eNTERFACE'15 Project Proposal

Title: BigDatArt

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Project objectives:

The project BigDatArt aims in using big data in a creative way so that large public can better understand the concept and complexity of such data.
For that aim we will use gaming interactions based on Kinect sensors to enhance collaborative co-creation of mashups of images, videos and text data extracted in real time from the web. The application can be used simultaneously at several locations and the communication is based on Google Hangout API.
The purpose is to provide a playful interaction letting large public browse the big data and create mashups from this data in a collaborative way in different cities in Europe. The idea is to integrate the project result in the Café Europa (http://www.mons2015.eu/en/caf%C3%A9-europa) which will be set up in several cities in Europe. BigDatArt comes as a follow-up of the CityGate project which will be already integrated in the Café Europa system.

Background:

The project BigDatArt is based on two already existing bricks:

- The citygate project led by the University of Mons where a Kinect is used to Interact with the Google Maps API on Google Hangout. This interaction is synchronized with all the participants to the hangout using the Google Hangout API.
- The project led by the University of La Rochelle where the saliency map of an image is automatically computed. This saliency map provides a hierarchy of the most attended areas. The most attended areas are than cropped and use as search images in Google Images to get related images.

Work organization:

WP1: Kinect V2 interaction.
A set of interactions (face direction, gestures, body motion, etc.) are developed to be able to interact in a playful way with the system. Those interactions will be developed using the Kinect SDK V2.

WP2: Google Hangout communication and integration.
The communication between the Kinect and Google Hangout is based on network (OSC) and key press simulations if needed. This communication module called “Robot”

needs to be optimal and generic (easy to adapt the variables sent using a graphical interface).
Also here the different GoogleAPI which are used must show their results. This integration is easier as the same framework is used.

WP3: Google APIs for data browsing.
Google Maps and Google StreetView APIs can provide images and tags, Google Images API can provide related images and text. In this WP, a set of Google API will be selected to be able to extract videos, images and text related to a location, image or text browsed by the user.

WP4: Use of saliency
Image saliency can be computed quite easily from images which are shown to users. This saliency maps are heatmaps of the areas which have the best chances to be attended by people. The saliency will provide priority areas in the observed images which will be later searched into Google Images to provide other data related to the most interesting in the current data.

Time line:

W1: Week one.
The first week mainly focuses on starting the different components:

- Get a list of Kinect interactions
- Choose the API to use to navigate through the big data
- Check the saliency system which locates in an image areas of interest

W2: Week two.
The second week mainly focuses on developing the different components:

- Finish Kinect interactions and provide a list of possible interactions
- Finish codes using the different Google APIs to get extradata
- Provide a fast saliency code

W3: Week three.
The third week mainly focuses on the integration:

- Send the Kinect interaction data to Google Hangout
- Integrate the google APIs and the local saliency API

W4: Week four.
The fourth week mainly focuses on the integration:

- Test and optimize the system

References:

- Kinect SDK: http://www.microsoft.com/en-us/kinectforwindows/develop/learn.aspx
- Google Hangout API: https://developers.google.com/+/hangouts/api/?hl=en
- Saliency models: http://www.tcts.fpms.ac.be/attention/?article23/aboutattention