

# Curriculum vitæ

Alain BRETTO

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## Personal

Professor of Computer Science

### Professional address :

University of Caen

Computer Science department

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### Personal address :

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## Education

HABILITATION THESIS. Computer Science, University of Saint-Etienne, 2000.

PHD., (Computer Science & Applied Mathematics), Paris VI and University of Saint-Etienne.

Supervisors C. Berge and B. Laget, 1995.

MASTER OF SCIENCE (Computer Science & Applied Mathematics) Paris VI. Supervisor C. Berge, 1992.

## Professional Appointments

Jan.10-Aug.10	Visiting Researcher, Telecom-ParisTech, (France).
Ap.09-Jul.09	Visiting Researcher, Northern Kentucky University, (USA).
Dec.07-	Head of the algorithmic team.( <a href="http://www.greyc.unicaen.fr/equipes">http://www.greyc.unicaen.fr/equipes</a> )
Ap.07-Ju.07	Visiting Researcher, Northern Kentucky University, (USA).
Sept.2002-	Professor of Computer Science, University of Caen.
Dec.2002-Jan.2008	Chairman of the Computer Science Department (about 100 people and 420 Students), University of Caen. <a href="http://www.info.unicaen.fr">http://www.info.unicaen.fr</a>
Sept.1998-Sept.2002	Associate Professor of Computer Science and Mathematics, University of Saint-Etienne.
Sept.1994-Sept.1998	Assistant Professor of Computer Science and Mathematics, University of Saint-Etienne.

## Scientific Activities

Graphs and Hypergraphs Theory : Algebraic and Topological Aspects of Graph Theory, Geometrical Aspect of hypergraph Theory : Applications to Computer Vision and Image Proces-

sing. Data Compression

1996-2002 Leader of the Combinatorial Image Processing Team. University of Saint-Étienne.

## Teaching Activities

- 2007- Computer security : Master of Science (Computer Science).
- 2007- Algorithmic : Undergrade in Computer Science.
- 2004-2007 Compilation and compilers : Master of Science (Computer Science).
- 2002- Hypergraph Theory, Application to Image Processing :  
Master of Science (Computer Science).
- 2002- Data Codage and Data Compression : Master of Science (Computer Science).
- 2002- 2004 Introduction to C++ : Undergrade in Computer Science.
- 2000-2002 Mathematics for Computer Science : Grade in Computer Science.
- 1998-2002 Complexity Theory : Master of Science (Computer Science).
- 1998-2002 Algorithms of the Graph Theory : Grade in Computer Science.
- 1997-2001 Graph Theory : Grade in Mathematics.
- 1994-1998 Operational Research : Master of Science (Computer Vision).
- 1994-1998 General Computer Science : Grade in Computer Vision.
- 1994-1998 Mathematics for Signal Processing : Conservatoire National des Arts et Métiers,  
Centre de Saint-Etienne.

## Supervision of students

### Past Ph.D. Students

- S. Chastel. Ph.D. Computer Vision, University of Saint-Étienne.  
Contribution to the Hypergraph Theory to the Digital Image Processing.  
Completion : November 2001.
- F. Rania. Ph.D. Applied Mathematics and Computer Science, University of Messina  
(Italy).  
**Collaboration with Professor E. M. Li Marzi and Professor J. F. Lofaro.**  
Topology and convex geometry, application to Image Processing.  
Completion : January 2003.
- S. Rital. Ph.D. Computer and Signal Processing University Mohammed V Rabat, Ma-  
rocco.  
**Collaboration with Professor D. Aboutajdine and Professor H. Cherifi .**  
Hypergraph Theory and Image Processing.  
Completion : July 2004.
- L. Gillibert. Ph.D. Computer Science, University of Caen, France.  
Geometrical Aspect of groups and Images : G-graphs and Compression by Hypergraphs.  
Completion : December 2006.
- C. Hebert. Ph.D. Computer Science, University of Caen, France.  
Combinatorial Data Mining : Combinatorial Aspect.  
Completion : September 2007.

## Current Ph.D. Students

- Y. Silvestre. Ph.D. Computer Science, University of Caen, France. Hypergraph Theory and Sandwich Problem.
- C. Jaulin. Ph.D. Computer Science, University of Caen, France. G-graphs and interconnexion networks.
- A. Ducournau. Ph.D. Computer Science, University of Saint-Etienne, France. Hypergraphs and image analysis.

