Fionn Murtagh

Curriculum Vitae and Publications

Contents

1 Personal Information

1.1 Degrees, Current Position, Awards

- Born on 26 August 1954 in Dublin, Ireland.
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  - BA (Mathematics), BAI (Engineering Science), Dublin University, Trinity College (1976).
  - MSc (Computer Science, by Research), Dublin University, Trinity (1979), with a thesis on "Bibliographic Information Retrieval".
  - DEA (Diplôme d'Etudes Approfondies, Mathematical Statistics), Université Marie et Pierre Curie, Paris 6 (1979).
    PhD (Mathematical Statistics), Université Marie et Pierre Curie, Paris 6 (1981), in conjunction with BRGM, Bureau de Recherches Géologiques et Minières, Orléans, with a thesis on "Clustering and Discrimination of Hydrogeological Basins".
  - Habilitation à Diriger des Recherches (Astronomy), Université Louis Pasteur, Strasbourg 1 (1993), with a thesis on "Contributions of Pattern Recognition and Data Analysis Methods to Astronomy".
- Languages (fluent): English, French, German, Irish. (Reading Italian.)
- Director and Head of Information, Communications and Emergent Technologies Directorate, Science Foundation Ireland (since November 2007). Responsibility for approximately half of €1.4 billion committed research support funding in ICT, Mathematics, Research Frontiers (all science and engineering), and recently Renewable Energies. The Directorate has 11 PhD-level Programme Officers and 4 administrators.
- Professor in the University of London (since October 2004), in the Department of Computer Science, Royal Holloway, University of London. Head of the Department of Computer Science, RHUL (July 2005 to September 2007). The Department includes 10 Professors, 5 Readers or Senior Lecturers, 6 Lecturers, 6 Research Staff, and 7 Support and Administrative Staff. RAE 5 in 2001. RAE 2008, Guardian average ranking Computer Science and Informatics, RHUL 2.80. 18th in UK in CS, based on 4*, 3*.
- Honours and Awards: Elected Member of the Royal Irish Academy (MRIA, 2003). Fellow, International Association for Pattern Recognition (2008). Fellow, British Computer Society (FBCS). Elected Member, UK Computing Research Council (UKCRC). Elected to Executive, UKCRC (2008). Fellow, Royal Society of the Arts, Manufactures and Commerce (FRSA). Elected Member, International Statistical Institute (ISI). Fellow, Royal Statistical Society (RSS). In the past I was awarded an Institute of Physics Medal for First Place in Ireland in Leaving Certificate Physics, 1973, and I was awarded a Bourse du Gouvernement Français in 1978-1981.

1.2 Key Skills

- Strong Leadership capability, exemplified through Head of IC&ET Directorate at Science Foundation Ireland, through Head of Department in RHUL, and through Presidency and other leadership positions in national and international research and professional societies.

- Strong Management skills through Head of Department position in RHUL, and member of Executive and Management team at SFI.
- Extensive experience of technology transfer and commercialization of research. At SFI, constant linkage with CEOs and CTOs of companies and corporations nationally and globally.
- In depth track record in scientific and scholarly research governance, at national levels, at European level, and internationally.
- Demonstrated ability to represent science, engineering and scholarly communities through my own work, leadership of many scholarly activities, and engagement with Government and other governance processes. Engagement with Government at all levels in addressing impact and industrial alignment.
- Keenly aware of the central role of planning and budgetary facets of strategy and implementation.
- Main web site: http://www.cs.rhul.ac.uk/home/fionn
  I maintain a blog currently on the themes of: information society, intellectual property, rights management, Grand Challenges, public sector procurement, and other issues: http://fionnmurtagh.wordpress.com

2 Roles

2.1 November 2007 – present, Director and Head of Information, Communications & Emergent Technologies Directorate, Science Foundation Ireland

Key Goals

- ICT strategy in Ireland: growing Irish leadership in: Future Internet (active funding of €116 million by SFI currently in telecoms alone); Software (60,000 employed in Ireland, peak of 80,000 a few years ago); Energy and ICT – convergence and co-development; and Nano, Photo, Micro, Bio Electronics (active funding of €64.8 million by SFI currently in nanoscience alone).
- Growing from scratch an Energy Research Portfolio, covering all areas including: ocean; wind; solar; transport; and construction. Currently a €45 million spend.

Management Responsibilities

- Director of IC&ET (Information, Communications and Emergent Technologies) and Physical Sciences areas, with 11 PhD level Programme Officers and 4 Administration staff reporting to me. I also run the Research Frontiers Programme covering all areas of science and engineering (about 750 proposals received per Call for Proposals). I direct SFI's mathematics programmes, including a new Strategic Research Cluster Call in Financial Mathematics. I am currently overseeing SFI's new remit area of science and engineering underpinning research in Renewable Energies.

- Current research funding by SFI is about €180 million per annum. Total funding by SFI to date (from the Foundation's commencement of operations early in this decade) is about €1.4 billion. In 2008, the two Directorates were supporting over 1200 researchers and support staff, about 150 of whom are Principal Investigators leading substantial research teams. I am responsible for well over half of these amounts/numbers including all evaluation and performance monitoring processes.

- Appointed member (2008 to date) of Government-established Energy Research Council. Contributing author of *An Energy Research Strategy for Ireland*, 42 pp., delivered to Minister for Communications, Energy and Natural Resources, 31 March 2008. I am overseeing integration of all aspects of renewable energies and related environment research into SFI's research support programmes.

- Member (2007 to date) of Industrial Research Commercialisation Committee, Enterprise Ireland. (Enterprise Ireland is a sister Government agency with responsibility for all commercialization and applied research and development funding.) This Committee oversees support funding for commercialization and industrialization of research.

- Member of Enterprise Ireland Software Study 2008, which is preparing the next phase of policy and strategy for Enterprise Ireland in relation to the national software industry. (Software sector: €29.9 billion in sales in 2006; €20 billion in exports; 28,000 employed. SMEs accounted for respective figures of €1.4 billion, €1 billion, and 10,000.)

- Member of the Irish Environmental Protection Agency's (EPA) Climate Change Research Advisory Committee.

- Member (2007 to date) Higher Education Research Group, an inter-Government Department coordination committee, including (my) Department of Enterprise, Trade and Employment, and the Department of Education and Science.

- National member of (European) National ICT Directors' Forum which influences and advises on Research Infrastructures, the Framework Programme, and other areas, including Future Internet.

2.2 October 2004 – present, Professor of Computer Science, Royal Holloway, University of London. July 2005 – September 2007, Head of Department

Key Goals

- Prepare the Department for RAE 2008 and draft all submission documentation.
- Address the undergraduate student recruitment downturn.

Responsibilities

- Management:
  - All aspects of staff recruitment, appraisal, and management. Currently the Department includes 10 Professors, 5 Readers or Senior Lecturers, 6 Lecturers, 6 Research Staff, and 7 Support and Administrative Staff.
  - Organisation of all aspects of accreditation of teaching programmes through the British Computer Society and the Institute of Engineering and Technology (2006).
  - Exceptional Departmental Review held July 2006 to address student recruitment and implications of the post-RAE changes in the UK university sector.
  - Management of non-salary Departmental budget: approximately £100k–150k per year. (In RHUL, budgetary management is at Departmental, rather than Faculty, level.)
  - Training courses followed have included: Employment Law and Employment Law Updates, Recruitment and Selection Training, Freedom of Information Legislation, Coaching for Managers, Equal Opportunities, and others.
  - Responsible for budgetary planning and spending; personnel relations in the Department; reporting to Faculty Executive and Board; and to University senior management (Vice-Principals; Heads of Personnel, Finance; Principal).
- My current application of data analysis and data mining to massive, high dimensional data streams and data stores is proving highly successful in chemical information systems (joint work with Digital Chemistry Ltd., Harewood, Leeds) and with ThinkingSAFE Ltd. (RHUL campus company, in the data archive and backup – including regulatory compliance – field). The work with ThinkingSAFE, which is associated with the Smith Institute for Industrial Mathematics and System Engineering, and the Industrial Maths Knowledge Transfer Partnership, Guildford, has been supported by an EPSRC CASE award ($3\frac{1}{2}$ years from Oct. 2006). This work on matching and retrieval from massive stores is complemented by keynote addresses and presentations at leading conferences and expert events in the area (e.g. keynote at the Classification Society of North America Annual Meeting, DIMACS, New Jersey, May 2006; invited presentation at Theme Semester on Combinatorial Optimization, Centre de Recherches Mathématiques, Montreal, Oct. 2006; invited participant and presenter, Isaac Newton Institute theme semester on high dimensional data analysis, Jan. 2008; presenter of prestigious named lecture, Sixth Annual Public Boole Lecture in Informatics, April 2008).

Other Responsibilities

- My acknowledged leadership in clustering and classification research has led to election (2006) as President, British Classification Society, and as President, Classification Society of

North America (2008–2009). My ambition is to use these platforms to push greatly both theory and applications in these fields. On behalf of the British Classification Society I submitted a response to HEFCE on plans for the Research Excellence Framework in Feb. 2008.

- As Editor-in-Chief of the Computer Journal, the British Computer Society's flagship journal, 2000–2007, my overriding objective has been to direct the evolution of computer science and engineering. I initiated the Computer Journal Lectures and this has included computer science luminaries such as Robin Milner and Tony Hoare, Keith van Rijsbergen and Samson Abramsky.

- My leading role, with my collaborator, Dr Jean-Luc Starck (CEA, Commissariat à l'Energie Atomique, Service d'Astrophysique, Saclay), in development and use of wavelet and other multiresolution signal processing methods, with books written (Image Processing and Data Analysis: The Multiscale Approach, Cambridge University Press, 1998; Astronomical Image and Data Analysis, Springer, 1st edn., 2002; 2nd edn., 2006), conference proceedings edited, and many articles, has seen applications published in astronomy, medical imaging, surface structures in civil engineering, financial modelling and prediction, agriculture and meteorology. Another book is under contract to Cambridge University Press. The 420 page manuscript was delivered in early October 2009.

- Other Recent Positions

  - Adjunct Professor (Professeur PAST, Prof. Associé Sciences et Techniques), Astronomical Observatory, Université Louis Pasteur, Strasbourg 1, France, approx. 1988–2007. Courses taught in pre-PhD programmes (formerly DEA, now Bologna-compliant M2): Data Analysis and Pattern Recognition, Information Retrieval, Multiscale Methods in Image and Signal Processing.
  - Visiting Research Professor, Université Paris-Dauphine, May 2008.
  - Associate Professor, Dublin Institute for Advanced Studies, Dublin, Ireland.
  - Visiting Researcher, Department of Statistics, University of Washington, Seattle, approximately annually for 15 years.

- Conference Chairs, Scientific Organizing Committees (2009)

  I have been involved in such organisational roles for many hundreds of events over the past 3 decades. The following are 2009 events.

  - The 17th International Conference in Central Europe on Computer Graphics, Visualization and Computer Vision, February 2-5, 2009, University of West Bohemia, Plzen, Czech Republic.
  - International Federation of Classification Societies 2009 Conference, Dresden University of Technology, March 13-18, 2009.
  - Symposium on Learning and Data Science, University of Paris-Dauphine, April 1-3, 2009, Paris, France.
  - 16th Annual IEEE International Conference and Workshop on the Engineering of Computer Based Systems, ECBS April 13-16, 2009, San Francisco.

- 1st International Workshop on Ontology for e-Technologies, in conjunction with the 11th International Conference on Enterprise Information Systems, ICEIS 2009, Milan, Italy, 6-7 May 2009.
- Classification Society Annual Meeting 2009, St Louis, Missouri, 11-13 June 2009.
- 57th Session of the ISI, International Statistical Institute, International Convention Centre, Durban, South Africa 16-22 August 2009. Invited session IPM28: "Statistics and the Internet for Development, in e-Education, e-Health, and Other Fields, with particular reference to Africa".
- The Fifth International Conference on Image and Graphics, organized by the China Society of Image and Graphics, Xi'an, China, September 21-24, 2009.
- Fourth International Conference on p-Adic Mathematical Physics, Hrodna, Belarus, September 20-26, 2009.
- The 2009 International Symposium on Database Theory and Application (DTA 2009), December 10-12, 2009, Jeju Island, Korea.
- The Eleventh IASTED International Conference on Computer Graphics and Imaging, GIM 2010, Innsbruck, Austria, February 17-19, 2010.

• Named Lectures, Keynotes, Plenary and Invited Presentations (2006–)

I have been involved in many hundreds of events over the past 3 decades.

