Curriculum Vitae

Olivier Curé

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`Olivier Curé` 41 years old, French citizenship
IGM LabInfo CNRS UMR 8049, Team GTMC (Géomatique, Télédétection et Modélisation des Connaissances - Geomatics, Remote sensing, Knowledge modeling))
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1 Education

1999 Ph.D. University of Paris V in Computer Science Artificial Intelligence
Title: IMSA: An Interactive Multimedia System for Auto-medication
Chair: JP. Giroud (U of Paris V), Referees: D. Laurent (U. of Marne la Vallée), C. Carrez (CNAM), Invited: M. Philippon (U of Paris V), JC Le Pen (U. of Dauphine)
Supervisor: N.Cot (U of Paris V)
1994 Magistère (postgraduate diploma) from EHEI and University of Paris V in Computer Science
DEA (M.Sc.) from University Paris V in Computer Science and Artificial Intelligence
Research Master thesis: Programming by Demonstration, supervisor N.Cot (U. of Paris V)

2 Positions

Since sept 2002: Associate Professor at University Paris-Est, France
Sept. 1999 to 2002: Part-time teaching at University Paris-Est and freelance application designer/developer for several companies in the medical domain.

3 Languages

English (fluent)
French (native language)

4 Research activities

My research activities are focused on Knowledge Representation (KR) and are centered on the following directions:

- Integration and exchange of data/knowledge formalized with technologies of the Semantic Web (RDFS and OWL)
- Ontology mediation with the issues of alignment, merging, mapping and matching.
- Efficient storage of RDF triples

4.1 Integration and exchange of data

I am interested in integration and exchange of data between structured (e.g. relational databases), semi-structured (e.g. XML) documents and ontologies. A special attention is given to the formalisms of the Semantic Web, i.e. RDFS and OWL. I have tackled some issues of the relational database case with the implementation of the DBOM (DataBase Ontology Mapping) tool: impedance mismatch, synchronization issues between the sources and the target, inconsistency handling with preferences, reasoning aspect involved in instantiation of ABoxes. The approach adopted by DBOM consists in a data exchange approach, that is the data available at the sources are copied in the assertional box of the knowledge base. I am currently working on an adaptation of the results obtained working on DBOM toward a data integration approach. In such an approach the data remain at the sources and the target is mainly used to query the sources. This approach is named Ontology-Based Data Access (OBDA).

DaltOn (Data Logistic and Ontologies based integration) is a project conducted with the team of Prof. Stefan Jablonski at University of Bayreuth, Germany. The main goal of this project is to propose a framework based on process modeling which has three major conceptual architectural abstractions, namely Data Provision, Data Integration and the internal Repository. I was responsible for the design and implementation of the data integration and in particular with the semantic based data integration. We tested our DaltOn implementation with several scientific domains such as medicine, biology and ecology.

4.2 Ontology mediation

One of the first aspects we are considering in the OBDA setting is the automatic generation of mappings from previously defined mappings and constraints defined on the sources and the target.

Lately, I started working on a Formal Concept Analysis (FCA) based solution to merge ontologies. The results I have obtained so far enable to introduce new concepts in the merged ontology and to axiomatize its concepts using the axioms of the source ontologies. The ontologies I have studied are expressed in Description Logics (DL), in particular $\mathcal{ALC}$ but I am aiming at studying more expressive ones.

4.3 Knowledge representation

I am working on several projects (VENUS, STAMP, XIMSA) that require to represent and reason with knowledge from several domains, i.e. archeology, spatial and medicine.

In the VENUS project, I worked with researchers at the LSIS laboratory in Marseilles on extending the CRM CIDOC ontology for archeology and participated in the design of several ontology designs in order to reason with them. An important issue in this project consists in handling and revising inconsistencies. During this collaboration, between January 2008 and august 2009, I participated in the redaction of 7 deliverables (D1 to D7).

The core of the STAMP project consists in modeling dynamic landscapes with Spatial, Temporal And Multi scale Primitives. Apart from the knowledge representation challenge, I also collaborate on the design of DSL (Document Specific Language). Within this project, I have proposed an approach that generates the primitives of a DSL from the definition of an ontology. Among different features, this approach enables to check the consistency of the DSL.

As a member and director, of the GTMC research team, I'm working on the representation and fusion of geographical information and knowledge.

