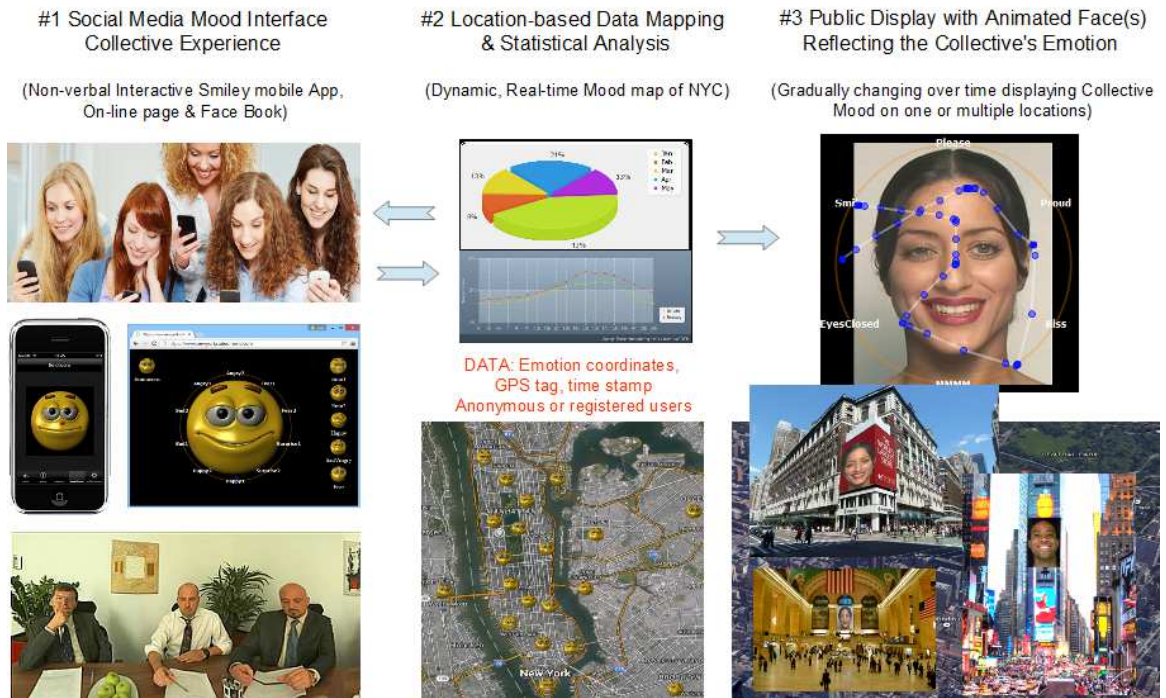
Fig 1: "New York State-of-Mind" public art installation concept (see text).
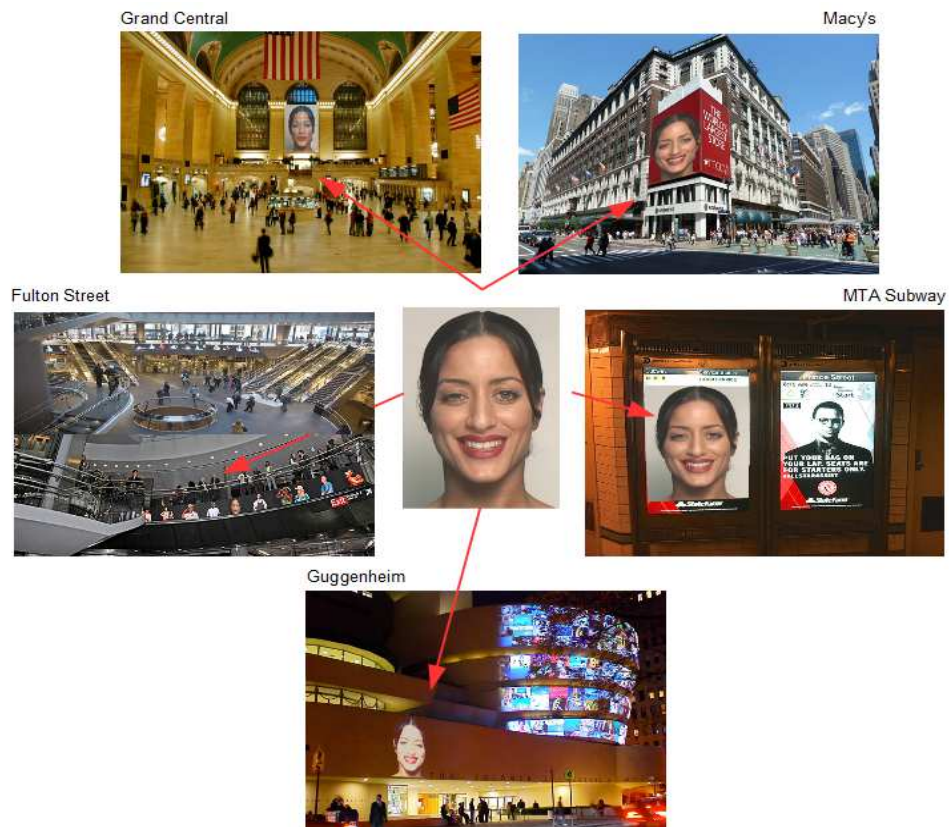
Fig 2: Public display examples to be used for the NYSM installation (see text).