- Sixth Annual Boole Lecture, Cork, Ireland, April 2008, "The Correspondence Analysis Platform for Uncovering Deep Structure in Data and Information". Paper in press in the Computer Journal.
- Invited presenter, participant, Isaac Newton Institute for Mathematical Sciences, Cambridge, programme on "Statistical Theory and Methods for Complex, High-Dimensional Data", January 2008.
- The Third International Conference on p-Adic Mathematical Physics: From Planck scale physics to complex systems to biology, Steklov Mathematical Institute Moscow, Russia, October 1-6, 2007, member of Program Committee, invited talk.
- Invited Plenary, Gesellschaft für Klassifikation Annual Conference, Berlin, Germany, March 2006. Organising Committee, Annual Conference, Hamburg, July 2008. Keynote, Annual Meeting of the Classification Society of North America, DIMACS Discrete Mathematics and Computer Science Research Center, Rutgers, New Jersey, May 2006. Invited, International Federation of Classification Societies Biennial Conference, Ljubljana, Slovenia, July 2006.
- Invited, Solar Image Processing Workshop III (SIPWork III), Dublin, Ireland, September 2006.
- Invited, Data Mining and Mathematical Programming Workshop, Centre de Recherches Mathématiques, Montréal, Canada, October 2006.
- Invited talk in the "Classification" session at first joint statistics conference in Germany, Statistik 2007, Bielefeld, March 2007.

• Evaluator and Review Panel Memberships

- Member of EPSRC College. Proposal evaluator for UK research councils EPSRC, PPARC, BBSRC, NERC, ESRC.
- Evaluator and member of evaluation panels: Eurostat - Statistical Office of EC, Luxembourg, SUP-COM (mid-1990s). Fifth Framework - Medical Informatics (1999), Fifth Framework High Level Conferences (2002). Sixth Framework - Marie Curie Conferences and Training Courses (SCF/LCF), Marie Curie Chairs, Teams, Awards (2003, 2004).
- Enterprise Ireland - Strategic Research Grant Scheme. Research Innovation Fund - Information Technology Panel, 2000-2004. Enterprise Ireland: Advanced Technologies Research Programme – Computer Science; Photonics, 2001-2003. Commercialization, 2005, 2006. Applied Research Enhancement 2005. Science Foundation Ireland Basic Research, 2004.
- External evaluator: ASI - Italian Space Agency, Scientific Programs Unit – Technology Science Office, 2003. Action Concertée Incitative – Masses de Données, Ministry of Research, France, 2003, 2004. Agence Nationale de la Recherche, Programme BLANC, 2008. Evaluator, TNO (Netherlands), 2005. National Science Foundation (US), 2005. "2000 Astrophysics Senior Review", NASA Goddard Space Flight Center. Deutsche Forschungsgemeinschaft, 2006.
- Comprehensive departmental review panel, Department of Computer Science, National University of Ireland Maynooth, 2000.
- CNRS research institute evaluation: review panel member, IRIT (Institut de Recherche en Informatique de Toulouse, www.irit.fr) Toulouse, 2005. Co-author of: *Rapport du Comité d'Évaluation du Laboratoire IRIT, Réuni les 29 et 30 novembre 2005*, 2006, 41 pp. (At the time of evaluation, IRIT had 488 staff, – 181 teaching-research, 24 CNRS research, 46 admin, 180 doctoral students, and 57 post-docs or visiting or contract research staff.)
- International Review of Computer Science in Finland, panel member, carried out for Academy of Finland, July 2007 (review of research of all university departments and labs in computer science and engineering in Finland). Contributing author of: *Computer Science Research in Finland, 2000-2006, International Evaluation*, Publications of the Academy of Finland 8/07, 2007, 108 pp.

- PhD Thesis Juries
  - Member of PhD Thesis Juries and Panels in: France (Paris, Strasbourg, Clermont-Ferrand, Marseille, Grenoble), Ireland (Trinity College Dublin, Dublin City University, National University of Ireland Maynooth, National University of Ireland Galway), UK (Birkbeck, Royal Holloway, Brunel, Queen Mary Univ. London, University of Ulster, Queen's University Belfast, Nottingham, UCL, Kent at Canterbury), Malaysia, the Netherlands (Utrecht, Leiden). President of PhD jury, Ecole Nationale Supérieure des Arts et Industries de Strasbourg. External examiner for PhDs, Dublin Institute of Technology, Carlow Institute of Technology, Letterkenny Institute of Technology.

- Member of Programme and Subject Area Reviews

- Computer Science and Statistics, South Bank University, London, 1999.
- Course accreditation board for new degree, BEng in Digital Media Engineering, Electrical Engineering, Dublin City University, 2001.
- External examiner, BAI degree in Computer Science, Trinity College Dublin, 2001-2003.
- Member of validation panel for Arab Open University Information Technology Program, Kuwait City, March 2007.

- Teaching RHUL (2004–2007), "Professional Practice", years 1 and 3. "Team-based Software Engineering Project", year 2. Final year full-unit individual software engineering projects.

- General Community Service Activities

  - Member, Learned Societies and Knowledge Services Board, British Computer Society, 2000–2007. Member, UK Computing Research Council. January 2007, led a response on behalf of UKCRC to a consultation on the UK Research Councils' peer review process. Elected to UKCRC Executive for 3-year term, June 2008.
  - Elected member, Committee on Science and Technology, RDS – Royal Dublin Society, 2000–2006, 2007 to date. This Committee oversees many public events and initiatives relating especially to science and technology for youth (Science Week, Science Live Lecture series, London International Youth Science Fortnight on which I myself participated as a delegate in 1973). A commemorative volume entitled *Science and Ireland - Value for Society*, RDS, 2005, Ed. Charles Mollan, was published for the BA (British Association) Festival of Science, Dublin, September 2005, and I contributed a chapter to this book.

2.3 1999–2004, Professor of Computer Science, Queen's University Belfast

- In observational astronomy and astrophysics, my leading role in statistics and data analysis, was established by the book on Multivariate Data Analysis (Kluwer, 1987), and continued through the organisation of many conferences. Organisationally, I complemented this as founder and Chair of a European Science Foundation scientific network 1995-1997, and by COST Action 283 on the DataGrid in astronomy and virtual collaborative science, 2001-2005.

- My SME (small and medium-sized enterprises) linkages included KTP (Knowledge Transfer Partnership) projects with Kelman Tavrida (Lisburn, Northern Ireland) in transformer oil analysis, Ithaca Solutions (Belfast) in financial database matching and merging, a wide range of software companies across Europe (Germany, Czech Republic, Turkey, Greece) and South America (Chile, Argentina), in telecoms and space engineering (Alcatel, Eircom), among others, in the context of European Framework projects. I carried out due diligence for first round Venture Capital funding of Prediction Dynamics Ltd., a financial services company.

- In Queen's University Belfast, I set up (with colleagues in the Departments of General Practice, and Pathology, in the Faculty of Medicine) Medical Imaging Breakfast Meetings

and other networking and showcase events, with academe, industry, health sector, and government. Member of: Northern Ireland Biomedical Engineering Society (Council member to 2004). Northern Ireland Medical Imaging Forum (Executive member to 2004).

- Principal of Sonic Arts Research Centre, with £5 million funding from the Support Programme for University Research (SPUR), in collaboration with colleagues in the Departments of Music and Electronic Engineering.
- Principal of ECIT, Electronics, Communications and Information Technologies Research Institute, with £40 million in funding, with colleagues from the Department of Electronic Engineering.
- Evaluator and review panel memberships
  - Fifth Framework - Medical Informatics (1999), Fifth Framework High Level Conferences (2002). Sixth Framework - Marie Curie Conferences and Training Courses (SCF/LCF), Marie Curie Chairs, Teams, Awards (2003, 2004).
  - Enterprise Ireland - Strategic Research Grant Scheme. Research Innovation Fund - Information Technology Panel, 2000-2004. Enterprise Ireland: Advanced Technologies Research Programme - Computer Science; Photonics, 2001-2003. Applied Research Enhancement 2005. Science Foundation Ireland Basic Research, 2004.
  - Evaluator, ASI – Italian Space Agency, Scientific Programs Unit, Technology Science Office, 2003. External reviewer, "2000 Astrophysics Senior Review", NASA Goddard Space Flight Center.
  - Evaluator, Action Concertée Incitative – Masses de Données, Ministry of Research, France, 2003, 2004.
  - Comprehensive departmental review panel, Department of Computer Science, National University of Ireland Maynooth, 2000.
  - Academic programme and degree evaluator: Member of course and subject area reviews in South Bank University, London, 1999. Course accreditation board for new degree, BEng in Digital Media Engineering, Electrical Engineering, Dublin City University, 2001. External examiner, BAI in Computer Science, Trinity College Dublin, 2001-2003.
- Teaching: Each year for 4 years (1996–1998), "Information Security", half module, final year (level 3) undergraduate Computer Science, QUB. Also in QUB, "Introductory Information Systems", level 1 (year 1).
- Dissemination through television and radio
  - "Innovators", BBC 2 NI Digital (5 April 2004): on eyegaze tracking work.
  - "Morning Ulster" program, interviews, twice, Radio Ulster, approx. 2000-2001: on forensic imaging, and telecom tarification.

2.4 1996–1999, Professor of Computing Science, University of Ulster, Magee College

- When with the University of Ulster (1996-1999) I had extensive involvement with Derry City Council's inward investment and technology transfer work, including frequent meetings with visiting industrialists and political dignataries, and representation of inward investment in Northern Ireland in the US Pacific North-West (Seattle region) which I frequently visit. When with Queen's University Belfast (1999-2004), this work continued with Belfast City Council. In Royal Holloway, University of London, such work has continued through WestFocus, with which I have been collaborating.
- Member of Board of Directors of ERNACT, European Regions Network for the Application of Communications Technology, 1997-1999.
- Teaching: In University of Ulster, for 2 years (1996–1998), "Image Processing", module, final year undergraduate Computer Science and Engineering.
- Dissemination – radio: BBC Radio Foyle, interviews, twice: on smart card technology, and conference that included John McCarthy (Stanford) and other prominent speakers.

2.5 1984–1996, Senior Scientist, Space Science Department, European Space Agency; based at European Southern Observatory, Garching/Munich

- Between the launch of Hubble Space Telescope on 25 April 1990, and the first refurbishment mission in December 1993, I played a central role in addressing the spherical aberration problem through image processing – deconvolution.
- The volume I edited in 1993 on *Intelligent Information Retrieval: the Case of Astronomy and Related Space Sciences* was finalized in the late summer of 1992, and had contributions on HTTP, Gopher, Archie, and WAIS. (The Mosaic browser was released in the spring of 1993.) By the summer of 1993, I had set up and was running the European Southern Observatory's web site, spanning two continents, Europe and South America.
- I contributed to the development of the scheduling software, based on neural network satisficing optimization, used in scheduling observations by Hubble Space Telescope. My colleagues in this subsequently established a company for chip production and manufacturing scheduling. As a result of this work, in the early 1990s, I led the convergence of neural networks and statistics through workshops organised for Eurostat, Statistical Office of the European Communities, Luxembourg, which led to the PASE, Parallel Applications in Statistics and Economics conference series (in Dublin, Zurich, Prague, Trier, etc.). In 1988, a commercial training course I organised at ECN Neurocomputing GmbH, Munich, was a sell-out event.
- Dissemination – television: 1994, Spiegel TV: on image processing for Shoemaker-Levy/Jupiter encounter. Newspaper articles: Süddeutsche Zeitung, Dernières Nouvelles d'Alsace.
- My monograph on Multidimensional Clustering Algorithms, Physica-Verlag, 1985, and my 1983 survey of clustering algorithms in The Computer Journal, remain unsurpassed for the state of the art in clustering algorithms.

- 1988–2007: Professeur Associé Sciences et Techniques, Observatoire Astronomique, Université Louis Pasteur, Strasbourg 1, France. Teaching in the DEA, now M2 (Bologna Master year 2), pre-Doctoral programmes.

2.6 Pre-1984 Posts

- 1984: Visiting Scientist, Joint Research Centre, Ispra, Italy.
- 1980-1984: Lecturer, Computer Science, University College Dublin, Dublin.
- 1976-1978: Statistician-Programmer, Educational Research Centre, St Patrick's College, Dublin.

2.7 Consultancies, Companies Established

In period 1972–1976: Asea Brown Boveri, Baden, Switzerland; CIE national railway engineering works, Dublin, Ireland; Arthur Guinness Son & Co. Ltd., Dublin.

In period 1979–1980: CIMSA – Compagnie d'Informatique Militaire, Spatiale et Aéronautique, Thomson-Brandt, Vélizy, France.

In period 1980–1984: Centre National d'Etudes des Télécommunications, CNET, Issy-les-Moulineaux, France; School of Computer Applications, Dublin City University, Dublin; Clustan Ltd., Edinburgh, Scotland.

In period 1988–1992: ECN Neurocomputing GmbH, Munich, Germany. MathSoft, Inc. (formerly StatSci), Seattle; Department of Statistics, University of Washington, Seattle.

Start-up companies founded: Munotec Systems Ltd., Dublin, approx. 1999–1994. Multi Resolutions Ltd., established in 1997, Derry.

I established Multi Resolutions Ltd. in 1997 to commercialize (initially under licence from the CEA, Commissariat à l'Energie Atomique, Saclay, France) multiresolution signal and image processing software. Customers include JPL; Unilever; Ministry of Justice in the Netherlands; Foundation for Promotion of Materials Science and Technology of Japan; Institute of Mechanical Engineering in Denmark; Universität Regensburg Augenklinik – ophthalmology, Germany; Lab. of Geo-Information Science and Remote Sensing at Wageningen Agricultural University in the Netherlands; Marine Environment Centre in Bergen, Norway; and many astronomical observatories and university departments worldwide.

