

# **Semiotic video processing for personalised publishing**

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**Multimedia digital libraries as content providers  
for e-learning solutions**

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LEARNING**

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## Lecture Topics

### □ Main topics :

1. **The audiovisual archive of MSH in social and human sciences and the question of how to make accessible the high diversity of the scientific content of this archive;**
2. **The working interface of the semiotic processing tool Interview developed by INA (Institut National de l'Audiovisuel) and ESCoM-MSH**
3. **The theoretical and methodological assumptions that underly the Interview processing tool**
4. **Experimentations and pilots.**
5. **Perspectives**

## 1<sup>st</sup> topic

- Context and aims -

1<sup>st</sup> topic

Context and aims

☐ MSH-ESCoM has an online audiovisual archive in social and human sciences composed of about 1200 hours of scientific videos :

✓ Scientific event types: interviews with researchers, seminars, workshops, reportages of laboratories, ...

✓ Disciplines and topics: almost all disciplines in SHS (archeology, anthropology, history, language and cultural studies, ...)

The screenshot shows the website 'Les archives audiovisuelles de la recherche en sciences humaines et sociales' (AAR). The header includes the ESCoM and MSH logos. A navigation bar contains tabs for 'Accueil', 'Le programme AAR', 'E-savoirs', 'Services utilisateurs', and 'Partenariats'. The main content area features a welcome message from MSH and ESCoM, stating they have 187 interviews, 45 colloquia, and 29 seminars. Below this, there are sections for 'Nouveautés' (with links to MSH images and documents), 'Programmes 2004-2005' (with links to seminars, colloquia, and interviews), and 'Accès aux archives' (with dropdown menus for collections, researchers, and research domains). A search engine is also present. The 'Dernières mises en ligne' section highlights two recent uploads: 'Rome au XVIème siècle : les restes de l'Urbs' (dated March 22, 2005) and 'Equipe de recherche société, identité et pouvoir en Amérique latine (ERSIPAL)' (dated June 23-25, 2005). The footer contains contact information and a copyright notice for ESCoM 2000-2004.

1<sup>st</sup> topicContext and  
aims **Problems:**

- ✓ How to provide a **semantically rich(er)** access to this huge amount of audiovisual data ?
- ✓ How to valorise and broadcast the **diversity** of scientific content of this archive ?
- ✓ How – finally - to allow people themselves to exploit the whole content with respect to their **own interests and desires**, i.e. attuned to the specific contexts of usages (personal descriptions and indexings, personal enrichments, translations, ... of video corpus ) ?

 **Principal aim:**

- ✓ Conception and development of video content processing tools for users or groups of users

 **R&D context:**

- ✓ R&D cooperation with **INA** (Institut National de l'Audiovisuel)
- ✓ new R&D projects: **Saphir** (French RIAM programme) and **Logos** (European 6<sup>th</sup> framework programme)