## Student Ph.D. Committees

- B. Chamaret. Ph.D. Computer Science, University of Saint-Étienne. Planification For Cellular Networks. April 1999.
- A. Lasfar. Ph.D. Computer Science and Signal Processing, University Mohammed V Rabat, Marocco. Image Indexation and Fractal Compression. September 1999.
- A. El Oirrak. Ph.D. Computer Science and Signal Processing University Mohammed V Rabat, Marocco. Objets Recognition Using Movement Estimation in the Affin Case. September 1999.
- T. Vallée. Ph.D. Mathematic and Computer Science, University Paris VII, Denis Diderot. Map theory and antifondation. December 2001.
- F. Chavanon. Ph.D. Mathematic and Computer Science, Ecole Normale Supérieure de Lyon. Combinatorial Aspect of Tiling. December 2004.
- L. Lyaudet. Ph.D. Mathematic and Computer Science, Ecole Normale Supérieure de Lyon, (As Chair of the Jury). Graphs and hypergraphs : algorithmic and algebraic complexity. December 2007.
- S. S. Gornale. Ph.D. Computer Science, University of Pune, Pune Maharashtra-India, (As referee). Development of compression technique for noisy image : A Multi-walvet Approach. January 2008.

## Master Student Supervisor

- D. Crier. Master of Computer Science, University of Caen. **Collaboration with the French company Silog.** How to pass to a structure of technological objects to a structure of business objects. 2008-2009.
- A. Ducournau. Master of Computer Science, University of Caen. **Collaboration with S. Rital, Telecom-ParisTech.** A topological and algebraic approach of hypergraphs partitioning : application to automatic segmentation of images. 2008-2009.
- Y. Silvestre. Master of Computer Science, University of Caen. Sandwich Problems in Hypergraph and Applications. 2006-2007.
- G. Nee. Master of Computer Science, University of Caen. Audio Compression by Hypergraphs. 2005-2006. **Collaboration with S. Fourey.**

- Y. Pitrey-Helpiquet. Master of Computer Science, University of Caen. Hypergraph Lossless Image Compression Using Quadrees. 2005-2006.
- J. D. Leroy. Master of Computer Science, University of Caen. Algorithmic Problem in the Sandwich Hypergraph Problems. 2003-2004.
- T. Dieng. Master of Computer Science, University of Caen. Hypergraph Theory and Engineering Problems. 2003-2004.
- L. Gillibert. Master of Computer Science, University of Caen. Computational and Graphical Aspect of the Group Theory, 2002-2003.
- C. Cannatelli. Tesi di Laurea, (Italian Master) University of Messina. **Collaboration with Professor E. M. Li Marzi.** Aspetti Topologici della Teoria dei Grafi (Topological Aspect of the Graph Theory), 2001-2002.
- C. S. Ripepi. Tesi di Laurea, (Italian Master) University of Messina. **Collaboration with Professor E. M. Li Marzi.** Grafi Bipartiti e loro Topologie Compatibili, (Compatible Topologies on Bipartite Graph, 2001-2002.
- S. Rital. Master of Computer Science and Signal Processing, University Mohammed V Rabat, Marocco. Hypergraph and Image Processing : Application to the Edge Detection, . 1998-1999.
- M. Elhassouni. Master of Computer Science and Signal Processing, University Mohammed V, Rabat, Marocco. Hypergraph and Image Processing : Application to The Noise Detection, 1998-1999.
- J. Wisson. Master of Computer Vision, University Jean Monnet, Saint-Étienne. Hypergraph Partition : Application to Image Segmentation. 1995-1996.

## Research Grants.

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| 1997-1999 | ACTIV PROJECT, Rhône-Alpes Area Grant. “Probability and Combinatoric : Applications to Image Processing.”           |
| 1999-2002 | TEMPRA PROJECT, France-Slovakia Grant. “Computational Number Theory, Combinatorics : Applications to Cryptography”. |
| 2003-2006 | STEPHANIK PROJECT, France-Slovaquia Grant. “ Graphs and Density Theory : Applications to telecommunications”.       |