Open source software: My open source code for clustering and data analysis is used in the leading statistical R package, the Clustan package, and by practitioners worldwide (recent – granted – requests for authorization to use my code have included American Airlines Pricing Systems, and companies in biotechnology, and conservation ecology).

3 Professional Service, Leadership

3.1 Extensive Publication Record

I have published over 120 journal papers in such leading international peer-reviewed journals as: IEEE Transactions on Knowledge and Data Engineering, SIAM Journal on Scientific Computing, IEEE Transactions on Image Processing, Neurocomputing, ACM Transactions on Applied Perception, Acta Acustica, IEEE Transactions on Systems, Man, and Cybernetics, B - Cybernetics, Image and Vision Computing, Machine Vision and Applications, Computers in Industry, European Physical Journal B, Journal of Classification, Pattern Recognition, Decision Support Systems, IEEE Transactions on Geoscience and Remote Sensing, Astronomy and Astrophysics, Signal Processing, International Journal of Wavelets, Multiresolution and Information Processing, Pattern Recognition Letters, Journal of Chemical Information and Computer Science, Optical Engineering, Artificial Intelligence Review, Journal of the Society for Information Display, Computing in Science and Engineering, Publications of the Astronomical Society of the Pacific, International Journal of Remote Sensing, IEEE Transactions on Education, IEEE Signal Processing Magazine, Forensic Science International, International Journal of Intelligent Systems, Surveys in Geophysics, Computer Physics Communications, Journal of the American Society for Information Science, Statistics and Computing, International Journal of Imaging Systems and Technology, International Journal of Geographic Information Systems, IEEE Transactions on Pattern Analysis and Machine Intelligence, IEEE Transactions on Circuits and Systems II: Analog and Digital Signal Processing, Journal of Computational Intelligence in Finance, Connection Science, Graphical Models and Image Processing, International Journal of Neural Systems, Traitement du Signal, Computational Statistics Quarterly, Discrete Applied Mathematics, Information Processing and Management, Journal of Statistical Computation and Simulation, Information Processing Letters, and the Computer Journal.

3.2 Journal Editorial Board Memberships

- Editor-in-Chief, The Computer Journal (Oxford University Press and British Computer Society), 2000–2007.
- Editor of Book Series "Computer Science and Data Analysis", CRC Press/Chapman & Hall (Taylor & Francis), 2002 to date.
- Editor-in-Chief, Classification Literature Automated Search Service (annual bibliographic service, published on CD and online by Classification Society of North America, CSNA), 1988 to date. ISSN: 0731-4043.
- Member of Editorial Board, p-Adic Numbers, Ultrametric Analysis and Applications (Russian Academy of Sciences and Springer), 2009.
- Member of Editorial Board, Internation Journal of Software and Informatics (Institute of Software, Chinese Academy of Sciences), 2008 to date.
- Member of Editorial Board, Neurocomputing (Elsevier), 1992 to date.
- Member of Editorial Board, Journal of Classification (Springer-Verlag), 1984 to date.

- Member of Editorial Board, Information - Xinxi - Joho , International Journal in English, Chinese, Japanese, Yamaguchi University, 1999 to 2005.
- Member of Editorial Board, Les Cahiers de l'Analyse des Données, (Dunod), 1981-1998.
- Member of Editorial Board, Journal of Multivariate Analysis (Academic), 1999 to 2004.
- Member of Editorial Board, Artificial Intelligence Review (Kluwer), 1997 to 2007.
- Member of Technical Advisory Board, New Astronomy (Elsevier), 1996 to date.

3.3 Professional Society Memberships

- Elected Member of the Royal Irish Academy (MRIA, 2003).
- Fellow, International Association for Pattern Recognition (IAPR).
- Fellow, British Computer Society (FBCS).
- Elected Member, UK Computing Research Council (UKCRC).
- Fellow, Royal Society of the Arts, Manufactures and Commerce (FRSA).
- Elected Member, International Statistical Institute (ISI).
- Fellow, Royal Statistical Society (RSS).
- Member, ELITE Group (Effective Leadership in Information Technology), British Computer Society lead forum for IT Directors and Senior Managers.
- Secretary of Irish Pattern Recognition and Classification Society (IPRCS) to 2005, founded by me in Jan. 1999 (affiliated to IAPR, International Association for Pattern Recognition, and IFCS, International Federation of Classification Societies).
- Member, British Computer Society Knowledge Services Board, 2000–2007. IText Ltd. (Oxford University Press and British Computer Society) Board, 2000–2007.
- Member, Board of Directors, Classification Society of North America, 1990 to date.
- Member, Board of Directors, International Federation of Classification Societies, 1995 to 2005. First Publication Officer and Newsletter Editor, International Federation of Classification Societies, 1990-1994.
- Member, Board of Directors, European Regional Society, International Association for Statistical Computing, 1992-1996, 2004 to date.
- Member, Board of Directors, International Association for Statistical Computing, 1995-1999.
- Member, IAU (International Astronomical Union) Commission 5 – Documentation and Astronomical Data
- Chair, Technical Committee 13 (Astronomy and Astrophysics), International Association for Pattern Recognition, 1990-1994, 2000-2004. Secretary, Technical Committee 13, 1995-1999.

- Elected Member, Committee on Science and Technology, RDS – Royal Dublin Society, 2000–2006, 2007 to date.
- Other memberships: Gesellschaft für Klassifikation; Société Française d'Astronomie et d'Astrophysique (SF2A); Association for Computing Machinery (ACM); Astronomical Science Group of Ireland (ASGI); SPIE - The International Society for Optical Engineering.

3.4 Professional Service: Appointments

Member of interview panels and boards of advisors for academic appointments at all levels, from research assistant, to Institute Directors and Professorial Chairs including:

- Birkbeck College, University of London
- National University of Ireland Maynooth – Head of Department
- Queen's University Belfast – Head of Cancer Research Institute, and many other appointments
- Royal Holloway, University of London
- Herriot Watt University, Edinburgh – Head of School
- External evaluator for: Bilkent University, Ankara, Turkey; Princess Sumaya University for Technology, Jordan; Al-Zaytoonah University, Jordan.

3.5 Research Funding Won

- EPSRC Industrial CASE PhD Studentship 2006–2010: "New Mathematical Approaches for Structuring, and Searching Through, Very Large Data Stores", with ThinkingSAFE Ltd. and Smith Institute for Industrial Mathematics and System Engineering, and the Industrial Maths Knowledge Transfer Partnership, Guildford, value £85,000.

Past Grants

- BBSRC 2006–2008: "Multiple Scale and Multimodal Data and Information Fusion in Human Sensory Discrimination", with Prof Glyn Humphreys, Psychology, University of Birmingham. Value to RHUL, £60,000.
- Astro-Grid, approved by GSC (Grid Steering Committee), PPARC, June 2001. This £9 million project involves lead investigators in collaboration with me at Edinburgh, Cambridge, Leicester, Rutherford Appleton, Mullard Space Science Lab, Jodrell Bank.
- 6th Framework Co-operative Research (CRAFT) Project, "WS-Talk: Web Services Communicating in the Language of Their User Community", 2 year project starting in Dec. 2004, value to RHUL €160,000 euros.
- "New Applications of Neural Network Signal Modelling and Prediction", 2004-2005, Alliance - Franco-British Joint Research Programme. With Prof Alex Aussem (University of Lyon, formerly ISIMA, Univ. Blaise Pascal, Clermont-Ferrand), Alliance project PN 04.052.

- Kaleidoscope - Concepts and Methods for Exploring the Future of Learning with Digital Technologies, Sixth Framework Network of Excellence, €9.5M, IST, Enhanced Learning Environments 2.3.1.12, starting end 2003.
- "Model-Based Clustering for Marked Spatial Point Processes, with Application to Minefield Detection", (Office of Naval Research, N-00014-96-1-0330, and other grants.) PI: Adrian Raftery, University of Washington, Seattle. 1996–present.
- ECIT – Electronics, Communications and Information Technologies Research Centre, flagship of the Science Park, Belfast. £38 million. Inauguration May 13, 2003. I was a Principal of ECIT, which is led by Prof John McCanny.
- SARC – Sonic Arts Research Centre, £5 million. Established 2002. I was a Principal of SARC, which is led by Prof Michael Alcorn.
- EPSRC: Virtual Sieve: Machine Vision Methods for Grading Crushed Aggregates, with Profs PAM Basheer, D Crookes and A Long, 2001- Dec. 2004, £170,000.
- EPSRC – Virtual Reality Architecture for Minimal Access Surgery and Interventional Cardiology Simulation: Ergonomic and Human Factor Studies, EPSRC JREI award, with Dr Tony Gallagher, £372,000.
- AQUA-STEW – Water Quality Surveillance Techniques for Early Warning by Interface Sensors Fifth Framework project, 2000-2004. Value to QUB: €113,000.
- Telecom Tech – The Evolution of Telecom Technologies: Current Trends and Near-Future Implications, Centre for Cross-Border Studies and Eircom, started May 2000. Value to QUB: £25,500.
- IRAIA - Getting Orientation in Complex Information Spaces as an Emergent Behavior of Autonomous Information Agents, Fifth Framework project IST-1999-10602, 2000-2002. Value to QUB: €157,000.
- Teaching Company Scheme: Ithaca Solutions Ltd., Belfast, 2001-2003, £75,780. Financial software engineering.
- Teaching Company Scheme with Kelman Ltd., Lisburn, data analysis of transformer oils. Value £119,000. 2000-2002.
- Earlier: Fourth Framework projects (Neurosat, 1997-1999; ADDSIA, 1997-1999; value to F. Murtagh, approx. £350,000. Eurostat - Statistical Office of EC DOSES and DOSIS programmes, European Science Foundation scientific network – Converging Computing Methodologies in Astronomy, 1995-1997.

3.6 PhD Students and Research Assistants

- Pedro Contreras (on massive data mining).
- Mohsen Farid (QUB, completing, on eyegaze signal modelling and device control).

Former PhD Students and Research Assistants
Asterisks indicate 7 PhDs and 2 MPhils supervised to completion.

- (*) Dr Feng Tao (PhD QUB, now Southampton University),
- (*) Dr Damien Guillaume (PhD ULP, Champaign, Illinois, now Paris)
- (*) Dr Philippe Poinçot (PhD Université Louis Pasteur, Strasbourg, now Ministry of Defence, Paris)
- (*) Thierry Daubos (PhD QUB, now NUI Galway)
- Dr Zheng Gonghui (former RA, now Sydney)
- (*) Zhang Qing (MPhil QUB, now Canada)
- Prof Tianzi Jiang (Research Fellow, now Beijing)
- Florent Arnould (Kelman-Tavrida, now France)
- Dr Munevver Köküer (former RA, now Coventry Univ.)
- (*) Raquel Ventura-Miravet (PhD QUB, now image processing software company, Barcelona)
- Tugba Taskaya (former RA, now METU, Ankara)
- Mohsen Farid (completing PhD, QUB; Teaching Fellow)
- (*) Dr Huseyin Hacihabiboglu (PhD QUB, now Univ. Surrey)
- (*) Dr Banu Gunel (PhD QUB, now Univ. Surrey)
- Seamus Gormley (Ithaca Solutions RA)
- Dr Xiaoyu Qiao (RA, now signal processing company, London)
- (*) Pedro Contreras (MPhil, QUB, now RHUL)

3.7 Patents

Patent application relating to materials inspection in machine vision. (British Patent Application No. GB 0408632.8, 17 April 2004).

4 Publications

- Hirsch h-index: 35. Number of papers: 603. Citations: 4739.

  All disciplines used. Obtained using Harzings Publish or Perish (PoP) 2.7.3499 on 2009 Oct. 15.

  See http://www.cs.rhul.ac.uk/home/fionn/h-index-details.txt for details.

- Most Cited Work.

  - **515 citations**,

    Starck, J.-L., Murtagh, F. and Bijaoui, A., Image Processing and Data Analysis: The Multiscale Approach, Cambridge University Press, 1998.

    This book established leadership in wavelet and multiresolution transform methods in astronomy and other fields. A later book followed in image and signal processing, published with Springer, first and second editions 2002 and 2005. A new work is currently under contract to Cambridge University Press, with completion planned in mid-2009.

  - **257 citations**,

    Murtagh, F., "A survey of recent advances in hierarchical clustering algorithms", Computer Journal, 26, 354-359, 1983.

    The nearest neighbour and reciprocal nearest neighbour algorithms described here remain as state of the art. Code of mine is in the widely-used R package and has been used by many others including American Airlines Pricing Systems.

  - **250 citations**,

    Murtagh, F. and Heck, A., Multivariate Data Analysis, Kluwer, Dordrecht, 1987.

    Through this book, my leadership of statistical and data analysis methods in astronomy was established.

  - **169 citations**,

    Murtagh, F., Multidimensional Clustering Algorithms, Physica-Verlag, Heidelberg, 1985.

  - **138 citations**,

    J.L. Starck, F. Murtagh, E.J. Candès and D.L. Donoho, "Gray and color image contrast enhancement by the curvelet transform", IEEE Transactions on Image Processing, 12, 706–717, 2003.

