

## UNITWIN/UNESCO Chairs Programme Progress report 2009-2010

«If this has not yet been done, please forward your progress report before  
31 May 2009» to the Director, Division of Higher Education.

**Period of activity: 2009-2010**

**Title: UNESCO CHAIR TELEMEDICINE**

**Report established by:** Prof.Dr.O.Ferrer-Roca,  
**Function / Title:** responsible UNESCO Chair Telemedicine 1999-2010  
Full Professor in Pathology. Responsible of the Telemedicine Training at the University of La Laguna.  
Canary Islands. Spain

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## I. Address

	Address of the Host Institution	Address of the Coordinator
Name	Prof. Dr. O. Ferrer-Roca	Prof. Dr. O. Ferrer-Roca
Function/Title	Chair of Pathology	Chair of Pathology
University/Institution	University of La Laguna	University of La Laguna
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Province	Canary Islands	Canary Islands
Country	Spain	Spain
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Web Site	<a href="http://www.teide.net/catai">http://www.teide.net/catai</a>	<a href="http://www.teide.net/catai">http://www.teide.net/catai</a>

## II. Available resources

### 1. Human resources

1. For the administration of the UNESCO Chair or Network
 

Partial time support Secretary	Jessica Farkas Rodríguez
Partial time support Secretary	Linnea Guijosa
Partial time support Secretary	Angela Bahija Chellaoui
Partial time support Secretary	Amparo Hopt
Partial time support Secretary	Isis Klein
Partial time support Secretary	Jesica González
  
2. For the teaching/training/research activities  
 Please specify number of full professors , researchers, visiting professors, lecturers, others  
 Prof. Dr. O. Ferrer-Roca  

Electronic Engineer, Fellowship	Francesco Ettore
Computer Engineer	Francisco Marcano Serrano
Computer Science	Pablo Pulido Lorenzo
Telecommunication Engineer	Álvaro Díaz-Cardama López
Physicist Science	Noelia de Armas Gutiérrez
Physicist Science	Elliezer Sepúlveda Hernández
Computer Engineer	Luis Alejandro Brito Mesa
Technical Engineer in computer	Juan José Quintana Melián

Technician in Computer  
Computer Engineer  
Computer Engineer  
Computer Engineer  
Computer Engineer  
Computer Engineer  
Computer Engineer  
Computer Engineer  
Computer Engineer  
Computer Engineer

Xiomara Antonia Santos Palacios  
Manuel Octavio Luque Armada  
Oscar Antonio González de Chaves Pérez  
Javier Prieto Alonso  
Adonai Gutiérrez Méndez  
Pedro Najor Cruz Cruz  
Leonardo José Uztariz Nuñez  
Noor Al-Din Al-Jouni González.  
Jesús Montañez Díaz  
David Airan Hernández Rodríguez

3. For the information and documentation activities:  
Partial time support Lawyer: Margarita Suarez Delgado
4. For other activities: The international courses brought to teaching and training a total of 44 professors coming from European, African and Ibero-American countries (Greece, Germany, Brazil, Spain, Uganda, Norway, Italy, England, USA, Portugal, Venezuela).

## 2. Material resources

1. For the administrative work: Computers fax machines, xerocopy machines, printer, and storage systems.
2. For the teaching/training/research activities: Videoconference, workstations, ultrasounds, video-edition, projector, Book edition, CD-edition, Proceedings editions, e-learning, Digital Fingerprint control systems, Breeze server.
3. For the information and documentation activities: Web site, Posters, brochures, Proceedings, Book editions, CD-edition
4. For other activities (*Please specify*): Videoconferencing, 3D-virtual reality, Distant control.

### III. Activities

Please, provide information on items 1 to 7 for each activity, when available, and specify:

- Target groups, in accordance with Annex 1
- Geographical coverage, in accordance with Annex 2
- Funding sources, in accordance with Annex 3.

#### 1. Education/Training/Research

##### 1.6. Title and expected results for each course, workshop,...

See joined memorandum and programs of the Winter Course of the CATAI (Annex 5-Form 3)

- Duration: 2weeks.
- Target groups: doctors, nurses, health-care providers, NGO's
- Partnership (please specify the name of the Institution, city, country): Universities Trier-DE, Postdamm-DE, Humboldt Univ. Berlin-DE, Univ. Udine-Italy, Makerere-Uganda, Simon Bolivar-Caracas-Venezuela, Athens Univ. of Economics and Business-GR, Miguel Hernandez-Alicante-Spain; Malaga-Spain, University Perm-Russia, Univ Moscu-Russia, New Delhi-India, Istambul-Turkey, El Cairo- Egypt, Queensland- Australia, EntreRios-Argentina, Pontificia Universidade Catolica do Rio Grande do Sul (PUCRS) Porto Alegre-Brazil, Porto-Portugal, London-UK, Harvard-Boston-Mass-USA, Univ Bergen,Bergen-Norway, Univ Munich-Munich-Germany, Univ Kaunas-Lituania. Universidad Politecnica Barcelona (UPB)- Spain. Technical University of Cyprus (Cyprus). Israel Institue of Technology. Haifa (Israel).
- Geographical coverage for partners and participants: Europe-Africa-South & North America & Australia.
- Funding sources: CATAI founding. Telefónica SL.
- Outputs: Please specify number of doctoral students: 150-200 students per year. For the publications, complete form of Annex 4, and Annex 5 for the multimedia material.

#### 2. Conferences/Congresses/Meetings

##### 2.6. Title and expected results for each conference, meeting...:

Always in Telemedicine. Expected increase of knowledge and training of how to handle medicine at distance for people and areas underserved or with health care constrains availability.

- Dates and place: VIII Reunión Foro Telemedicina 2010. XIII Congreso Nacional de Informática Médica. INFORMED 2010 17-19 de Noviembre de 2010 San Sebastián. España, III International Symposium on Biomedical Informatics in Europe. 17-19 de Noviembre de 2010 San Sebastián. España, Jornada Cátedra Telefónica con la Universidad de Las Palmas de Gran Canaria. I Jornada de innovación de Atención Sanitaria con las TICs 2010 (29<sup>th</sup> September) ,XXIII Imagen Analysis of ULL y XVIII CATAI Winter Course. IoT. Internet of Things for Medical Devices 2010(8<sup>th</sup>March-14<sup>th</sup> March 2010), International Workshop on e-Health in Emerging Economies. IWEW 2010 10-12 de Febrero de 2010 Las Palmas de Canarias. Islas Canarias. pHealth 2010 Third international Conference on Health Informatics 20<sup>th</sup> - 23<sup>th</sup> January 2010 Valencia—Spain, Biostec 2010 3rd international join Conference on Biomedical Engineering Systems and Technologies 20<sup>th</sup> - 23<sup>th</sup> January 2010 Valencia—Spain, 22<sup>th</sup> European Congress of Pathology-Florence, Italy (4-9 September 2009), pHealth 2009 the 6<sup>th</sup> international workshop Micro and Nano technologies for personalized Health-Oslo, Norway (24-26 June 2009), , Madrid Telemedicine Chair (22 January 2009) Superresolution and Optical Biopsy-Tenerife Winter Course (9<sup>th</sup>-15<sup>th</sup> March 2009) III Jornadas Telecomunicaciones en Entornos Sanitarios. "Las Telecomunicaciones al servicio del paciente" (27 June

2008) Tenerife- Spain HUC, p-Health, Valencia (April 2008); Tenerife-Winter Course (5<sup>th</sup> March-18<sup>th</sup> March 2007) Tenerife-Winter Course (25<sup>th</sup> February-9<sup>th</sup> March 2008); IV Congreso Nacional de suelo pélvico (12<sup>th</sup> -14<sup>th</sup> March 2008); 9<sup>th</sup> European Congress on Telepathology and 3<sup>rd</sup> Internacional Congress on Virtual Microscopy, Toledo (15<sup>th</sup>-17<sup>th</sup> May 08), 3<sup>rd</sup> Intercontinental Congress of pathology, Barcelona (17<sup>th</sup>-22<sup>th</sup> May 08); II Foro Internacional de Financiación de empresas de Base Tecnológica, -canary Islands-Spain (11-12 July 2008); Telemedicine, Perm-Russia (24<sup>th</sup>-31<sup>th</sup> May 2008); Telemedicine, Perm-Russia (29<sup>th</sup> January – 3<sup>rd</sup> February 2007) XXXIII European Congress of cytology, Madrid (14<sup>th</sup> – 17<sup>th</sup> Oct 2007), VII Congreso Nacional de Medicina del Mar. Santa Cruz de Tenerife (27<sup>th</sup> – 31<sup>th</sup> Oct 07), 7<sup>th</sup> Internacional Conference on Successes and Failures in Telehealth, Queensland, Australia (27<sup>th</sup> – 28<sup>th</sup> Ago 2007), XVIII Congreso de la Sociedad Española de Educación Médica. Santa Cruz de Tenerife (24<sup>th</sup> – 26<sup>th</sup> Oct 2007), The 20<sup>th</sup> IEEE internacional Symposium on Computer-Based Medical Systems, Maribor, Slovenia (20<sup>th</sup> -22<sup>th</sup> Jun 2007)

- Partnership (please specify: Name of the Institution, City, Country): see joined programs plus Mulago Hospital-Uganda; Roche Research Center, Univ Perm-Russia, Casablanca-Marrocco, Pontificia Universidade Catolica do Rio Grande do Sul (PUCRS) Porto-Alegre-Brazil. Technical University Munich (Germany). Israel Institute of Technology (Haifa-Israel).
- Participants (number): 100 up to 1000 depending of the type of meeting
- Geographical coverage for participants and partners: Europe, Africa, South-America, Asia & Australia.
- Funding sources: CATAI funding. Telefonica SL.
- Outputs: Please complete Annex 1 for the publications and Annex 2 for the multimedia material.
- Actually “**Telemedicine Master**” at distance, with the Universities of Makerere-Uganda, Beijing-China, New Delhi-India, Istambul-Turkey, El Cairo- Egypt, Queensland- Australia, Casablanca- Marrocco; Albania.

### 3. Missions / Travels abroad

Destination: University La Laguna-UNESCO Chair Telemedicine.

From : Entre Rios-Argentina, Makerere-Uganda and Caracas-Venezuela

Purpose: Students training in telemedicine

Duration: from 1 to 2 month

Funding source: University of La Laguna/Telefónica SL / Catai fundings/

Outputs: 1- Training of students to provide telemedicine in underserved areas.

2- A/011902/07 - Desarrollo Rural: Web Semántica para la Gestión, planificación t coordinación descentralizada en Telemedicina.

3- A/026283/08 - Desarrollo Rural: Web Semántica para la Gestión, planificación t coordinación descentralizada en Telemedicina

### 4. Visiting professors / Fellowships

Number: (23)

Duration: 1-2 month

University of origin: Potsdam-Germany (2), U.-Caracas-Venezuela (4), Univ. of Udine (1), Clinical university of the Charité-Berlin (1), Harvard Medical School-Boston (USA) (1), University of Salamanca (1); Univ. of Malaga-Spain (1); U. Makerere - Uganda (2), Univ London (1), Univ. Elche (1), Univ Bergen, Norway (1), Univ Athens (2), Univ Munich- Germany (2), Univ Kaunas Lituania (1), U. Cyprus (1). Israel Institute Technology (1); U. Rio Grande do Sur-Brazil (1); U. Politecnica Barcelona (1).

Funding sources: University of La Laguna, CATAI fundings, Telefonica SL.

## 5. Information and documentation activities

- 5.1. **CATAI 2010** "IoT Internet of Things for Medical Devices. Health 2.0 to Health 3.0" Ed: Prof.Dr.O.Ferrer-Roca. CATAI Ed 2009. Tenerife. ISBN. 978-84-612-8620-1
- 5.2. **CATAI 2009** "Superresolution and Optical Biopsy" Ed: Prof.Dr.O.Ferrer-Roca. CATAI Ed 2008. Tenerife. ISBN. 978-84-612-8620-1
- 5.3. **CATAI 2008** "Quality Control In Telemedicine Biobanking", Ed: Prof.Dr.O.Ferrer-Roca. CATAI Ed 2007. Tenerife. ISBN 978-84-612-1364-1.
- 5.4. **CATAI 2007** "Standards in Telemedicine", Ed: Prof.Dr.O.Ferrer-Roca. CATAI Ed 2006. Tenerife. ISBN 84-611-4628-X
- 5.5. European Master of Telemedicine and Bioengineering applied to Telemedicine. **DVD**. CATAI Editions. 2005. ISBN 84-609-2162-X
- 5.6. European Master of Telemedicine and Bioengineering applied to Telemedicine, **Volume IV**. CATAI Editions 07. ISBN 978-84-612-1102-9
- 5.7. European Master of Telemedicine and Bioengineering applied to Telemedicine, **Volume V**. CATAI Editions 08. ISBN 978-84-612-8290-6
- 5.8. European Master of Telemedicine and Bioengineering applied to Telemedicine, **Volume VI**. CATAI Editions 09. ISBN 978-84-612-8290-6

## 6. Others

### 6.1. Written agreements with Universities

- 6.1.1. Preparing Written agreements with the Universities of Santiago de Compostela, University Polytechnic of Madrid, University Alicante to provide distant teaching for developing areas.
- 6.1.2. Preparing written agreements with the Pontificia Universidade Catolica do Rio Grande do Sul (PUCRS), Porto-Alegre, Brazil for training in telemedicine. [http://www.teide.net/catai/Catedra\\_Unesco/catedra\\_unesco\\_esp.htm](http://www.teide.net/catai/Catedra_Unesco/catedra_unesco_esp.htm).
- 6.1.3. Agreements of the students interchange in the field of Telemedicine and for third cycle students with the Universities of Postdamm-DE (6 Students), Charite-Berlin-DE (6 Students) and Univ. Udine-IT (6-students) as Erasmus students, plus 1 or 2 professors from each University.
- 6.1.4. Agreements with Universidad Autónoma del Caribe- Colombia to develop the Telemedicine network. Waiting for signature. (<http://www.catai.net/blog> )

### 6.2. Training Books donations

- 6.2.1. Donations of the vol. III of the European Master of Telemedicine and Bioengineering applied to Telemedicine. to the Universities of Entre-Rios (5), Makerere (6), Greece (5), Lituania (5), Caracas (5).
- 6.2.2. Donations of the vol. IV of the European Master of Telemedicine and Bioengineering applied to Telemedicine. to the Universities of Entre-Rios (5), Makerere (6), Caracas (5), Greece (5).
- 6.2.3. Donations of the vol. V of the European Master of Telemedicine and Bioengineering applied to Telemedicine. to the Universities of Entre-Rios (5), Makerere (6), Caracas (5), Greece (5), Univ. Rio Grande do Sur.Brazil (6).

### 6.3. Computer donations

- 6.3.1. 2007: Donations of 5 computer University of Makere in Uganda.
- 6.3.2. 2009 Preparation for the donation of computers for the Un. Makerere.

#### 6.4. International projects

- 6.4.1. Joined projects of the Ministry of Foreign Affairs and International Cooperation with Venezuela. BOE nº 88: 19589–19597, 2008. AECI- A/011902/07 - *Desarrollo Rural: Web Semántica para la Gestión planificación y coordinación descentralizada en Telemedicina*
- 6.4.2. . Joined projects of the Ministry of Foreign Affairs and International Cooperation with Venezuela. BOE nº6 1495-1592, 2009. AECI- A16183/08 - *Desarrollo Rural: Web Semántica para la Gestión planificación y coordinación descentralizada en Telemedicina*
- 6.4.3. Joined cooperative projects with the Ministry of Education and Research and de Ministry of Brazil in the Bazilian-Spanish interuniversity cooperation programm. PHB 2008-0021-TA. *Role of Superresolution in Telemedicine*
- 6.4.4. In tramitation the CAP2009-1ª call with the title: *Biopsia Óptica por Endoscopia Confocal. Técnica no invasiva para zonas rurales indígenas del Brasil.*
- 6.4.5. Proyectos de cooperación y concesión de Becas. Según el BOC Nro. 023 Jueves de 4 de Febrero de 2010 – 602. de África Noroccidental y Universidades de Canarias y el Gobierno Autónomo de Canarias. Université Cheikh Anta Diop de Dakar, País: Senegal, Université d'Abomey Calavi (Cotonou), País: Rép. Du Benin y Universidad Nacional de Guinea Ecuatorial (UNGE), País: Guinea Ecuatorial.
- 6.4.6. Proyectos de cooperación entre Universidad de La Laguna e Israel.