How these Affective Faces are Created ?

- The *FaceModel* is created from a set of affective photographs (Neutral + six emotional expressions. (See Figure 3 for detail).
- These expressions are turned into a continuous animation space and represented on a circular interface (*EmotionDisc*), where any blend of expression can be represented with 2 coordinates.
- The time varying sequence of coordinates creates a slowly and gradually changing animation where facial displays of affect are modified imperceptibly, almost as if we were looking at a photograph.
- This animation is controlled and updated over time based on the emotion and mood response of the NYC collective.
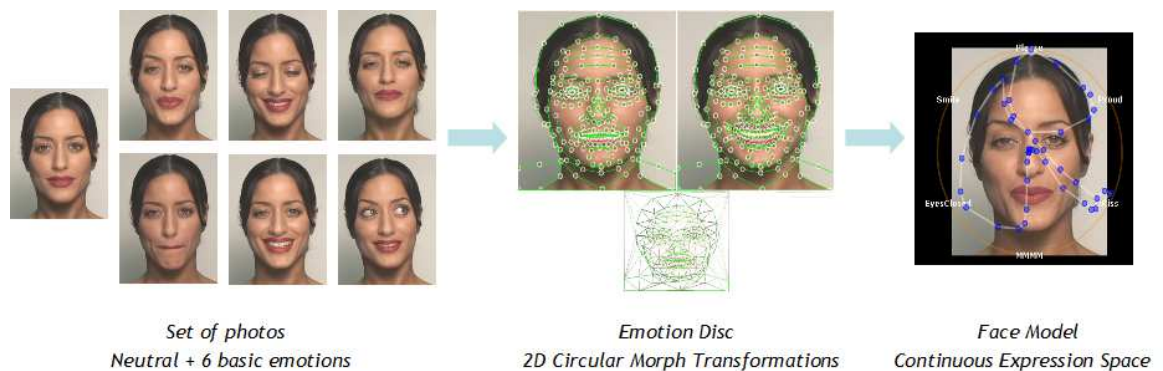

Set of photos
Neutral + 6 basic emotions

Emotion Disc
2D Circular Morph Transformations

Face Model
Continuous Expression Space

Fig 3: Building a high fidelity photo-realistic animated face from a set of affective photographs.

How Multiple Faces are Linked and Controlled ?