- For full text of most recent papers see:
  http://www.cs.rhul.ac.uk/home/fionn/papers

4.1 Books and Monographs

1. Starck, J.-L., Murtagh, F. and Fadili, J., Sparse Image and Signal Processing: Wavelets, Curvelets, Morphological Diversity, Cambridge University Press, forthcoming (ms. delivered, Oct. 2009).

2. Murtagh, F., Correspondence Analysis and Data Coding with R and Java, Chapman and Hall/CRC Press, 2005. (Hardback ISBN 1-58488-528-9.)

3. Starck, J.-L., and Murtagh, F., Astronomical Image and Data Analysis, Springer-Verlag, 2002. (Hardcover, ISBN 3-540-42885-2.) 2006: 2nd edition.

4. Starck, J.-L., Murtagh, F. and Bijaoui, A., Image Processing and Data Analysis: The Multiscale Approach, Cambridge University Press, 1998. (Hardback and softback, ISBN 0-521-59084-1 and 0-521-59914-8.)

5. Murtagh, F. and Heck, A., Multivariate Data Analysis, Kluwer Academic Publishers, Dordrecht, 1987. Hardbound: ISBN 90 277 2425 3, Paperback: ISBN 90 277 2426 1, Software: ISBN 90 277 9154 6. Reprint: October 1988.

6. Murtagh, F., Multidimensional Clustering Algorithms, Physica-Verlag, Heidelberg and Vienna, 1985 (ISBN 3 7051 0008 4).

4.2 Journal Publications

2009

1. F. Murtagh, P. Contreras and J.L. Starck, "Scale-based Gaussian coverings: combining intra and inter mixture models in image segmentation", Entropy, 11 (3), 513-528, 2009.

2. F. Murtagh, A. Ganz, S. McKie, J. Mothe and K. Englmeier, "Tag Clouds for Displaying Semantics: The Case of Filmscripts", Information Visualization Journal, in press, 2009. Advance access online 1 Oct. 2009.

3. F. Murtagh, "The remarkable simplicity of very high dimensional data: application to model-based clustering", Journal of Classification, in press, 2009.

4. D. Zervas, G.J. Nichols, R. Hall, H.R. Smyth, C. Lüthje and F. Murtagh, "SedLog: a shareware program for drawing graphic logs and log data manipulation", Computers & Geosciences, 35, 2151–2159, 2009.

5. F. Murtagh, "Symmetry in data mining and analysis: a unifying view based on hierarchy", Proceedings of the Steklov Institute of Mathematics, 265, 177–198, 2009.

6. F. Murtagh, "From data to the p-adic or ultrametric model", p-Adic Numbers, Ultrametric Analysis and Applications, 1, 58–68, 2009.

7. F. Murtagh, A. Ganz and S. McKie, "The structure of narrative: the case of film scripts", Pattern Recognition, 42, 302–312, 2009. (See discussion in Z. Merali, "Here's looking at you, kid. Software promises to identify blockbuster scripts.", Nature, 453, p. 708, 4 June 2008.)

8. M.J. Fadili, J.L. Starck and F. Murtagh, Inpainting and zooming using sparse representations, Computer Journal, 52, 64–79, 2009.

2008

9. F. Murtagh, "Origins of modern data analysis linked to the beginnings and early development of computer science and information engineering", Electronic Journal for History of Probability and Statistics, 4 (2), 2008.

10. F. Murtagh, "Between the information economy and student recruitment: present conjuncture and future prospects", CEPIS UPGRADE, The European Journal for the Informatics Professional, vol. IX, no. 5, pp. 56–64, Oct. 2008.

11. F. Murtagh, "The Correspondence Analysis platform for uncovering deep structure in data and information" (Sixth Annual Boole Lecture), Computer Journal, in press, 2008. (Online, Advance Access 9 Sept. 2008.)

12. F. Murtagh and J.L. Starck, "Wavelet and curvelet moments for image classification: Application to aggregate mixture grading", Pattern Recognition Letters, 29, 1557-1564, 2008.

13. H. Wang and F. Murtagh, A study of the neighborhood counting similarity, IEEE Transactions on Knowledge and Data Engineering, 20, 449-461, 2008.

14. F. Murtagh, On ultrametric algorithmic information, Computer Journal, in press, 2008. (Online, Advance Access, 9 Oct. 2007.)

15. F. Murtagh, G. Downs and P. Contreras, Hierarchical clustering of massive, high dimensional data sets by exploiting ultrametric embedding, SIAM Journal on Scientific Computing, 30, 707-730, 2008.

16. H. Hacihabiboglu and F. Murtagh, Perceptual simplification for model-based binaural room auralization, Applied Acoustics, 69, 715–727, 2008.

2007

17. F. Murtagh, "The Haar wavelet transform of a dendrogram", Journal of Classification, 24, 3–32, 2007.

18. D. Benaouda and F. Murtagh, Neuro-wavelet approach to time-series signals prediction: an example of electricity load and pool-price data, International Journal of Emerging Electric Power Systems, 8 (2), article 5, 2007.

19. J.L. Starck, J. Fadili and F. Murtagh, The undecimated wavelet decomposition and its reconstruction, IEEE Transactions on Image Processing, 16, 297–309, 2007.

2006

20. D. Benaouda, F. Murtagh, J.L. Starck and O. Renaud, Wavelet-based nonlinear multiscale decomposition model for electricity load forecasting, Neurocomputing, 70, 139–154, 2006.

21. H. Hacihabiboglu and F. Murtagh, An observational study of the precedence effect, Acta Acustica, 92, 440–456, 2006.

2005

22. O. Renaud, J.-L. Starck, F. Murtagh, Wavelet-based combined signal filtering and prediction, IEEE Transactions on Systems, Man, and Cybernetics, B - Cybernetics, 35, 1241–1251, 2005.

23. S. Johnstone, P. Contreras, F. Murtagh and P. Sage, Peer-to-peer information access and retrieval, RTSI - Revue des Sciences et Technologies de l'Information, Série ISI – Ingénierie des Systèmes d'Information, 10, 101–122, 2005.

24. F. Murtagh, A.E. Raftery and J.L. Starck, "Bayesian inference for multiband image segmentation via model-based cluster trees", Image and Vision Computing, 23, 587–596, 2005.

25. F. Murtagh, X. Qiao, D. Crookes, P. Walsh, P.A.M. Basheer, A. Long, and J.L. Starck, "A machine vision approaoch to the grading of crushed aggregate", Machine Vision and Applications, 16, 229-235, 2005.

26. F. Murtagh, X. Qiao, P. Walsh, P.A.M. Basheer, D. Crookes and A. Long, "Grading of construction aggregate through machine vision: results and prospects", Computers in Industry, 56, 905-917, 2005.

27. F. Murtagh, "Identifying the ultrametricity of time series", European Physical Journal B, 43, 573-579, 2005.

2004

28. F. Murtagh, "On ultrametricity, data coding, and computation", Journal of Classification, 21, 167-184, 2004.

29. C. Collet and F. Murtagh, "Multiband segmentation based on a hierarchical Markov model", Pattern Recognition, 37, 2337-2347, 2004.

30. F. Murtagh, J.L. Starck and O. Renaud, "On neuro-wavelet modeling", Decision Support Systems, 37, 475-484, 2004.

2003

31. F. Murtagh, D. Barreto and J. Marcello, "Decision boundaries using Bayes factors: the case of cloud masks", IEEE Transactions on Geoscience and Remote Sensing, 41, 2952-2958, 2003.

32. A.C. Katsiyannis, D.R. Williams, R.T.J. McAteer, P.T. Gallagher, F.P. Keenan and F. Murtagh, "Eclipse observations of high-frequency oscillations in active region coronal loops", Astronomy and Astrophysics, 406, 709–714, 2003.

33. J.L. Starck, M.K. Nguyen and F. Murtagh, "Wavelets and curvelets for image deconvolution: a combined approach", Signal Processing, 83 (10), 2279-2283, 2003.

34. J.L. Starck, F. Murtagh, E.J. Candes and D.L. Donoho, "Gray and color image contrast enhancement by the curvelet transform", IEEE Transactions on Image Processing, 12, 706-717, 2003.

35. O. Renaud, J.-L. Starck, F. Murtagh, Prediction Based on a Multiscale Decomposition, International Journal of Wavelets, Multiresolution and Information Processing, Vol. 1, No. 2, 217-232, 2003.

36. F. Murtagh and J.L. Starck, Quantization from Bayes factors with application to multilevel thresholding, Pattern Recognition Letters, 24, 2001-2007, 2003.

37. M. Kökër, F. Murtagh, N.D. McMillan, S. Riedel, B. O'Rourke, K. Beverly, A.T. Augousti and J. Mason, "A wavelet, Fourier, and PCA data analysis pipeline: application to distinguishing mixtures of liquids", Journal of Chemical Information and Computer Science, 43, 587-594, 2003.

38. F. Murtagh and J.L. Starck, "Bayes factors for edge detection from wavelet product spaces", Optical Engineering, 42, 1375-1382, 2003.

39. F. Murtagh, T. Taskaya, P. Contreras, J. Mothe and K. Englmeier, "Interactive visual user interfaces: a survey", Artificial Intelligence Review, 19, 263-283, 2003.

2002

40. M. Farid, F. Murtagh and J.L. Starck, "Computer display control and interaction using eye-gaze", Journal of the Society for Information Display, 10, 289-293, 2002.

41. F. Murtagh, M. Louys, J.L. Starck and F. Bonnarel, "Compression of grayscale scientific and medical image data", CODATA Data Science Journal, 1, 111-127, 2002. Available at: www.datasciencejournal.org.

42. F. Murtagh, J.L. Starck and M. Louys, "Distributed visual information management in astronomy", IEEE/AIP Computing in Science and Engineering, 4 (6), 14-23, Nov/Dec 2002.

43. J.L. Starck, E. Pantin and F. Murtagh, "Deconvolution in astronomy: a review", Publications of the Astronomical Society of the Pacific, 114, 1051-1069, 2002.

2001

44. L.M.T. Carvalho, L.M.G. Fonseca, F. Murtagh and J.G.P.W. De Jong, "Change detection at multiple spatial scales with the aid of multiresolution wavelet analysis", International Journal of Remote Sensing, 22 (18), 3871-3876, 2001.

45. J. Campbell, F. Murtagh and M. Köküer, "DataLab-J: A signal and image processing laboratory for teaching and research", IEEE Transactions on Education, 44, 329-335, 2001.

46. E. O'Shea, D. Banerjee, J.G. Doyle, B. Fleck and F. Murtagh, "Active region oscillations", Astronomy and Astrophysics, 368, 1095-1107, 2001.

47. J.L. Starck and F. Murtagh, "Astronomical image and signal processing: looking at noise, information and scale", IEEE Signal Processing Magazine, 18, 30-40, 2001.

48. J.L. Starck, F. Murtagh, P. Querre and F. Bonnarel, "Entropy and astronomical data analysis", Astronomy and Astrophysics, 368, 730-746, 2001.

49. Z. Geradts, J. Bijhold, R. Hermsen and F. Murtagh, "Image matching algorithms for breech marks and firing pins in a database of spent cartridge cases of firearms", Forensic Science International, 119, 97-106, 2001.

50. A. Aussem and F. Murtagh, "Web traffic demand forecasting using wavelet-based multiscale decomposition", International Journal of Intelligent Systems, 16, 215-236, 2001.

2000

51. F. Murtagh and J.L. Starck, "New image modeling approaches", Surveys in Geophysics, 21, 229-239, 2000.

52. J.L. Starck, A. Bijaoui, I. Valtchanov and F. Murtagh, "A combined approach for object detection and deconvolution", Astronomy and Astrophysics Supplement Series, 147, 1-10, 2000.

53. D. Guillaume and F. Murtagh, "Clustering of XML documents", Computer Physics Communications, 127, 215-227, 2000.

54. D. Egret, R.J. Hanisch and F. Murtagh, "Search and discovery tools for astronomical on-line resources and services", Astronomy and Astrophysics Supplement, 143, 137-143, 2000.

55. Ph. Poinçot, S. Lesteven and F. Murtagh, "Maps of information spaces: assessments from astronomy", Journal of the American Society for Information Science, 51, 1081-1089, 2000.

56. F. Murtagh, J.-L. Starck and M. Berry, "Overcoming the curse of dimensionality in clustering by means of the wavelet transform", Computer Journal, 43, 107-120, 2000.

57. F. Murtagh and J.-L. Starck, "Image processing through multiscale analysis and measurement noise modeling", Statistics and Computing, 10, 95-103, 2000.

58. F. Murtagh, G. Zheng, J.G. Campbell and A. Aussem, "Neural network modeling for environmental prediction", Neurocomputing Letters, 30, 65-70, 2000.

1999

59. M. Louys, J.L. Starck and F. Murtagh, "Lossless compression of astronomical images", Irish Astronomical Journal, 26, 119-122, 1999.

60. J.L. Starck and F. Murtagh, "Multiscale entropy filtering", Signal Processing, 76, 147-165, 1999.

61. M. Louys, J.L. Starck, S. Mei, F. Bonnarel and F. Murtagh, "Astronomical image compression", Astronomy and Astrophysics Supplement Series, 136, 579-590, 1999.