#### IV. Impact

1. The activity carried out in Uganda, showed that the local doctors are able to take now their own solutions and built a web site to train and support at abroad doctors, nurses and people in general are of high importance. <http://med.mak.ac.ug/9/department.htm> Their initiatives with the use of VHF in walky-talkies to support midwives, has decreased the mortality of new-born babies by 30%.
2. Similarly the cooperation with the Simon Bolivar University in Caracas Venezuela, bring the development of rural areas accessing distant diagnosis of vaginal cytology.
3. The cooperation with Pontificia Universidade Catolica do Rio Grande do Sul (PUCRS) PortoAlegre in Brazil have been started obtaining founding for a join seminar of training and extending the telepathology to telepathology and teledermatology mission to the Amazon (City of Jiparana)and in Amazon area (Rondonia State) this summer. <http://www.capes.gov.br/bolsas/cooperacao/espanha/mecd.html>
4. The cooperation with Entre-Rios have extendend the telemedicine into the Peru selvatic areas in the Napo river [http://www.teide.net/catai/Catedra\\_Unesco/catedra\\_unesco\\_esp.htm](http://www.teide.net/catai/Catedra_Unesco/catedra_unesco_esp.htm)
5. Scholarships of the GD of the relations with Africa from the Canarian Governement.

One of the principle obstacles in the wide use of Telemedicine is the lack of specific training and qualifications in the health care environment (doctors, nurses, paramedics, managers, NGO's) as well as related areas from which they require support (computer science, telecommunications).

#### SURVEY ANALYSIS RESULTS

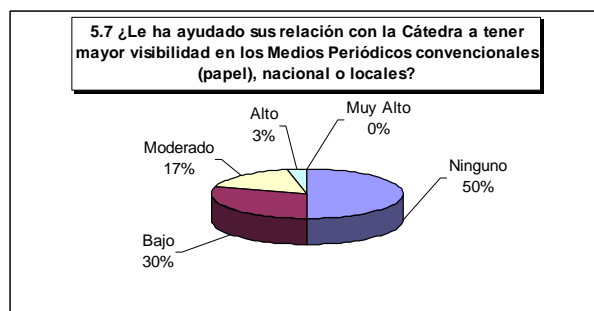
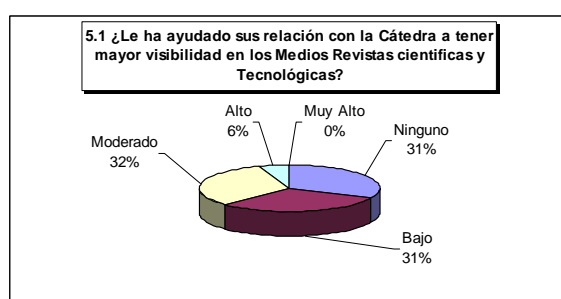
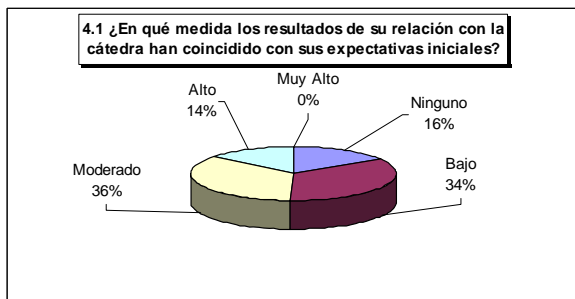
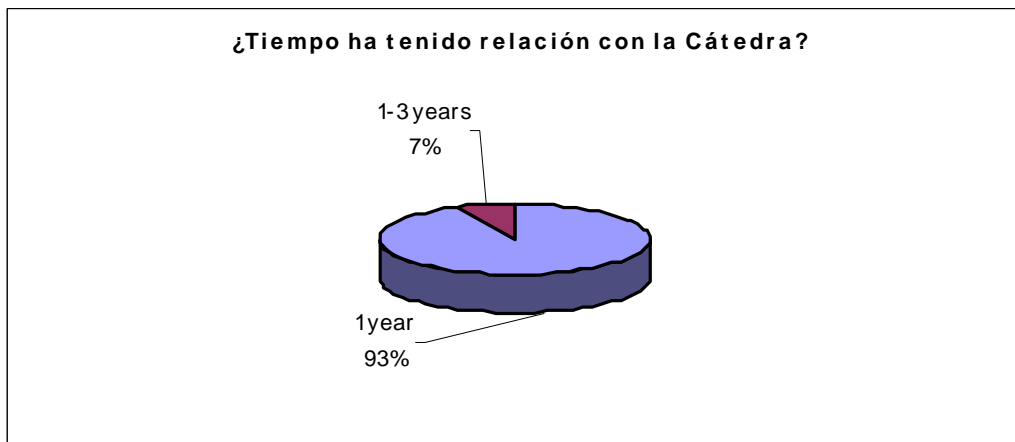
(<http://193.145.112.231/survey1.aspx> )





250 questionnaires. 40 Questions

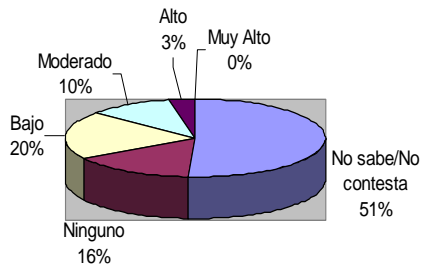
Most of the questionnaires were answer by students, not by the usual cooperative people working with the chair for many years.



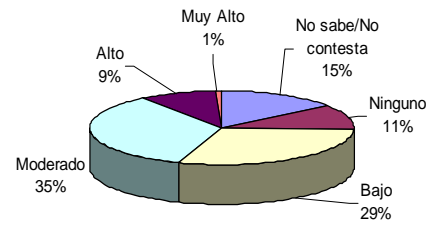
Impact of the UNESCO Chair activity

Transfer technology by the UNESCO Chair.

3.1. Impacto Cátedra en Actividades I+D+i del encuestado



3.2 A sus actividades de estudio, la cátedra transfiere conocimiento, tecnología e innovación



### Relation Article Citation in international collaborations



Geographic distribution of web visitors:



### Google Search: Telemedicina- UNESCO

All links belong to the UNESCO Chair of the ULL either in Spanish or in English (telemedicine-Unesco)

1- [53 Cátedra UNESCO de Telemedicina UNESCO Telemedicine Chair 52](#)

Formato de archivo: PDF/Adobe Acrobat - [Versión en HTML](#)

Research | UNESCO Chair. 53. Cátedra UNESCO de Telemedicina. La cátedra propiciada y dirigida por la profesora Olga Ferrer-Roca es la ...

[www.teide.net/Catai/catedra\\_unesco/pag5253.pdf](http://www.teide.net/Catai/catedra_unesco/pag5253.pdf) - [Páginas similares](#)

2- [UNESCO | Education - España](#)

Cátedra UNESCO de Telemedicina (467), establecida en 1999 en la Universidad de ... Sector de la UNESCO o Unidad fuera de la Sede responsable de la Cátedra ...

[portal.unesco.org/education/es/ev.php-URL\\_ID=2989&URL\\_DO=DO\\_TOPIC&URL\\_SECTION=201.html](http://portal.unesco.org/education/es/ev.php-URL_ID=2989&URL_DO=DO_TOPIC&URL_SECTION=201.html) - 39k - [En caché](#) - [Páginas similares](#)

3- [Red de Cátedras Telefónica » Blog Archive » UNESCO Telemedicina ...](#)

UNESCO Telemedicina - Univ Autonoma Caribe. Colombia. por Prof.Dr. O. Ferrer-Roca. AproTECH LatAm (Oficina de Proyectos Europeos con entidades ...

[blogs.tid.es/catedras/catedras\\_telefonica/?p=3005](http://blogs.tid.es/catedras/catedras_telefonica/?p=3005) - 6k - [En caché](#) - [Páginas similares](#)

4- [Telemedicina \(ULL\)»Archivo del blog » UNESCO Telemedicina - Univ ...](#)

6 Mar 2009 ... UNESCO Telemedicina- Nueva Maestría de Telemedicina en la Univ ... UNESCO Telemedicina - Univ Autonoma Caribe. Colombia. ...

[catai.net/blog/2009/03/unesco-telemedicina-y-aprotech-latam/](http://catai.net/blog/2009/03/unesco-telemedicina-y-aprotech-latam/) - 6k - [En caché](#) - [Páginas similares](#)

5- [Telemedicina \(ULL\) » UNESCO](#)

UNESCO Telemedicina- Nueva Maestría de Telemedicina en la Univ ... PORTAL WEB de la Cátedra UNESCO de Telemedicina en la Universidad del Zulia (Venezuela). ...

[catai.net/blog/category/unesco/](http://catai.net/blog/category/unesco/) - 33k - [En caché](#) - [Páginas similares](#)

[Más resultados de catai.net »](#)

6- [LAGUNA-PRESENTA-ULTIMAS-NOVEDADES-TELEMEDICINA-TRAVES-CATEDRA-UNESCO](#)

LA LAGUNA PRESENTA LAS ULTIMAS NOVEDADES EN TELEMEDICINA A TRAVES DE SU CATEDRA UNESCO.

[www.universia.es/portada/actualidad/noticia\\_actualidad.jsp?noticia=16162](http://www.universia.es/portada/actualidad/noticia_actualidad.jsp?noticia=16162) - 34k - [En caché](#) - [Páginas similares](#)

7- [Telefónica renueva su confianza en la cátedra UNESCO de ...](#)

La Laguna/ La Universidad de La Laguna cuenta desde 1999 con la única Cátedra UNESCO en Telemedicina, pionera en esta materia en todo el mundo, ...

canarias24horas.com/index.../telefonica-renueva-su-confianza-en-la-catedra-unesco-de-  
**telemedicina-de-la-ull.html** - 42k - [En caché](#) - [Páginas similares](#)

8- [\*\*Postgrado en Telemedicina Prof. Dr. O.Ferrer-Roca. Cátedra UNESCO ...\*\*](#)

Formato de archivo: PDF/Adobe Acrobat - [Versión en HTML](#)

Cátedra UNESCO de *Telemedicina*. Universidad de La Laguna <http://www.teide.net/catai>. R.  
ESUMEN. Descripción del curso de Postgrado en *Telemedicina* "Master ...

[www.revistaesalud.com/index.php/revistaesalud/article/viewPDFInterstitial/29/30](http://www.revistaesalud.com/index.php/revistaesalud/article/viewPDFInterstitial/29/30) - [Páginas similares](#)

de O Ferrer-Roca - 2005 - [Las 7 versiones](#)

9- [\*\*Cátedra UNESCO de Telemedicina de la Universidad del Zulia.\*\*](#)

La cátedra de *Telemedicina* llevará a cabo este curso dirigido a satisfacer las necesidades de la c...  
Med@Tel 2009 International Educational and Networking ...

[www.gp.cnti.ve/site/telemedluz.org.ve/](http://www.gp.cnti.ve/site/telemedluz.org.ve/) - 16k - [En caché](#) - [Páginas similares](#)

10- [\*\*JORNADAS NACIONALES DE MEDICINA MARITIMA JORNADAS  
NACIONALES DE ...\*\*](#)

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*Telemedicina UNESCO*; Universidad La. Laguna, Tenerife). 11.00 - Café. 11.30 –Mesa coloquio  
Vigilancia de la salud en los Trabajadores del Mar. ...

[www.semm.org/jnmm10prog.pdf](http://www.semm.org/jnmm10prog.pdf) - [Páginas similares](#)

## **V. Forthcoming activities**

1. XVIII WINTER COURSE OF THE CATAI –March 2010 – Tenerife – Spain
2. STUDENTS EXCHANGE TO TENERIFE
3. STUDENTS TRAINING IN TENERIFE
4. UGANDA DOCTORS TRAINING IN EUROPE
5. SCHOLARSHIPS FOR IBEROAMERICAN BIOENGINEERS
6. EU to IBEROAMERICA INTERCHANGE FOR SUPPORT.
7. TELEMEDICINE MASTER FOR DEVELOPING COUNTRIES
8. MASTER OF TELEMEDICINE AT DISTANCE.
9. TELEPATHOLOGY WITH “SSVS” IN DEVELOPPING COUNTRIES.
10. NON-INVASIVE BIOPSY IN DEVELOPPING COUNTRIES

## **VI. Development prospects**

The activities of the Chair started on 1999 has expanded during the period 2007-2010 to:

1. – Brazil and the Norwest Amazonia Area.
2. – USA.
3. – Cabo Verde islands
4. – Israel
5. – Cyprus
6. – Columbia- Barranquilla
7. – Senegal
8. -- Republic. Du Benin
9. -- Guinea Ecuatorial

## Annex 1

### Target groups

Undergraduate students	YES
Graduate students	YES
Postgraduate students	YES
Academics	YES
Public administrators	YES
Employees from industry, or other private organizations ( <i>please, specify</i> )	YES: NGO's
Teachers from primary education	NO
Teachers from secondary education	NO
Teachers from technical and vocational education	YES
Teachers from adult education	YES
Others groups ( <i>Please specify</i> )	YES: VOLUNTIERS

## Annex 2

### Geographical Coverage

- **National**
  - **Spain:** Canary Islands (7 Islands)  
Cataluña  
Madrid
- **Regional**
  - **Africa:** Nairobi-Kenya, Makere-Uganda, Marrocco, Argelia; Cabo Verde, Senegal, Republic. Du Benin, Guinea Ecuatorial..
  - **Arab States:** Israel, Turkey-Istambul,
  - **Asia/ Pacific:** Kazakhstan, Israel-Tel Aviv, New Delhi-India, China-Beijing
  - **Eastern and Central Europe:** Sofia-Bulgaria, Rumania, Russia-Perm & Moscow-Albania – Lithuania.
  - **Australia:** Queensland University.
  - **Western Europe and North America:** Germany-Regensburg/Postdamm/Berlin, Italy-Udine/Milan/Rome, Greece-Athens and Aegean islands, Austria-Tyrol, France-Strasbourg/Paris, Lachen-Switzerland, Oxford-UK, Cyprus, .
  - **Ibero-America:** Argentina-Entre-Ríos, Venezuela-Maracaibo, Venezuela-Caracas, Brazil- Rio Grande do Sur + Norwest Amazonia. Colombia-Barranquilla.
  - **USA:** Massachusets
- **Interregional**

## Annex 3

### Funding sources

Funding source	Type of Organization / Institution	Period	Amount US\$
<b>UNESCO Contribution</b>		2007/08	0
<b>Other contributions:</b> <i>Please specify, for each contribution:</i>  <i>Institution, City, Country</i> ■	Host Institution	2007/09	24000
	Partner university/ institution	2007/09	30000
	Governmental body		
	Other public institution <i>Please specify</i>		
	UN Agencies		
	IGO's		
	NGO's: CATAI	2007/09	80000
	Industry		
	Other private sources <i>Telefónica SL -Spain</i>	2007/09	110000
<b>TOTAL</b>		2007/09	244000 €

## Outputs-I Form 1: Publication

### 1. Title of activity: **STANDARDS IN TELEMEDICINE.**

#### 1.1. **Title: Standards in Telemedicine. CATAI 2007**

Publisher(s): CATAI 2006 Ed. ISBN 84-611-4628-X Canary Islands CATAI- Tenerife-Spain

Year: 2006

Number of pages: 203

Type of document/material:

- Book
- Periodical
- Others (*specify, please*) X - Proceedings XV Winter Course CATAI.

Teaching/learning material X

Language(s): English, Spanish

Main keywords (4 or 5): Telemedicine, Information Society, Health Care, Ambience Intelligence.

#### **SHORT ABSTRACT**

*(Brief description of the content in English, French or Spanish)*

The Telemedicine has passed the consolidation period, since there are standards for any of the existing activities, and have to put into practice in order to assure quality of care. At the present moment the 13 items of the Telemedicine body of knowledge contain established medical informatics and engineering standards capable of assuring connectivity, security and quality of care.

#### 1.2. **Title: Standards in Telemedicine- DVD**

Publisher(s): In “”. CATAI Ed 2006 ISBN 84-611-4628-X Canary Islands.