Finally, my work on the XIMSA project, and the production version of SantéClair, requires to continuously work on the integration of classification, terminologies of the medical and pharmaceutical domain.

4.4 RDF triple storage

The vision of the Semantic Web is becoming a reality with billions of RDF triples being distributed over multiple query able endpoints (e.g. Linked Data). Although there has been a body of work on RDF triples persistent storage, it seems that the problem of providing an efficient, in terms of query performance and data redundancy, inference enabled approach is still open.

Recently, in a joint work with David Faye and Guillaume Blin, we have proposed several storage solutions to effectively retrieve and update information from graphs stored in a column oriented database approach. Considering novel and efficient approaches, we are also studying solutions emerging from the NoSQL community.

5 Teaching activities and student supervision

Since 1999, I have taught every year between 220 and 300 hours (for a total of 2800 hours over 10 years). My teaching covers the following domains and levels:

- 1nd year at University: algorithms, C and Java programming languages, Web design, Database.
- 2nd year at University: algorithms, C and Java programming languages, Database.
- 3rd year at University: Database, Logic programming, Java programming language, functional programming.
- 4th year at University: Advanced database, Artificial Intelligence, UML, Java programming language, Web 2.0.

- 5th year at University: Advanced database, Knowledge Representation, Semantic Web, Logics (Propositional, First Order and Description Logics) and Reasoning, Java programming language.

I have used the following tools and technologies during my lectures and assignments:

- Database : Oracle, PostgreSQL, MySQL, Column oriented databases (MonetDB), document oriented databases (CouchDB), Access, SQL, Datalog
- Programming languages: C, Java, PHP, JavaScript, Lisp, Prolog
- Semantic Web : RDF, RDFS, OWL, Pellet, Jena, SPARQL

In 2008, I also took part in a teaching project in Morocco (Casablanca and Rabat) where I gave two of 20 hour-module lectures (in french) on database administration. Finally, in 2007 and 2008 I gave lectures (in english) at the University of Bayreuth on the Semantic Web (3 hours).

5.1 Supervision of MsC Theses

I supervised the work of many Masters (DEA) trainees and 5th year of an engineer school (ESIEE):

- 2004: Hervé Schoenenberger, Conception d'une interface graphique du type QBE (Query By Example) permettant de définir des requêtes depuis des ontologies d'un environement Web . Master 1 at U. of Paris-Est.
- 2004: Christelle Montcho, "Développement d'une interface Web de stockage dans une base de données d'un dossier médical au format du Web Sémantique" , Master 1 at U. of Paris-Est.
- 2005: Johann Vallée, Recherche et développement d'une interface incorporant des éléments du Web Sémantique dans une application dédiée à l'automédication . Master 2 at U. of Paris-Est.
- 2005: Raphael Squelbut, Intégration de données et ontologies. Master 2 at U. of Paris-Est.
- 2005: Tristan Moreaux L'intelligence Artificielle dans les jeux vidéos. Master 2 et ESIEE.
- 2006: Florent Jochaud: Intégration de règles dans les services web sémantiques. Master 2 at U. of Paris-Est.
- 2007: Jean-David Bensad: Développement d'un plugin Protégé pour le mapping bases de données / ontologies. Master 1 at U. of Paris-Est.
- 2007: Julien Morali, Eyes World, Un monde à partager. Master 2 at ESIEE.

5.2 Ph.D. supervision

I supervise the scientific work of the the following Ph.D. Students:

- Chahnez Zackaria at U. of Paris-Est, Full supervision (defended in December 15th 2009)
- Abdelbasset Gueimeida at U. of Paris-Est, supervision with G. Salzano (defended October 16th 2009)
- Michel Treins at U. of Paris-Est, supervision with G. Salzano (to be defended in 2010)
- Abdul Rehman at U. of Bayreuth, Germany, supervision with Prof. S. Jablonski (to be defended in 2010)

5.3 Ph.D. committee

I was one of the examiners for Ph.D. defense of :