62. G. Zheng, J.L. Starck, J.G. Campbell and F. Murtagh, "The wavelet transform for filtering financial data streams", Journal of Computational Intelligence in Finance, 7, 18-35, 1999.

63. J.G. Campbell, C. Fraley, D. Stanford, F. Murtagh and A.E. Raftery, "Model-based methods for real-time textile fault detection", International Journal of Imaging Systems and Technology, 10, 339-346, 1999.

64. M. Morehart, F. Murtagh and J.L. Starck, "Spatial representation of economic and financial measures used in agriculture via wavelet analysis", International Journal of Geographic Information Systems, 13, 557-576, 1999.

65. Hui Wang, D. Bell and F. Murtagh, "Axiomatic approach to feature subset selection based on relevance", IEEE Transactions on Pattern Analysis and Machine Intelligence, 21, 271-277, 1999.

1998

66. S. Mukherjee, E.D. Feigelson, G.J. Babu, F. Murtagh, C. Fraley and A. Raftery, "Three types of gamma ray bursts", The Astrophysical Journal, 508, 314-327, 1998.

67. A. Aussem and F. Murtagh, "A neuro-wavelet strategy for Web traffic forecasting", Journal of Official Statistics, 1, 65-87, 1998.

68. J.G. Campbell and F. Murtagh, "Automatic visual inspection of woven textiles using a two-stage defect detector", Optical Engineering, 37, 2536-2542, 1998.

69. Murtagh, F., "Wedding the wavelet transform and multivariate data analysis", Journal of Classification, 15, 161-183, 1998.

70. J.-L. Starck and F. Murtagh, "Automatic noise estimation from the multiresolution support", Publications of the Astronomical Society of the Pacific, 110, 193-199, 1998.

71. J.-L. Starck, F. Murtagh and R. Gastaud, "A new entropy measure based on the wavelet transform and noise modeling", IEEE Transactions on Circuits and Systems II: Analog and Digital Signal Processing, 45, 1118-1124, 1998.

72. A. Aussem, J. Campbell and F. Murtagh, "Wavelet-based feature extraction and decomposition strategies for financial forecasting", Journal of Computational Intelligence in Finance, 6, 5-12, 1998.

73. Ph. Poinçot, ot, F. Murtagh and S. Lesteven, "A spatial user interface to the astronomical literature", Astronomy and Astrophysics Supplement Series, 130, 183-191, 1998.

74. F. Murtagh, J.-L. Starck and M. Louys, "Very high quality image compression based on noise modeling", International Journal of Imaging Systems and Technology, 9, 38-45, 1998.

75. F. Murtagh and J.-L. Starck, "Pattern clustering based on noise modeling in wavelet space", Pattern Recognition, 31, 847-855, 1998.

1997

76. J.G. Campbell, C. Fraley, F. Murtagh and A.E. Raftery, "Linear flaw detection in woven textiles using model-based clustering", Pattern Recognition Letters, 18, 1539-1548, 1997.

77. Aussem, A. and Murtagh, F., "Combining neural network forecasts on wavelet-transformed time series", Connection Science, 9, 113-121, 1997.

78. Murtagh, F., Aussem, A. and Starck, J.-L., "Multiscale data analysis - information fusion and constant-time clustering", Vistas in Astronomy, 41, 359-364, 1997.

1996

79. F. Murtagh, "Application de l'analyse factorielle et de l'analyse discriminante à des données colligées pour être soumise à des réseaux de cellules", Les Cahiers de l'Analyse des Données, XXI, 53-74, 1996.

80. J.-P. Benzécri and F. Murtagh, "Discrimination des jonctions entre exon et intron dans les séquences d'acide désoxyribonucléique", Les Cahiers de l'Analyse des Données, XXI, 133-148, 1996.

81. Aussem, A., Murtagh, F. and Sarazin, M., "Fuzzy astronomical seeing nowcasts with a dynamical and recurrent connectionist network", International Journal of Neurocomputing, 13, 353-367, 1996.

82. Starck, J.-L., Murtagh, F., Pirenne, B. and Albrecht, M., "Astronomical image compression based on noise suppression", Publications of the Astronomical Society of the Pacific, 108, 446-455, 1996.

1995

83. Starck, J.-L., Murtagh, F. and Bijaoui, A., "Multiresolution support applied to image filtering and restoration", Graphical Models and Image Processing, 57, 420-431, 1995.

84. Murtagh, F., Starck, J.-L. and Bijaoui, A., "Multiresolution in astronomical image processing: a general framework", International Journal of Imaging Systems and Technology, 6, 332-338, 1995.

85. Aussem, A., Murtagh, F. and Sarazin, M., "Dynamical recurrent neural networks - towards environmental time series prediction", International Journal of Neural Systems, 6, 145-170, 1995.

86. Murtagh, F., Aussem, A. and Sarazin, M., "Nowcasting astronomical seeing: towards an operational approach", Publications of the Astronomical Society of the Pacific, 107, 702-707, 1995.

87. Murtagh, F., Starck, J.-L. and Bijaoui, A., "Image restoration with noise suppression using a multiresolution support", Astronomy and Astrophysics Supplement Series, 112, 179-189, 1995.

88. Murtagh, F., "Clustering moderately sized data sets using the Kohonen map approach", Statistics in Transition (Journal of the Polish Statistical Society), 2, 151-162, 1995.

89. Murtagh, F. and M. Hernández, "The Kohonen self-organizing map method: an assessment", Journal of Classification, 12, 165-190, 1995.

90. Murtagh, F., "Interpreting the Kohonen self-organizing feature map using contiguity-constrained clustering", Pattern Recognition Letters, 16, 399-408, 1995.

1994

91. Aussem, A., Murtagh, F. and Sarazin, M., "Dynamical recurrent neural networks and pattern recognition methods for time series prediction: application to seeing and temperature forecasting in the context of ESO's VLT Astronomical Weather Station", Vistas in Astronomy, 38, 357-374, 1994.

92. Starck, J.-L. and Murtagh, F., "Image restoration with noise suppression using the wavelet transform", Astronomy and Astrophysics, 288, 342-348, 1994.

93. Bijaoui, A., Starck, J.-L. and Murtagh, F., "Restauration des images multi-échelles par l'algorithme à trous", Traitement du Signal, 11, 229-243, 1994.

94. Murtagh, F., "Neural networks and related massively parallel methods in statistics: an overview", International Statistical Review, 62, 275-288, 1994.

95. Hernández-Pajares, M. Floris, J. and Murtagh, F., "How tracer objects can improve competitive learning algorithms in astronomy", Vistas in Astronomy, 38, 317-330, 1994.

96. Andernach, H., Hanisch, R. and Murtagh, F., "Network resources for astronomers", Publications of the Astronomical Society of the Pacific, 106, 1190-1216, 1994.

1993

97. Murtagh, F. and Sarazin, M., "Nowcasting astronomical seeing: a study of ESO La Silla and Paranal", Publications of the Astronomical Society of the Pacific, 105, 932-939, 1993.

1992

98. Feigelson, E.D. and Murtagh, F., "Public software for the astronomer: an overview", Publications of the Astronomical Society of the Pacific, 104, 574-581, 1992.

99. Murtagh, F., "Contiguity-constrained clustering for image analysis", Pattern Recognition Letters, 13, 677-683, 1992.

100. Murtagh, F., "Comments on: Parallel algorithms for hierarchical clustering and cluster validity", IEEE Transactions on Pattern Analysis and Machine Intelligence, 14, 1056-1057, 1992.

101. Murtagh, F., "A new approach to point pattern matching", Publications of the Astronomical Society of the Pacific, 104, 301-307, 1992.

1980–1991

102. Murtagh, F., "Multilayer perceptrons for classification and regression", International Journal of Neurocomputing, 2, 183-197, 1990/1991.

103. Murtagh, F., "Hierarchical tress in N-body simulations: relations with cluster analysis methods", Computer Physics Communications, 52, 15-18, 1988.

104. Rampazzo, R., Heck, A. and Murtagh, F., "Classification of IUE spectra: a rule-based approach", The ESA Journal, 12, 385-394, 1988.

105. Murtagh, F. and Ponz, D., "Image processing, databases, and statistical software: the common interface", Statistical Software Newsletter, 12, 129-132, 1986.

106. Murtagh, F. and Heck, A., "An annotated bibliographical catalogue of multivariate statistics and of their astronomical applications", Astronomy and Astrophysics Supplement Series, 68, 113-115, 1986.

107. Murtagh, F. and Lauberts, A., "A curve matching problem in astronomy", Pattern Recognition Letters, 4, 465-469, 1986.

108. Murtagh, F. and Close, J., "An analysis of the relationships among computation-related mathematical skills", Journal of Research in Mathematics Education, 17, 112-129, 1986.

109. Murtagh, F., "A survey of algorithms for contiguity-constrained clustering and related problems", Computer Journal, 28, 82-88, 1985.

110. Murtagh, F., "Complexities of hierarchic clustering algorithms: state of the art", Computational Statistics Quarterly, 1, 101-113, 1984.

111. Murtagh, F., "Counting dendrograms: a survey", Discrete Applied Mathematics, 7, 191-199, 1984.

112. Murtagh, F. and Raftery, A.E., "Fitting straight lines to point patterns", Pattern Recognition, 17, 479-483, 1984.

113. Murtagh, F., "Structures of hierarchic clusterings: implications for information retrieval and for multivariate data analysis", Information Processing and Management, 20, 611-617, 1984.

114. Murtagh, F., "A probability theory of hierarchic clustering using random dendrograms", Journal of Statistical Computation and Simulation, 18, 145-157, 1983.

115. Murtagh, F., "A survey of recent advances in hierarchical clustering algorithms", Computer Journal, 26, 354-359, 1983.

116. Murtagh, F., "Expected-time complexity results for hierarchic clustering algorithms which use cluster centres", Information Processing Letters, 16, 237-241, 1983.

117. Murtagh, F., "A very fast, exact nearest neighbour algorithm for use in information retrieval", Information Technology, 1, 275-283, 1982.

118. Murtagh, F., Discussion following "Statistical modelling of teaching styles", Aitkin et al., Journal of the Royal Statistical Society A, 144, 1981.

119. Murtagh F., "Recherche d'un scalogramme sur les réponses de 1400 élèves à une batterie d'épreuves de mathématique", Les Cahiers de l'Analyse des Données, VI, 297-318, 1981.

120. Murtagh, F., "Une question de classifiabilité en classification automatique dans le cas particulier des rassembelements documentaires", Statistique et Analyse des Données, 5, 77-89, 1980.

4.3 Chapters in Refereed Topical Volumes, Encyclopaedias, Invited Contributions

1. D. Rosenberg, M. Lievonen, P. Contreras, F. Murtagh, G. Kuehn and R. Doerner, Application design of learning grid in computer-mediated communication, in S. Salerno, M. Gaeta, P. Ritrovato, N. Capuano, F. Orciuoli, S. Miranda and A. Pierri, The Learning Grid Handbook – Concepts, Technologies and Applications, IOS Press, 2008, pp. 107–123.

2. F. Murtagh, "Ultrametric embedding: application to data fingerprinting and to fast data clustering", P.M. Pardalos and P. Hansen, Eds., CRM Proceedings & Lecture Notes Vol. 45, American Mathematical Society, 199-209, 2008.

3. F. Murtagh, "Topological approaches to search and matching in massive data sets", in V. Di Gesu, G. Lo Bosco and M.C. Maccarone, Eds., Modelling and Simulation in Science, Proceedings of the 6th International Workshop on Data Analysis in Astronomy "Livio Scarsi", World Scientific, 2007, pp. 224-233.

4. F. Murtagh, "Symbolic dynamics in text: application to automated construction of concept hierarchies", in P. Brito, P. Bertrand, G. Cucumel and F. De Carvalho, Eds., Selected Contributions in Data Analysis and Classification, Springer, pp. 299-306, 2007.

5. E. Pantin, J.-L. Starck and F. Murtagh, "Deconvolution and blind deconvolution in astronomy", in P. Campisi and K. Egiazarian, Eds., Blind Image Deconvolution: Theory and Applications, CRC Press, 2007.

6. F. Murtagh, "Identifying and exploiting ultrametricity", in R. Decker and H.-J. Lenz, Eds., Advances in Data Analysis, Proc. 30th Annual Conf. German Classification Society, Springer, 263–272, 2006.

7. F. Murtagh, "Neural networks", "Ultrametric inequality", "Ultrametric trees", articles in Encyclopedia of Statistics in Behavioral Science, Eds. B. Everitt and D. Howell, Wiley, 2004.

8. F. Murtagh, "Information spaces", in Encyclopedia of Human-Computer Interaction, Berkshire, 2004.

9. F. Murtagh and J.L. Starck, "Wavelets and multiscale transforms in astronomical image processing", in J. Abello, P.M. Pardalos and M.G.C. Resende, Handbook of Massive Data Sets, Chapter 13, Kluwer, pp. 473-500, 2002.

10. F. Murtagh, "Clustering in massive data sets", in J. Abello, P.M. Pardalos and M.G.C. Resende, Handbook of Massive Data Sets, Chapter 14, Kluwer, pp. 401-545, 2002.