## 2<sup>nd</sup> topic

- Interview – a semiotic video processing tool -

2<sup>nd</sup> topic

## Interview

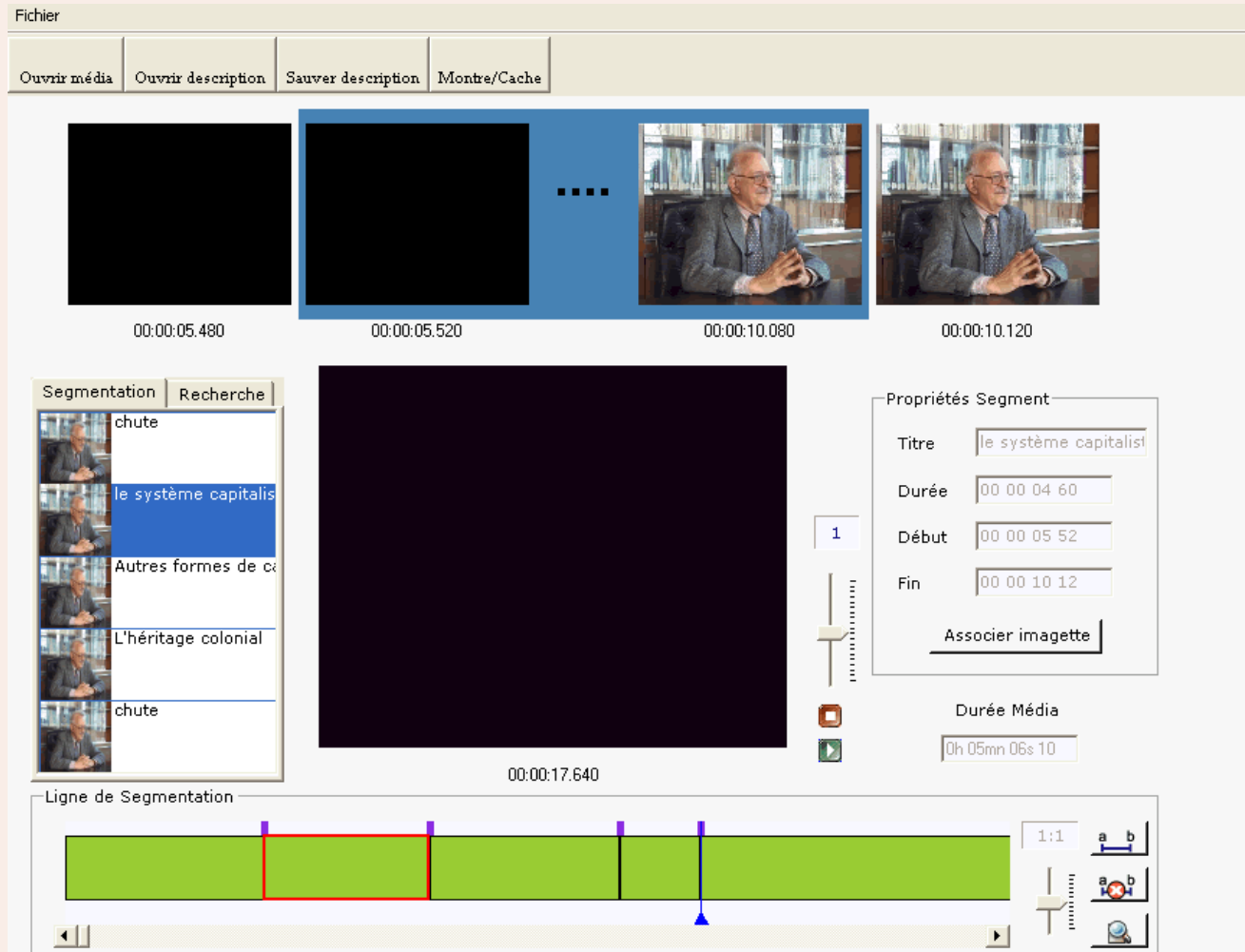
- ❑ Interview is a **software** under development (since 2003) by INA and ESCoM ( actually available, a prototype version).
- ❑ It's purpose is to allow any registered user (user group) to **deal** following his/her interests/desires with a previously selected corpus of video files
- ❑ “To **deal with**” (i.e. “processing”) means her especially:
  - ✓ the **composition** of a video file corpus and its **importation** in the Interview environment;
  - ✓ the “**subjective**” **identification** and **selection** of a set of for the user relevant video segments;
  - ✓ the (more or less) systematic and rich description, indexing and enrichment of :
    - the **referential content** of the segments;
    - the **audiovisual language** of the selected segments;
    - the **rhetorical level** of the selected segments;
    - the **narrative relationships** between the selected segments;
  - ✓ the (broadly speaking) **translation** (“versioning”) of selected segments and their preparation for **personalised publishing**

## 2<sup>nd</sup> topic Interview

### The work space of Interview and the (textual) segmentation of a (corpus of) video files

Fichier

Ouvrir média    Ouvrir description    Sauver description    Montre/Cache



00:00:05.480    00:00:05.520    00:00:10.080    00:00:10.120

Segmentation    Recherche

chute  
le système capitalis  
Autres formes de c  
L'héritage colonial  
chute

Propriétés Segment

Titre le système capitalis  
Durée 00 00 04 60  
Début 00 00 05 52  
Fin 00 00 10 12

Associer imagerie

Durée Média  
0h 05mn 06s 10

Ligne de Segmentation

00:00:17.640



2<sup>nd</sup> topic  
Interview

Interview suggests different video processing guides (“wizards”)

The screenshot shows a software interface for video processing. At the top, there is a menu bar with options: "Fichier", "Ouvrir média", "Ouvrir description", "Sauver description", and "Montre/Cache". Below the menu is a video player area with a black screen and a timestamp of "00:00:05.480". To the right of the video player is a "Description textuelle" box containing the text: "Ce sont les propriétés du segment vidéo sélectionné." and a "Segment sélectionné" box containing the text: "le système capitaliste en Afrique".

