

Benoit HUET

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Date of birth: 7 February 1971 at CORBEIL ESSONNES
Nationality: French.
National Service completed.



ACADEMIC QUALIFICATIONS

- **Doctor of Philosophy (PhD):** Computer Vision
University of York, Computer Science Department, Computer Vision Group.
Title: **Object Recognition from Large Libraries of Line-Patterns.**
Keywords: Structural and Geometric Representation, Histograms, Relational Distance Measures and Attributed Relational Graph Matching.
Supervisor: Prof. Edwin R. Hancock
- **Master of Sciences: Knowledge Engineering (Artificial Intelligence) with distinction.**
University of Westminster (London)
1992-1993 (12 months)

Module: Knowledge based system design, Natural language understanding, Logic for knowledge representation, Languages for A.I. (Lisp/Prolog), Computer vision, Neural networks, Machine learning, Uncertain reasoning, Distributed artificial intelligence.
Project: Recurrent Neural Networks for Temporal Sequence Recognition.
- **Batchelor of Science: Engineering and Computing (first class honour)**
Ecole Supérieure de Technologie Electrique (Groupe E.S.I.E.E.)
1988-1992 (3 Years)

(88-90) Electronic, Micro-electronic, Electrotechnic, Computer Science, Software Engineering.
(91-92) Specialisation in Computer Science, Industrial project
- **French Baccalaureate** Lycee Geoffroy St Hillaire (ETAMPES 91)
Serie F2 (Electronic) June 1988

PROFESSIONAL EXPERIENCES

- **Institut Eurecom, Multimedia Communications Department.**
Teaching and Research Associate.
1999 – to date (since September 1999)

Research and development of multimedia (still and moving images) indexing and retrieval techniques.

Responsible for the following courses: Multimedia Technologies and Multimedia Advances Topics. Assisting Prof. B. Merialdo for the following lecturers, tutorials and practicals: Intelligent Systems and MultiMedia Information Retrieval.

Co-advisor of Ithery Yahiaoui who received her PhD from Telecom Paris in October 2003 for her thesis on "Automated Video Summary Construction". Currently participating to the supervision of two PhDs: Fabrice Souvannavong investigating methodologies for automatic video object classification and semantic classification, and Joakim Jiten studying approaches for bridging the gap between ontologies and video content.

Realised a feasibility study for the European Patent Office concerning the retrieval of patent's technical drawings according to content similarity. The query "images" could either be another technical drawings (complete or subpart) or a man made sketch. The results of this preliminary study have been presented in ICIP 2001.

Currently participating to the following European Projects:

- 3W3S: "World Wide Web Safe Surfing Service"
 - SPATION: "Services Platforms and Applications for Transparent Information management in an in-hOme Network". The objective of this project is to find innovative solutions for the movement, organization and retrieval of information in a heterogeneous home system (PC, PVR, TV, etc...).
 - GMF4iTV: "Generic Media Framework for Interactive Television". The aim of this project is to develop and demonstrate an end-to-end platform enabling interactive services on moving objects and TV programs according to the Multimedia Home Platform standard.
- **University of York, Computer Science Department.**
Research Associate in the Computer Vision Group.
1998 – 1999 (12 Months)

Research and development of techniques for matching multi-sensorial aerial images for DERA (Defense Evaluation and Research Agency). The technique combines histogram based segmentation and template based region correspondence matching. Learning structural description for three-dimensional object representation and recognition (EPSRC funded). The aim

of this research is to provide a method for automatically learn and produce compact structural object representation from multiple object views.

- **University of York, Computer Science Department.**
Tutorial Assistant.

1995 - 1998 (3 Years, max 12H/week)

The responsibilities include preparation, marking and assessment.

1st Year: Computer Architecture and Mathematics for Computer Science.

2nd Year: Computer Systems Architecture, Formal Language and Automata, and Mathematics for Computer Science.

3rd Year: Talks for Image Analysis.

(Teaching Experience)

- **University of Westminster**
Research Assistant, Artificial Intelligence Division.

1994 - 1995 (11 Months)

University Information System for the Modular Scheme (UIS-MS) project. The aim of the project is to generate an inter-linked, hypertext-based system that will enable all Modular Scheme related information to be made available to students and staff, allowing fast access to complete and up-to-date University of Westminster Information. Development in C and C++ of the hypertext viewer, compiler and automatic database updating tools (via e-mail and templates) for Unix platforms. *(In depth use of Unix tools, cron job, e-mail filter...)*

- **University of Westminster**
Research Assistant, Artificial Intelligence Division.