Year: 2007

Number of pages: 12-21

Type of document/material:

- Book
- Periodical
- Others (*specify, please*) X – Article.

Teaching/learning material X

Language(s): English & Spanish.

Main keywords (4 or 5): Standards, Quality assurance.

#### **SHORT ABSTRACT**

*(Brief description of the content in English, French or Spanish)*

The use of standards in Telemedicine assure several principles such as: operability, portability and mobility quality, security and confidence. The technology and applications are reaching the maturity plateau where standards for any application are available. In this paper we will analyze the most generic ones, although for each specific application there are working groups in the standardization committees taking care of them

#### 1.3. **Title: Quality control in Telemedicine. Biobanking. CATAI 2008**

Publisher(s): CATAI 2007 Ed. ISBN 978-84-612-1364-1 Canary Islands CATAI-Tenerife-Spain

Year: 2008



Number of pages: 138  
Type of document/material:

- Book
- Periodical
- Others (*specify, please*) X - Proceedings XVI Winter Course CATAI.

Teaching/learning material X

Language(s): English, Spanish

Main keywords (4 or 5): Telemedicine, Information Society, Health Care, Biobanking. Security.

#### **SHORT ABSTRACT**

*(Brief description of the content in English, French or Spanish)*

Trata los aspectos de control de calidad y aplicación de los estándares de control de calidad en la provisión de medicina a través de la Telemedicina. Y dada la oportunidad por la reciente Ley de Investigación Biomédica y el hecho de que el grupo tiene reconocido prestigio en el campo de la gestión de imágenes medicas a distancia, introducimos el interés de los Biobancos de imágenes medicas para la farmacogenómica, medicina personalizada, proteómica y genómica.

El tema es particularmente relevante dada la proliferación poco regulada (con excepción del registro obligatorio) de los biobancos y de la utilización de la información en los mismos sin las garantías técnicas ni de privacidad.

#### 1.4. **Title: Handbook Telemedicine**

Publisher(s): THAËÏATPIKH Ed. Editor Papazisis Pubs Atenas. Grecia ISBN : 978-960-02-2295-1

Year: 2008

Number of pages: 300

Type of document/material:

- Book X
- Periodical
- Others (*specify, please*)

Teaching/learning material X

Language(s): Greek

Main keywords (4 or 5):

#### **SHORT ABSTRACT**

*(Brief description of the content in English, French or Spanish)*

#### 1.5. **Title: Control de Calidad del Quirófano Inteligente. Proyecto CIRUMAC CA-149/07**

Publisher(s): <http://catai.net/blog/2008/07/control-calidad-quiroyano-inteligente/>.

Year: 2008

Number of pages:

Type of document/material:

- Book
- Periodical
- Others (*specify, please*)

Teaching/learning material X

Language(s):

Main keywords (4 or 5):

### SHORT ABSTRACT

*(Brief description of the content in English, French or Spanish)*

El informe considera los estándares de conectividad y el estándar Plug & Play para la ORF (Operating Room of the future) y diseña entre otros aspectos la infraestructura docente propia de un quirófano universitario.

1.6. **Title: Proyecto de receta electrónica. Consultor AENOR. 068/0736**

Publisher(s): <http://catai.net/blog/2008/09/2008-aenor-736-receta-electronica/>.

Year: 2008

Number of pages:

Type of document/material:

- Book
- Periodical
- Others (*specify, please*)

Teaching/learning material X

Language(s):

Main keywords (4 or 5):

### SHORT ABSTRACT

*(Brief description of the content in English, French or Spanish)*

1.7. **Title: Grid Technology in Telepatology and Personalised Treatment.**

Publisher(s): Applications for Telemedicine Services & Delivery Editor: Dr. Ekaterina Kldiashvili. Georgian Telemedicine Union, Georgia IGI Global Publ. Philadelphia. USA. [Grid Technologies for eHealth: Applications for Telemedicine Services & Delivery](#)

Year: 2008

Number of pages: 10

Type of document/material:

- Book
- Periodical
- Others (*specify, please*)

Teaching/learning material X

Language(s): Greek

Main keywords (4 or 5): Patho-informatics, solo-pathology, quality control, automatic pathology, LBD techniques, MPEG, JPEG, ISO standards, GRID, PIMS

### SHORT ABSTRACT

*(Brief description of the content in English, French or Spanish)*

Histopathology requires automation, quality control and global collaborative tools. Usually the PIMS (Pathology information management system) automates samples, images and reports and progressively incorporates the PI (Pathology informatics), the D-PATH (digital pathology), e-PATH (electronic pathology), the PPH (Patho-pharmacology), virtual autopsy (VA) and all type of translational research in the PMIS (pathology management information system).

Not being subject to a specific standard, quality control follows ISO-13485:2003 on services and medical devices, ISO 17025:2005 on technical aspects; and ISO-15198:2003 for automate and quantifiable procedures that being medical software is affected by the new European Directive on medical devices. For non-standardized procedures, consumers' requirements for test and calibration are essential.

The paper analyzed the non-standardized procedures: VS (Virtual Slides), GRID networking and Literature Based Discovery as tools for knowledge discovery of relevant relationships on image-diagnosis and personalized treatments. Standardized procedures available for search and annotation are the ISO/IEC 11179 Information Technology Metadata Registries specification, the ISO/IEC

13250:2003 for topics maps or MPEG-7 & 21 for images and the ISO/IEC 24800-3 for JPEG query search.

The forthcoming innovations prepare to quality certify the so called “solo-pathology” robotic labs, supported by telepathology to reduce diagnostic errors and carrying out a relevant task on personalized treatment through GRID technology. In this environment the JPEG query search play a relevant role on images which metadata can be annotated on natural language..

1.8. **Title: E-Health Systems Quality and Reliability: Models and Standards.**

Publisher(s): <http://www.igi-global.com/requests/details.asp?ID=579>.

Year: 2009

Number of pages: 20

Type of document/material:

- Book
- Periodical
- Others (*specify, please*)

Teaching/learning material                      X

Language(s): Greek

Main keywords (4 or 5):

**SHORT ABSTRACT**

*(Brief description of the content in English, French or Spanish)*

A systematic gathering of glimpses related to future healthcare reveal at least two trends which might be interpreted as proposals of what the future of healthcare might look like. One trend embodies increased uses of nanotechnology, individualised drugs, cell-based computing and microchip-enhanced brains. The other one relates to emerging e-health care provision services, like telemedicine and e-health. Notwithstanding the previously mentioned prospects, both healthcare professionals and patients remain increasingly dissatisfied as a result of nebulous expectations and fundamentally different views with respect to the content of quality in healthcare as related to the reliability of systems and services.

Quality and reliability are thought to be measurable at least in specific domains. Thus, our knowledge on the subject could be compared with a fleeting glance. New ways of thinking should evolve based on what we actually know and that which we do not understand. The safest way to achieve this is to juxtapose the criticisms with the existing body of knowledge. Unilateral approaches, for instance those dealing only with continuous quality improvement or reliability assurance, do not work. Instead, a broad view of all ideas and tools used should be applied.

All the aspects for e-health systems design are discussed in this book to formulate epistemic criteria for evaluation purposes. The purpose of the book is to provide a comprehensive coverage of the ideas of quality assurance and continuous quality improvement in e-health. With respect to quality assurance, the objective will be achieved by including a review of the methods used for quality assurance, including both advantages and disadvantages. As far as continuous quality improvement is concerned, a critical presentation of great thinkers' ideas will be included. Finally, new topics like quality education in healthcare and patient safety will be explored. Furthermore, an overview of reliability modelling in e-health networks will be provided which includes various reliability evaluation aspects, such as network, system, software and diagnosis.

1.9. **Title: Telepathology and optical biopsy.**

Publisher(s): Internacional Journal of Telemedicine and Applications.

Year: 2009

Number of pages: 6

Type of document/material:

- Book
- Periodical
- Others (*specify, please*)

Teaching/learning material X

Language(s): Greek

Main keywords (4 or 5): Optical biopsy; OCT; Super-resolution. Microendoscopy. Histoendoscopy. Immu-nomicroendoscopy

### **SHORT ABSTRACT**

*(Brief description of the content in English, French or Spanish)*

Technological advances accessing microscopic level in vivo tissue without disruption, force to consider the role of the pathologist in the medicine now a days. Neither microscopes, nor staining or tissue processing are required for microscopic pathology diagnosis. It is urgent to have sufficient morphological publications to establish the gold-standard depending on the employed technique for in vivo biopsies or optical biopsies

The present paper introduces the non-disruptive optical diagnostic techniques, showing the diagnostic level of each one.

#### **1.10. Title: Endomicroscopía en anatomía patológica. Biopsia Óptica**

Publisher(s): Revista Española de Patología. Vol. 42, nº 3.

Year: 2009

Number of pages: 167-181

Type of document/material:

- Book
- Periodical
- Others (*specify, please*)

Teaching/learning material X

Language(s): Greek

Main keywords (4 or 5): Optical biopsy; OCT; Super-resolution. Microendoscopy. Histoendoscopy. Immu-nomicroendoscopy

### **SHORT ABSTRACT**

*(Brief description of the content in English, French or Spanish)*

Technological advances accessing microscopic level in vivo tissue without disruption, force to consider the role of the pathologist in the medicine now a days. Neither microscopes, nor staining or tissue processing are required for microscopic pathology diagnosis. It is urgent to have sufficient morphological publications to establish the gold-standard depending on the employed technique for in vivo biopsies or optical biopsies

The present paper introduces the non-disruptive optical diagnostic techniques, showing the diagnostic level of each one.

#### **1.11. Title: Superresolution & Optical biopsy..**

Publisher(s): CATAI 2008 Ed. ISBN 978-84-612-8620-1 canary Islands CATAI-Tenerife-Spain

Year: 2009

Number of pages: 45-54

Type of document/material:

- Book
- Periodical
- Others (*specify, please*) X – Article.

Teaching/learning material

Language(s): English

Main keywords (4 or 5): Optical biopsy; OCT; Super-resolution. Microendoscopy.  
Histoendoscopy. Immu-nomicroendoscopy.

#### **SHORT ABSTRACT**

*(Brief description of the content in English, French or Spanish)*

Technological advances accessing microscopic level in vivo tissue without disruption, force to consider the role of the pathologist in the medicine now a days. Neither microscopes, nor staining or tissue processing are required for microscopic pathology diagnosis. It is urgent to have sufficient morphological publications to establish the gold-standard depending on the employed technique for in vivo biopsies or optical biopsies

The present paper introduces the non-disruptive optical diagnostic techniques, showing the diagnostic level of each one.

#### **1.12. Title: Superresolución & Biopsia Optica.**

Publisher(s): CATAI 2008 Ed. ISBN 978-84-612-8620-1 canary Islands CATAI-Tenerife-Spain

Year: 2009

Number of pages: 33-44

Type of document/material:

- Book
- Periodical
- Others (*specify, please*) X – Article.

Teaching/learning material

Language(s): Spanish

Main keywords (4 or 5): Biopsia óptica; OCT; Superresolución. Microendoscopia.

Histoendoscopia. Inmunomicroendoscopia

#### **SHORT ABSTRACT**

*(Brief description of the content in English, French or Spanish)*

Los avances tecnológicos en el campo de la visión microscópica de las imágenes o la capacidad diagnóstica de una gran variedad de técnicas ópticas, obligan a analizar y re-ubicar el papel del Anatomopatólogo en la medicina. Ni los microscopios, ni la tinción, ni el procesado de tejidos son hoy en día imprescindibles para diagnosticar una lesión. Se hace necesario contar con publicaciones morfológicas que determinan el estándar-oro de acuerdo con la técnica empleada de estas biopsias in vivo o biopsias ópticas no disruptivas. Este cometido ha de estar en manos del patólogo.

Este artículo introduce en las técnicas de diagnóstico óptico y en las técnicas de visión microscópica no invasiva mostrando los niveles diagnósticos de cada una.

#### **1.13. Title: Superresolución & Biopsia Optica.**

Publisher(s): Ferrer-Roca O. Ed. CATAI 2008 Ed. ISBN 978-84-612-8620-1 canary Islands CATAI- Tenerife-Spain

Year: 2009

Number of pages: 100

Type of document/material:

- Book
- Periodical
- Others (*specify, please*) X – Article.

Teaching/learning material

Language(s): Spanish

Main keywords (4 or 5):

#### **SHORT ABSTRACT**

*(Brief description of the content in English, French or Spanish)*

Technological advances accessing microscopic level in vivo tissue without disruption, force to consider the role of the pathologist in the medicine now a days. Neither microscopes, nor staining or tissue processing are required for microscopic pathology diagnosis. It is urgent to have sufficient morphological publications to establish the gold-standard depending on the employed technique for in vivo biopsies or optical biopsies.

#### **1.14. Title: Telemedicina Parte 0. Declaración de Praga 2009**

Publisher(s): Acta Médica. Tenerife-Spain

Year: 2009

Number of pages: 1

Type of document/material:

- Book
- Periodical
- Others (*specify, please*)                      X – Article.

Teaching/learning material

Language(s): Spanish

Main keywords (4 or 5): e-Health. Telemedicine.

#### **SHORT ABSTRACT**

*(Brief description of the content in English, French or Spanish)*

Como es bien sabido durante la conferencia ministerial de eHealth2009 que se celebro en Praga del 18-20 Febrero del 2009, se adapto la Declaración de Praga 2009. En ella se resume toda la política de la CE en los aspectos de Telemedicina y que iremos abordando en sucesivas.

Sin embargo la Declaración de Praga de 2009 va mas allá al considerar esencial el uso de la Telemedicina para el **Beneficio de los pacientes**, para el **Beneficio de la Sociedad** introduciendo la importancia de la *e-health literacy* o formación en las herramientas de Telemedicina y para el **Beneficio de la Economía**.

#### **1.15. Title: Telemedicina Parte I. La e-Sanidad – La Telemedicina**

Publisher(s): Acta Médica. Tenerife-Spain

Year: 2009

Number of pages: 2

Type of document/material:

- Book
- Periodical
- Others (*specify, please*)                      X – Article.

Teaching/learning material

Language(s): Spanish

Main keywords (4 or 5): e-Health. Telemedicine.

#### **SHORT ABSTRACT**

*(Brief description of the content in English, French or Spanish)*

En este artículo y en los siguientes queremos resumir conceptos necesarios que los gestores, usuarios y responsables de la sanidad deben tener presente en la actualidad en el entorno electrónico de la sanidad a nivel europeo, Son aspectos culturales, técnicos, legislativos y organizativos que los colegios de médicos deben manejar, aplicar y hacer aplicar correctamente para la mejora, modernización y eficiencia de la medicina moderna dentro del marco de la Unión Europea.

Por ello y en esta primera parte se le dedica un gran espacio a familiarizarse con las definiciones propias del entorno electrónico y la motivación de la urgente necesidad de promoción de la telemedicina para la atención sanitaria.

#### **1.16. Title: Telemedicina Parte II.**

Publisher(s): Acta Médica. Tenerife-Spain

Year: 2009

Number of pages: 2

Type of document/material:

- Book
- Periodical
- Others (*specify, please*) X – Article.

Teaching/learning material

Language(s): Spanish

Main keywords (4 or 5): e-Health, telemedicina

#### **SHORT ABSTRACT**

*(Brief description of the content in English, French or Spanish)*

Pasaremos revista en este artículo brevemente a un somera historia del desarrollo de la Telemedicina en el mundo y a la necesidad de promoción de la telemedicina por los beneficios que esta aporta. Para ello pasaremos revista a las premisas y recomendaciones publicadas por la Comisión Europea sobre interoperabilidad.

#### **1.17. Title: ¿Son las unidades de ictus con telemedicina un requerimiento de equidad sanitaria?.**

Publisher(s): Revista de Neurología. Barcelona-Spain

Year: 2009

Number of pages: 2

Type of document/material:

- Book
- Periodical
- Others (*specify, please*) X – Article.