A dialog box titled "Assistant de description Interview" is open in the center. It contains the text: "Veuillez sélectionner un parcours de description :". Below this text is a list of radio button options:

- Description de base des enregistrements audiovisuels
- Indexation et description thématiques avancées du contenu référentiel
- Indexation et description rhétoriques & narratives
- Aide à la publication
- Description audiovisuelle
- Traduction de base
- Traduction des méta-données
- Traduction rapprochée
- Description complète (utilisateurs avancés)

To the right of the list is an "Aide" box containing the text: "complète". At the bottom of the dialog box are two buttons: "Annuler" and "Continuer >>".

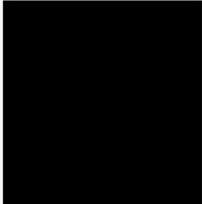
Below the dialog box is a "Ligne de Segmentation" (Segmentation Line) showing a green bar with several vertical markers. To the right of the bar are controls for zooming and navigation, including a "1:1" zoom level and buttons labeled "a b".

2<sup>nd</sup> topic  
Interview

Interface of Interview's "expert mode" of semiotic video processing

Fichier

Ouvrir média   Ouvrir description   Sauver description   Montre/Cache



00:00:05.480

Protagonistes

Auteur(s) du document audiovisuel (chercheur, écrivain, interviewer, ...).

<< Etape précédente   Etape suivante >>

Segment sélectionné

le système capitaliste en Afrique

<<   >>

Segmentation   Recherche

- chute
- le système capitalis
- Autres formes de ca
- L'héritage colonial
- chute

Etapes de description

- Etape préliminaire
- Description paratextuelle
  - Le document audiovisuel
  - Protagonistes
  - Réalisateurs
  - Classification
  - Questions de droit
- Description textuelle
  - Description audiovisuelle
  - Description pragmatique
  - Description péritextuelle
  - Description par mots-clé
  - Description référentielle
  - Description rhétorique
  - Description narrative
  - Traduction

Protagonistes

(nouveau protagoniste...)

Informations :

Nom :    Prénom :

Fonction auctoriale :

Fonction professionnelle :


Appartenance(s) :

Présentation :

Liens web   0 lien(s) enregistré(s)

Enregistrer   Annuler   Supprimer

Ligne de Segmentation



1:1   a b

2<sup>nd</sup> topic  
Interview

❑ Example: the **pragmatic and peri-textual description** of video segments in Interview

Fichier

Ouvrir média    Ouvrir description    Sauver description    Montre/Cache

00:00:05.480

Segmentation    Recherche

- chute
- le système capitalis
- Autres formes de c
- L'héritage colonial
- chute

Ligne de Segmentation

Ajouts de ressources, liens  
Ajouts de ressources, liens.

<< Etape précédente    Etape suivante >>

- Etapes de description
  - Etape préliminaire
  - + Description paratextuelle
  - Description textuelle
  - + Description audiovisuelle
  - Description pragmatique
    - Public cible
    - Contextes d'usage
    - Edition & Publication
    - Intérêt, valeur ajoutée du segment
  - Description péri-textuelle
    - Ajouts de ressources, liens
    - Ajouts de commentaires
    - Suggestions pour publication
  - + Description par mots-clé
  - + Description référentielle
  - + Description rhétorique
  - + Description narrative

Segment sélectionné

le système capitaliste en Afrique

<<    >>

Ajouts de ressource, liens

(nouvelle ressource...)

Description de la ressource :

Intitulé : Des explications complémentaires de Wallerstein

Type : Complément d'information

Format : Texte

URL : <http://www.yale.edu/wallerstein/23/africa.html>

Description :

Enregistrer    Annuler    Supprimer

### 2<sup>nd</sup> topic Interview

#### Example: the description of the audiovisual language in Interview

Fichier

Ouvrir média    Ouvrir description    Sauver description    Montre/Cache

00:00:05.480

Segmentation    Recherche

- chute
- le système capitalis
- Autres formes de ci
- L'héritage colonial
- chute

Ligne de Segmentation

Description du plan visuel - La prise de vue de

Description de la position de la caméra face à la situation/à l'objet filmé(e).