1994 (6 Months)

Development in C++ and X Window of an image manipulation software with graphical user interface. Among the implemented algorithms are various edge detection techniques, resizing, rotating, dithering, blurring, colour manipulation, thinning, and other image processing algorithms. *(Low-level C++ programming, image formats and use of Xlib, Athena, Motif, Openlook)*

- **University of Westminster**
Part-Time Lecturer, Artificial Intelligence Division.

1994 (6 Months)

Neural Networks for the MSc Knowledge Engineering.
(Teaching Experience)

- **University of Westminster**
Master of Science summer project.

1993 (3 Months)

Implementation of recurrent neural networks for temporal sequence recognition. Comparison of the behaviour, efficiency and recall performances of the neural architectures on learning the contingencies implied by a finite

state automaton. (*Reading, understanding and re-create experiments of research papers*)

- **University of Westminster (Polytechnic of Central London)**
Research Visitor.
1992 (4 Months)

Development in C of a real-time, graphic, multitasking software to control and analyse the behaviour of a ball and beam apparatus. The software is currently used for student tutorial at the University of Westminster. (*Discovery of the English educational and professional environment*)

- **E.T.S. Electronic, (Les Ulis 91 France)**
Third year project.
1991-1992 (7 Months)

Software development in C++ language of a graphic interface which allows an algorithm conception. This algorithm allows industrial process control. (*Observation of the importance of project planning, in depth study of both C and C++ Languages*)

- **IBM, (Corbeil Essonnes 91 France)**
Second year project.
1990 (4 Months)

Development of an Expert System to help on Site Security Personnel to diagnose their hardware/software security system problems. Knowledge base developed on E.S.E.(Expert System Environment). (*Importance of listening to people for a good communication, research and knowledge extraction opportunity*)

- **IBM, (Corbeil Essonnes 91 France)**
Summer temporary employment.
1989 (2 Months)

Exposure and test of silicium wafers on PERKIN-ELMER Engine in ABL-MASTERSLICE.
(*Discovery of the industrial world and team work*)

ADDITIONAL INFORMATION

- **Computing Knowledge**
Hardware Platform: IBM (Mainframe and PC), HP, Sun and SGI workstation.
Software:

Operating Systems: UNIX (SunOS, Solaris, IRIX, Linux, BSD), Microsoft Windows, VM.

Languages: X Window, Motif, C, C++, Prolog, Lisp, Pascal, PERL, XML/XSL.

- **Member of the following societies:**

ACM since 2002,
IEEE Computer Society, since 1995,
British Machine Vision Association (BMVA) 1992-1999,
British Computer Society (BSC) 1995-1999.

- **Reviewer for the following international journals:**

ACM Multimedia Systems Journal.
IEEE Pattern Analysis and Machine Intelligence.
IEEE Image Processing,
IEE Vision, Image and Signal Processing.
Image Communication (Eurasip/Elsevier Science).
International Journal on Computer Vision and Image Understanding
Computer Graphics Forum (International Journal of the Eurographics Association)

- **Reviewer for the following international Conferences:**

Third International Workshop on Content-Based Multimedia Indexing, CBMI'03
IS&T/SPIE Symposium Electronic Imaging Science and Technology
Conference on Storage and Retrieval for Media Databases 2003
IEEE International Conference on Computer Vision and Pattern Recognition 2001 (CVPR2001)
IEEE International Workshop on MultiMedia Signal Processing 2001 (MMSP2001)
IEEE International Conference on Multimedia and Expo 2000 (ICME2000)
10th International Conference on Image Analysis and Processing (ICIAP99),
Special Session on: Graph-theoretic Techniques in Computer Vision
14th International Conference on Pattern Recognition (ICPR98).

- **Conference/Workshop Organisation/Committee**

ACM Multimedia 04: Associate Program Committee Member (Content Processing Track)
Third International Workshop on Content-Based Multimedia Indexing, CBMI'03: Program Committee Member
ACM Multimedia 2002: Local Arrangements Chair and Treasurer
EMMCVPR 1999 (Second International Workshop on Energy Minimisation Methods in Computer vision and Pattern Recognition: Local Arrangments).

- **Project Evaluation/Expertise**

RIAM: French national network on Research and Innovation in Audiovisual and Multimedia.