Teaching/learning material

Language(s): Spanish

Main keywords (4 or 5): Tele-stroke. Telemedicine. Stroke

#### **SHORT ABSTRACT**

*(Brief description of the content in English, French or Spanish)*

El ictus es la segunda causa de muerte para mujeres y tercera para hombres (33.000 /año) y la primera de discapacidad en España, con un gran impacto económico ( ≈5000 € paciente/año; 4% del gasto sanitario); su tasa de incidencia anual está entre el 130 al 170 por 100.000 habitantes, con una prevalencia entre 4% al 8% en la población de más de 65 años. En la fase aguda del ictus el 30% de los

pacientes podrían ser candidatos al tratamiento trombolítico pero en Europa no lo reciben mas que el 2%. Además los beneficios se incrementan reduciendo los tiempos de demora Diagnostico-Traslado (código ictus), Puerta-Evaluación (criterios de inclusión-exclusión), Puerta-TC craneal (mismatch perfusión/difusión) y Puerta-Tratamiento Especifico (Bolus 10% en 60 segundos y bomba de infusión en 60 minutos con el resto de la dosis) antes de las 3 horas de inicio de los síntomas.

Igualmente no muestran la misma eficacia y eficiencia las Unidades de Ictus1 (UI) que los Equipo de Ictus (EI), al reducir la estancia media, mortalidad (Safe Implementation of Thrombolysis in Stroke-Monitoring Study - SITS-MOST- del 17,3% al 11% en 3 meses) y dependencia, complicaciones sistémicas y neurológicas (hemorragia cerebral SITS-MOST del 8.6% al 1.7%) y coste por paciente y global. Según la Stroke Unit Trialist Collaboration reduce un 18% el riesgo relativo en términos de mortalidad, morbilidad y discapacidad.

Por ello recientemente (17 marzo 2009) el Ministerio de Sanidad presento la estrategia de tratamiento en ictus aprobada por el Consejo Interterritorial del Sistema Nacional de Salud el 26 de noviembre del 2008, en el que se menciona 13 veces la telemedicina de forma indicativa y sin desarrollo alguno. Conociendo que la edad media de la población se incrementa y por lo tanto se incrementan de igual modo el riesgo de ictus y sus consecuencias, ¿No estará entonces justificada la mejora de la atención sanitaria al Ictus con Telemedicina (TM)?.

#### **1.18. Title: Health Metrics applied to Telemedicine**

Publisher(s): CATAI 2007 Ed. ISBN 978-84-612-1364-1 Canary Islands CATAI-Tenerife-Spain

Year: 2008

Number of pages: 40-45

Type of document/material:

- Book
- Periodical
- Others (*specify, please*) X – Article.

Teaching/learning material

Language(s): Spanish

Main keywords (4 or 5): Health metrics, telemedicine, WTP, QALY

#### **SHORT ABSTRACT**

*(Brief description of the content in English, French or Spanish)*

One of the main drawbacks for Telemedicine is the difficulty to demonstrate in monetary value the cost-benefits when benefits are mainly intangible in the utility sphere or health utility function ( $U=Qm*t$ ). The paper list all health metric instruments that can be applied to TM and stated opportunities of the WTP (Willigness to pay) for co-responsibility in health care expensive and QALY (Quality adjusted life years) based on Equity and availability for rural areas

#### **1.19. Title: Departamento de anatomía patológica a tenor de la Legislación Vigente**

Publisher(s): In "Revista Española de Patología". Vol. 42, nº 1

Year: 2009

Number of pages: 17-23

Type of document/material:

- Book
- Periodical
- Others (*specify, please*) X – Article.

Teaching/learning material

Language(s): Spanish

Main keywords (4 or 5): Bio-bank, bio-collection, Data protection, Pathology-informatics, Biomedical research, Legislation.



### **SHORT ABSTRACT**

*(Brief description of the content in English, French or Spanish)*

The management of the pathology department specimens is directly influenced in Spain by the Data Protection Law, Patient autonomy law and the Biomedical research law.

Those laws have a strong influence in issues such as: the mandatory specimen storage at minimum 30 years, the requirement of an ethic committee to use them for research, requirement of an informed consent, and a total traceability as well as the registration in the biomedical bank, data among others.

This and other aspects that significantly influence specimens' management in a department of pathology are studied in the paper.

#### **1.20. Title: Anatomía Patológica Digital. Control de calidad y Pato-informática**

Publisher(s): In "Revista Española de Patología". Vol. 42 nº 2

Year: 2009

Number of pages: 85-95

Type of document/material:

- Book
- Periodical
- Others (*specify, please*)                      X – Article.

Teaching/learning material

Language(s): Spanish

Main keywords (4 or 5): Patho-informatics, solo-pathology, quality control, automatic pathology.

### **SHORT ABSTRACT**

*(Brief description of the content in English, French or Spanish)*

Similarly to other hospital services, histopathology and morbid anatomy requires automation and a quality control. Usually the PIS (Pathology information system) automates samples, images and reports and progressively incorporates the PI (Pathology informatics), the D-PATH (digital pathology), e-PATH (electronic pathology), the PPH (Patho-pharmacology, virtual autopsy and in general in all type of translational research in the PMIS (pathology management information system).

Not being subject to a specific standard, quality control follows ISO-13485:2003 on services and medical devices, ISO 17025:2005 on technical aspects; and ISO-15198:2003 for automate and quantifiable procedures that being medical software is affected by the new European Directive on medical devices.

For non-standardized procedures, consumers' requirements for test and calibration are essential. i.e.: the requirements for virtual slides, according to our opinion, would not allow quality certify commercial scan devices.

The forthcoming innovations prepare to quality certify the so called "solo-pathology" robotic labs, supported by telepathology to reduce diagnostic errors

#### **1.21. Title: Quality Label for e-health**

Publisher(s): In "IET Communications". Vol 2,(number 2),

Year: 2008

Number of pages: 202-207

Type of document/material:

- Book
- Periodical
- Others (*specify, please*)                      X – Article.

Teaching/learning material

Language(s): English.

Main keywords (4 or 5): Telemedicine, e-health, PMI, PKI, Digital signature, TTP, Security, Health Information Systems, and USB-token.

### **SHORT ABSTRACT**

*(Brief description of the content in English, French or Spanish)*

A drug e-prescription demonstrator was created in compliance with existing legislation as well as security and privacy standards. A professional ID-card was built on a high security chip (ISTEC E4 High; EAL-5) with a Hash hardware accelerator for a digital signature placed in a single chip USB token. Commercial software products as well as development kits of the new hardware designed in the project were used to build an authentication, authorisation and electronic signature demonstrator. The degree of legal compliance was evaluated. The tested novel single chip USB token was highly efficient but limited by its 1.1 interface speed (12 Mbit/s). The chip, initialised with a banking-mask, inefficiently managed space for the health-care chain of trust. The public key and privilege management infrastructure was not able to handle health-care attributes in the appropriate extensions. Templates for role-rule privileges were not available and healthcare standards for security and privacy were not found in commercial products. The paper points out the urgent need for an e-health conformance label as well as a quality label for liability and confidence to gain users' trust.

#### **1.22. Title: Internet of Things in Telemedicine. CAM-IMAGES.**

Publisher(s): **IoT of Things for medical devices. Health 2.0 to Health 3.0.** Ed. CATAI 2009 Ed. ISBN 978-84-613-7246-1 canary Islands CATAI- Tenerife-Spain

Year: 2010

Number of pages: 36-40

Type of document/material:

- Book
- Periodical
- Others (*specify, please*) X – Article.

Teaching/learning material

Language(s): English

Main keywords (4 or 5): Tele-pathology. CAM image. IoT. Superresolution. Digital images. 4M microscopes. Mobile phones. Image quality.

### **SHORT ABSTRACT**

*(Brief description of the content in English, French or Spanish)*

IoT (Internet of Things) allows identifying, scheduling, controlling and evaluating devices through Internet including image quality for diagnostic purposes. The paper evaluates image quality in new miniaturized computer-assisted microscopy (CAM) images. New appearing CAM systems are:

(1) the Small Size Virtual Slides (SSVS) (2) Multi-Modal Miniature Microscopes (4M) images with or without confocal microscopy. (3) Smart phones of 12 Mega-pixels (12MpM) images through optical or fluorescence lenses. Parameters proposed to standardized multimedia images were: Digital

Resolution (DR), Visual Magnification (VM), onscreen Magnification (SM) and Useful magnification (US). The study assesses surgical pathology and cytology images in digital format (D-image) considering a priori the analogue format (A-image) as the quality gold standard. Digital field of views-FOVs of under-sampled CAM-SSVS-images showed four-time higher discrimination power than analogue images up to 640x onScreen magnification (SM). Digital Region of Interest-ROIs of ortho-sampled CAM-SSVS-images showed sixtime higher discrimination power than analogue images up to an SM of 3200x, which could never be reached using A-images. Chosen parameters evidenced that some D-images are CAM-images detecting details that escape to human eye in type I low aperture (NA<0.5) wide field incoherent light systems. Theses parameters can be easily applied to standardized other CAM-image modalities such as 4M and hand-held or mobile phone microscopes.

#### **1.23. Title: CBIR-Content based information retrieval optical biopsies.**

Publisher(s): **IoT of Things for medical devices. Health 2.0 to Health 3.0.** Ed. CATAI 2009 Ed. ISBN 978-84-613-7246-1 canary Islands CATAI- Tenerife-Spain

Year: 2010  
Number of pages: 41-46

Type of document/material:

- Book
- Periodical
- Others (*specify, please*) X – Article.

Teaching/learning material

Language(s): English

Main keywords (4 or 5): Medical image search, CBIR, multimedia, images, metadata, search and retrieval, standard, MPEG, JPEG, MPQF, JPSearch, query format.

#### **SHORT ABSTRACT**

*(Brief description of the content in English, French or Spanish)*

The present paper describes the design and usage of an Internet medical image search engine based on the queryby- example paradigm and the multimedia standard ISO- 15938-12:2008. The system, which allows combining Content Based Information Retrieval (CBIR) techniques such as “query by image” with traditional XML metadata filtering, is applied to annotate and query Optical Biopsies-OB (in the present case Confocal endomicroscopy-CEM). The OB-CEM are taken by endoscopists, not trained in microscopic morphology which is the domain of the surgical pathology. To gain diagnostic confidence the endoscopists could consult the images to a pathologist or could use the system proposed in the paper. That is, to search for similar images to compare the diagnosis:

#### **1.24. Title: IoT of Things for medical devices. Health 2.0 to Health 3.0.**

Publisher(s): Ferrer-Roca O. Ed. CATAI 2008 Ed. ISBN 978-84-613-7246-1 canary Islands  
CATAI- Tenerife-Spain  
Year: 2009  
Number of pages: 68

Type of document/material:

- Book X
- Periodical
- Others (*specify, please*)

Teaching/learning material

Language(s): Spanish / English

Main keywords (4 or 5):

#### **SHORT ABSTRACT**

*(Brief description of the content in English, French or Spanish)*

#### **1.25. Title: Query by images in Medical training**

Publisher(s): Proceedings of the third International Conference on Health Informatics (Healthinf 2010).  
Portugal. ISBN: 978-989-674-016-0.  
Year: 2010  
Number of pages: 166-172

Type of document/material:

- Book
- Periodical

- Others (*specify, please*) X – Article.

Teaching/learning material

Language(s): English

Main keywords (4 or 5): Optical Biopsy. Query by image. ISO-15938-12, MPEG Query Format, MPQF, ISO 24800-3, JPSearch, JPEG Query Format, JPQF, Artificial Intelligence. Multimedia standard.

#### **SHORT ABSTRACT**

*(Brief description of the content in English, French or Spanish)*

The use of Optical Biopsies-OB (in the present case Confocal endomicroscopy-CEM) is limited due to difficulties to interpret images. The OB-CEM are taken by endoscopists, not trained in microscopic morphology which is the domain of the surgical pathology. To gain diagnostic confidence the endoscopists could consult the images to a pathologist or could use the technique proposed in the paper. That is, to search for similar images on Internet to compare the diagnosis.

The present paper is a positioning paper of how to build a CEM-image metadata to be used by the multimedia standards ISO-15938-12:2008 and ISO-24800-3 in order to search on line using a “query by image”. Metadata semantics based on Kudo colorectal crypt architecture was used for annotation or automatic image extraction. The training set was composed of 25 OB-CEM chromo-colonoscopy images taken with a FICE (Fujinon Intelligent Chromoendoscopy). Those parameters were, whenever possible, automatically extracted from the image and included in the metadata for image mining. Future developments will annotate histological images in such a way that the query could also retrieve the histological image.

#### **1.26. Title: The impact of Telemedicine on Quality of life in rural areas.**

Publisher(s): Telemedicine & e-Health 16 (2).

Year: 2010

Number of pages: 233-243

Type of document/material:

- Book
- Periodical
- Others (*specify, please*) X – Article.

Teaching/learning material

Language(s): English

Main keywords (4 or 5): primary care, secondary care, tertiary care, telemedicine, quality of life, rural medicine.

#### **SHORT ABSTRACT**

*(Brief description of the content in English, French or Spanish)*

Background: Referrals from rural health centers to urban hospitals join waiting lists as outpatients for hospital admission and hospital treatment. This influences quality of life (QoL) of the rural population and retired people who require medical attention without traveling, provided no risks are involved. For this reason, a rural region of Spain has adopted a strategy to deliver telemedicine (TM) specialized care (Extremadura model) as a political decision. Objectives: The present study aimed at objectively assessing QoL on aspects of health and well-being for citizens benefiting from this system. Methods: We performed a randomized study of 800 primary care patients referred for specialized care: 420 regular face-to-face hospital referrals and 380 referred to a hospital specialist at a distance by TM. The study used two questionnaires: a modified version of the classical SF-12v2 short form questionnaire for health and well-being and a specific author-elaborated questionnaire. The latter focused on major patient concerns such as (1) discomfort and pain relief, (2) swift diagnosis, (3) swift treatment, (4) swift decision on hospital admission or not, (5) avoidance of traveling, (6) avoidance of red tape, and (7)

personal attention. QoL was assessed twice: before referral to a hospital specialist and 6 months after referral to the same. The results were statistically compared. Results: Both groups showed comparable health status with added advantages for TM referrals such as (1) less traveling ( $p=0.0001$ ) and (2) faster diagnosis, health examination, and treatment ( $p=0.0001$ ). Conclusion: Telemedicine care by a hospital specialist through videoconferencing was comparable to hospital referral for face-to-face medicine. Teleconsultations managed by nurses had a positive impact on the QoL of rural patients. They did not have to travel and thus diagnoses and examinations to start treatment were initiated faster.

**1.27. Title: ¿Cómo se puede hacer Telemedicina sin haberse formado en la misma?**

Publisher(s): Emergencias vol 22(4).

Year: 2010

Number of pages: 314-315

Type of document/material:

- Book
- Periodical
- Others (*specify, please*)                      X – Article.

Teaching/learning material

Language(s): Spanish

Main keywords (4 or 5):

**SHORT ABSTRACT**

*(Brief description of the content in English, French or Spanish)*

Ha sido una grata sorpresa leer la publicación titulada “Telemedicina aplicada a la atención sanitaria urgente: aspectos metodológicos y prácticos”, aparecida en EMERGENCIAS<sup>1</sup>. Desearíamos sólo añadir que el cuerpo de conocimiento de la telemedicina (TM) está integrado por 12 apartados y que es un riesgo ofrecer servicios de TM sin haberse antes entrenado adecuadamente. Parte del entrenamiento lo constituye la historia y la definición de TM. La Comisión Europea (CE)<sup>2</sup> la define como la provisión de servicios sanitarios a través del uso de las TICs. Sin embargo, la Organización Mundial de la Salud (OMS)<sup>3</sup> define la Salud electrónica (e-Health; e-Salud) como la utilización de las TICs de forma costo-efectiva y segura para apoyar la salud y sus aspectos relacionados, que incluyen los servicios sanitarios, la vigilancia, la información científica, la educación sanitaria, el conocimiento científico y la investigación. Los profesionales sanitarios, acostumbrados a usar los términos etimológicamente, llaman TM a la medicina realizada a distancia; salud electrónica (e-Salud) a la provisión y control de la salud electrónicamente y sanidad electrónica (e-Sanidad) a la administración o gestión electrónica de las tareas sanitarias.

**1.28. Title: Chapter 17: Standards in Telemedicine**

Publisher(s): E-Health Systems Quality and Reliability: Models and Standards,” Anastasius

Moumtzoglou and Anastasia Kastania Ed. by IGI Global

Year: 2011

Number of pages:

Type of document/material:

- Book
- Periodical
- Others (*specify, please*)                      X – Chapter.

