

Expression of Interest:

eShadow proposal

Proposal title: E-Shadow - system of digital footprints management
Abbreviation: E-Shadow
Call Identifier: ICT Call 5 (FP7-ICT-2009-5)
Challenge: Challenge 4: Digital Libraries and Content
Objective: 4.3 Intelligent Information Management
Funding Scheme: STREP

The project addresses Objective 4.3, mainly topic (D), and additionally also topics (A) and (B)

Background:

At the moment, 3% of all people are interested in their electronic shadow. Due to dramatic rising of digital information amount, the number of such people is getting larger and larger every day. In the nearest 2-3 years this problem will come to its highest level. For privacy protection reasons users should be able to manage all this information to obtain the necessary balance between privacy and publicity, and to guarantee information security and correct interpretation of one's personal information. While increasing the amount of information in the global context, the amount of information about particular subject also increases, leading to the extension of its digital shadow. The problem is, that anyone might get access to information, which is available to the public (i.e. which can be found via search systems or in social networks), and not always the intension are good. On the other hand, in some situations the subject puts some information into global networks with purpose, and wants this information to be left public. This is why the main requirement now is to control one's digital shadow. This problem will be solved in this project.

Proposed solution:

The project aims to create novel technologies in the area of organization and tracking of unordered data, which might be stored in any kind of resources, including local PC storage, open Internet resources and corporate databases. All this data can be referenced in virtual world as "digital shadow", casted from any object (or subject) in material world. It will create intuitive tools for a user to track and control digital shadow which exists in the digital space. This necessity goes from the fact, that after nearly every action its result or digital footprint remains somewhere in the universe. The whole set of this digital footsteps (like textual data, audio- and video-information) is a subject's digital shadow.

The key advantage is association of different data types from different data sources in different formats (databases, documents, e-mails, history of internet browsing, URLs, video- and audio-content, blog posts, accounts in social networks, interests records, messages, usernames, forums visits, calendars records, etc.), consolidated in one unit.

The main idea is to enhance state-of-the-art information processing and analyzing methods, perform fundamental research of "digital shadow" phenomena, which has already stochastically formed. As a result of the project, formalized description of "digital shadow" will be developed, along with technology of such data management, in order to put abstract concept into concrete form to be able to collect information, analyze it, put it into certain categories and deliver it to end-user in the most convenient way.

Further development of the project will change the whole information processing paradigm from passive search to active and intelligent data acquisition, e.g. generating new details of digital shadow based on existing information or signaling about absent information, which must be added to have complete profile.

The project will result in creating completed technology addressing the problem of tracking and use of private data. The system will be based on the latest approaches, such as neural networks and evolution algorithms. Methods of semantic data analysis, image recognition, audio recognition and video classification are also used as building blocks for the system. "Digital shadow" will include (but not limited by) the following types of information: Images, Video, Audio, Textual data, and 3-D or stereo-vision data. This will require integration and development of novel techniques dealing with various types of digital information.

The current State-of-Art in searching techniques is as follows:

- **Images**

Very poor searching results currently experienced
eShadow will aim to improve robustness and correctness of image searching

- **Video**

Only preliminary approaches and some proof-of-concepts are available
eShadow will aim to improve performance and accuracy

- **Audio**

Acceptable results of audio identification and audio recognition are available
eShadow will aim to improve reliability and develop indexing/searching services

- **Text**

Very good results are available commercially
eShadow will integrate existing state-of-art technologies into a complete service

- **3-D data**

No searching methods known
eShadow will aim to develop such approaches and a proof of concept demonstrator

eShadow project will offer public use of its developed technologies via its public WEB site. This will serve both as a way of proof testing the developed services as well as a part of its dissemination and exploitation activities. It is foreseen that most of the technologies will continue to be available for public use after the completion of the project as commercial services.

Target user communities:

- Private persons, who are aware of their digital shadow
- Users searching for multimedia data including novel media types as 3D, spatial sound, etc.
- Automated systems of collecting and tracking all possible data about certain objects or subjects
- Users of social networks to be able to manage and control data that was made for a public use
- Companies with needs for challenging processing of large bulks of unordered data
- Multimedia production companies who want to bring new level of experience into their materials
- WEB site owners looking for ways of improving the attractiveness of their sites and expanding their service portfolio offering

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