- **Languages**

- English (TOEFL: 502 in 1989)

Linguistic Stay in the U.S.A.
(1986) 4 Months
(1988) 1 Months

Project, studies and work in England from April 1992 to August 1999

- Spanish (notion)
 - **Military Service (1990-1992)**
Regiment de Marche du TCHAD.
Analist Programmer in the Computing Science Department.
 - Swimming, Ski-ing, Volley-Ball and Paragliding.
 - Synthesiser, guitar and Home-studio.
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PUBLICATIONS

• Journals

- Fabrice Souvannavong, Lukas Hohl, Bernard Merialdo and Benoit Huet, "Structurally Enhanced Latent Semantic Analysis for Video Object Retrieval ", Special Issue of the IEE Proceedings on Vision, Image and Signal Processing , Under review, Submitted in september 2004.
- Fabrice Souvannavong, Bernard Merialdo and Benoit Huet, "Partition sampling: an active learning selection strategy for large database annotation", Special Issue of the IEE Proceedings on Vision, Image and Signal Processing , Under review, Submitted in june 2004.
- Ithery Yahiaoui, Bernard Merialdo et Benoit Huet, "Comparison of multi-episode video summarisation algorithms", EURASIP Journal on Applied Signal Processing, Special issue on Multimedia Signal Processing, Vol. 2003, No. 1, page 48-55, January 2003.
- Huet B. and E. R. Hancock, "Relational Object Recognition from Large Structural Libraries", Pattern Recognition, Vol. 35, No. 9, page 1895-1915, Sept 2002.
- Huet B. and E. R. Hancock, "Line Pattern Retrieval Using Relational Histograms", IEEE Transactions on Pattern Analysis and Machine Intelligence, Vol. 21, No. 12, page 1363-1370, December 1999.
- Huet B., A.D.J. Cross and E.R. Hancock, "Shape Recognition from Large Image Libraries by Inexact Graph Matching", Pattern Recognition in Practice VI, June 2-4 1999, Vlieland, The Netherlands. Appeared in a special issue of Pattern Recognition Letters, 20, page 1259-1269, December 1999.
- Huet B. and E.R. Hancock, "Object Recognition from Large Structural Libraries", Advances in Pattern Recognition: Lecture Notes in Computer Science (SSPR98), Springer-Verlag, 1451, August 1998.

• International Conferences and Workshops

- F. Souvannavong, L. Hohl, B. Merialdo and B. Huet, "Enhancing Latent Semantic Analysis Video Object Retrieval with Structural Information", IEEE International Conference on Image Processing, October 24-27, 2004 Singapore.
- F. Souvannavong, B. Merialdo and B. Huet, "Latent Semantic Analysis For An Effective Region-Based Video Shot Retrieval System", 6th ACM SIGMM International Workshop on Multimedia Information Retrieval, held in conjunction with ACM Multimedia 2004, October 15-16, 2004, New York, NY USA.

- F. Souvannavong, L. Hohl, B. Merialdo and B. Huet, "Using Structure for Video Object Retrieval", International Conference on Image and Video Retrieval, July 21-23, 2004, Dublin City University, Ireland.
- F. Souvannavong, B. Merialdo and B. Huet, "Improved Video Content Indexing By Multiple Latent Semantic Analysis", International Conference on Image and Video Retrieval, July 21-23, 2004, Dublin City University, Ireland.
- F. Souvannavong, B. Merialdo and B. Huet, "Latent Semantic Indexing For Semantic Content Detection of Video Shots", IEEE International Conference on Multimedia and Expo (ICME'2004), June 27th – 30th, 2004, Taipei, Taiwan.
- F. Souvannavong, B. Merialdo and B. Huet, "Partition Sampling for Active Video Database Annotation", 5th International Workshop on Image Analysis for Multimedia Interactive Services (WIAMIS'04), April 21-23, 2004, Instituto Superior Técnico, Lisboa, Portugal.
- F. Souvannavong, B. Merialdo and B. Huet, "Video Content Structuration With Latent Semantic Analysis", Third International Workshop on Content-Based Multimedia Indexing, CBMI 2003, 22-24 Septembre 2003, Rennes, France.
- F. Souvannavong, B. Merialdo and B. Huet, "Semantic Feature Extraction using Mpeg Macro-block Classification", NIST Special Publication: SP 500-251, The Eleventh Text Retrieval Conference (TREC 2002 Video Track).
- Gerhard Mekenkamp, Mauro Barbieri, Benoit Huet, Itheri Yahiaoui, Bernard Merialdo, Riccardo Leonardi and Michael Rose, "Generating TV Summaries for CE Devices", ACM Multimedia 2002, December 3-5 2002, Juan Les Pins, France.
- Benoit Huet, Itheri Yahiaoui, Bernard Merialdo, "Image Similarity for Automatic Video Summarization", EUSIPCO 2002 - 11th European Signal Processing Conference, September 3-6 2002, Toulouse, France.
- B. Merialdo, B. Huet, I. Yahiaoui, F. Souvannavong, "Automatic Video Summarization", International Thyrranian Workshop on Digital Communications, Advanced Methods for Multimedia Signal Processing, September 8th - 11th, 2002, Palazzo dei Congressi, Capri, Italy.
- B. Huet, G. Guarascio, N. Kern and B. Merialdo, "Relational skeletons for retrieval in patent drawings", IEEE International Conference Image Processing (ICIP2001), October 7-10 2001, Thessaloniki, Greece.
- Ithery Yahiaoui, Bernard Merialdo et Benoit Huet, "Automatic Summarization of Multi-episode Videos with the Simulated User Principle", Workshop on MultiMedia Signal Processing (MMSP'01), October 3-5, 2001, Cannes, France.
- Itheri Yahiaoui, Bernard Merialdo and Benoit Huet, "Optimal video summaries for simulated evaluation", European Workshop on Content-Based Multimedia Indexing, September 19-21, 2001 Brescia, Italy.
- Itheri Yahiaoui, Bernard Merialdo and Benoit Huet, "AUTOMATIC VIDEO SUMMARIZATION", MMCBIR 2001 - Indexation et Recherche par le Contenu dans les Documents Multimedia, 24 et 25 septembre 2001, INRIA - Rocquencourt, France.
- Ithery Yahiaoui, Bernard Merialdo et Benoit Huet, "Generating Summaries of Multi-Episodes Video", International Conference on Multimedia & Expo (ICME2001), August 22-25, 2001 Tokyo, Japan.
- Itheri Yahiaoui, Bernard Merialdo and Benoit Huet, "Automatic construction of multi-video summaries", ISKO: Filtrage et résumé automatique de l'information sur les réseaux, July 5-6 2001, Nanterre, France.

