FUTUREWEB
deep learning on big data

PN-III-P1-1.2-PCCDI-2017-0800
Modelarea empirică și dezvoltarea experimentală a instrumentelor asociate
tehnologiilor emergente din domeniul rețelelor sociale online - **86PCCDI/2018**

Summary of sub-project 3 activities: "Experimental development of emerging technologies in the field of neuromarketing at the level of online social networks and study of their impact at the level of users" (NeuroMedia)

-Sumary 2019-

Activity 3-2-3 Development of an experimental model (prototype) of the neuromarketing subsystem within the FutureWeb platform

The classic version proposed for implementation as mockup V0 is a very close variant to the social network Facebook. A first proposal starts with a combination of text with pictures and a four-dial division of the platform layout.

Another proposal goes from niche social networks, where the focus is on images. Within this type of social network, members of the network share excerpts of their work in the form of 'photographs' - small screenshots of the drawings they are currently working on. Other members then comment and give feedback on the work presented. The photo-based design and the "grid" model of the platform make it very easy to adapt with eye-traking tools. Thus, the second platform model that we propose is based on the inspiration of Dribbdel.

And this type of mockup can receive at least two variations, depending on how the text is placed, central or left/right.

These are the variants that will be developed in the FutureWeb patform as alternatives to the classic mockup and that will be tested with eye-tracking and EEC tools so that they can capture user reactions at the time of interaction with each of them. **Deliverable:** *Study 1*

ACTIVITY 3-2-4 Testing the prototype by analyzing unconscious responses to visual stimuli in online social networks using Eye tracking technology

1. **General prototype testing using Eye tracking technology**

![FUTUREWEB - deep learning on big data]

PN-III-P1-1.2-PCCDI-2017-0800
Modelarea empirică și dezvoltarea experimentală a instrumentelor asociate
tehnologiilor emergente din domeniul rețelelor sociale online - **86PCCDI/2018**

Following the results of the analysis of the general mockup (V0), 4 versions of the mockups (prototypes) adaptable for the way the user looks in the platform were created.

2. Testing the V1 prototype using Eye tracking technology

On this type of model the loss of interest in the information provided happens much more slowly than the classic model. Although respondents stayed 10 seconds less on this page, one reason being the way information is structured, attention decreases much more slowly, only towards the end reaching point 0.

3. Testing the V2 prototype using Eye tracking technology

This analysis shows the major impact of this type of layout for respondents, having the highest time sitting on a page, a little more than a minute, and interest decreases towards the end. However, only in the last seconds it reaches level 0, compared to the first variant that recorded the value 0 long before the time spent on that page ends.

4. Testing the V3 prototype using Eye tracking technology

It is very clear from this analysis that after the respondents have passed through the information, which has a peak of interest in the 4-6 seconds, the information is decoded and assimilated and the interest decreases sharply, reaching the value of 0 before the time allocated to the page view is finished. If respondents found any more relevant information after the 24th second, there was a fluctuation in interest but not a major one.

5. Testing the V4 prototype using Eye tracking technology

This version shows us how respondents reacted to the information presented. The maximum attention point is between seconds 2 and 6. After that, the interest (fixations) steadily decreasing. Reach 0 in second 27. This is normal, the information presented on the page being an easy one to decode, and very well known among respondents (mobile phone).

Deliverable: *Study 2*

ACTIVITY 3-2-5 Prototype testing by analytically unconscious responses to visual stimuli in online social networks using brain scan technology (EEC)

1. General prototype testing using EG technology

PN-III-P1-1.2-PCCDI-2017-0800
Modelarea empirică și dezvoltarea experimentală a instrumentelor asociate
tehnologiilor emergente din domeniul rețelelor sociale online - **86PCCDI/2018**

Respondents record high theta wave values associated with interest and enthusiasm, as well as beta waves showing reason and active concentration record average values. Same gamma waves that are associated with learning-specific brain hyperactivity have values above zero.

2. Testing the V1 prototype using EEC technology

Respondents record high theta wave values associated with interest and enthusiasm, as well as beta waves showing reason and active concentration record mean values, as do gamma waves that are associated with learning-specific brain hyperactivity have values above zero. The values recorded at the time of the platform's interaction with V1 indicate that it is of greater interest than its predecessor, variant V0.