- Amar Zerdazi with C.Pelachaud (supervisor), M. Lamolle (supervisor), P. Bazex (referee) , G. Salzano (referee) and J.F. Degremont (chairman). The defense took place on the 2nd of July 2007 at U. of Paris 8 and the title of the thesis was : Cadre formel de l'appariement de schémas XML pour l'intégration de données.
- Chahnez Zackaria with C.Pelachaud (referee), Jean-Claude Martin (referee), K. Smali (referee and chairman), G.Salzano, O.Curé (supervisor). The defense took place on the 15th of December 2009 at U. of Paris Est and the title of the thesis was : "Contributions á la détection de conflits relationnels dans les ćhanges de-mails entre personnes en situation de travail coopératif. Une approche fondée sur les modèles statistiques et les ontologies".
- Ludovic Menet The defense will take place on the of 24th June 2010 at U. of Paris 8.
- Mariette Serrayet The defense will take place on the 6th of May 2010 at U. of Marseille.

6 Scientific collaborations

6.1 National collaborations

The French scientific community in computer science is structured around national working groups in various research fields. The exact administrative structure varies in time and has been called AS, GDR, PRC, etc. I am member of GDR MAGIS (Methods and Applications for Geomatic and Spatial Information) I was a member of the SCDD (Systemes Complexes, Decision Distribuée) working group I was a member of CNRS specific action TOPIK (RTP147) : TOPIK : Transformation des Organisations, Projets, Production, Ingénierie, Innovation : Knowledge Management.

I am the coordinator of the ANR STAMP (Modelling dynamic landscapes with Spatial, Temporal And Multiscale Primitives) for the University of Paris Est. This project is funded for Three years and involves researchers from CIRAD (Montpellier, France) and INRIA (Sofia, France).

6.2 International collaborations

I am a member of AGILE (Association Geographic Information Laboratories Europe) I was the coordinator of the VENUS European project (FP6) (Virtual Exploration of Underwater Sites) for the University of Paris Est. I am a PC-co chair (with C. Bussler, now replaced by D. Thau, and S. Jablonski) and PC member for the ADI workshop (Ambient Data Integration) at the OTM Conference. After editions in Monterrey, Mexico and Vilamoura, Portugal, a third edition will take place in October 2010 in Crete.

I am a referee for the special issue on Logic Programming in Databases (from Datalog to Semantic Web rules) of the Theory and Practice of Logic Programming Journal. I am a PC member of the PhD workshop at EDBT 2009 and was a PC member for this same workshop at EBDT '06 and '07. Prof. S. Jablonski and I got funded, 2007 and 2008 and 2010, by the Centre de Coopération Universitaire Franco-Bavarois (Bayerisch-Franzsisches hochschulzentrum) for our scientific collaboration on the DaltOn system.

7 Administrative tasks

I am currently director of the GTMC (Géomatique, Télédétection, Modélisation des Connaissances - Geomatics, Remote sensing, Knowledge modeling) research team which is a new team of the UMR CNRS IGM LabInfo.

I was a member of the council of IFIS (engineering institute of University of Paris Est).

I was director of the education for an undergraduate diploma in Computer Science at University of Paris Est from 2000 to 2002. During that period, I managed a staff of 25 teachers and 150 students.

I managed the computer resources of the IFIS institute from 2003 to 2008. Approximately, 1000 students study at the institute each year.

8 Software Developments, Publications and Communications

8.1 Software Developments

I implemented and supervised the following softwares:

- DBOM (DataBase Ontology Mapping) is a Protégé plug-in, written in Java, which enables to design ontologies from relational databases. DBOM presents several features such as tackling the impedance mismatch problem between the relational and the object models, providing a preference-based solution to deal with inconsistencies, population of an ABox using some inferences, etc..

- IMSA (Interactive Multmedia System for Auto-medication) and its extension XIMSA (eXtended IMSA) are web applications enabling the general public to self-medicate efficiently and safely. A light version of IMSA was sold to the french health service company SantéClair. The application is now targeting 5 million clients of three important insurance companies. We are working on a version 2 of this project with the team at SantéClair. This version will be based on XIMSA and will provide advanced reasoning facilities. Both of this systems are implemented using JEE technologies.

I took part in the implementation of DaltOn (Data Logistic with Ontologies). This project is the result of the collaboration with the team of Prof. Stefan Jablonski at University of Bayreuth. I designed and implemented the semantic integration module of DaltOn. It is written in Java and exploits technologies such as XML, RDF, RDFS, OWL and a DIG reasoner.