## Conference Program Committees.

- 1999 Member, Program Committee,  
5th International Mediterranean Workshop in Combinatorics and Computer Sciences,  
November 07-10, Messina Italy.
- 2000 Member, Scientific Committee,  
International Conference ISCIV, 17-20 April Rabat Marocco.
- 2001 Member, Scientific Committee,  
6th International Mediterranean Workshop in Combinatorics and Computer Sciences,  
April 10-13, Messina Italy.
- 2002 Member, Program Committee,  
Workshop in Theoretical Computer Science, May 20-23, Saint-Etienne, France.
- 2005 Organization of the special session :  
Computational algebraic structures and engineering applications,  
11th International on Applications of Computer Algebra, July 31-August 3, 2005,  
Nara Women's University, Nara, Japon.
- 2005 Member, Program Committee,  
VISAPP 2006 : International Conference on Computer Vision Theory  
and Applications, (<http://www.visapp.org/>).
- 2007 Member, Program Committee,  
International Conference on Advances in Computer Vision and Information Technology  
(28-30 November 2007) Aurangabad India <http://www.acvit.org/>
- 2007 Member, Program Committee,  
FCS'07- The 2007 International Conference on Foundations of Computer Science  
Monte Carlo Resort, Las Vegas, Nevada, USA (June 25-28, 2007)  
<http://www.world-academy-of-science.org/worldcomp07/ws/FCS07/>
- 2008 Member, Program Committee,  
ITNG 2008 : International Conference on Information Technology,  
New Generation.  
April 7-9, 2008, Las Vegas, Nevada, USA
- 2009 Member, Program Committee,  
2009 World Congress on Computer Science and Information Engineering  
(CSIE 2009).  
March 31 - April 2, 2009 Los Angeles/Anaheim, USA.
- 2010 Member, Program Committee,  
ITNG 2010 : International Conference on Information Technology,  
New Generation.  
April 12-14,, 2010, Las Vegas, Nevada, USA
- 2011 Member, Program Committee,  
ICAEEEE-2011 : International Conference on Advances in Electrical  
Electronics Engineering (ICAEEEE-2011),  
(February 25-26, 2011) MIT Moradabad, India,  
<http://aspspider.ws/icaeee2011/>

## Society Review, Journal Referees and Activities of Associate Editor.

### PROFICIENT

2000-2009

EUROPEAN MATHEMATICAL SOCIETY.

2007-2009

AMERICAN MATHEMATICAL SOCIETY.

### REFEREE ACTIVITIES

2000-

Referee, PATTERN RECOGNITION.

2002-

Referee, PATTERN RECOGNITION LETTERS.

2002-

Referee, THEORETICAL COMPUTER SCIENCE.

2003-

Referee, CVGIP : IMAGE UNDERSTANDING.

2003-

Referee, INFORMATION SCIENCES JOURNAL.

2004-

Referee, INFORMATION PROCESSING LETTERS.

2006-

Referee, DISCRETE APPLIED MATHEMATICS.

2009-

Referee, INTERNATIONAL JOURNAL OF COMPUTER VISION.

2009-

Referee, PROCEEDINGS MATHEMATICAL SCIENCES,  
INDIAN ACADEMY OF SCIENCES.

### ASSOCIATE EDITOR ACTIVITIES

2009-

Associate editor : INFORMATION SCIENCES JOURNAL.

## Expertise Activities

2008- Expert to the French Ministry of Higher Education and Research, (International Folders).

2009- Expert to the National Science Foundation, (USA).

## Visiting Professor

**Trinity College (Ireland)** : Computer Science Department (November 1997).

**University of Ljubljana (Slovenia)** : Institut of Mathematic, Physic and Mecanic. Theoretical Computer Science Group. (December 1998, December 1999, December 2000.)

**University Mohammed V (Maroc)** : Laboratory of Computer Science and Signal Processing (September 1999, March 2000, February 2001).

**University Messina (Italy)** : Mathematic and Computer Science Department. (November 1999, September-October 2000, January 2001, September 2001, May 2002, January-February 2003, June 2004, October 2005, September 2006, October 2008).

**University of California, Irvine (USA)** : Neurosciences Department . (Juillet-August 2000).

**Slovak Academy of Sciences**, (April 2004).

**University College of Cork, (Ireland)**, CEOL,

([http://www.ceol.ucc.ie/index\\_files/collaborations.htm](http://www.ceol.ucc.ie/index_files/collaborations.htm)), (May 2005).

**University of California, Irvine (USA)** : Institute for Mathematical Behavioral Sciences, Department of Cognitive Sciences. (February-June 2006).

## Invited Talks

**University Messina, (Italy)** : Advanced Courses : Topology and Algebraic Aspect of the Graph Theory, Ph.D. School of Mathematic and Computer Science. (November 1999, September-October 2000, January 2001, September 2001, May 2002, January-February 2003, June 2004).

**Academia Peloritana dei Pericolanti, (Sicily)** : Classe di scienze fisiche matematiche e naturali

“ A Mathematical Morphological Approach of Combinatorial Geometry”. (November 1999).

**Comenius University, (Slovakia)**. “A New Graphical Representation of a Group.” (April 2004).

**Illinois Institute of Technology, The Department of Applied Mathematics at IIT, (U.S.A.)**. “Combinatorial aspects of image processing.” (February 2006).

[http://www.math.iit.edu/past\\_events/spring06/sem\\_coll\\_Spring2006.html](http://www.math.iit.edu/past_events/spring06/sem_coll_Spring2006.html)

**Institute of Mathematics, The Department of Applied Mathematics at Université P. Sabatier, (France)**. “Combinatorial topology.” (February 2008).

**ACVIT2009 conference, (India)**.

<http://www.acvit.org>

“Key note speaker.” (December 2009).

**ICAEEE-2011 conference, (India)**.

<http://aspspider.ws/icaeee2011/>

“Key note speaker.” (February 2011).