3. Testing the V2 prototype using EEC technology

Respondents record high theta wave values associated with interest and enthusiasm, as well as beta waves showing reason and active concentration record mean values, as do gamma waves that are associated with learning-specific brain hyperactivity have values above zero. The values recorded at the time of the platform's V2 interaction indicate that it shows greater interest as the V0 variant but lower than the V1.

4. Testing the V3 prototype using EEC technology

The impact on the interaction with the stimulus represented by the Platform's V3 mock is a major one, very high values of theta waves associated with interest and enthusiasm are recorded, as well as beta waves showing reason and active concentration record mean values, as do gamma waves that are associated with learning-specific brain hyperactivity have mean to high values. From the start we see an increased interest of the respondent in how he interacts with this variant of the platform. Attitude is one of pleasure in use, it is both focused and relaxed during interaction with V3.

5. Testing the V4 prototype using technology

Respondents record average wave values associated with interest and enthusiasm. Also, waves that show reason and active concentration record mean to low values, as are gamma waves that are associated with learning-specific brain hyperactivity. The values recorded at the time of the platform's interaction with V4 indicate that it is of low interest to the respondent. The analysis of emotions results in a 0 stress level of the respondent. An average level of relaxation and average levels in terms of commitment, interest and exaltation remain relatively constant throughout the experiment,

PN-III-P1-1.2-PCCDI-2017-0800
Modelarea empirică și dezvoltarea experimentală a instrumentelor asociate
tehnologiilor emergente din domeniul rețelelor sociale online - **86PCCDI/2018**

enthusiasm recording some increase, a sign that the experience was still a pleasant one, but towards the end it also decreases.

Deliverable: *Study 3*

ACTIVITY 3-2-6 Making specifications for system improvement and implementation of necessary changes

From all the analyses carried out the classic version of mockup is the one that arouses the least interest. The Mockup V2 and Mockup V4 are the ones that stimulate the most. The non-major differences between V1 and V2 or between V3 and V4 seem that the mid-page positioning of the writing is the one that stimulates the interest of the respondents the most.

However this analysis is not exhaustive because, by linking the results of the EG with those of Eye-Traking, there are respondents who on V4 scanned the most complex page.

However, one conclusion would be that changes in image and text positioning influence the way information is perceived, as well as users' feelings of commitment.

Deliverable: *Study 4*

ACTIVITY 3-3-1 Construction of the eye-tracking section of the subsystem

Within the Futureweb platform will be implemented and developed a user study module through eyetracking, a technology that uses webcams to study the location where the user is looking at a certain moment of time.

An area populated with both text and appealing images has been created to stimulate and visually test users to study the user's response time, attention, and immediate orientation.

The visual content area is made up of four mockups.

The first two content areas are populated to a standard level, with an image and a picture, and the last two areas are populated with a minimum of four pictures and a text module.

Content V3 is composed of five modules, four of which are populated with images and the last module is populated with text.

Content V4 is composed of six modules, five of which are populated with images and the last module is populated with text.

PN-III-P1-1.2-PCCDI-2017-0800
Modelarea empirică și dezvoltarea experimentală a instrumentelor asociate
tehnologiilor emergente din domeniul rețelelor sociale online - **86PCCDI/2018**

Deliverable: *Study 5*

ACTIVITY 3- 4 -3 Widespread dissemination of project results

Articles published in scientific conferences:

1. Individuals' perspective regarding the ethic of neuromarketing techniques integration in online social networks.

2. The ethic of using neuromarketing techniques in online social networks from a business perspective.

3. An EEG Analysis on the Perception of the Consumers Regarding Video-Commercials from the Automotive Industry.

4. Mercedes-Benz and Volkswagen video-commercials – A pluralistic research based on an eye-tracking experiment.

5. Assessing the applicability of neuromarketing tools in online social networks from a business perspective.

Articles published in scientific journals:

1. Urban green areas' sustainable development for quality of life improvement. Arguing for increased citizen participation.

Deliverable: *Study 6*