8.2 International Journals

[J5] Olivier Curé. Improving the Data Quality of Drug Databases using Conditional Dependencies and Ontologies. Accepted to the International Journal of Data Quality. 2011.

[J4] P. Degenne, D. Lo Seen, D. Parigot, R. Forax, A. Tran, A. Ait Lahcen, O. Curé, R. Jeansoulin. Design of a Domain Specific Language for modelling processes in landscapes Ecological Modelling. Volume 220, Issue 24, 24 December 2009, Pages 3527-3535.

[J3] Olivier Curé. Mapping Databases To Ontologies To Design And Maintain Data In A Semantic Web Environment. Journal of Systemics, Cybernetics and Informatics, Volume 4, Number 4, 2006, pp 52-57.

[J2] Olivier Curé . Evaluation methodology for a medical e-education patient oriented information system. Journal of Medical Informatics and the Internet in Medicine, volume 28, issue 1, March 2003.

[J1] Olivier Curé . Overview of the IMSA project, a patient-oriented information system. Data Science Journal. Volume 1, Issue 2, August 2002.

8.3 Book Chapters

[B3] Olivier Curé. Merging Expressive Spatial Ontologies using Formal Concept Analysis. In Methods for Handling Imperfect Spatial Information (Springer). Editors: Robert Jeansoulin, Odile Papinin, Henri Prade, Steven Schockaert. To be published in 2010.

[B2] Manuel Zacklad, Aurélien Bénel, Flore Barcellini, Catherine Barry-Gréboval, Valérie Bénard, Jean-Franois Boujut, Sandra Bringay, Jean-Marie Burkhardt, Mathilde de Saint Leger, Franoise Détienne, Franoise Darses, Sylvie Guibert, Myriam Lewkowicz, Galle Lortal, Michel Treins, Olivier Curé, Marie-Josèphe Pierrat , Warren Sack, Gabriella Salzano, Amalia Todirascu-Courtier, William A. Turner. La redocumentarisation du monde., sous la direction de Roger T. Pedauque Chapitre 3 :Processus d'annotation dans les documents pour l'action : textualité et médiation de la coopération . Toulouse : Cépaduès. 2007.

[B1] Michel Treins, Gabriella Salzano, Olivier Curé . Annotations dans les documents pour l'action, sous la direction de Pascal Salembier et Manuel

Zacklad Chapitre 3 :Gestion des annotations dans le dossier médical informatisé - Analyse des apports des normes et standards et propositions pour la conception de solutions . Edition Hermès-Lavoisier.

8.4 Publications in Conferences (with review)

[C45] David Faye, Olivier Curé, Guillaume Blin, Cheikh Tham. RDF triples management in roStore. Accepted at IC 2011

[C44] Chan Le Duc, Myriam Lamolle, Olivier Curé. A Tableaux-based Algorithm for Description Logics with Transitive Closure in Concept and Role Inclusion Axioms. Accepted at ESWC 2011

[C43] Olivier Curé, David Faye, Guillaume Blin. Towards a better insight of RDF triples Ontology-guided Storage system abilities. SSWS 2010.

[C42] Olivier Curé, Mariette Serayet, Odile Papini, Pierre Drap. Toward a Novel Application of CIDOC CRM to Underwater Archaeological Surveys. SWARCH-DL 2010

[C41] Pascal. Degenne, Ayoub. Ait Lahcen, Olivier. Curé, Remi. Forax, Didier. Parigot, Danny. Lo Seen. Modelling the environment using graphs with behaviour: do you speak Ocelet? IEMSS 2010.

[C40] Olivier Curé, Rémi Forax, Pascal Degenne, Danny Lo Seen, Didier Parigot, Ayoud Ait Lahcen. Ocelet: An Ontology-based Domain Specific Language to Model Complex Domains. MOPAS 2010.