Teaching/learning material

Language(s): English

Main keywords (4 or 5):

#### **SHORT ABSTRACT**

*(Brief description of the content in English, French or Spanish)*

For many years, medical teams working on telemedicine have made a strong effort to define the telemedicine Body of Knowledge (BoK), and generate compatible standards that allow delivering telemedicine with adequate medical quality. The authors expect, after the European Commission statement on the Prague 2009 declaration, a new era for telemedicine. The essential barriers, which have already been encountered, include Literacy, Standard connectivity and Quality control. In the present chapter, the authors will address the item of Literacy regarding the type of standards in each of the topics of the Telemedicine Body of Knowledge.

#### **1.29. Title: Solo-medicine in Optical Biopsies**

Publisher(s): A way to practice Telemedicine". HealthInfo 2011. Rome-Italy

Link <http://www.healthinf.biostec.org/>

Year: 2011

Number of pages:

Type of document/material:

- Book
- Periodical
- Others (*specify, please*)                      X – Article.

Teaching/learning material

Language(s): English

Main keywords (4 or 5): Optical Biopsy. Query by image. ISO-15938-12, MPEG Query Format. MPQF. ISO 24800-3. JPSearch. JPEG Query Format. JPQF. Artificial Intelligence. Multimedia standard. Solo-medicine.

#### **SHORT ABSTRACT**

*(Brief description of the content in English, French or Spanish)*

A way to practice Telemedicine is to access a data-base capable to assist you in medical procedures (diagnosis, treatment and prognosis), similarly to consult a book or to ask a colleague. In many countries the lack of specialists and training capabilities demand to practice solo-medicine, that in the case of surgery require robots capable to induce anesthesia or help in vision or handling instruments. A relevant case is the diagnostic self-training requirements for optical biopsies (OBs) obtained with confocal laser endomicroscopy (CLE) or the assistance in the diagnosis of pathology slides. In both cases it is required a training set of digital images against which to compare the question case by means of Imagequeryformat. The present paper presents a content-based image retrieval system (CBIR) based on the MPEG Query Format Standard in order to provide a set of similar pictures and the corresponding diagnosis to help on diagnosis or just to train the doctor. The paper defined the Image solo-medicine paradigm (ISMP) architecture merging medical image standards and MPEG and JPEG standards. It tested the solution with normal, and benign colon OBs with 90% congruency. The ISMP is of particular interest viewed the proliferation of iPhone medical applications aiming to train doctors and support medical decisions.

#### **1.30. Title: Advances in Telemedicine**

Publisher(s): INTECH. ISBN 978-953-7619-X-X Chapter: Quality control in Telemedicine. "CE-Label"

Year: 2011 (Writing in preparation)

Number of pages:

Type of document/material:

- Book

- Periodical
- Others (*specify, please*) X – Article.

Teaching/learning material

Language(s): English

Main keywords (4 or 5):

#### **SHORT ABSTRACT**

*(Brief description of the content in English, French or Spanish)*

### **1.31. Title: Novel application of the Hand-Held Ultrasound devices in OB-GYN training set.**

Publisher(s): J. Perinatal Medicine 2011

Year: 2011 (Accepted to publish)

Number of pages:

Type of document/material:

- Book
- Periodical
- Others (*specify, please*) X – Article.

Teaching/learning material

Language(s): English

Main keywords (4 or 5):

#### **SHORT ABSTRACT**

*(Brief description of the content in English, French or Spanish)*

### **1.32. Title: Chromosomopathy markers in 3D-US.**

Publisher(s):

Year: 2011 (Writing in preparation)

Number of pages:

Type of document/material:

- Book
- Periodical
- Others (*specify, please*) X – Article.

Teaching/learning material

Language(s): English

Main keywords (4 or 5):

#### **SHORT ABSTRACT**

*(Brief description of the content in English, French or Spanish)*

**1.33. Title: Placental virtual biopsy. 3D-US hemodynamics of normal pregnancy versus gestational diabetes**

Publisher(s):

Year: 2011 (Writing in preparation)

Number of pages:

Type of document/material:

- Book
- Periodical
- Others (*specify, please*) X – Article.

Teaching/learning material

Language(s): English

Main keywords (4 or 5):

**SHORT ABSTRACT**

*(Brief description of the content in English, French or Spanish)*

**1.34. Title: iPhone Telemedicine.**

Publisher(s): CATAI 2010 Ed. ISBN 978-84-614-5997-1 canary Islands CATAI-Tenerife-Spain

Year: 2010

Number of pages:

Type of document/material:

- Book
- Periodical
- Others (*specify, please*) X – Article.

Teaching/learning material

Language(s): English

Main keywords (4 or 5):

**SHORT ABSTRACT**

*(Brief description of the content in English, French or Spanish)*

**1.35. Title: Optical biopsy data base content retrieval from smartphones.**

Publisher(s): CATAI 2010 Ed. ISBN 978-84-614-5997-1 canary Islands CATAI-Tenerife-Spain

Year: 2010

Number of pages:

Type of document/material:

- Book
- Periodical
- Others (*specify, please*) X – Article.

Teaching/learning material

Language(s): English



Main keywords (4 or 5):

### **SHORT ABSTRACT**

*(Brief description of the content in English, French or Spanish)*

## **2. Title of activity: p-HEALTH.**

### **2.1. Title: p-Health in Diabetes**

Producer and/or distributor *(with address)*: Proceedings 5th pHealth International Workshop on Wearable, Micro and Nano Technologies for the Personalised Health, pHealth 2008. ISBN-13: 978-84-612-4277-1

Year: 2008

Number of pages: p5.pdf

el link <http://www.phealth2008.com/Events/papers/p5.pdf>.

Type of document/material:

- Book
- Periodical
- Others *(specify, please)* X – Proceedings.

Teaching/learning material

Language(s): English & Spanish.

Main keywords (4 or 5): p-Health, diabetes mellitus, PDA, smartphone, SMS, DSS, GSM, GPRS, UMTS.

### **SHORT ABSTRACT**

*(Brief description of the content in English, French or Spanish)*

A mobile p-Health system for diabetes control is proposed. This system contains a decision support system to calculate insulin shots based on three patient items: Food-Exercise-Insulin dose. This system is able to send SMS (short messages) to a central database to be reviewed by corresponding healthcare specialist. The software has been developed in Visual Basic 2005 and SQL Server Mobile environment and was installed in a PDA mobile system and Smart phone based on Windows Mobile. Collected patient data is transmitted through internet to the CATAI diabetes control server, using a pre-defined SMS message format. It has been shown as a powerful and easy-to-use tool available to common citizens for diabetes control and its treatment by healthcare specialists

### **2.2. Title: p-Health in Diabetes**

Producer and/or distributor *(with address)*: IEEE Transactions on Information Technology in Biomedicine

Year: 2009

Number of pages: 2

Type of document/material:

- Book
- Periodical X
- Others *(specify, please)*

Teaching/learning material

Language(s): English & Spanish.

Main keywords (4 or 5): p-Health, diabetes mellitus, PDA, smartphone, SMS, DSS, GSM, GPRS, UMTS.

### **SHORT ABSTRACT**

*(Brief description of the content in English, French or Spanish)*

A mobile p-Health system for diabetes control contains a decision support system to calculate insulin shots based on three patient items: Food-Exercise-Insulin dose. This system is able to send SMS (short messages) to a central database to be reviewed by corresponding healthcare specialist. Collected patient data is transmitted through internet to the CATAI diabetes control server, using a pre-defined SMS message format. It has been shown as a powerful and easy-to-use tool available to common citizens for diabetes control and its treatment by healthcare specialists

### **2.3. Title: Intelligent Consultation in Down Syndrome**

Producer and/or distributor (*with address*): Proceedings 5th pHealth International Workshop on Wearable, Micro and Nano Technologies for the Personalised Health, pHealth 2008

Year: 2008

Number of pages: p23.pdf; el link <http://www.phealth2008.com/Events/papers/p23.pdf>.

Type of document/material:

- Book
- Periodical
- Others (*specify, please*) X – Proceedings.

Teaching/learning material

Language(s): English & Spanish.

Main keywords (4 or 5): Down Syndrome, Multimedia resource

#### **SHORT ABSTRACT**

*(Brief description of the content in English, French or Spanish)*

It is considered to Down's Syndrome (SD) the most frequent chromosomal anomaly observed in humans, which occurs with an incidence of 1/700 live newborns and turns out to be the first reason of motive of consultation in any clinic of genetics or in the institutions to that children attend with problems of mental retardation. The bibliography on the SD is extensive and of different levels of complexity and today united to the use of the telecommunications and the computer science in the health, there have been designed diverse means of diffusion of the knowledge and divulgative programs that allow a better conduction of the SD. The aim of this paper is the presentation of a resource multimedia that tries to report and advise to the family before and after the birth of a child with SD and it describe some of the standard and specialized care that may be required for a patient with Down syndrome.

### **2.4. Title: “Ambiente Assitant Living-Art. 169 of the New EU Treaty”. CATAI 2008**

Publisher(s): CATAI Ed. 2007. ISBN: 978-84-612-1364-1 Tenerife-Spain

Year: 2007

Number of pages: 128-132

Type of document/material:

- Book
- Periodical
- Others (*specify, please*) X- Proceedings XVI Winter Course CATAI.

Teaching/learning material

Language(s): Spanish

Main keywords (4 or 5): Home care, Ambient intelligence, Independent living ICT, Elderly, Ageing, Demography.

#### **SHORT ABSTRACT**

The EU is in favour of the TIC to improve quality of life of the European citizen and put forwards a reasearch programme called “Ambient assisted living-ALL169” that is recognized in the art. 169 of the new EU treaty.

### 3. Title of activity: REMOTE IMAGE ACCESS

#### 3.1. Title: Small Size Virtual Slides

Publisher(s): CATAI 2007 Ed. ISBN 978-84-612-1364-1 Canary Islands CATAI-Tenerife-Spain

Year: 2008

Number of pages: 112-116

Type of document/material:

- Book
- Periodical
- Others (*specify, please*) X – Article.

Teaching/learning material

Language(s): Spanish

Main keywords (4 or 5): Virtual Slide, Digital Zoom, Telepathology, TEXCAN, JPEG200, JPIP

#### SHORT ABSTRACT

*(Brief description of the content in English, French or Spanish)*

Small Size Virtual Slide (SSVS) is a novel technique used by TEXCAN-II® software to make distant diagnosis on pathology slide images in intranet or Internet environment. Slide images are seen online in the TEXCAN-II® virtual microscope, with diagnostic quality, in a fast and reliable way, minimizing storage requirements. Assessment of SSVS technique using ROC analysis is delivered.

#### 3.2. Title: Stitching y visualización remota de imágenes mediante JPEG2000 y JPIP

Publisher(s): In Standards in Telemedicine CATAI Ed. ISBN 84-611-4628-X

Year: 2007

Number of pages: 106-111

Type of document/material:

- Book
- Periodical
- Others (*specify, please*) X- Article.

Teaching/learning material X

Language(s): English & Spanish.

Main keywords (4 or 5): JPEG2000, JPIP, stitching

#### SHORT ABSTRACT

*(Brief description of the content in English, French or Spanish)*

En el presente artículo se analiza el estándar JPEG2000 para el *stitching* de imágenes y su visualización remota, presentando todas las interesantes características aprovechables de este estándar para tal fin: i) uno de los sistemas de compresión de imágenes más eficientes y flexibles de los existentes en la actualidad, ii) una estructuración interna y organización del *bit-stream* comprimido que facilita y mejora el proceso de unión de imágenes, y iii) un sistema de transmisión de imágenes, centrado principalmente en el protocolo JPIP, altamente eficiente

#### 3.3. Title: Stitching and remote browsing of images using JPEG2000 y JPIP

Publisher(s): CATAI Ed. ISBN 84-611-4628-X

Year: 2007

Number of pages: 112-116

Type of document/material:

- Book
- Periodical X
- Others (*specify, please*)

Teaching/learning material

Language(s): English & Spanish.

Main keywords (4 or 5): JPEG2000, JPIP, stitching

**SHORT ABSTRACT**

In the present paper the JPEG2000 standard is analyzed for stitching images and its remote visualization, showing all the interesting characteristics of this standard for such aim: i) currently, one of the most efficient and flexible still image compression systems, ii) an internal structuring and organization of the compressed bit-stream that facilitates and improves the process of union of images, and iii) a system for transmission of images, mainly centered in the JPIP protocol, highly efficient.

**3.4. Title: "Small Size Virtual Slides"**

Publisher(s): CATAI Ed. 2007. ISBN: 978-84-612-1364-1 Tenerife-Spain

Year: 2008

Number of pages: 112-116

Type of document/material:

- Book
- Periodical
- Others (*specify, please*) X- Proceedings XVI Winter Course CATAI.

Teaching/learning material

Language(s): English

Main keywords (4 or 5): Virtual Slide, Digital Zoom, Telepathology, TEXCAN, JPEG200, JPIP.

**SHORT ABSTRACT**

Small Size Virtual Slide (SSVS) is a novel technique used by TEXCAN-II software to make distant diagnosis on pathology slide images in intranet or internet environment. Slide images are seen online in the TEXCAN-II virtual microscope, with diagnostic quality, in a fast and reliable way, minimizing storage requirements. Assessment of SSVS technique using ROC analysis is delivered.

**3.5. Title: Telepathology and distant diagnosis with Small size virtual slides (SSVS)**

Publisher(s): Proceeding 9<sup>th</sup> European Congress on Telepathology and 3<sup>rd</sup>

Internacional Congress on virtual microscopy. ISBN 978-84-934283-3-4

Producer and/or distributor (*with address*):

Year: 2008

Number of pages: 29

Type of document/material:

- Book
- Periodical X
- Others (*specify, please*)

Teaching/learning material

Language(s): English & Spanish.

Main keywords (4 or 5): Telepathology, Telecytology, Telemedicine, Small Size Virtual Slide, TEXCAN-II, JPEG 2000, JPIP server.

**SHORT ABSTRACT**

(*Brief description of the content in English, French or Spanish*)

The present study analyzes the diagnostic capability of the Small Size Virtual Slide (SSVS) created by us (Ferrer-Roca et al 2005). SSVS is a low power acquisition (4x) with a high resolution camera system that digitizes the whole slide and builds a JPEG2000 10:1 image from 16 to 24 MB. The area of interest (ROI) is digitized at 20x. SSVS are reviewed, annotated and transmitted through intranet or Internet using JPIP (JPEG2000 internet Protocol) as if they were seen under a microscope.

### **3.6. Title: Small Size Virtual Slides in Pathology**

Publisher(s): Virchows archiv. ISBN 0945-6317

Producer and/or distributor (*with address*):

Year: 2008

Number of pages: S9

Type of document/material:

- Book
- Periodical X
- Others (*specify, please*)

Teaching/learning material

Language(s): English & Spanish.

**Main keywords (4 or 5):** Pathology, Telepathology, Telemedicine, Small Size Virtual Slide, TEXCAN-II®, JPEG 2000, JPIP server.

#### **SHORT ABSTRACT**

Small Size Virtual Slide (SSVS) is a novel technique used by TEXCAN-II® software to make diagnosis on pathology slide images through an intranet or internet environment as these slides were seen under the microscope, with diagnostic quality, in a fast and reliable way, minimizing storage requirements.

### **3.7. Title: Literature mining in cytology discovery virtual images**

Producer and/or distributor (*with address*): APPIII 2008

Year: 2008

Number of pages: 4; el link <http://secure.opi.upmc.edu/APIIIABS/logon/>

Type of document/material:

- Book
- Periodical
- Others (*specify, please*) X – Proceedings.

Teaching/learning material

Language(s): English & Spanish.

Main keywords (4 or 5):

#### **SHORT ABSTRACT**

*(Brief description of the content in English, French or Spanish)*

Novel techniques in pathology such as Literature mining and small size virtual slide or web services have to put in place in distant diagnosis.

### **3.8. Title: Computer assisted microscopy. The era of Small Size virtual slides & 4M microscopes.**

Producer and/or distributor (*with address*): Proceedings of the Third International Conference on Bio-inspired Systems and Signal Processing.

Year: 2010

Number of pages: 517-522; el link [http://www.teide.net/catai/BIOSIGNALS\\_2010.pdf](http://www.teide.net/catai/BIOSIGNALS_2010.pdf)

Type of document/material:

- Book
- Periodical

- Others (*specify, please*) X – Proceedings.