- *Users'* mood input is captured in a mathematical space (*Emotion Disc*) and added to the collective's average data set.
- Next, the mood average of the collective is mapped onto *multiple faces* (models and comedians) we captured during the production process.
- The facial expressions shown on the *Public Display*(s) will be the same (e.g. Happy) for each digital face, but changing slowly over time as the mood average shifts.
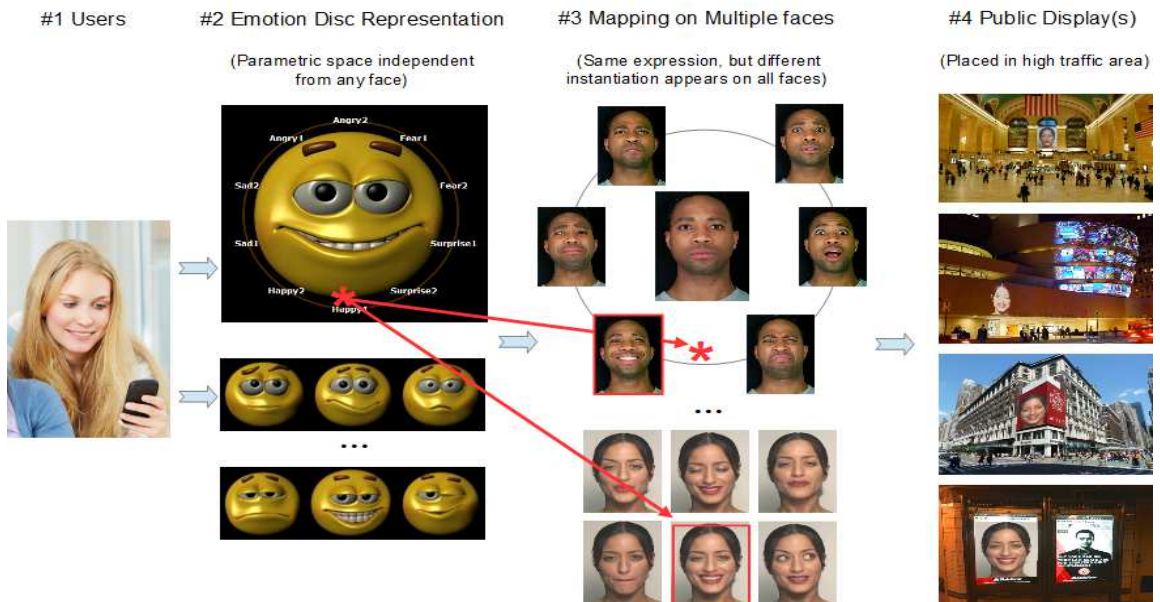
Fig 4:   The Emotion Disc representation captures users' mood average in a mathematical space. This is in turn mapped on to any other and exhibited in real-time on the public Display(s).

Comedians as Face Models

- To implement the NYSM project we will approach famous comedians, such as *Ellen DeGenres, Jimmy Fallon, Wanda Sykes, Whoopi Goldberg, Kevin Hart, Chris Rock, Aidy Bryant* – whose facial expressions and "funny faces" are more pronounced and exaggerated – to lend us their face and persona by participating in the project pro-Bono or in exchange for a nominal fee.
- As the project picks up and receives publicity, new faces maybe added based on corporate sponsorship and eventually paying individuals who would like to have their face showcased in this campaign.

*Fig 5:   Examples of various expressions on ethic faces (Asian, African-American, Hispanic, White).*

Scalable Business Model

- The art installation is worldwide scalable, language-, age- and culture independent (there is scientific evidence of the 7 basic emotional displays being universally understood) and thus potentially can quickly involve a large number of participants.
- Scalable and easily replicable and can be readily licensed to multiple cities around the world ("LA-, Chicago, London-, Paris-, Berlin-, Barcelona-, Tokyo-State-of-Mind", etc. or on public events, concerts as a local service)
- Interface is language- and age- independent so it can easily and rapidly be adopted and understood in any culture.
- As such, it has a definite potential to go viral and gather a large number of worldwide registered fans transforming this a self-defined community into the largest public art piece in the world.
- Sponsored faces (corporations or private individuals) will create additional secondary funding opportunities for the project to live on its own.
- The data collected on a location-basis and on a large population represents value for tourism, social science, psychological studies and could become an important source of population behavioral data. It further represents added value for the tourism, advertising, and gaming industries, and it brings measurable benefit to streets or shops where the displays are placed.
- Building-level analysis of the affect/mood data opens up the possibility to view a city in a transformed way and opens up development possibilities in future stages.