[C39] Olivier Curé.Conditional Inclusion Dependencies for Data Cleansing: Discovery and Violation Detection Issues. QDB workshop at VLDB 2009

[C38] Chahnez Zakaria, Olivier Curé, Gabriella Salzano, Kamel Smaili. Formalized Conflicts Detection Based on the Analysis of Multiple Emails: An Approach Combining Statistics and Ontologies. COOPIS at OTM Conferences 2009: 94-111

[C37] Olivier Curé. Incremental Generation of Mappings in an Ontology-Based Data Access Context. ODBASE at OTM Conferences 2009: 1025-1032

[C36] Olivier Curé. Merging Expressive Ontologies Using Formal Concept Analysis. OTM Workshops 2009: 49-58

[C35] Olivier Curé. Improving the Data Quality of Relational Databases using OBDA and OWL 2 QL. OWLED 2009

[C34] Stefan Jablonski, Bernhard Volz, M. Abdul Rehman, Oliver Archner, Olivier Curé. Data Integration with the DaltOn Framework - A Case Study. SSDBM 2009: 255-263

[C33] Olivier Curé , Incremental Generation of Mappings for Ontology-based Data Access. ODBASE 2009

[C32] Robert Jeansoulin, Olivier Curé, Mariette Serayet, Antoine Gademer, Jean-Paul Rudant, Geographical information is an act, not a fact. Poster at AGILE 2009.

[C31] F. Alcala et al. VENUS (Virtual ExploratioN of Underwater Sites) Two years of interdisciplinary collaboration. Accepted at VSMM08

[C30] Chahnez Zakaria, Olivier Curé, Kamel Smali , Conflict ontology enrichment based on triggers . Accepted at CIKM ONISW workshop 2008

[C29] Olivier Curé, Robert Jeansoulin , An FCA-based solution to Ontology Mediation . Accepted at CIKM ONISW workshop 2008

[C28] Olivier Curé , Preference-enabled Information Integration for the Semantic Web . Accepted at CIKM ONISW workshop 2008. [C27] Stefan Jablon-

ski, Olivier Curé, M. Abdul Rehman, Bernhard Volz , Architecture of the DaltOn Data Integration System for Scientific Applications . Accepted at ICCS 2008

[C26] Chahnez Zakaria, Olivier Curé , Vers un système de détection de conflits dans les échanges demails . Accepted at SIIE 2008

[C25] Stefan Jablonski, Olivier Curé, M. Abdul Rehman, Bernhard Volz Architecture of the DaltOn Data Integration System for Scientific Applications . Accepted at WSES 2008 workshop at CCGRID

[C24] Olivier Curé, Jean-David Bensaid . Integration of relational databases into OWL knowledge bases: demonstration of the DBOM system . Accepted at IIMAS workshop located at ICDE 2008

[C23] Olivier Curé, Stefan Jablonski, Abdul Rehman, Bernhard Volz. Semantic Integration in the DaltOn system . Accepted at IIMAS workshop located at ICDE 2008

[C22] Olivier Curé, Robert Jeansoulin . Data Quality Enhancement of Databases using Ontologies and Inductive Reasoning. Accepted at ODBASE 2007

[C21] Olivier Curé, Stefan Jablonski . Ontology-based Data Integration in Data Logistics Workflows . Accepted to CMLSA workshop at ER 2007.

[C20] Olivier Curé, Florent Jochaud . Preference-based Integration of Relational Databases into a Description Logic . Accepted to DEXA 2007

[C19] Olivier Curé, Jean-Paul Giroud . Ontology-based Data Quality enhancement for Drug Databases . Accepted at the Health Care and Life Sciences Data Integration for the Semantic Web Workshop at the WWW 2007 conference

[C18] Olivier Curé, Raphal Squelbut . Integrating data into an OWL Knowledge Base via the DBOM Protégé plug-in 9th International Protégé conference 2006

[C17] Olivier Curé, Raphal Squelbut . Semantic mapping to synchronize data and knowledge bases at the instance level ESWC 2006 poster session

[C16] Michel Treins, Olivier Curé, Gabriella Salzano . On the interest of using the HL7 CDA standard for the exchange of annotated medical documents . IEEE CBMS 2006, Salt Lake City, USA.

[C15] Olivier Curé, Raphal Squelbut Data integration targeting a drug knowledge base . Proceedings of EDBT Workshop 2006 Information Integration in Healthcare Applications, Munich, Germany. LNCS 4254

[C14] Olivier Curé, Raphal Squelbut . A database trigger strategy to maintain knowledge bases developped via data migration. Proceedings of EPIA 2005 - december 2005, Covilha, Portugal. LNAI 3808.