Teaching/learning material

Language(s): English & Spanish.

Main keywords (4 or 5):

**SHORT ABSTRACT**

*(Brief description of the content in English, French or Spanish)*

Novel techniques in pathology such as Literature mining and small size virtual slide or web services have to put in place in distant diagnosis.

**4. Title of activity: COLABORATIVE WORK**

**4.1. Title: Collaborative Systems for Pathology Applications**

Publisher(s): In “The open Pathology Journal” vol 1:.

Year: 2007

Number of pages: 1874-3757

Link: <http://www.bentham.org/open/topatj/openaccess2.htm>

Type of document/material:

- Book
- Periodical
- Others (*specify, please*) X- Article.

Teaching/learning material

Language(s): English & Spanish.

Main keywords (4 or 5): Collaborative systems, telemedicine, SSVS®, JPEG2000, image stitching

**SHORT ABSTRACT**

Use of collaborative tools is essential in health applications, especially pathology. This paper presents the results of a huge-size image data collaborative system based on SSVS®, suitable for telepathology work, which can be implemented in any system working with large images. Quality, image stitching performance in the JPEG200 wavelet domain and image viewing performance were analyzed.

**4.2. Title: Asistencia sanitaria urgente en alta mar. Papel de la Telemedicina**

Publisher(s): In “JANO Medicina y Humanidades”. Number: 1708 26 Sept 2008

Year: 2008

Number of pages: 29-32

Type of document/material:

- Book
- Periodical
- Others (*specify, please*) X – Article.

Teaching/learning material

Language(s): Spanish

Main keywords (4 or 5):

**SHORT ABSTRACT**

*(Brief description of the content in English, French or Spanish)*

El término “medicina en el mar” hace referencia a cualquier asistencia sanitaria en alta mar. Desde la introducción temprana de la radio en los barcos, la atención sanitaria a distancia ha estado presente en el mar, y es una de las primeras aplicaciones de telemedicina de reconocimiento mundial.

## Outputs-II Form 2: Multimedia material

### 5. Title of activity: TELEMEDICINE-CD

#### 5.1. Title: CATAI Telemedicine-CD. ISBN 84-923357-2-6

Producer and/or distributor (*with address*): CATAI

Year: 1999-2006

Teaching/learning material X

Type of material:

- Video
- CD ROM X with videos
- Visioconference:
- Other type of material

*(Please specify)*

Duration: 643 MB

Format: Word, Html, /ppt, /mpeg

Language(s): English- Italian-Spanish

Main keywords (4 or 5): Telemedicine

#### **SHORT ABSTRACT**

According to one of the numerous definitions of Telemedicine “providing medicine at a distance“, any doctor being trained in the use of some telematic devices could effort that practice. The reality is far from this because to assure a safe practice, people have to learn and bear a minimum understanding of a wide range of topics: from economics to telecommunications and from medicine to legal aspects. Technology learning is not limited to technology itself but linked to its social practical consequences in all their aspects. To guarantee that none of the aspects related with Telemedicine are missed, this minimum knowledge has to be fixed, organised and in some way standardized. The main purpose of this book is to structure the basic knowledge linked to teaching to provide or to practise telemedicine, as well as an overview of the technology developments linked to this new discipline. As expressed in the title (Handbook of Telemedicine), the book is precisely structured as a “handbook” whose main value is the joint opinion of all the participating authors of what are the learning requirements for anyone that would like to practice Telemedicine. It is not a full treatise nor a complete collection of all telemedicine applications or telemedicine basics. It was built with the aim of creating awareness to the academic aspects (technology development, telecommunications approach, law and regulations, medical practice) as well as to the minimum knowledge requirements to guarantee safe and appropriate medical practice. Nowadays this fact is enhanced by the evidence that welfare expenses cannot be endlessly increased, whilst an efficient health provision system in the context of the information society, will mark a new trend to configure health care practice in the next century. If training and teaching schemes are to cope with the demands of society it seems obvious that those carers and professions should consider structured and sufficient training in Telemedicine.

### 6. Title of activity: EU-MASTER OF TELEMEDICINE DVD

#### 6.1. Title: EU-Master of Telemedicine and Bioengineering applied to Telemedicine

Producer and/or distributor (*with address*): CATAI Ed. ISBN 84-609-2162-X

Year: 2004-06

Teaching/learning material X

Type of material:

- Video DVD with text & multimedia X
- CD ROM
- Visioconference:
- Other type of material

(Please specify):\_\_

Duration: 2 GB

Format: RM (real media)

Language(s): English-Spanish

Main keywords (4 or 5): Telemedicine

### **SHORT ABSTRACT**

Generic name of the list of DVDs with multimedia material produced to train at distance on Telemedicine and Bioengineering applied to telemedicine any people interested. No requirements needed except a DVD reader in the computer.

### **6.2. Title: EU-Master of Telemedicine and Bioengineering applied to Telemedicine. Volume I.**

Producer and/or distributor (*with address*): CATAI Ed. ISBN 84-609-2163-8

Year: 2004-06

Teaching/learning material X

Type of material:

• Video DVD with text & multimedia X

• CD ROM

• Visioconference:

• Other type of material Other multimedia material

(Please specify):\_\_\_\_\_

Duration: 2 GB

Format: RM (real media); PDF; HTML

Language(s): English-Spanish

Main keywords (4 or 5): Telemedicine

### **SHORT ABSTRACT**

Volume I of the multimedia material to train the people in Quality control and security in e-health. It include text, presentations and videos given by the more representatives professionals in the world in the topics of Minima requirements, Technical knowledge, Teleworking and teleteaching, Principal technical innovations, Telemetry, Nanotechnology, Quality control and assessment, Legal requirements, Security, Internet, Standards, Electronical Health Record.

### **6.3. Title: EU-Master of Telemedicine and Bioengineering applied to Telemedicine. Volume II.**

Producer and/or distributor (*with address*): CATAI Ed. ISBN 84-609-6488-4.

Year: 2005-07

Teaching/learning material X

Type of material:

• Video DVD with text & multimedia X

• CD ROM

• Visioconference:

• Other type of material

(Please specify):\_

Duration: 2 GB

Format: RM (real media); PDF; HTML

Language(s): English-Spanish

Main keywords (4 or 5): Telemedicine

### **SHORT ABSTRACT**

(Brief description of the content in English, French or Spanish)

Volume 2 of the multimedia material produced for distant training containing text, presentation and videos. Topics covered in this editions include Telemedicine applications, Minimal technical knowledge, Nanotechnology and new materials, Mobile and electronic learning, Digital signature, Security for health-care, Legal and liability issues, Artificial intelligent in the control of diseases, robotic surgery, ambience intelligence and virtual environment for disease control and treatment, telepresence.

### **6.4. Title: EU-Master of Telemedicine and Bioengineering applied to Telemedicine. Volume III.**



Producer and/or distributor (*with address*): CATAI Ed. ISBN: 84-611-3589-X.

Year: 2006-07

Teaching/learning material X

Type of material:

• Video DVD with text & multimedia X

• CD ROM

• Visioconference:

• Other type of material

(*Please specify*): \_\_\_\_\_

Duration: 2 GB

Format: RM (real media); PDF; HTML

Language(s): English-Spanish

Main keywords (4 or 5): Telemedicine

### **SHORT ABSTRACT**

Volume 3 of the multimedia material produced for distant training containing text, presentation and videos. Topics covered in this editions include mainly standards and technology linked to personalized medicine or *p*-Medicine, Non-invasive sensors, Security for health-care, Legal and liability issues, Artificial intelligent in the control of diseases, robotic surgery, ambience intelligence and virtual environment for disease control and treatment, telepresence.

### **6.5. Title: EU-Master of Telemedicine and Bioengineering applied to Telemedicine. Volume IV.**

Producer and/or distributor (*with address*): CATAI Ed. ISBN: 978-84-612-1102-9.

Year: 2007-08

Teaching/learning material X

Type of material:

• Video DVD with text & multimedia X

• CD ROM

• Visioconference:

• Other type of material

(*Please specify*): \_\_\_\_\_

Duration: 2 GB

Format: RM (real media); PDF; HTML

Language(s): English-Spanish

Main keywords (4 or 5): Telemedicine

### **SHORT ABSTRACT**

(*Brief description of the content in English, French or Spanish*)

Volume 4 of the multimedia material produced for distant training containing text, presentation and videos. Topics covered in this editions include Global vision of standard in Telemedicine. Quality control in Teleophthalmology and OCT. Telemedicine cost in Primary Attention. New aspects in the DICOM standard. Wavelet compression on medical imaging. Image quality assessment. Identity management Quality of services in 4G networks. Telecardiology quality and reliability assurance frameworks. IHE in Spain. Data Protection Laws. Advances in Sanitary Regulation. OneQL: Efficiently Querying the Health Domain in the Semantic Web. Telemetry. Calibration of monitors in Radiology. Wide Spain. Standards of virtual reality. Environmental intelligence in telemedicine. Decision support system and robotics. Stitching & transmission in JPEG2000. Telemedicine in the Sea. Teleophthalmology in the HUC. Distance learning in surgery. Quality control and quality assessment medical device standards. Medical image modalities. Cardiac frequency and detection of cardiac events. Image stictchin in medicine. Telepsychiatry efficacy. Hand-held computer in medicine. Spanish law and Telemedicine. Ethics in Telemedicine.

### **6.6. Title: EU-Master of Telemedicine and Bioengineering applied to Telemedicine. Volume V.**

Producer and/or distributor (*with address*): CATAI Ed. ISBN: 978-84-612-8290-6.

Year: 2008-09

Teaching/learning material X

Type of material:

• Video DVD with text & multimedia X

- CD ROM
- Visioconference:
- Other type of material  
(Please specify): \_\_\_\_\_

Duration: 2 GB

Format: RM (real media); PDF; HTML

Language(s): English-Spanish

Main keywords (4 or 5): Telemedicine

#### **SHORT ABSTRACT**

(Brief description of the content in English, French or Spanish)

Volume 5 of the multimedia material produced for distant training containing text, presentation and videos. Topics covered in this editions include Global vision of Quality control in Telemedicine. Biobanking.

### **7. Title of activity: WEB OF THE TELEMEDICINE GROUP**

#### **7.1. Title: [www.teide.net/catai](http://www.teide.net/catai)**

Producer and/or distributor (with address): CATAI

Year: 1997-2008

Teaching/learning material X

Type of material:

- Video
- CD ROM
- Visioconference:
- Other type of material X  
(Please specify): \_\_\_\_\_ Web page; Videostreaming training

Duration:

Format: Html; RM (real media)

Language(s): English- Spanish

Main keywords (4 or 5): Telemedicine

#### **SHORT ABSTRACT**

The CATAI web has as main objective the spread of the Telemedicine in Spain and in developing countries. The non-for profit association for the CATAI (Center of Advanced Technology in Image Analysis) support Telemedicine activities and studies in the field of:

- Image Analysis at distance
- Data transmission
- Videoconsultation and videoconferences
- On Line training
- Distant telequantitation.

The Summer and Winter Courses of the CATAI can also be followed on line during its production by means of the Helix Videoserver providing Real Media output that contain the Power Point presentation together with the video image of the speaker.

#### **7.2. Title: Distant monitoring ECG**

[http://www.entrerrios.gov.ar/rechum/noticias/noticia\\_detalle.php?nro=684](http://www.entrerrios.gov.ar/rechum/noticias/noticia_detalle.php?nro=684)

Producer and/or distributor (with address): UNER

Year: 2008

Teaching/learning material

Information material X

Type of material:

- Video
- CD ROM
- Videoconference:
- Other type of material  
(Please specify): \_Noticias\_

Duration: Always updated.

Language(s): English- Spanish

#### **SHORT ABSTRACT**

El gobernador Sergio Urribarri se interiorizó sobre el denominado Sistema de Monitoreo de Variables Ambientales en Tiempo Real que presentaron hoy socios de la firma entrerriana Integración de Sistemas

Tecnológicos. Se trata de tres docentes de la Facultad de Bioingeniería de la Universidad Nacional de Entre Ríos (UNER) que trabajan en innovadores proyectos vinculados a esa temática y a telemedicina, que serán considerados por el gobierno entrerriano.

**7.3. Title: Telemedicine BLOG <http://www.catai.net/blog>**

Producer and/or distributor (*with address*): ULL

Year: 2008-2009

Teaching/learning material

Information material X

Type of material:

- Video
- CD ROM
- Videoconference:
- Other type of material X  
(*Please specify*):\_Noticias\_

Duration: Always updated.

Language(s): English- Spanish

**SHORT ABSTRACT**

The blog of the TELEMEDICINE chair display all outstanding informations regarding the chair itself, the cooperation activity and the Unesco activity related with the chair of telemedicine, as well as the mission carried out in rural and depressed areas.

**7.4. Title <http://www.tecnologias-sanitarias.com/>.**

Year: 2008

Teaching/learning material X

Information material

Type of material:

- Video
- CD ROM
- Videoconference:
- Other type of material X  
(*Please specify*): htm

Format:

Language(s): Spanish

**SHORT ABSTRACT**

Tecno- Med Ingenieros participo en el XVI Curso de Invierno del CATAI con la presentación: Comunicaciones Intrahospitalarias: Gestión de riesgos y norma ISO 11073" realizada en colaboración con el profesor J.C. Fernández-Aldecoa del Hospital Universitario de Canarias y presidente de la Sociedad Española de Electromedicina e Ingeniería Clínica SEEIC.

En la misma sesión el profesor Dr. Hernández Armas presentó el tema "New Medical histological and high resolution image modalities" con una revisión de las imágenes médicas avanzadas.

**7.5. Title: Ecografía y Telemedicina en la evaluación complementaria del suelo pélvico**

Link : <http://www.congresosuelopelvico2008.com/>

Year: 2008

Teaching/learning material X

Information material

Type of material:

- Video
- CD ROM
- Videoconference:
- Other type of material X  
(*Please specify*):

Format:

Language(s): Spanish

**SHORT ABSTRACT**

El avance tecnológico y los nuevos ordenadores han aumentado considerablemente la capacidad de la telemedicina. Actualmente, ya están disponibles computadores cuyo monitor pueden colocarse en un dedo. Muy

pronto aparecerán sensores tan pequeños que podrán integrarse en las lentes de contacto y en diez años se habrán desarrollado microchips con menos de 1 milímetro de diámetro para ser inhalados (“polvo inteligente”).

Otro de los avances tecnológicos que ya están disponibles consiste en un sensor integrado en un reloj de pulsera que mide la glucemia. También se han desarrollado sistemas de tubos nanométricos implantados debajo de la piel muy útiles en telemetría.

Los instrumentos de telemedicina están hoy en día tan miniaturizados y son tan fácilmente transportables que la clásica imagen del médico asociada a un fonendo será pronto sustituida por la de un médico con un sistema portátil inalámbrico con capacidad telemétrica.

## 8. Title of activity: WEB & SMS Server for TM control at distance

### 8.1. Title: Diabetes control <http://193.145.112.231/CHS/>

Producer and/or distributor (*with address*): CATAI

Year: 2002-2007

Teaching/learning material

Type of material:

- Video
- CD ROM
- Visioconference:
- Other type of material X  
(*Please specify*): \_\_\_\_\_ Support of diabetic people at distance

Duration:

Format: Html;

Language(s): English- Spanish

Main keywords (4 or 5): Telemedicine, Diabetes, SMS

#### SHORT ABSTRACT

Web Server available for groups of medical people in English and in Spanish to be able to test Diabetes control at distance. It is accessible by Internet and also using mobile phone SMS.

### 8.2. Title: Anticoagulant treatment control at distance

<http://193.145.112.231/INR/>

Producer and/or distributor (*with address*): CATAI

Year: 2002-2007

Teaching/learning material

Type of material:

- Video
- CD ROM
- Visioconference:
- Other type of material X  
(*Please specify*): \_\_\_\_\_ Support of people treated with an

anticoagulant treatment.

Duration:

Format: Html;

Language(s): English- Spanish

Main keywords (4 or 5): Telemedicine, INR, telemetry, anticoagulation, SMS

#### SHORT ABSTRACT

This web site is available for any patient or doctor that either can be controlled at distance or want to control patient at distance. Include a Decision Support System (DSS) to advise the user on the type of treatment that should be implemented plus the capability of giving messages from doctor to patients and viceversa.