11. F. Murtagh and J.L. Starck, "Multiscale image and data analysis", in A. Kent and J.G. Williams, Eds., Encyclopedia of Microcomputers, Volume 26, Supplement 5, A Kent and JG Williams, Eds., pp. 201-226, Marcel Dekker, New York, 2001.

12. Murtagh, F., "Cartes de Kohonen: applications", in S. Thiria, Y. Lechevallier, O. Gascuel and S. Canu, Eds., Statistique et Méthodes Neuronales, Dunod, 223-229, 1997.

13. Murtagh, F. and Aussem, A., "New problems and approaches related to large databases in astronomy", Statistical Challenges in Modern Astronomy II, G.J. Babu and E.D. Feigelson, eds., Springer-Verlag, 123-133, 1997.

14. Murtagh, F., "Content-based information retrieval: new tools for textual data, new problems for image data", in J.E. Dubois and N. Gershon, eds., The Information Revolution: Impact on Science and Technology, Springer-Verlag, Berlin, pp. 13-20, 1996.

15. Murtagh, F., "Neural networks for clustering", in P. Arabie, L.J. Hubert and G. De Soete, eds., Combinatorial Data Analysis, World Scientific, New York, 235-269, 1996.

16. Murtagh, F., Starck, J.-L. and Durand, D. "New results in astronomical image compression", Information Systems Newsletter (JPL, NASA), Vol. II 1996, Issue 39, pp. 30-32.

17. Murtagh, F., "Contiguity-constrained hierarchical clustering", in I.J. Cox, P. Hansen and B. Julesz, eds., Partitioning Data Sets, DIMACS, AMS, 143-152, 1995.

18. Starck, J.-L. and Murtagh, F., "Multiresolution image analysis using wavelets - recent results", Bulletin of the American Astronomical Society, 26, 1994, 1003-1005.

19. Murtagh, F., "Cluster analysis using proximities", in J. Hampton, R. Michalski, P. Theuns and I. Van Mechelen, Eds., Categories and Concepts: Theoretical Views and Inductive Data Analysis, Academic Press, New York, 225-245, 1993.

20. Murtagh, F., "Multivariate methods for data analysis", in Aa. Sandqvist and T.P. Ray, eds., Central Activity in Galaxies, Springer-Verlag, Berlin, 1993, 209-235.

21. Murtagh, F., "Multivariate analysis and classification of large astronomical databases (with discussion)", in G.J. Babu and E.D. Feigelson (eds.), Statistical Challenges in Modern Astronomy, Springer-Verlag, New York, 449-474, 1992.

    Also: Discussion following "Bayesian methods of deconvolution and shape classification", B.D. Ripley.

22. Heck, A. and Murtagh, F., "How can artificial intelligence help spectral classification?", in J.E. Hansen, Ed., Atomic Spectra and Oscillator Strengths for Astrophysics and Fusion Research, North-Holland, Amsterdam, 235-236, 1990.

23. Murtagh, F., "Large databases in astronomy", in: A. Kent and J.G. Williams (eds.), Encyclopedia of Computer Science and Technology, Vol. 21, Supplement 6, Marcel Dekker, New York and Basel, 205-213, 1990.

4.4 Edited Books, Conference Proceedings, and Journal Issues

4.4.1 Edited Topical Volumes and Conference Proceedings

1. F. Murtagh, Ed., Imaging and Vision, Proceedings of the SPIE, Volume 5823, SPIE, Bellingham, 2005.

2. Starck, J.-L. and Murtagh, F., Eds., Astronomical Data Analysis II , Proceedings of SPIE, Volume 4847, SPIE, Bellingham, 2002.

3. A. Shearer, F. Murtagh, J. Mahon and P. Whelan, Eds., Opto-Ireland 2002: Optical Metrology, Imaging, and Machine Vision, Proceedings of SPIE, Volume 4877, SPIE Bellingham, 2002.

4. Starck, J.-L. and Murtagh, F., Eds., Astronomical Data Analysis, Proceedings of SPIE, Volume 4477, SPIE, Bellingham, 2001.

5. N.D. Black , P.J. McCullagh , B.J. Meenan and F. Murtagh, Eds., Sixth Bienial Conference of the European Society for Engineering and Medicine, 2001, 242 pp., ISBN: 1 58603 186 4, IOS Press, Amsterdam.

6. F. Murtagh, J.L. Starck, N. McMillan and J.G. Campbell, "Intelligent data modeling based on the wavelet transform and data entropy", W. Gaul, O. Opitz and M. Schader, Eds., Data Analysis: Scientific Modeling and Practical Applications, Springer-Verlag, pp. 273-284, 2000.

7. Campbell, J. and Murtagh, F., Eds., Proceedings IMVIP 2000 - Irish Machine Vision and Image Processing Conference, Queen's University Belfast, 2000.

8. Murtagh, F., Campbell, J. and Mc Kevitt, P., Eds., Proceedings Irish Machine Vision and Image Processing Conferences, and Eighth Irish Conference on Artificial Intelligence, Vols. I, II, University of Ulster, 1997.

9. M.C. Maccarone, F. Murtagh, M. Kurtz and A. Bijaoui, Eds. Advanced Techniques and Methods for Astronomical Information Handling, Proceedings of the Sonthofen Conference, 17-18 September 1997, Observatoire de la Côte d'Azur, 1998.

10. Heck, A., Editors), Intelligent Information Retrieval: The Case of Astronomy and Related Space Sciences, Kluwer Academic Publishers, Dordrecht, 1993. ISBN 0-7923-2295-9.

    A topical volume, published around the time of the release of the Mosaic browser. Includes chapters on WAIS, Gopher and pre-Mosaic WWW.

11. Heck, A. and Murtagh, F. (Editors), Astronomy from Large Databases II, European Southern Observatory, Garching, Conf. & Workshop Proc. 43, ISBN 3-923524-47-1, 1993. Approx. 300 pp.

12. Würtz, D. and Murtagh, F. (Editors), Parallel Problem Solving from Nature – Applications in Statistics and Economics, Eurostat – Statistical Office of the EC, Luxembourg, 1992, 192 pp.

13. Murtagh, F. (Editor), Neural Networks for Statistical and Economic Data, Eurostat – Statistical Office of the EC, Luxembourg, 1991, 210 pp.

14. Grosbøl, P., Murtagh, F. and Warmels, R.H. (Editors), 1st ESO/ST-ECF Data Analysis Workshop Proceedings, European Southern Observatory, Garching, 1989. ISBN 3-923524-32-3.

15. Murtagh, F. and Heck, A. (Editors), Knowledge Based Systems in Astronomy, Springer-Verlag, Heidelberg, Berlin, New York, 1989. ISBN 3 540 51044 3 and 0 387 51044 3.

    Topical volume. Includes e.g. influential work on Hubble Space Telescope scheduling using a stochastic Hopfield-like network. A company, Interval Logic, was subsequently established by colleagues of mine – M. Johnston, formerly Space Telescope Science Institute, D. Rosenthal, formerly NASA Ames – to market this in the area of chip production. This company was recently acquired by Boston-based PRI Automation.

16. Murtagh, F. and Heck, A. (Editors), Astronomy from Large Databases: Scientific Objectives and Methodological Approaches, European Southern Observatory, Garching, 1988. ISBN 3 923524 28 5. Approx. 300 pp.

    Conference Proceedings. Represents work on hypertext and information retrieval, among other topics, which grew into the Astrophysical Data System, housing the online astronomical literature.

4.4.2 Edited Journal Special Issues

1. B. Dragovich (Belgrade), A. Khrennikov (Växjö) and F. Murtagh, Editors, special issue, Computer Journal, "Ultrametric and p-Adic Applications in Computer Science", submission by June 2007.

2. F. Murtagh was Guest Editor with R. Molina, of a special issue of IEEE Signal Processing Magazine, March 2001.

3. F. Murtagh was a Guest Editor of a special issue of Neurocomputing Letters on "Neural Networks for Satellite and Environmental Data Modeling and Analysis", Vol. 30, 2000.

4. F. Murtagh was a Guest Editor with D. Egret of a special issue of Computer Physics Communications on "Knowledge Discovery in Astronomy", 2000. F. Murtagh and D. Egret, Foreword to articles on "From information to knowledge using astronomical databases", Computer Physics Communications, 127, 175-176, 2000.

5. F. Murtagh was a Guest Editor on 3 occasions for the journal Vistas in Astronomy, for issues on computational themes.

6. F. Murtagh was Guest Editor of a special issue of Computer Journal on "Clustering and Classification", Vol. 41, No. 8, 1998.

4.5 Conference Papers

1. K. Englmeier, F. Murtagh and J. Mothe, "Domain ontology: automatically extracting and structuring community language from texts", Proceedings of Applied Computing, IADIS, Salamanca, Spain, February 2007, pp. 59–66, 2007.

2. F. Murtagh, "From data to the physics using ultrametrics: new results in high dimensional data analysis", in B. Dragovich, A. Khrennikov, Z. Rakic and I. Volovich, Eds., Proc. 2nd International Conference on p-Adic Mathematical Physics, American Institute of Physics, 151-161, 2006.

3. K. Englmeier, J. Mothe and F. Murtagh, "Natural language expansion of web service interoperability", in Practical Aspects of Knowledge Management: 5th International Conference, PAKM 2004, Vienna, Austria, December 2-3, 2004. Proceedings Editors: Dimitris Karagiannis, Ulrich Reimer, Lecture Notes in Computer Science LNCS Vol. 3336 / 2004, p. 441, DOI 10.1007/b104042, 2005.

4. F. Murtagh, "Thinking ultrametrically", in D. Banks, L. House, F.R. McMorris, P. Arabie and W. Gaul, Eds., Classification, Clustering, and Data Mining Applications, Springer, 3-14, 2004.

5. F. Murtagh, "Quantifying ultrametricity", in J. Antoch, Ed., COMPSTAT 2004: Proceedings in Computational Statistics, Springer, 1561-1568, 2004.

6. Tao, Feng, F. Murtagh and M. Farid, "Weighted association rule mining using weighted support and significance framework", in Proceedings of The Ninth ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (ACM SIGKDD 2003), pp. 661-666, Washington DC, 2003.

7. J.L. Starck, Mai Nguyen and F. Murtagh, "Deconvolution based on the curvelet transform", Proc. ICIP - International Conference on Image Processing, Barcelona, 2003.

8. Feng Tao, F. Murtagh and M. Farid, "Mining Associations in Weighted Support and Significant Framework", accepted, to appear in the proceedings of the Ninth ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (ACM SIGKDD 2003), Washington, DC, USA.

9. P. Jancovic, M. Köküer and F. Murtagh, "Reliability-based estimation of the number of noisy features: application to model-order selection in the union models", in Proc. ICASSP - IEEE International Conference on Acoustics, Speech and Signal Processing, SPEECH-P.27, pp. I-416 - I-409, 2003.

10. M. Farid and F. Murtagh, "Eye-movements and voice as interface modalities to computer systems", in: Opto-Ireland 2002: Optical Metrology, Imaging, and Machine Vision. Eds. A. Shearer, F.D. Murtagh, J. Mahon, and P.F. Whelan. Proceedings of the SPIE, Volume 4877, pp. 115-125, 2003.

11. D. Barreto, F. Murtagh and J. Marcello, Bayesian segmentation and clustering for determining cloud mask images", in: Opto-Ireland 2002: Optical Metrology, Imaging, and

Machine Vision. Eds. A. Shearer, F.D. Murtagh, J. Mahon, and P.F. Whelan. Proceedings of the SPIE, Volume 4877, pp. 144-155, 2003.

12. M. Köküer, F. Murtagh, A.T. Augousti, J. Mason, and N.D. McMillan, "Wavelet- and entropy-based feature extraction: application to distinguishing mixtures of beverages", in: Opto-Ireland 2002: Optical Metrology, Imaging, and Machine Vision. Eds. A. Shearer, F.D. Murtagh, J. Mahon, and P.F. Whelan. Proceedings of the SPIE, Volume 4877, pp. 175-182, 2003.

13. P. Contreras, M. Köküer, M. Louys and F. Murtagh, "Semantic description of signal and image databases", in: Opto-Ireland 2002: Optical Metrology, Imaging, and Machine Vision. Eds. A. Shearer, F.D. Murtagh, J. Mahon, and P.F. Whelan. Proceedings of the SPIE, Volume 4877, pp. 230-237, 2003.

14. M. Farid, F. Kurugollu and F. Murtagh, "Adaptive wavelet eye-gaze-based video compression", in: Opto-Ireland 2002: Optical Metrology, Imaging, and Machine Vision. Eds. A. Shearer, F.D. Murtagh, J. Mahon, and P.F. Whelan. Proceedings of the SPIE, Volume 4877, pp. 255-263, 2003.

15. F. Murtagh, X. Qiao, D. Crookes, P. Walsh, P.A.M. Basheer and A. Long, "Benchmarking segmentation results using a Markov model and a Bayes information criterion", in: Opto-Ireland 2002: Optical Metrology, Imaging, and Machine Vision. Eds. A. Shearer, F.D. Murtagh, J. Mahon, and P.F. Whelan. Proceedings of the SPIE, Volume 4877, pp. 248-254, 2003.