- Benoit Huet, Ithery Yahiaoui et Bernard Merialdo, "Multi-Episodes Video Summaries", International Conference on Media Futures 2001, 8-9 May 2001, Florence, Italy.
 - Arnd Kohrs, Benoit Huet, et Bernard Merialdo, "Multimedia Information Recommendation and Filtering on the Web", Networking 2000, May 14 - 19, 2000, Paris, France.
 - Merialdo B., S. Marchand-Maillet and B. Huet, "Approximate Viterbi decoding for 2D-Hidden Markov Models", IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP2000), Istanbul Turkey, June 5-9 2000.
 - Huet B. and E. R. Hancock, "Sensitivity Analysis for Object Recognition from Large Structural Libraries", IEEE International Conference on Computer Vision (ICCV99), Kerkyra, Greece, September 20-27, 1999.
 - Huet B. and E. R. Hancock, "Inexact Graph Retrieval", IEEE CVPR99 Workshop on Content-based Access of Image and Video Libraries (CBAIVL-99), Fort Collins, Colorado USA, June 22, 1999.
 - Huet B., A.D.J. Cross and E.R. Hancock, "Shape Retrieval by Inexact Graph Matching";, IEEE International Conference on Multimedia Computing and Systems (ICMCS'99), Florence, Italy, page 772-776, 7-11 June 1999.
 - Huet B. and E.R. Hancock, "Structural Sensitivity for Large-Scale Line-Pattern Recognition", Third International Conference on Visual Information Systems (VISUAL99), page 711-718, 2-4 June, 1999, Amsterdam, The Netherlands.
 - Huet B., A.D.J. Cross and E.R. Hancock, "Graph Matching for Shape Retrieval", Advances in Neural Information Processing Systems 11, Edited by M.J. Kearns, S.A. Solla and D.A. Cohn, MIT Press, June 1999.
 - Worthington P., B. Huet and E.R. Hancock, "Appearance-Based Object Recognition Using Shape-From-Shading", Proceeding of the 14th International Conference on Pattern Recognition (ICPR'98), Brisbane (Australia), page 412-416, 16-20 August 1998.
 - Huet B. and E.R. Hancock, "Relational Histograms for Shape Indexing", IEEE International Conference on Computer Vision (ICCV98), Mumbai India, page 563-569, Jan 1998.
 - Huet B. and E.R. Hancock, "Fuzzy Relational Distance for Large-scale Object Recognition", IEEE Conference on Computer Vision and Pattern Recognition (CVPR'98), Santa Barbara California USA, page 138-143, June 1998.
 - Huet B. and E.R. Hancock, "Pairwise Representation for Image Database Indexing", Sixth International Conference on Image Processing and its Applications (IPA97), Dublin (Ireland), 15-17 July 1997.
 - Huet B. and E.R. Hancock, "Cartographic Indexing into a Database of Remotely Sensed Images", Third IEEE Workshop on Applications of Computer Vision (WACV96), Sarasota Florida (USA), page 8-14, 2-4 Dec 1996.
 - Huet B. and E.R. Hancock, "Structural Indexing of infra-red images using Statistical Histogram Comparison", Third International Workshop on Image and Signal Processing (IWISP'96), Manchester (UK), 4-7 Nov 1996.
 - Charlton P. and Huet B., "Intelligent Agents for Image Retrieval", Research and Technology Advances in Digital Libraries, Virginia (USA), May 1995.
 - Charlton P. and Huet B., "Using Multiple Agents For Content-Based Image Retrieval", European Research Seminar on Advances in Distributed Systems, L'Alpe D'Huez (France), April 1995 .
- **National Conferences**