## 9. Title of activity: DISTANT TEACHING

### 9.1. Title: <http://alexandros.ccslab.aueb.gr/~ctc>

Producer and/or distributor (*with address*): CATAI

Year: 2000-2007

Teaching/learning material X

Type of material:

- Video

- CD ROM
- Visioconference:
- Other type of material X  
*(Please specify):* \_\_\_\_\_ Web page

Duration:

Format: Html

Language(s): English-Spanish

Main keywords (4 or 5): Telemedicine distance training

#### **SHORT ABSTRACT**

The present activity carries out the diffusion of the structured training skills in the field of TELEMEDICINE. It introduces an innovative professional training by assuming new Information Society skills not only in the Health Care provision but also in the teaching methodology. The co-operation inside of the present CTC consortium will provide and update the contents of those rapidly moving technologies, and will bring innovative approaches in the teaching done at distance with experience of the ODL of APOLLO project as well as the experience on surgical virtual reality simulators provided by the new partners. The training is directed towards trainers to update their knowledge and skills, it means health care professionals (including directors and responsible people) in the European Union. This requires the updating of the Information Society training applied to health care.

This activity is linked with the initiative of the UNESCO Chair of Telemedicine to apply the consortium experience towards the urgent demand of Telemedicine in developing countries to improve their limited health care system efficiency and accessibility. The International teaching activities are arranged in intensive Winter and Summer Courses particularly to update trainers knowledge and teaching material. This activity also takes into consideration the fact that a complete training is not possible in each individual country due to the irregular Health Care technology developments throughout the European Union

#### **9.2. Title: Distant coaching and training(BREEZE) <http://www.cataibreeze.uil.es/>**

Producer and/or distributor (*with address*): CATAI

Year: 2006-2007

Teaching/learning material X

Type of material:

- Video X
- CD ROM
- Videoconference: X
- Other type of material X

*(Please specify):* Multimedia material and on-line session to train at distance in Telemedicine, including the official master students.

Duration: Always updated. Up to now 3 months material

Format: Macromedia Breeze (server-presenter); Macromedia Flash

Language(s): English- Spanish

Main keywords (4 or 5): Telemedicine training

#### **SHORT ABSTRACT**

Web Server available for training and coaching students on line and at distance in the Telemedicine topic as well as Bioengineering applied to telemedicine. Top multimedia material and test as well as on line conferences are included for study an review of the students. On line questionnaires will be available in the future.

#### **9.3. Title: European master Telemedicine**

<http://www.teide.net/catai/inscripcion/MASTERESP.htm>

[http://www.bioingenieria.edu.ar/extension/secretaria/novedades/boletines/Boletin%20Institucional\\_76.htm](http://www.bioingenieria.edu.ar/extension/secretaria/novedades/boletines/Boletin%20Institucional_76.htm)

Year: 2007-2009

Teaching/learning material X

Information material

Type of material:

- Video
- CD ROM
- Videoconference:
- Other type of material X

*(Please specify):* PDF.

Duration: 2007-2009

Format: PDF  
Language(s): English- Spanish

**SHORT ABSTRACT**

El objetivo del Master Europeo de Telemedicina y Bioingeniería aplicada a la Telemedicina es impartir una enseñanza de calidad en Telemedicina y Salud electrónica orientada a posgraduados en Medicina, Informática, Ingenieros, Economistas e incluso Abogados, habilitando a estos profesionales para desarrollar e implementar soluciones sobre atención médica a distancia en cada uno de sus entornos.

**10. Title of activity: STUDENST INTERCHANGE**

**10.1. Title**

[http://lomiweb.med.auth.gr/asclepios/partners/laguna\\_university.htm](http://lomiweb.med.auth.gr/asclepios/partners/laguna_university.htm).

Year: 2008

Teaching/learning material X

Information material

Type of material:

- Video
- CD ROM
- Videoconference:
- Other type of material X

(Please specify): htm

Format: PDF

Language(s): English

**SHORT ABSTRACT**

The Center of Advanced Technology on Image Analysis (C.A.T.A.I.) has evolved to one of the leading telemedicine sites in the European Community. In its well-known telemedicine courses, C.A.T.A.I actively promotes transeuropean training and licensing to provide telemedicine services in the EU. Professor Olga Ferrer-Roca has edited the first International Handbook of Telemedicine. In October 1999, Prof. Ferrer Roca's research group was awarded the first *Chair of Telemedicine* by the *UNESCO* to start a worldwide promotion of telemedicine to improve education and health care in underdeveloped areas

**10.2. Title: SALA+: Cooperacion iberoamericana en TICS. Universidad de Barranquilla.**

Year: 2009

Teaching/learning material X

Information material

Type of material:

- Video
- CD ROM
- Videoconference:
- Other type of material X

(Please specify): <http://www.salamas.eu/index.php>

Format: PDF

Language(s): English

**SHORT ABSTRACT**

Agreement between Universities and teaching people to train and interchange students and profesors in the field of Telemedicine.

**11. Title of activity: UNIVERSITY OF LA LAGUNA (ULL)**

**11.1. Title: Guide of the ULL <http://www2.ull.es/gabprensa/guia/texto.pdf>**

Producer and/or distributor (with address): ULL (University La Laguna)g

Year: 2007-2008

Teaching/learning material

Information material X

Type of material:

- Video
- CD ROM

- Videoconference:
- Other type of material  
(Please specify): PDF. ( pages 52-53)

Duration: Always updated.

Format: PDF

Language(s): English- Spanish

Main keywords (4 or 5): UNESCO Chair information in the guide of the ULL

**SHORT ABSTRACT**

Refers the presence and the activity of the UNESCO Chair of the University of La Laguna in the general guide of the University in a prominent place.

**12. Title of activity: UNESCO**

**12.1. Title: UNESCO Spain: <http://www.aecid.es/unesco/docs/catedras.pdf>.**

Year: 2008

Teaching/learning material X

Information material

Type of material:

- Video
- CD ROM
- Videoconference:
- Other type of material X  
(Please specify): PDF.

Format: PDF

Language(s): Spanish

**SHORT ABSTRACT**

Guia de la Real Civil de la UNESCO en España. Cátedra de UNESCO de Telemedicina.

**12.2. Title <http://www.unescocan.org/catedrasunesco.htm>**

Year: 2008

Teaching/learning material X

Information material

Type of material:

- Video
- CD ROM
- Videoconference:
- Other type of material X  
(Please specify): htm

Format:

Language(s): Spanish

**SHORT ABSTRACT**

Facilitar el aprendizaje y la adquisición de habilidades en Telemedicina. Dirigido a áreas geográficas y aplicaciones médicas que tienen verdaderas necesidades de soporte médico a distancia por diferentes razones (catástrofes, aislamiento, epidemias, diagnósticos y tratamientos urgentes,..) manteniendo la calidad en el cuidado de la salud.

**Form 3: PROGRAMM OF COURSES**

**13.2007-Title of activity: STANDARDS IN TELEMEDICINE**

# XV Winter Course of CATAI

## XX Image Analysis Course of the ULL

March 5th – 18th 2007

### STANDARDS IN TELEMEDICINE

La Laguna. Tenerife. Canary Islands. Spain.

Course recognized by: ESCAP (European Society of Analytical Cellular Pathology),  
ISDQP (International Society of Diagnostic Quantitative Pathology) and ISCO (International Society of Cellular Oncology). <http://www.qub.ac.uk/cm/pat/isdqp/>;  
Course recognized by EFMI (European Federation of Medical Informatics)  
<http://www.efmi.org/>

#### Monday 5<sup>th</sup> March, 2007

16-20h • *Welcome to the Course*, **Prof. Dr. M. Tejedor**, Chancellor of Industrial Development and Technological Innovation. **Prof. Dr. Á Gutiérrez** Head of the University of La Laguna (ULL), Tenerife. **Prof. Dr. C. Évora** Vice-Rector of Research, University of La Laguna (ULL), Tenerife. *Experiences in Spain: Standardized electronic health record. EU norms versus HL7v3*. **Eng R. Somolinos**. Clinic Puerta de Hierro. Madrid <http://redtelemecina.retics.net/>. *Global vision of the standards in Telemedicine*, **Prof. Dr. O. Ferrer Roca**, UNESCO Chair of Telemedicine. ULL. <http://www.teide.net/catai>.

#### Tuesday 6<sup>th</sup> March, 2007

16-20h • *Quality control in Telemedicine*, **Dr. P. Serrano**, FUNCIS. <http://www.funcis.org/>. *Teleophthalmology and OCT*, **Drs R. Abreu, P. Abreu, A. Abreu, J. Nadal**. Candelaria and HUC hospitals, Ophthalmology-center Barraquer <http://www.oftalnet.nu>; <http://www.co-barraquer.es/cast/index.htm> *Telemedicine cost in Primary Attention*. **Drs A. Nogales and C. Pelaez**. Telemedicine of Health Service of Extremadura and University Hospital Badajoz. <http://www.juntaex.es/consejerias/syc/ses/home.html>

#### Wednesday 7<sup>th</sup> March, 2007

16-20h • *New aspects in the DICOM standard*. Prof. **Dr. V. Punys**. Kaunas Univ. EFMI WG MIP <http://www.mmmlab.ktu.lt>. *Wavelet compression on medical imaging. Image quality assessment*. **Prof. Dr. Eng. P. García Tahoces**. Department of Electronics & Computation. Univ. Santiago de Compostela. Spain. <http://www.usc.es/labir>

#### Thursday 8<sup>th</sup> March, 2007

16-20h • *Identity management*, **Prof. Dr. Ch. Meinel**, Institute Hasso-Plattner-, University of Potsdam, Germany, <http://www.hpi.uni-potsdam.de/>. *Quality of services in 4G networks*. **Eng. C. García García**. IT Department Carlos III Inst. Madrid. <http://biotic.isciii.es/index.htm>.

#### Friday 9<sup>th</sup> March, 2007

16-20h • *Telecardiology quality and reliability assurance frameworks*. **Prof. Dr. A. Kastania**, Found Biomedical Res. Academy of Athens. <http://www.bioacademy.gr/EN.htm>; *IHE in Spain*. **Dr. M. García Rojo**. Ciudad Real. <http://www.ihe-e.org/>.

#### Saturday 10<sup>th</sup> March, 2007

16-20h • *Data Protection Laws. Advances in Sanitary Regulation*. **J. Sempere Samaniego**, Data Protection Agency, Madrid, <https://www.madrid.org/apdcm>. *OneQL: Efficiently Querying the Health Domain in the Semantic Web*. **Prof. Dr. M. E. Vidal**. University Simon Bolivar. Venezuela. <http://www.usb.ve>

#### Sunday 11<sup>th</sup> March, 2007

16-20h. *Telemetry*, **Mr. J. L. López**. COMITAS Communications. <http://www.comitas.es>. *Calibration of monitors in Radiology*. **M. Marin**. Wide Spain. *Standards of virtual reality*, **Prof. Dr. G. Grasczew and V. Guerkan**, Clinical university of the Charité, Berlin, <http://www.rk-berlin.de/op2000>. ESA- European Space Agency, ESTEC- European Space Research and Technology Centre, Noordwijk, Holland, <http://www.esa.int/>

#### Monday 12<sup>th</sup> March, 2007

16-20h • *Environmental intelligence in telemedicine*. **Prof. Dr. MT Arredondo** Group of Environmental intelligence. Polytechnic University Madrid. <http://www.gbt.tfo.upm.es/~mta/>; *Decision support system and robotics*. **Prof. Dr. J. Mira Mira**. UNED. Madrid. <http://www.ia.uned.es/~jmira/>;



*Stitching & transmission in JPEG2000.* **Ing. J.P. García Ortíz.** Univ. Almería. <https://acc.ual.es>.

Tuesday 13<sup>th</sup> March, 2007

16-20h • *Telemedicine in the Sea.* **Prof. Dr. A. Burgos Ojeda.** ULL. [http://webpages.ull.es/users/nautica/informacion\\_general/index.htm](http://webpages.ull.es/users/nautica/informacion_general/index.htm); *Teleophthalmology in the HUC.* **Prof. Dr. MA. Serrano- García, Dr. A. Pareja, Dr. M. J. Losada, Dr. F. Ascanio.** University Hospital. Tenerife, Canary islands. <http://www.hecit.es/>; *Intelligent operating room.* **Prof. Dr. A. Alarcó Hernández, *Distance learning in surgery* **Dr. A. Bravo Gutiérrez.** HUC <http://www.hecit.es/>.**

Wednesday 14<sup>th</sup> March, 2007

16-20h • *Quality control and quality assessment medical device standards.* **Prof. Dr. J.C. Aldecoa.** Subdirector Biomedical Engineering. HUC. <http://www.hecit.es/>; *Medical image modalities.* **Prof. Dr. J Hernández Armas.** Medical Physics. ULL. HUC <http://www.hecit.es/>.

Thursday 15<sup>th</sup> March, 2007

16-20h • *Cardiac frequency and detection of cardiac events,* **Dr. S. Perrone,** Univ. Entre Ríos, Argentina, [http://www.bioingenieria.edu.ar/ar/index/42\\_index.htm](http://www.bioingenieria.edu.ar/ar/index/42_index.htm). *Interactive TV services for telemedicine (TV-medicine).* **Prof. Dr. G. Fernández.** CeTVD. Univ Ramon Llull. [www.salle.url.edu/cetvd](http://www.salle.url.edu/cetvd). *Image stictchin in medicine.* **Eng. F. Marcano.** Faculty of Medicine. ULL. [www.teide.net/catai](http://www.teide.net/catai) .

Friday 16<sup>th</sup> March, 2007

16-20h. *Telepsychiatry efficacy,* **Prof. Dr. C. de las Cuevas** . Univ. La Laguna.. Dpt. Psychiatry. *Hand-held computer in medicine,* **Dr. R. Subirana.** Delfos Clinic. Barcelona. *Wireless system radiation, health effects.* **Eng. S. Cardenes** CATAI, <http://teide.net/catai>.

Saturday 17<sup>th</sup> March, 2007

16-20h • *Spanish law and Telemedicine,* **Prof. Dr. E. Sola,** Faculty of Laws, ULL. *Ethics in Telemedicine.* **Prof. Dr. E. Sanz.** Dpt. Pharmacology. Faculty of Medicine. ULL.

Sunday 18<sup>th</sup> March, 2007

16-20h *Presentation of student´works. Telemedicine in developing countries.* **Dr. Dan Wamala.** University Makerere. Uganda.

**Workshops:** Everyday from 8 to 16 h. 1. Tele-pathology systems: Texcan and Coolscope; 2. Teletraining with Presenter-One and Breeze; 3. Flash Programming; 4. Digital Signature; 5. Telemetry with electronic stethoscopes, weights, ECG and vital sign control; 6. HTML; 7. Portable ultrasonography; 8. Wireless sensors; 9. SMS management control; 10. Web control of diabetes; 11. SMIL Programming; 12. Wearable computers; 13. Distan control of monitors for image diagnosis.

## 14. 2008-Title of activity: QUALITY CONTROL. BIOBANKING

### XVI Winter Course of CATAI

### XXI Image Analysis Course of the ULL

February 25<sup>th</sup> – 9<sup>th</sup> March 2008

#### QUALITY CONTROL IN TELEMEDICINE. BIOBANKING

La Laguna. Tenerife. Canary Islands. Spain.