16. X. Qiao, F. Murtagh, D. Crookes, P. Walsh, P.A.M. Basheer and A. Long, "Machine vision methods for the grading of crushed aggregate", in: Opto-Ireland 2002: Optical Metrology, Imaging, and Machine Vision. Eds. A. Shearer, F.D. Murtagh, J. Mahon, and P.F. Whelan. Proceedings of the SPIE, Volume 4877, pp. 264-270, 2003.

17. J. Campbell, F. Murtagh and M. Köküer, "Graduate and professional development in imaging and optical signal processing and related fields", in: Opto-Ireland 2002: Optics and Photonics Technologies and Applications, Eds. W.J. Blau, J.F. Donegan, A.F. Duke, B.D. MacCraith, J.A. McLaughlin, N.D. McMillan, G.M. O'Connor, E. O'Mongain and V. Toal, Proceedings of the SPIE, Volume 4876, pp. 1312-1320, 2003.

18. F. Murtagh, C. Collet, M. Louys and J.L. Starck, in J.L. Starck and F. Murtagh, Eds., Astronomical Data Analysis II, SPIE Proceedings Volume 4847, "Multiresolution filtering and segmentation of multispectral images", pp. 354-361, 2002.

19. F. Murtagh, C. Donalek, G. Longo and R. Tagliaferri, "Bayesian model selection for spatial clustering in 3D surveys", in J.L. Starck and F. Murtagh, Eds., Astronomical Data Analysis II, SPIE Proceedings Volume 4847, pp. 391-401, 2002.

20. T. Daubos and F. Murtagh, "High-quality still images from video frame sequences", in Z. Geradts and L.I. Rudin, Eds., Investigative Image Processing II, Proceedings of the SPIE, Volume 4709, pp. 49-59, 2002.

21. M. Köküer, J. Campbell, F. Murtagh and J.L. Starck, "Wavelet and entropy-based data modelling", Sensors and Their Application XI, Ed. K.T.V. Grattan and S.H. Khan, IOP Press, 2001, pp. 215-220.

22. M. Köküer, J. Campbell and F. Murtagh, "DataLab-J; a signal and image processing laboratory", Sensors and Their Application XI, Ed. K.T.V. Grattan and S.H. Khan, IOP Press, 2001, pp. 409-415.

23. Z. Geradts, J. Bijhold, R. Hermsen and F. Murtagh, "Matching algorithms using wavelet transforms for a database of spent cartridge cases of firearms", Proceedings SPIE, Vol. 4232, pp. 545-552, 2001.

24. F. Murtagh, M. Louys, J.L. Starck, F. Bonnarel and M. Farid, "On-demand delivery of large compressed images in astronomy: computational requirements", in J.L. Starck and F. Murtagh, Eds., Astronomical Data Analysis, Proc. SPIE Vol. 4477, SPIE: Bellingham, pp. 151-160, 2001.

25. M. Farid and F. Murtagh, "Vessel tracking in digital retinopathy using wavelet correlation and percolation clustering", in A.C. Winstanley, Ed., IMVIP 2001, Proceedings of the Irish Machine Vision and Image Processing Conference, NUI Maynooth, 2001, pp. 37-42.

26. M. Köküer, M. Farid, F. Murtagh, J.L. Stark and W. Wicken, "Ocean feature analysis based on subband filtering", in A.C. Winstanley, Ed., IMVIP 2001, Proceedings of the Irish Machine Vision and Image Processing Conference, NUI Maynooth, 2001, pp. 166-172.

27. M. Farid, F. Murtagh, M. Louys and J.L. Starck, "Compression and delivery for the support of distributed image databases", in A.C. Winstanley, Ed., IMVIP 2001, Proceedings of the Irish Machine Vision and Image Processing Conference, NUI Maynooth, 2001, pp. 249-252.

28. F. Tao, P. Contreras, B. Pauer, T. Taskaya and F. Murtagh, "User interest correlation in log data", Usability Evaluation and Interface Design: Cognitive Engineering, Intelligent Agents and Virtual Reality, Volume 1 of HCI 2001 International Conference on Human Computer Interaction, Eds. M.J. Smith, G. Salvendy, D. Harris, and R.J. Koubek, New Orleans, LA, August 2001, Lawrence Erlbaum, Mahwah, NJ, pp. 938-942, 2001.

29. T. Taskaya, P. Contreras, F. Tao and F. Murtagh, "Data visualization for large datasets", Usability Evaluation and Interface Design: Cognitive Engineering, Intelligent Agents and Virtual Reality, Volume 1 of HCI 2001 International Conference on Human Computer Interaction, Eds. M.J. Smith, G. Salvendy, D. Harris, and R.J. Koubek, New Orleans, LA, August 2001, Lawrence Erlbaum, Mahwah, NJ, pp. 913-917, 2001.

30. F. Tao and F. Murtagh, "Towards knowledge discover from WWW log data", IEEE International Conference on Information Technology: Coding and Computing , Las Vegas, March 2000, pp. 302-307, 2000.

31. E. O'Shea, D. Banerjee, J.G. Doyle, B. Fleck and F. Murtagh, "Active region oscillations", forthcoming in Helio- and Asteroseismology at the Dawn of the Millennium, Special Publication SP-464, European Space Agency, 2000.

32. T. Daubos, Z. Geradts, J.L. Starck, J. Campbell and F. Murtagh, "Automated wavelet-based image addition: application to surveillance video", in P.F. Whelan, Ed., IMVIP'99 - Irish Machine Vision and Image Processing Conference 1999, Dublin City University, 15-25, 1999.

33. G. Zheng, J. Campbell and F. Murtagh, "Information fusion of model and observed data for missing data imputation in oceanography", in P.F. Whelan, Ed., IMVIP'99 - Irish Machine Vision and Image Processing Conference 1999, Dublin City University, 228-237.

34. F. Murtagh, J.L. Starck and M.W. Berry, "Constant-time clustering for high-dimensional data", in Proc. Japanese Classification Society Annual Meeting, 1999.3.20, Institute of Statistical Mathematics, Tokyo, 1-20, 1999.

35. F. Murtagh, "Data mining, statistics and data science", in ISM Symposium: Data Mining and Knowledge Discovery in Data Science, Y. Baba et al., Eds., Institute of Statistical Mathematics, 1-12, 1999.

36. M. Morehart, F. Murtagh and J.L. Starck, "Multiresolution spatial analysis", Proceedings Geo Computation 99.

37. F. Murtagh and J.L. Starck, "A new entropy measure based on multiple resolution and noise modeling", in D. Mehringer, R. Plante and D. Roberts, eds., ADASS'98, Astronomical Data Analysis and Software Systems VIII, Astronomical Society of the Pacific, 1999, 403-407.

38. D.R. Guillaume and F. Murtagh, "An application of XML and XLink using a graph-partitioning method and a density map for information retrieval and knowledge discovery", in D. Mehringer, R. Plante and D. Roberts, eds., ADASS'98, Astronomical Data Analysis and Software Systems VIII, Astronomical Society of the Pacific, 1999, 278-282.

39. Murtagh, F. and Guillaume, D., "Distributed information search and retrieval for astronomical resource discovery and data mining", in U. Grothkopf, H. Andernach, S. Stevens-Rayburn and M. Gomez, Eds., Library and Information Services in Astronomy III, Astronomical Society of the Pacific, Conference Series Vol. 153, 1998.

40. Murtagh, F. and Aussem, A., "Using the wavelet transform for multivariate data analysis and time series forecasting", in Data Science, Classification and Related Methods, C. Hayashi, H.H. Bock, K. Yajima, Y. Tanaka, N. Ohsumi and Y. Baba, eds., Springer-Verlag, 617-624, 1998.

41. Y. Bi and F. Murtagh, "The roles of statistical metadata and XML in structuring and retrieving statistical information", in Ph. Nanopolous, P. Garonna and C. Lauro, Eds., Proceedings NTTS'98, International Seminar on New Techniques and Technologies for Statistics, Eurostat, Luxembourg, 1998, pp. 73-78.

42. M. Morehart, F. Murtagh, J.-L. Starck and Y. Bi, "Spatial data analysis using the wavelet transform: representation of economic and financial measures in agriculture", in Ph. Nanopolous, P. Garonna and C. Lauro, Eds., Proceedings NTTS'98, International Seminar on New Techniques and Technologies for Statistics, Eurostat, Luxembourg, 1998, pp. 339-344.

43. F. Murtagh, G. Zheng, J. Campbell, A. Aussem, M. Ouberdous, E. Demirov, W. Eifler, M. Crepon, "Data imputation and nowcasting in the environmental sciences using clustering and connectionist modeling", Compstat'98, R. Payne and P. Green, Eds., Springer-Verlag, 1998, pp. 401-406.

44. F. Murtagh, A. Aussem, J.-L. Starck, J.G. Campbell and G. Zheng, "Wavelet-based decomposition methods for feature extraction and forecasting", in Proceedings OESI-IMVIP'98, Optical Engineering Society of Ireland and Irish Machine Vision and Image Processing Joint Conference, D. Vernon, Ed., NUI Maynooth, 1998, pp. 55-67.

45. J. Campbell, F. Murtagh and A. McCaughey, "DataLab-J: a Java based signal and image processing laboratory", J. Campbell, F. Murtagh and A. McCaughey, Proc. ISSC'98, Irish Signals and Systems Conference, DIT, Dublin, June 25-26, 1998.

46. F. Murtagh, J.-L. Starck and M. Berry, "Clustering based on wavelet transform: applications to point pattern clustering and to high-dimensional data analysis", in A. Rizzi, M. Vichi and H.-H. Bock, Eds., Advances in Data Science and Classification, (invited presentation, IFCS-98 International Federation of Classification Conferences Biennial Conference, Rome, 1998), Springer-Verlag, 57-64, 1998.

47. G. Zheng, S. Rouxel, A. Aussem, J. Campbell, F. Murtagh, M. Ouberdous, E. Demirov, W. Eifler and M. Crépon, "Forecasting of ocean state using satellite-sensor data", in Proceedings of the Ocean Data Symposium, Dublin 1997, B. Cahill, Ed., Irish Marine Data Centre, Marine Institute, 1998, abstract p. 23 of hardcopy book, full article on CD proceedings.

48. J.L. Starck, F. Murtagh, and R. Gastaud, "Entropy estimation from noise modeling applied to signal restoration", First International Conference on Information Communications and Signal Processing, Singapore, 9-12 September, 1997.

49. J.L. Starck, F. Murtagh and R. Gastaud, "Signal entropy estimation from noise modeling", in V. Di Gesù, M.J.B.Duff, A. Heck, M.C. Maccarone, L. Scarsi and H.U. Zimmermann, Eds., Data Analysis in Astronomy, (Proc. 5th Workshop, Ettore Majorana Centre for Scientific Culture, Erice, Italy, 27 October - 3 November 1996), 345-352, World Scientific, 1997.

50. J.G. Campbell, A.A. Hashim and F. Murtagh, "Flaw detection in woven textiles using space-dependent Fourier transform", In F.J. Owens, Ed., ISSC '97, Irish Signals and Systems Conference, University of Ulster, June 1997, pp. 241-252, 1997.

51. Starck, J.-L. and Murtagh, F., "High quality astronomical image compression", Vistas in Astronomy, 1997.

52. Wang, H., Bell, D. and Murtagh, F., "Feature subset selection based on relevance", Vistas in Astronomy, 1997.

53. Murtagh, F. and Sarazin, M., "Nowcasting astronomical seeing and forecasting telescope environment for the ESO VLT", in T. Subba Rao and M.B. Priestley, Eds., Applications of Time Series Analysis in Astronomy and Meteorology, Chapman And Hall, 1997, 320-328.

54. Lesteven, S., Poinçot, P. and Murtagh, F., "Neural networks and information extraction in astronomical information retrieval", Vistas in Astronomy, 40, 395-400, 1996.

55. Murtagh, F., Aussem, A. and Kardaun, O.J.K., "The wavelet transform in multivariate data analysis", COMPSTAT'96, A. Prat, Ed., Physica-Verlag, 1996, pp. 397-402.

56. Murtagh, F., Starck, J.-L., Honoré, P.F. and Zeilinger, W., "Multiresolution transforms for object detection and for image transmission", Vistas in Astronomy, 40, 595-602, 1996.

57. Accomazzi, A., Murtagh, F. and Rasmussen, B.F., "Information retrieval tools and techniques", Vistas in Astronomy, 39, 235-241, 1995.

58. Murtagh, F., "Computer networking in astronomy", in Databases and Online Data in Astronomy II, M. Albrecht and D. Egret, eds., Kluwer, Dordrecht, 235-241, 1995.

59. Murtagh, F., "Unsupervised catalog classification", in D. Shaw, H. Payne and J. Hayes, eds., Astronomical Data Analysis Software and Systems IV, Astronomical Society of the Pacific, 264-267, 1995.

60. Starck, J.-L., Murtagh, F. and Bijaoui, A., "Multiresolution and astronomical image processing", in D. Shaw, H. Payne and J. Hayes, eds., Astronomical Data Analysis Software and Systems IV, Astronomical Society of the Pacific, 279-288, 1995.