[C13] Olivier Curé . Semi-automatic data migration in a self-medication Knowledge-based system (extended version) . Proceedings of WM 2005 - april 2005, Kaiserlautern, Germany. LNAI 3782.

[C12] Olivier Curé . Mapping Databases to Ontologies to Design and Maintain Data in a Semantic Web Environment . Proceedings of CITSA 2005 (International Conference on Cybernetics and Information Technologies, Systems and Applications). July 2005.Orlando, USA. Volume II

[C11] Olivier Curé . Ontology interaction with a patient electronic health record Proceedings of IEEE CBMS 2005 (Computer-Based Medical Systems) June 2005, Dublin, Ireland. [C10] Olivier Curé . Semi-automatic data migration in a self-medication Knowledge-based system. Proceedings KMM 2005

(Current Aspects of Knowledge Management in Medicine) - april 2005, Kaiserlautern, Germany. [C9] Olivier Curé . QBEO : Query By Example over Ontologies framework Proceedings of CCCT 2004 (Computing, Communications and Control Technologies) - august 2004 - Austin, USA [C8] Olivier Curé . XIMSA : eXtended Interactive Multimedia System for Auto- medication . Proceedings of IEEE CBMS 2004, Bethesda, USA [C7] Olivier Curé . Designing patient-oriented Systems with Semantic Web technologies . Proceedings of IEEE CBMS 2003 - june 2003 - New York, USA. [C6] Olivier Curé, Maryse Levacher, Jean-Paul Giroud . Medical e-education for the patient. Proceedings of Mednet 2001 in Technology and Health Care Volume 9, Number 6 / 2001. Mednet 2001 - december 2001 - Udine. Italy.

[C5] Olivier Curé, Maryse Levacher, Jean-Paul Giroud. Interdisciplinary collaboration for a patient oriented medical information system . Proceedings of the IEEE MTAC 2001 - november 2001. UCI, Los Angeles.USA

[C4] Olivier Curé . IMSA : Interactive Multimedia System for Automedication Proceedings of Codata 2000 - october 2000 Baveno. Italy.

[C3] Jean Fruitet, Olivier Curé . Tourisme et système d'information : Internet, un état de lieux. La recherche en tourisme . Actes du colloque de Foix. mai 2000. Foix. France.

[C2] Olivier Curé, Norbert Cot, Maryse Levacher, Jean-Paul Giroud Cognitive Science for the IMSA project . Proceedings of the Human Centered Processes Conference - September 1999, Brest, France - pp23-28.

[C1] Olivier Curé . A textual journal for telecommunications services 3rd ERCIM Workshop on User Interfaces for All - november 1997 Strasbourg. France.

8.5 Dissertation

[T1] Olivier Curé, SIAM: Système Interactif d'Automédication Multimédia. Ph.D. Thesis. Université Paris V. June 1999, (in french).

8.6 Deliverables for EU project

[D7] WP3R8 Reasoning with the application ontology for achaeological information (August 2009)

[D6] WP3R7 Using Pellet for reasoning with the application ontology for archaelogical information: Specification (August 2009)

[D5] WP3R4 Mapping of the application ontology for archaeological information onto CIDOC CRM: Specification (August 2009)

[D4] WP3R3 Application ontology for archaeological information: specification (August 2009)

[D3] D3.6 Reasoning with archaeological ontologies - Technical report and Prototype of software for the reversible fusion operations (July 2009)

[D2] D3.5 CNRS Knowledge based photogrammetric software interface 3. (January 2009)

[D1] D3.4 Representation of archaeological ontologies 1, Technical Report. (July 2008)

8.7 Others

"WebMed - guide médical" was a french magazine available on subscriptions for health care professionals. I was the only author on all papers which were 4 to 5 pages long.

[08] La maison intelligente . WebMed issue #11 oct 2001
[O7] Les sites Web intelligents . WebMed issue #10 Mai 2001
[O6] Un état des lieux sur l'internet mobile . WebMed issue #9 déc. 2000
[O5] Présentation des langages à balises . WebMed issue #8 oct. 2000
[O4] Les algorithmes génétiques . WebMed issue #6-7 Jui 2000
[O3] Les réseaux de neurones . WebMed issue #5 Avr 2000
[O2] Les systèmes experts (suite). WebMed issue #4 Jan 2000
[O1] Les systèmes experts . WebMed issue #3 Nov 1999