The research activities of the Imagine team are focused on the analysis and treatment of visual media (including images, video, 3D objects and images of documents) to:

- segment them in regions of interest;
- extract characteristics through compact descriptors;
- adapt and enrich this description using:
  - a priori information on the content and on the context, the parameters of acquisition;
  - models of high-level knowledge.

The main objectives of the team are:
- a better understanding and interpretation of the content and identifying objects of interest;
- an intelligent indexing, which would facilitate access to huge databases;
- compression, transmission and storage taking into account the means of transmission and capacity of terminals "end-user".

**Members**
- 5 Professors (incl. 3 half-time members)
- 13 Associate Professors (incl. 1 half-time member)
- 17 PhD students

**Keywords**
- Image, video, feature extraction, content-based indexation, document analysis

**Defended PhD Thesis**
- 6 or 7 each year

**Publications**
- In average, each year: 3 or 4 international journals, 2 national journals, 17 international conferences and 2 national conferences

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**Feature Extraction**
- Low level features
- Topological and structural features
- Region of interest features
- High level features (depending on the application domain)
- Segmentation
- Analysis in different representation spaces

**Models, Tools**
- Multiscale models, scale space
- Statistical models
- Spatio-temporal models
- Data analysis tools
- Classification tools
- Pattern recognition tools
- Quantification and coding tools

**Application Domains**
- Multimedia
- Document Management
- VIDEOSURVEILLANCE
- Digital entertainment

**Final Aims**
- Content-based image retrieval
- Compression
- Detection, identification, decision support
**Applications**
- Analysis and indexation of images et videos
- Treatment and analysis of contemporary and inheritance written documents
- Video surveillance

**Achievements, outstanding facts**
- Technological transfer and incubation of three Startups within the team:
  - FoxStream, which specializes in video surveillance
  - Ghanni Music, for classification and advice for music data
  - CoReNum, for digitization services of written documents and their treatment
- Digitization platform of very high quality for books and paper documents retroconversion

**Positioning**

**International context**
- Project Apollo PRA, PCRD IST Digital Olympics PHENIX SSA, MoSAIC
- Member of international journal editorial boards : IEEE-PAMI, IJDAR, PR, PRL, CVIU, PAA, ELCVIA, JASP, EURASIP, TSI
- Participation to international competitions : TREC-VID, Image EVAL

**National context**
- GdR CNRS ISIS (Information, Signal, Images and ViSion)
- Projects ANR : OMNIA, GRAPHEM, FAR3D
- Project ACI : MADONNE, MD MusicDiscover
- DGA Contract (Direction Générale pour l’Armement)

**Regional context**
- Cluster 2 (ISLE : (Informatique, Signal, Logiciel Embarqué) : LIMA (Loisirs et Images) Project
- Cluster 13 (Culture Patrimoine Création) Project 4-5: Corpus Numérique ; Project 6 : Numérisation et reconnaissance de documents

**Industrial partnerships**
- France Télécom R&D, IFP (Institut Français du Pétrole), Xerox, CESA, EverTeam, FoxStream, NemOptic, PINKA, Telem Sécurité Electronique, Spigraph

**International relationships**
- Belarussia, China, Japan, Morocco, Poland, Taiwan, Tunisia, Vietnam