61. Starck, J.-L., Murtagh, F. and Louys, M., "Astronomical image compression using the pyramidal median transform", in D. Shaw, H. Payne and J. Hayes, eds., Astronomical Data Analysis Software and Systems IV, Astronomical Society of the Pacific, 268-271, 1995.

62. Murtagh, F., Zeiliger, W., Starck, J.-L. and Bijaoui, A., "Object detection using multiresolution analysis", in D. Shaw, H. Payne and J. Hayes, eds., Astronomical Data Analysis Software and Systems IV, Astronomical Society of the Pacific, 260-263, 1995.

63. Starck, J.-L., Murtagh, F. and Bijaoui, A., "Image restoration with noise suppression using a wavelet transform and a multiresolution support constraint", in Image Reconstruction and Restoration, SPIE Proceedings Vol. 2302, Eds. T.J. Schulz and D.L. Snyder, 1994, SPIE, Bellingham WA, pp. 132-143

64. Murtagh, "Classification: astronomical and mathematical overview", in H.T. MacGillivray et al. eds., Astronomy from Wide-Field Imaging, Proc. IAU Symposium 161, Kluwer, Dordrecht, 1994, 227-233.

65. Starck, J.-L., Murtagh, F. and Bijaoui, A., "Image restoration with denoising, using multiresolution", Proc. Image Restoration Workshop, R.J. Hanisch, ed., STScI, 111-117, 1994.

66. Murtagh, F., "Search algorithms for numeric and quantitative data", in A. Heck and F. Murtagh, eds., Intelligent Information Retrieval: The Case of Astronomy and Related Space Sciences, Kluwer, Dordrecht, 1993, 28-47.

67. Starck, J.-L. and Murtagh, F., "Richardson-Lucy image restoration with noise suppression based on the wavelet transform", 5th ESO/ST-ECF Data Analysis Workshop, 1993, 99-104.

68. Murtagh, F., "Prospects for content-based image retrieval", in P.J. Grosbøl and R.C.E. de Ruijsscher, Eds., 5th ESO/ST-ECF Data Analysis Workshop, 1993, 213-218.

69. Murtagh, F., "The multilayer perceptron for discriminant analysis: two examples", in M. Schader (ed.), Analyzing and Modeling Data and Knowledge, Springer-Verlag, 305-314, 1992.

70. Murtagh, F., "A feature-based $O(n^2)$ approach to point pattern matching", Proc. 11th International Conference on Pattern Recognition, Vol. II, IEEE Computer Society Press, New York, 174-177, 1992.

71. Ortolani, S. and Murtagh, F., "Stellar photometry on HST images: C-M diagrams", in P. Benvenuti and E. Schreier, Eds., Science with the Hubble Space Telescope, European Southern Observatory, Garching, 1992, 437-442.

72. Murtagh, F., Sarazin, M. and Adorf, H.-M., "Using ancillary data to improve astronomical observing: forecasting of telescope thermal environment and of seeing", in A. Heck and F. Murtagh (Eds.), Astronomy from Large Databases II, European Southern Observatory, Garching, 1992, 393-398.

73. Murtagh, F. and Feigelson, E.D., "A short review of sources of public domain software", in D. Worrall, C. Biemesderfer and J. Barnes, Eds., Astronomical Data Analysis Software and Systems I, 1992, 49-51.

74. Murtagh, F. and Baade, D., "Quantifying the information or relevance of a spectrum", in P.J. Grosbøl and R.C.E. de Ruijsscher, Eds., 4th ESO/ST-ECF Data Analysis Workshop, European Southern Observatory, Garching, 1992, 83-90.

75. Adorf, H.-M., Hook, R.N., Lucy, L., and Murtagh, F., "Accelerating the Richardson-Lucy restoration algorithm", in P.J. Grosbøl and R.C.E. de Ruijsscher, Eds., 4th ESO/ST-ECF Data Analysis Workshop, European Southern Observatory, Garching, 1992, 99-103.

76. Murtagh, F., Sarazin, M., and Adorf, H.-M., "Prediction of telescope thermal environment and astronomical seeing", in M.-H. Ulrich, Ed., Progress in Telescope and Instrumentation Technologies, European Southern Observatory, Garching, 1992, 377-380.

77. Murtagh, F. and Adorf, H.-M., "Detecting cosmic ray hits on HST WF/PC images using neural networks and other discriminant analysis approaches", in V. Di Gesù, L. Scarsi, R. Buccheri, P. Crane, M.C. Maccarone and H.U. Zimmermann (eds.) Data Analysis in Astronomy IV, Plenum Press, New York, 103-111, 1992.

78. Murtagh, F. and Adorf, H.-M., "Detecting cosmic ray hits on HST WF/PC images", in P. Grosbol et al. (eds.), 3rd ESO/ST-ECF Data Analysis Workshop, European Southern Observatory, 1991, 51-56.

79. Murtagh, F., "A short survey of neural networks for forecasting and related problems", in F. Murtagh, Ed., Neural Networks for Statistical and Economic Data, proceedings, Statistical Office of European Communities, Luxembourg, 1991, 87-93.

80. Murtagh, F., "Analyzing Hubble Space Telescope Data", The Irish Astronomical Journal, 20, 184-187, 1992.

81. Murtagh, F., "Multivariate analysis", in R.A. Vaughan (ed.), Pattern Recognition and Image Processing in Physics, Adam Hilger, Bristol, pp. 167-204, 1991.

82. Murtagh, F., "Linear regression with errors in both variables: a short review", in C. Jaschek and F. Murtagh (eds.), Errors, Bias, and Uncertainties in Astronomy, Cambridge University Press, Cambridge, 1989, pp. 385-391.

83. Ortolani, S. and Murtagh, F., "Comparison of photometric packages", in P. Grosbøl, F. Murtagh and R.H. Warmels (eds.), Proceedings, 1st ESO/ST-ECF Data Analysis Workshop, European Southern Observatory, Garching, 11-17, 1989.

84. Murtagh, F. and Warmels, R.H., "Test image descriptions", in: P. Grosbøl, F. Murtagh and R.H. Warmels (eds.), Proceedings, 1st ESO/ST-ECF Data Analysis Workshop, European Southern Observatory, Garching, 3-10, 1989.

85. Murtagh, F., "Neural network algorithms and multivariate data analysis methods: a short comparison", in: A. Heck (ed.), Artificial Intelligence Techniques for Astronomy, Strasbourg Observatory, 23-39, 1989.

86. Adorf, H.-M. and Murtagh, F., "Clustering based on neural network processing", in: D. Edwards and N.E. Raun (eds.), COMPSTAT 1988, Physica-Verlag, Heidelberg, 1988, pp. 239-244.

87. Murtagh, F., Heck, A. and Rampazzo, R., "Classification of IUE spectra: a rule based approach", in: A. Heck and F. Murtagh, Knowledge-Based Systems in Astronomy, Springer-Verlag, Heidelberg and New York, 1989, 161-167.

88. Murtagh, F., "Multivariate analysis", in: D. Benest (ed.), Traitement de l'Information: Méthodes et Concepts, SFSA, Paris, 1989, 119-139.

89. Murtagh, F., "Multivariate analysis methods", in G. Longo and G. Sedmak (eds.) Acquisition, Processing and Archiving of Astronomical Images, OAC-FORMEZ, Naples, 1990, pp. 255-270.

90. Murtagh, F., "Scientific databases: a review of current issues", Strasbourg Data Centre Bulletin, No. 34, 1988, pp. 3-33.

91. Rampazzo, R., Heck, A., Murtagh, F. and Albrecht, R., "Rule based classification of IUE spectra", in: F. Murtagh and A. Heck (eds.), Astronomy from Large Databases, European Southern Observatory, Garching, 1988, pp. 227-232.

92. Ponz, D. and Murtagh, F., "MIDAS tables: present status and future evolution", in: F. Murtagh and A. Heck (eds.), Astronomy from Large Databases, European Southern Observatory, Garching, 1988, pp. 441-446.

93. Murtagh, F., "A cluster-based strategy for determining nearest neighbours", in: Classification as a Tool of Research, W. Gaul and M. Schader (eds.), North-Holland, Amsterdam, 339-344, 1986.

94. Murtagh, F., "Multivariate statistics in astronomy", COMPSTAT 1986, Short Communications and Posters, Università "La Sapienza", Rome, 304, 1986.

95. Murtagh, F. and Ponz, D., "Multivariate data analysis in astronomy", Proceedings of Fourth International Symposium on Data Analysis and Informatics, INRIA, Versailles, 41-44, 1985.

96. Murtagh, F., "A review of fast techniques for nearest neighbour searching". In Havranek et al. (eds.), COMPSTAT 84, Physica-Verlag, Vienna, 143-147, 1984.

97. Murtagh, F., "An empirical study of coefficients for measuring the structure of hierarchic classifications". In Diday et al. (eds.), Data Analysis and Informatics III, Elsevier, Amsterdam, 385-393, 1984.

98. Murtagh, F., "Une théorie probabiliste de la classification hiérarchique", in Ch. Perruchet (Ed.), Actes des Journées de Classification, CNET, Paris, 337-348, 1983.

99. Murtagh, F., "Deriving a partition from a dendrogram: a combinatorial approach". In Caussinus et al. (eds.), COMPSTAT 82, Part 2, Physica-Verlag, Vienna, 199-200, 1982.

100. Murtagh, F., "Fondements théoriques de la classification ascendante hiérarchique sous contrainte de contiguïté", in I.C. Lerman, Ed., Actes des Journées de Classification, IRISA, Rennes, 177-191, 1982.

101. Murtagh, F., "Verifying examination results: a general approach", SIGCSE Bulletin 14, 2-11, 1982.

4.6 Book Reviews, Other Reviews

1. Murtagh, F., Discussion of: Treelets – an adaptive multi-scale basis for sparse unordered data, Annals of Applied Statistics, 2, 472–473, 2008.

2. Murtagh, F., review of: Brigitte Le Roux and Henry Rouanet, Geometric Data Analysis, From Correspondence Analysis to Structured Data Analysis, Kluwer, Dordrecht, 2004, Journal of Classification, 25, 137-141, 2008.

3. Murtagh, F., review of Multiple Correspondence Analysis and Related Methods, by M. Greenacre and J. Blasius, Psychometrika, 72, 275–277, 2007.

4. Murtagh, F. and Farid, M., review of book Pattern Classification by R.O. Duda, P.E. Hart and D.G. Stork, for Journal of Classification, 18, 273–275, 2001.

5. Murtagh, F., review of book Integration of Natural Language and Vision Processing, Vol. IV, Recent Advances, P. Mc Kevitt, ed., Kluwer, 1996, in Metascience, 7, 483-485, 1998.

6. Murtagh, F., review of book Machine Learning, Neural and Statistical Classification, D. Michie, D.J. Spiegelhalter and C.C. Taylor, eds., Ellis Horwood, in Journal of Classification, 14, 185-188, 1997.

7. Murtagh, F., review of book Pattern Recognition: Statistical, Structural and Neural Approaches, R. Schalkoff, Wiley, 1992, in Journal of Classification, 9, 1992, 302-304.

8. Murtagh, F., review of books Adaptive Pattern Recognition and Neural Networks, Y.-H. Pao, Addison-Wesley, 1989, and M. Zeidenberg, Neural Networks in Artificial Intelligence, Ellis Horwood, 1990, in Journal of Classification, 8, 115-119, 1991.

9. Murtagh, F., review of book Parallel Processing and Artificial Intelligence, M. Reeve and S.E. Zenith (eds.), Wiley, 1989, in Journal of Classification, 7, 151-152. 1990.

10. Murtagh, F., review of Three-Way Scaling and Clustering, P. Arabie, J.D. Carroll and W. DeSarbo, Journal of the American Statistical Association, 86, 252.

11. Murtagh, F., review of book Data, Expert Knowledge and Decisions, W. Gaul and M. Schader (eds.), Springer-Verlag, 1988, in Journal of Classification, 6, 129-132, 1989.

12. Murtagh, F., Review of book Combinatorial Heuristic Algorithms with Fortran, Springer-Verlag, 1986 in Journal of Classification, 5, 1988, 138-139.

13. Murtagh, F., Review of book Cluster Dissection and Analysis: Theory, Fortran Programs, Examples (H. Späth, Ellis Horwood), Biometrics, 42, 224, 1986

4.7 Miscellaneous Publications and Editorships

1. F. Murtagh, "Irish contributions to international science", In: Science and Ireland - Value for Society, Ed. Charles Mollan, Royal Dublin Society, pp. 259-278, 2005.

2. Editorials, Computer Journal: vol. 41, p. 517, 1998; vol. 43, p. 251, 2000; vol. 45, p. 259, 2002; vol. 46, p. 227, 2003; vol. 49, pp. 134–135, 2006; 51, 612–614, 2008.

3. Webmaster of an early web site spanning two continents – Europe and South America – established and run from the late summer of 1993 at the European Southern Observatory, www.eso.org. (Note: the Mosaic browser was released in early 1993.)

4. First editor, Newsletter of International Federation of Classification Societies. Issues 1 to 8, Autumn 1991 to Spring 1994.

5. Editor, Software Column, CSNA Newsletter, quarterly newsletter of Classification Society of North America. Approx. 1988-1992.