

# ePoster : an innovative medium to exhibit research activities and science outcomes

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## Abstract

While printed posters are widely used during conferences to display and summarize scientific results, such an instrument can be extended to fit the necessity to integrate multimedia resources, enriching its potentiality. The expansibility of contents, following specific interests, enable the reader to customize its "ePoster experience" to maximize its attention toward the poster and to increase the strength of the information being transferred. The user experience emerging from this "enriched" poster opens new scenarios regarding both educational and outreach perspectives. We present an implementation framework of this poster extension mechanism using the contents itself of this abstract as an use case for the different features and possible routes available.

## 1. Project description

Our proposal intends to improve presentations based on printed poster by dealing with these factors:

- Space based constraints (limited poster canvas)
- Time constraints (unchangeable)
- Lack of interactivity (communication is one way)

An intensive work is made during poster preparation to compact the information related to the subject: often the limited space constitute a severe constraint and some useful detail or material could be omitted by the author. Providing a "space extension" to the poster, it will be possible to integrate more information, allowing the visitor to display it or not, by his choice.

As a consequence, the poster main layout can be relieved, obtaining an essential design and addressing the reader directly to primary informations, leaving further investigation on demand.

Poster contents has rigid time limits:

- i. **Production deadline**, no modifications can be performed after this time and new materials or improvement/corrections can not be presented.
- ii. **Poster lifetime**, the life of a poster is limited to the poster session, and after the exhibition is over usually is not available anymore.

Finally, a printed poster, by its static nature, must display its information with a "single layout" approach and without interaction possible with the reader: an image cannot be zoomed in or out, a plot cannot be inspected with a deeper insight, a video cannot be reproduced.

These factors represents limits to the meaningfulness of this medium and, as a consequence, presentations are affected by these lacks.

Our idea is to create an innovative medium to overcome these constraints by using IT technologies applied to posters. Particularly, we base our project on the interaction between a classical printed poster, prepared with "content extension" features, and a portable device capable of interpreting these "extensions" to present the user with an interactive content. What we call a "content extension" is achieved by mean of a common technology, the qr code [1].

An “extended” poster will have some of these codes printed on some spots of its area, thus advising the reader that the related content can also be accessed in an alternative way: this will be easily investigated by targeting the spot with the portable device and obtaining the resource, as simple as it is. More than that, the reader will have the resource bookmarked on its device for later reference and direct access.

## 2. Implementation

The architecture of this framework is based on three different layers:

**Visualization Layer (VL)**, closest to the user, which aim is the organization of the data for the visualization;

**Retrieval Layer (RL)**, harvest requests from VL, send queries to SL, process query results and dispatch data obtained in a compact exchange format;

**Storage Layer (SL)**, implements the data model and executes queries on the archive;

The project design maximize the decoupling of these layers, allowing to replace each of them independently, improving it or using a different technology.

The actual prototype is composed of a visualization layer based on a common web browser, using jQuery [2] for the dynamic layout management; retrieval layer is developed as a PHP [3] module returning data in JSON format; finally, the storage layer is based on a PostgreSQL [4] database management system strongly customized with a function library that grant the portability to other db engines.

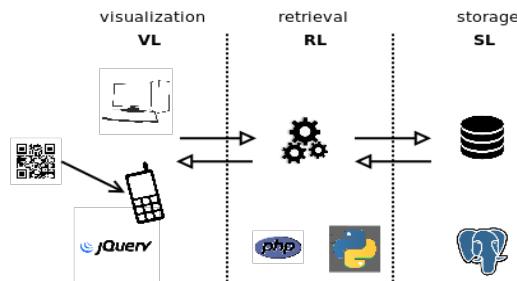


Figure 1: Multi layered architecture

## References

[1] International Organization for Standardization, and International Electrotechnical Commission. 2000. Information technology – automatic identification and data capture techniques – bar code symbology – QR code. Geneva: ISO.

[2] jQuery API - <http://api.jquery.com>

[3] PHP API - <http://www.php.net>

[4] PostgreSQL - <http://www.postgresql.org>