- F. Souvannavong, B. Merialdo and B. Huet, "Classification Sémantique des Macro-Blocs Mpeg dans le Domaine Compressé.", CORESA 2003,16 - 17 Janvier 2003, Lyon France.
- Itheri Yahiaoui, Bernard Merialdo, Benoit Huet, "User Evaluation of Multi-Episode Video Summaries", Indexation de documents et Recherche d'informations, GDR I3 et ISIS, July 9 2002, Grenoble, France.
- Itheri Yahiaoui, Bernard Merialdo, Benoit Huet, "Construction et Evaluation automatique de résumés multi-vidéos", Analyse et Indexation Multimédia, June 20 2002, Université Bordeaux 1, France.
- I. Yahiaoui, B. Merialdo et B. Huet, "Construction automatique de résumés multi-vidéos", CORESA 2001, Nov 2001, Université de Dijon, France.
- I. Yahiaoui, B. Merialdo et B. Huet, "Résumés automatiques de séquences vidéo", CORESA2000, 19-20 Octobre 2000, Université de Poitiers, Futuroscope, France.
- Worthington P., B. Huet and E.R. Hancock, "Increased Extend of Characteristic Views using Shape-from-Shading for Object Recognition", Proceeding of the British Machine Vision Conference (BMVC'98), Southampton (UK), page 710-719, 7-10 Sept 1998.
- Huet B. and E.R. Hancock, "Structurally Gated Pairwise Geometric Histograms for Shape Indexing", Proceeding of the British Machine Vision Conference (BMVC97), Colchester (UK), page 120-129, 8-11 Sept 1997.
- Huet B. and E.R. Hancock, "A Statistical Approach to Hierarchical Shape Indexing", Intelligent Image Databases (IEE and BMVA), London (UK), May 1996.
- **Technical Reports**
 - Huet B., "Object Recognition from Large Libraries of Line-Patterns", PhD Thesis, University of York, Mai 1999.
 - Huet B., Parapadakis D., Konstantinou V. and Morse P., "The UIS-MS User Guide", University of Westminster AIRG/SCSISE Technical Report, 1994.
 - Huet B., "Recurrent Neural Networks for Temporal Sequences Recognition", MSc Thesis, University of Westminster, September 1993.
 - Huet B. and Houdry J.B., "MECABUS: Ensemble Logiciel et materiel d'aide a la conception et a la realisation d'automatismes industriels", Project Report, E.T.S. Electronic, April 1992.
 - Huet B., "Systeme d'aide a la decision pour CASI-RUSCO system 1800", Project Report, IBM (Corbeil Essonnes) and Ecole Superieure de Technologie Electrique, June 1990.
 - Huet B., "Systeme d'aide a la decision pour CASI-RUSCO system 1800, Guide du Developpeur", Technical Report, IBM (Corbeil Essonnes) , August 1990.

INVITED TALKS

- Université de Genève, Centre Universitaire d'Informatique, Computer Vision Group, July 1995. Presentation Title: "A Framework for Content-Based Retrieval of Images"
- British Machine Vision Association Technical Meeting: Image and Video Databases, December 3rd 1997. Presentation Title: "Indexing in Line-Pattern Databases"

- INRIA Sophia Antipolis, ARIANA project, March 27th 2000. Presentation Title: "Hierarchical Graph Based Techniques for Cartographic Content Based Indexing"
- IMAG Grenoble (France), Working Group on Information Retrieval and Indexing (GDR I3 and GDR ISIS), July 9th 2002. Presentation Title: "User Evaluation of Multi-Episode Video Summaries". Grenoble