<< Etape précédente    Etape suivante >>

- Etapes de description
  - Etape préliminaire
  - Description paratextuelle
  - Description textuelle
  - Description audiovisuelle
    - Description du plan visuel
      - Le cadrage visuel
      - L'échelle visuelle
      - La composition visuelle
      - La prise de vue de la situation**
      - Les mouvements caméra
    - Description du plan sonore
    - Description du plan de la narration
  - Description pragmatique
  - Description péritextuelle
  - Description par mots-clé
  - Description référentielle
  - Description rhétorique

Segment sélectionné

**le système capitaliste en Afrique**    <<    >>

La prise de vue de la situation

Type :    Position oblique - un quart

Situation/objet :    I. Wallerstein

Commentaire :    Prise de vue à 3/4 d'I. Wallerstein

>> Détails

1:1    a    b

|    =    a - b    |

2<sup>nd</sup> topic  
Interview

- Example: the description of the **referential content** in Interview. The principles of this type of description are based on an “ontology” of lifeworld themes and narrative themes.

The screenshot shows a software interface for video analysis. At the top, there is a menu bar with 'Fichier' and buttons for 'Ouvrir média', 'Ouvrir description', 'Sauver description', and 'Montre/Cache'. Below this is a video player area with a black screen and a timestamp of '00:00:05.480'. To the left of the video player is a 'Segmentation' panel with a 'Recherche' tab, showing a list of video segments: 'chute', 'le système capitaliste', 'Autres formes de c...', 'L'héritage colonial', and 'chute'. The 'le système capitaliste' segment is selected. In the center is a hierarchical ontology tree under 'Domaine de recherche', including categories like 'Description paratextuelle', 'Description textuelle', 'Description audiovisuelle', 'Description pragmatique', 'Description péritextuelle', 'Description par mots-clé', 'Description référentielle', 'Description rhétorique', 'Description narrative', and 'Traduction'. The 'Description référentielle' category is expanded to show sub-items: 'La recherche', 'La connaissance scientifique', 'Projet de vie du chercheur', 'La communauté scientifique', 'La société', and 'Autres taxèmes et thèmes spécifiques'. To the right is a 'Segment sélectionné' panel showing 'le système capitaliste en Afrique' with navigation arrows. Below that is another 'Domaine de recherche' panel with dropdown menus for 'Taxème', 'Explication', 'Thème', and 'Description'. The 'Taxème' dropdown is open, showing a list of taxemes: 'Acteurs du monde social', 'Formes et processus du monde symbolique et mental' (highlighted), 'Systèmes et procès sémiotiques', 'Formes de "faire" et de "devenir"', 'Objets', 'Temps', and 'Espace'. A '>> Détails' button is at the bottom right of this panel. At the bottom of the interface is a 'Ligne de Segmentation' (segmentation line) with a green bar and a red segment, and a zoom control showing '1:1' and 'a b'.

2<sup>nd</sup> topic  
Interview

- The description of the **narrative relationships** between segments. Based on a set of narrative or rhetorical structure (RS) relations, the aim is that the “reader” of video files becomes the “writer” of a “new” video text.

The screenshot shows the ESCOM software interface. At the top, there is a menu bar with options: 'Fichier', 'Ouvrir média', 'Ouvrir description', 'Sauver description', and 'Montre/Cache'. Below the menu is a video player showing a black screen with a timestamp of 00:00:05.480. To the right of the video player is a 'Segment sélectionné' panel displaying 'le système capitaliste en Afrique' with navigation arrows. Below the video player is a 'Segmentation' panel with a 'Recherche' tab and a list of segments: 'chute', 'le système capitaliste', 'Autres formes de capitalisme', 'L'héritage colonial', and 'chute'. The central part of the interface is a 'Description' panel with a tree view of 'Etapes de description' including 'Etape préliminaire', 'Description paratextuelle', 'Description audiovisuelle', 'Description pragmatique', 'Description péritextuelle', 'Description par mots-clé', 'Description référentielle', 'Description rhétorique', 'Description narrative', 'Opérations de gestion de communication', 'Opérations argumentatives', 'Opérations de "mise en ordre"', 'Autres opérations', and 'Traduction'. Below this is a 'Description' panel for the selected segment, showing 'Opérations argumentatives' with a dropdown menu set to 'Evaluation'. The 'Explication' is 'Le contenu de S est soumis à évaluation dans C'. The 'Exemples' section shows 'Mise en relation du segment actuel (S) avec un autre segment (C)' with a list containing 'chute', 'Autres formes de capitalisme' (highlighted), 'L'héritage colonial', and 'chute'. The 'Description' text reads: 'segment qui montre d'une manière critique les limites de la classification des formes de capitalisme proposées dans le segment "autres formes du capitalisme"'. At the bottom is a 'Ligne de Segmentation' with a green bar and a '1:1' zoom level.