Preliminary Work

- The implementation of the NY State-of-Mind is already on its way.
- We have purchased a domain name www.NewYork-state-of-mind.com
- The specific domain name format was selected to ensure that all domains with city names included are currently available in this format (such as www.LA-state-of-mind.com, www.CHICAGO-state-of-mind.com, etc.). This will allow us to quickly replicate the model for multiple cities across the USA and the Globe.
- We have already created our first Smiley on-line interface (Desktop/Flash) where facial expressions vary as the user moves the mouse over the image.
- The *Mobile Apps* (IPhone and Android) as well as the *FaceBook* interface, will be developed as part of the project.
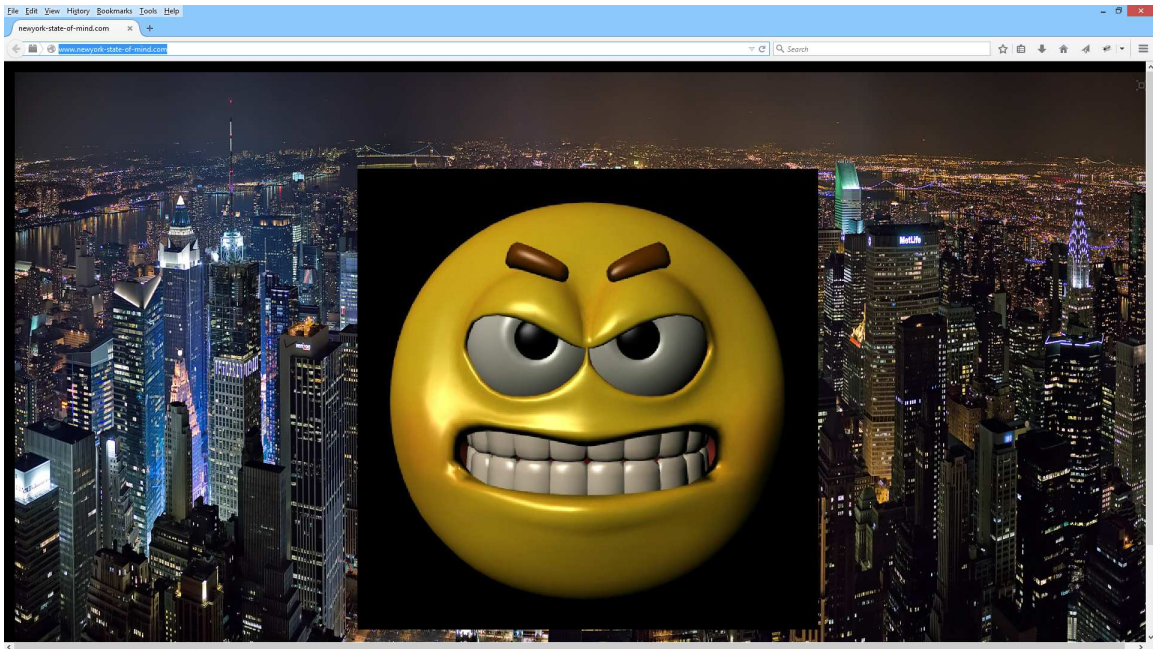
Fig 6: Preliminary work – Current snapshot of www.NewYork-state-of-mind.com website featuring an interactive Smiley face displaying emotions in response to the mouse moves over the window. This interface (still in development) will be used to submit mood snapshots anonymously to gather and sum up data from all over New York.

Influencing my Art ...

- *Paul Eckman* - Pioneer studies of emotions and their relation to facial expressions. en.wikipedia.org/wiki/Paul_Ekman
- *Bill Viola* – Early work on actors recorded at 120fps film and displayed in slow motion as framed photographs that change over time. www.billviola.com
- *David Michalek* – Public installation featuring hyper-slow-motion video performance-portraits. www.davidmichalek.net
- *Gabe Barcia-Colombo* – NewYork Minute, a 52 channel video installation featuring 52 extremely slow motion portraits of everyday New Yorkers doing everyday things http://www.gabebc.com/new-york-minute
- *Chicago Crown Fountain* – Public art with large scale faces. www.aviewoncities.com/chicago/crownfountain.htm
- *Zsolt Bordos* – Video mapping artist with a number of large scale art projects around the world www.bordos.eu