Course recognized by: ESCAP (European Society of Analytical Cellular Pathology), ISDQP (International Society of Diagnostic Quantitative Pathology) and ISCO (International Society of Cellular Oncology). <http://www.qub.ac.uk/cm/pat/isdqp/>;

Course recognized by EFMI (European Federation of Medical Informatics)

<http://www.efmi.org/>; <http://www.gsf.de/imei/efmi/>

**Monday 25<sup>th</sup> February, 2008**

16-20h • *Welcome to the Course,* **Prof. Dr. J. Marin Rodriguez,** Chancellor of Industrial Development and Technological Innovation. **Prof. Dr. E. Domenech** Head of the University of La Laguna (ULL), Tenerife. **Prof. Dr. L. Moreno Ruiz.** Vice-Rector of Research, University of La Laguna (ULL), Tenerife. *Security in Healthcare,* **Prof. Dr. Ch. Meinel,** Institute Hasso-Plattner-, University of Potsdam, Germany,

<http://www.hpi.uni-potsdam.de/>

**Tuesday 26<sup>st</sup> February, 2008**

16-20h • *pHealth in self diabetes control*, **Ms.R.Pallares y JJ.Quintana**, Catedra UNESCO Telemedicina <http://ww.teide.net/catai>. *Biosensors of glucosae, lactate and glutamate*. **Ing Quim. P. Salazar**. Universidad de La Laguna <http://www.nf.ull.es/>

**Wednesday 27<sup>th</sup> February, 2008**

16-20h • *DICOM standards. Basic and recent extensions*. **Prof.Dr. A.Horsch**. Technical Univ. Munich. Germany. <http://www.efmi-wg-mip.net/>. *Biobanks traicing management*. **Ms. Marta Acilu**. NorayBio. <http://www.noraybio.com/es/index.asp>

**Thursday 28<sup>th</sup> February, 2008**

16-20h • *Quality control and Socioeconomic models*, **Prof. Dr. O. Ferrer Roca**, UNESCO Chair of Telemedicine. ULL. <http://www.teide.net/catai>. *The open source eSlide Whole Slide Imaging System*. **Prof.Dr. V. DellaMea**. Univ of Udine. <http://www.dimi.uniud.it/Members/vincenzo.dellamea>

**Friday 29<sup>th</sup> February, 2008**

16-20h. *Quality assesment methodologies to evaluate invasive and non-invasive Self Monitoring Diabetes systems*. **Prof. Dr. GB.Kristensen**. NOKLUS, Norwegian Centre for Quality Improvement of Primary Care Laboratories Univ. of Bergen, Bergen, Norway. <http://www.uib.no/isf/intern/nokleng.htm>. *Evaluation aspects of the e-Herophilus telecardiology model*. **Prof. Dr. A. Kastania**, Found Biomedical Res. Academy of Athens. <http://www.bioacademy.gr/EN.htm>.

**Saturday 1<sup>st</sup> March, 2008**

16-20h. *Data protection law in the framework of the Biomedical investigation law*. **A. Igualada Menor**, Data Protection Agency, Madrid, <https://www.madrid.org/apdcm>. *Requirements for image bio- banks*. **Prof.Dr.F.Schmitt**. University Porto. Portugal. <http://www.ipatimup.pt/>

**Sunday 2<sup>nd</sup> March, 2008**

16-20h. *Telemetry*, **Mr. J. L. López**. COMITAS Communications. <http://www.comitas.es>. *Telesurgery*. **Prof. Dr. G. Graschew and V. Guerkan**, Clinical university of the Charité, Berlin, <http://www.rrk-berlin.de/op2000>. ESA- European Space Agency, ESTEC- European Space Research and Technology Centre, Noordwijk, Holland, <http://www.esa.int/>

**Monday 3<sup>th</sup> March, 2008**

16-20h • *Waiting lists, waiting times and admission. Effect of Telemedicine in the hospital level supply and its effect in the mathematical elasticity model.*. **Prof. Dr. F. Windmeijer** Prof.Econometrics. Institute for Fiscal Studies. London. UK. <http://www.ifs.org.uk>. *Diabetic control with non-invasive devices*. **Prof.Dr. D.B. Sacks**. Prof. Pathology. Harvard Medical School. Brigham and Women`s Hospital. Boston. Massachusetts. USA. <http://sackslab.bwh.harvard.edu/>

**Tuesday 4<sup>th</sup> March, 2008**

16-20h. • *Techniques to Query the Semantics Web Efficiently*. **Prof. Dr. M. E. Vidal**. University Simon Bolivar. Venezuela. <http://www.usb.ve>. *Quality label in Biobanking management*. **Prof. Dr. E. Alava**. University of Salamanca. Cancer Investigation centre. <http://www.cicancer.org/> .

**Wednesday 5<sup>th</sup> March, 2008**

16-20h *Hospital communications. Risk management. ISO 11073 Point of Contact*. **Ing. X. Canals Riera & Prof. Dr. J.C. Aldecoa**. Subdirector Biomedical Engineering. HUC. <http://www.hecit.es/>. *New Medical histological and high resolution image modalities*. **Prof. Dr. J Hernández Armas**. Medical Physics. ULL. HUC. <http://www.hecit.es/>.

**Thursday 6<sup>th</sup> March, 2008**

16-20h • *Spanish robots in surgery*, **Prof.Dr. V. Fernando Muñoz**, System engineering and automation of Malaga University., <http://www.isa.uma.es>. *Small size Virtual images (SSVS) for distant diagnosis*. **Eng. F. Marcano**. Faculty of Medicine. ULL. [www.teide.net/catai](http://www.teide.net/catai) .

### Friday 7<sup>th</sup> March, 2008

16-20h. *Nanozoomer*. **Mr. J García Balién**. Hamamatsu photonics. <http://www.hamamatsu.es>  
*Supervised architecture in the OR (Operating Room) for robotic surgery*. **Prof.Dr. JM Azorin**. Univ. Miguel Hernandez. Elche. <http://www.isa.umh.es/vr2>

### Saturday 8<sup>th</sup> March, 2008

16-20h • *Spanish law and Telemedicine*, **Prof. Dr. E. Sola**, Faculty of Laws, ULL. *Ethics in Telemedicine*. **Prof. Dr. E. Sanz**. Dpt. Pharmacology. Faculty of Medicine. ULL. *AAL-169. Ambient assistent living- Art 169 of the new European treaty*. **Prof. Dr. O. Ferrer Roca**, Cátedra UNESCO de Telemedicina. ULL. <http://www.all169.org> .

### Sunday 9<sup>th</sup> March, 2008

16-20h. *Presentation of student works. Static telepathology in a rural African hospital settings*. **IGK Munabi MD**. University Makerere. Uganda. <http://mak.ac.ug/makerere/>

**Workshops:** Everyday from 8 to 16 h. 1. Tele-pathology systems: Texcan and Coolscope; 2. Teletraining with Presenter-One and Breeze; 3. Flash Programming; 4. Digital Signature; 5. Telemetry with electronic stethoscopes, weights, ECG and vital sign control; 6. HTML; 7. Portable ultrasonography; 8. Wireless sensors; 9. SMS management control; 10. Web control of diabetes; 11. SMIL Programming; 12. Wearable computers; 13. Distan control of monitors for image diagnosis.

## 15. 2009-Title of activity: SUPERRESOLUTION IN TELEMEDICINE

### XVII Winter Course of CATAI

### XXII Image Analysis Course of the ULL

9<sup>th</sup> March 2009-15<sup>th</sup> March 2009

#### ROLE OF SUPERRESOLUTION IN TELEMEDICINE.

La Laguna. Tenerife. Canary Islands. Spain.

Course recognized by: ESCAP (European Society of Analytical Cellular Pathology), ISDQP (International Society of Diagnostic Quantitative Pathology) and ISCO (International Society of Cellular Oncology). <http://www.qub.ac.uk/cm/pat/isdqp/>;

Course recognized by EFMI (European Federation of Medical Informatics)

<http://www.efmi.org/>; <http://www.gsf.de/ime/efmi/>

80 Teaching hours

### Monday 9<sup>th</sup> March, 2009

16-20h • *Welcome to the Course*, **Prof. Dr. J. Marin Rodriguez**, Chancellor of Industrial Development and Technological Innovation. **Prof. Dr. E. Domenech** Head of the University of La Laguna (ULL), Tenerife. **Prof. Dr. L. Moreno Ruiz**. Vice-Rector of Research, University of La Laguna (ULL), Tenerife. *Security in Healthcare*, **Prof. Dr. Ch. Meinel**, Institute Hasso-Plattner-, University of Potsdam, Germany, <http://www.hpi.uni-potsdam.de/>

### Tuesday 10<sup>th</sup> March, 2009

16-20h • *Ultrahigh Optical Coherence Tomography UH-OCT* **Prof.Dr. C. Pitris**. University of Cyprus Biomedical Imaging and applied optics. <http://www.eng.ucy.ac.cy/biaolab/> . *MicroMEMs*. **Dipl-Ing. Reiner Gotzen**. MicroTEC.Germany. [http://www.microtec-d.com/html/d\\_company/e\\_fuehrung.html](http://www.microtec-d.com/html/d_company/e_fuehrung.html)

### Wednesday 11<sup>th</sup> March, 2009

16-20h • *Telepathology standards*. **Prof. Dr. V.Duval da Silva**. Department of Pathology. Brasil. Catholic University of South Rio Grande. <http://www.pathmax.com/microscopylink.html>. *ISO/IEC FCD 15938-12. ISO/IEC CD 24800-3:2008. Query formats for multimedia applications JPEG2000-MPEG-7* **Prof.Dr. R.Tous**. Universitat Politecnica Catalunya.(UPC) Computer architecture. <http://people.ac.upc.edu/rtous/docencia.html>

### Thursday 12<sup>th</sup> March, 2009

16-20h • *Superresolution microscopes*, **Prof. Dr. O. Ferrer Roca**, UNESCO Chair of Telemedicine. ULL. <http://www.teide.net/catai>. *Telemedicine in the Amazonia*. **Prof. Dr. V. Duval da Silva**. Department of Pathology. Brasil. Catholic University of South Rio Grande. <http://www.mrc.ac.za/conference/satelemedicine/Russomano.pdf>

### Friday 13<sup>th</sup> March, 2009

16-20h. *DICOM standard Basics and support for Teaching & Clinical Trial*. **Prof. Dr. A.Horsch**. Technical Univ. Munich. Germany. <http://www.efmi-wg-mip.net/>. *Standards on metadata annotations*. **Prof. Dr. A. Kastania**, Found Biomedical Res. Academy of Athens. <http://www.bioacademy.gr/EN.htm>.

### Saturday 14<sup>th</sup> March, 2009

16-20h. *Techniques to Query the Semantics Web Efficiently*. **Prof. Dr. M. E. Vidal**. University Simon Bolivar. Venezuela. <http://www.usb.ve>. *Inefficiency of the super- resolution and possible solutions*. **S. G. Lipson**. Israel Inst Technology, Haifa, Israel <http://www.technion.ac.il/> ; <http://physics.technion.ac.il/>

### Sunday 15<sup>th</sup> March, 2009

16-20h. *Telemetry*, **Mr. J. L. López**. COMITAS Communications. <http://www.comitas.es>. *Telesurgery*. **Prof. Dr. G. Graszew and V. Guerkan**, Clinical university of the Charité, Berlin, <http://www.rk-berlin.de/op2000>. ESA- European Space Agency, ESTEC- European Space Research and Technology Centre, Noordwijk, Holland, <http://www.esa.int/>

**Workshops:** Everyday from 8 to 16 h. 1. Tele-pathology systems: Texcan and Coolscope; 2. Automatic web gallery <http://people.ac.upc.edu/rtoous/projects/webgallery/index.html> ; 3. Flash Programming; 4. Telemetry with electronic stethoscopes, weights, ECG and vital sign control; 5. HTML & Blogs; 6. Portable ultrasonography; 7. Wireless sensors; 8. SMS management control; 9. Web control of diabetes; 10. SMIL Programming; 11. Wearable computers; 1

## XVIII Winter Course of CATAI

## XXIII Image Analysis Course of the ULL

8th -14th March 2010

### IoT. INTERNET OF THINGS FOR MEDICAL DEVICES. HEALTH 2.0 TO HEALTH 3.0.

La Laguna. Tenerife. Canary Islands. Spain.

Course recognized by: ESCAP (European Society of Analytical Cellular Pathology), ISDQP (International Society of Diagnostic Quantitative Pathology) and ISCO (International Society of Cellular Oncology). <http://www.qub.ac.uk/cm/pat/isdqp/>;

Course recognized by EFMI (European Federation of Medical Informatics)

<http://www.efmi.org/>; <http://www.gsf.de/imei/efmi/>

80 Teaching hours

### Monday 8<sup>th</sup> March, 2010

16-20h. *Welcome to the Course*. **Prof. Dr. J. Marin Rodriguez**, Chancellor of Industrial Development and Technological Innovation. **Prof. Dr. E. Domenech** Head of the University of La Laguna (ULL), Tenerife. **Prof. Dr. L. Moreno Ruiz**. Research Vice-Rector, Univ. of La Laguna, Tenerife. *Security in the Internet of Things for Medical Devices*, **Prof. Dr. Ch. Meinel**, Hasso-Plattner Institute, Potsdam University, Germany, <http://www.hpi.uni-potsdam.de/>

### Tuesday 9<sup>th</sup> March, 2010

16-20h. *System integration in home-care*. **Prof. Dr. J. Roca**. ICT. Hospital Clínic Barcelona. <http://www.idibaps.ub.edu/cat/home.php>. *Endoscopy with confocal Microscopy*. **Prof. Dr. Martin Götz**. Oberarzt Gastroenterologie. I. Medizinische Klinik und Poliklinik. Univ Mainz. Germany. <http://www.uni-mainz.de/>

### Wednesday 10<sup>th</sup> March, 2010

16-20h • *RFID & IoT scenarios in Healthcare*. **Prof. Dr. Carlo Maria Medaglia**- CATTID Univ Di Roma Sapienza. Italia. <http://w3.uniroma1.it/rfidlab/default.asp>. *Optical Biopsy and ethical problems*. **Prof. Dr. V. Duval da Silva**. Dpt. Pathology. Catholic University of Rio grande Sud. Brasil. <http://www.pathmax.com/microscopylink.html> .

**Thursday 11<sup>th</sup> March, 2010**

16-20h • *The Internet of the things in Telemedicine*, **Prof. Dr. O. Ferrer Roca**, UNESCO Chair of Telemedicine. ULL. <http://www.teide.net/catai>. *CBIR - Content based information retrieval in Optical Biopsies*. **Prof. Dr. R. Tous**. Politecnico University of Catalunya- UPC- Computer architecture. <http://people.ac.upc.edu/rtous/docencia.html>. *Robotic and distant diagnostic solutions of 3DHISTECH*. **Mr. H. Csaba** <http://www.3dhitech.com/> 3Dhitech. Budapest. Hungary.

**Friday 12<sup>th</sup> March, 2010**

16-20h • *DICOM extensions, image query solutions for teaching and training*. **Prof. Dr. A. Horsch**. Technical Univ. Munich. Germany. <http://www.efmi-wg-mip.net/>. *Standards in Telemedicine*. **Prof. Dr. A. Kastania**, Found. Biomedical Res. Academy of Athens. <http://www.bioacademy.gr/EN.htm>

**Saturday 13<sup>th</sup> March, 2010**

16-20h. *Techniques to Query the Semantics Web Efficiently*. **Prof. Dr. M. E. Vidal**. University Simón Bolívar. Venezuela. <http://www.usb.ve>. *Implementing and Working with an Open Source Hospital and Health Information System: the Medical Project in Latin America and Africa*. **Ing. Dr. L. Falcón**. Las Palmas de Gran Canaria. Canary Islands. <http://www.iweee.org>. <http://www.gnusolidario.org/en/>

**Sunday 14<sup>th</sup> March, 2010**

16-20h. *Telemetry*, **Mr. J. L. López**. COMITAS Communications. <http://www.comitas.es>. *Telesurgery*. **Prof. Dr. G. Grashew and V. Guerkan**, Clinical university of the Charité, Berlin, <http://www.rk-berlin.de/op2000>. ESA- European Space Agency, ESTEC- European Space Research and Technology Centre, Noordwijk, Holland, <http://www.esa.int/>

**Workshops:** Everyday from 8 to 15 h.

1. *Tele-pathology 3Dhitech*; 2. *Robotic surgery and intelligent operating room (Prof.Dr. A. Alarcó & Dr. A. Bravo)*.

3. *HTML & Blogs*; 4. *Portable ultrasonography*; 5. *Web control of diabetes*; 6. *Wearable computers*; 7.- *Neuroimaging (Prof.*

*Dr. JL Gonzalez-Mora, Antonio, Lic. F. Rodríguez Hernández; Medicine, Dr. G. Navarrete García. Psychologies, Lic. C.*

*Modroño Pascual, Mathematics y Psychologies)*

**VENUE: Main hall of the Faculty of Medicine. University of La Laguna**

**REGISTRATION FEE:** 400 Euros. Students 300 Euros.

+34-(9)22-319321; Fax : +34-(9)22-641855. [www.teide.net/catai](http://www.teide.net/catai)