### 2<sup>nd</sup> topic Interview

### Example of a description guide for “personalised publishing”

00:00:05.480

**Veuillez sélectionner un parcours de description :**

- Description de base des enregistrements audiovisuels
- Indexation et description thématiques avancées du contenu référentiel
- Indexation et description rhétoriques & narratives
- Aide à la publication**
- Description audiovisuelle
- Traduction de base
- Traduction des méta-données
- Traduction rapprochée
- Description complète (utilisateurs avancés)

Aide publication

Annuler Continuer >>

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Fichier

Ouvrir média Ouvrir description Sauver description Montre/Cache

00:00:05.480

Segmentation Recherche

- chute
- le système capitaliste**
- Autres formes de c
- L'héritage colonial
- chute

Edition Publication

Edition & Publication.

<< Etape précédente Etape suivante >>

Segment sélectionné

le système capitaliste en Afrique

Edition & Publication

Produits pour l'enseignement supérieur

Types spécifiques :

- Niveau Deug
- Niveau Licence
- Autre (préciser)

Ajouter

Types de produits/services sélectionnés :

- Niveau Maîtrise

Supprimer

Commentaire :

peut servir à toutes formes de communication interculturelle au niveau maîtrise (M2)

Ligne de Segmentation

### 3<sup>rd</sup> topic

- Theoretical and methodological assumptions -



3<sup>rd</sup> topic

## Assumptions

- ❑ The Interview interface is deliberately based on a theoretical framework of the analysis (description, comparison, ...) of audiovisual texts (viz. texts in general) called **semiotics**.
- ❑ Simply speaking, the **structural (“internal”) organisation** of an audiovisual text is assumed to be composed by :
  - ✓ **referents** (objects, situations, ...) and **contexts** relevant for the purpose of a text and therefore selected in the text
  - ✓ **rhetorical, narrative** and **discourse strategies** for dealing with the selected referents and contexts in order to achieve the purpose inherent to the text
  - ✓ (linguistic, visual, audiovisual, ...) **expression strategies** for communicating the “message” of a text
  - ✓ (physical, technical, commercial, ...) **“materialisation formats”** of texts circulating as products within a user community
- ❑ A text is also situated within an **“external” context** that constrains its distribution and appropriation
- ❑ The “internal” and “external” parameters constitute the **basis of Interview**.

## 4<sup>th</sup> topic

- Experimentations and pilots -

4<sup>th</sup> topic

## Pilots

❑ A **first systematic experimentation** has been realised within the ESCoM team itself during the end of June/the beginning of July 2005:

✓ the result is an online available evaluation report of this experimentation;

✓ the consequence is a partial rebuilding of the Interview interface which, actually, is almost achieved.

❑ During the period December 2005 – April 2006, **two pilots** will be realised with two different groups of students (between 20 and 25 students, each group). The purposes of these two pilots are:

✓ the composition and segmentation of video file corpora dealing with **“big” research themes** in social and human sciences (“immigration”, “cultural diversity”, ...°)

✓ the **semiotic processing** of a library of selected audiovisual segments (description, indexing, enrichment, versioning and translation, ...)

✓ the publishing of the results in form of **alternative appropriation interfaces** of the audiovisual archive as well as in form of **CDROMs**

## 5<sup>th</sup> topic

### - Perspectives -

5<sup>th</sup> topic

## Perspectives

❑ In cooperation with the partners of ESCoM as well as with the help of the two above mentioned R&D projects, actually identified (and desired) main perspectives are:

- ✓ the development of the Interview tool as a **web service** (i.e. any registered user should process remotely a corpus of video files)
- ✓ the specification (“scenario building”) and development of **specific publishing genres** of processed video segments (“course”, “thematic folder”, “video lexicon”, “documentaries”, ...)
- ✓ the integration of **knowledge based tools** for processing the meta-data (especially the referential and narrative descriptions) such as conceptual graphs (LIRMM at University of Montpellier; LEIRIA at University of Angers)
- ✓ investigations in **cultural and intercultural adaptation strategies** (“versioning”, “covert translation”, .) of scientific contents
- ✓ speech to text aligning tools for **data mining purposes** in audiovisual corpora.