## Publications

### Book

- [1] A. Bretto. Introduction to Hypergraph Theory and their Use in Engeneering and Image Processing. *Advances in Imaging and Electron Physics.(Mongraphic Serie)* Academic Press. Vol. 131, Mars 2004.
- [2] A. Bretto, A. Faisant and P. Toffin, Elements de Théorie des Graphes. *Springer, To Appear in Spring 2010, 450 pages,*

### Book Chapters

- [1] A. Bretto, Digital Topologies on Graphs, *In Applied Graph Theory in Computer Vision and Pattern Recognition*, A. Kandel, H. Bunke, and M. Last Editors, Springer-Verlag Publisher, series : Studies in Computational Intelligence **Vol. 51** (2007), February, ISBN-10 : 3-540-68019-5, ISBN-13 : 978-3-540-68019-2

### Journal Articles

- [1] A. Bretto and T. Vallée A new clique-covering sufficient condition for hamiltonicity of graphs. *Information Processing Letters* ,**Vol. 109**, Issue 20, Pages 1156-1160, (September 2009) .

- [2] A. Bretto and L. Gillibert. Hypergraphs for Multi-dimensional Lossless Image Compression. *Fundamenta Informaticae*, **Vol. 91**, Issue 3-4, Pages 533-546(2009).
- [3] A. Bretto and L. Gillibert. G-Graphs : an efficient tool for constructing symmetric and semi-symmetric graphs. *Discrete Applied Mathematics*, **Vol. 156**, Issue 14, 28 July 2008, Pages 2719-2739(2008).
- [4] A. Bretto, A. Faisant and L. Gillibert. A New Upper Bound for the (p,6) and the (p,8)-Cage. *To appear in The Electronic Journal of Combinatorics*, 2008.
- [5] C. Hebert, A. Bretto and B. Cremilleux. A data mining formalization to improve hypergraph minimal transversal computation, *Fundamenta Informaticae*, **Vol. 80(4)**, (2007), 415-433.
- [6] A. Bretto, A. Faisant and L. Gillibert. G-graphs : A new graphical representation of groups. *Journal of Symbolic Computation*, **Vol. 42**, Issue 5, (2007), 549-560.
- [7] A. Bretto, A. Faisant and T. Vallée Compatible topologies on graphs : An application to graph isomorphism problem complexity *Theoretical Computer Science*, **Vol 362**, (2006), 255-272.
- [8] A. Bretto. Hypergraphs and the Helly Property. *Ars Combinatoria*, **Vol 78**, January 2006, 23-32.
- [9] P. Y. Bischoff and A. Bretto. 3-dimensional zerotree for wavelet image compression. *Int. J. Comput. Numer. Anal. Appl.* 2 (2002), no. 4, 401–412.
- [10] A. Bretto and E. M. Li Marzi and F. Rania. Some latticial and convex aspects of mathematical morphology. *Rendiconti del Circolo Matematico di Palermo*, **70(1)**, (Ser. II) :121–134, 2002.
- [11] A. Bretto and A. Faisant. Topologies on bipartite graphs. *Rendiconti del Seminario Matematico di Messina.*, Serie II (8) :11–18, 2002.
- [12] A. Bretto. Modélisation d’image par hypergraphe de polyominos valués. *Rendiconti del Seminario Matematico di Messina.*, Serie II (7) :1–6, 2002.
- [13] A. Bretto, S. Ubéda, and J. Žerovnik. A polynomial algorithm for the strong helly property. *Information Processing Letters*, 81(1) :55–57, Janvier 2002.
- [14] S. Rital and A. Bretto and D. Aboutajdine and H. Cherifi A combinatorial based technique for impulsive noise removing in images. *Intenational Journal of Image Processing and Communication* **Vol. 7**, N 3-4, 115–129, 2001.
- [15] A. Bretto, H. Cherifi, and D. Aboutajdine. Hypergraph imaging : an overview. *Pattern Recognition*, 35(3) :651–658, 2001.
- [16] A. Bretto and E. M. Li Marzi. Mathematical morphology and poset geometry. *International Journal of Mathematics and Mathematical Sciences*, 28 :8, 447–453, 2001.
- [17] A. Bretto. Comparability graphs and digital topology. *Computer Vision, Graphic and Image Processing (Image Understanding)*, 82 :33–41, 2001.
- [18] A. Bretto and B. Laget. Helly type theorems and graphs. *Rendiconti del Circolo Matematico di Palermo*, 65(Ser. II) :59–65, 2000.
- [19] A. Bretto. Some geometrical and topological aspects of graph theory. *Rendiconti del Seminario Matematico di Messina*, II(5) :15–29, 1999.
- [20] A. Bretto. A note on intersecting graphs. *Southwest journal of pure and applied mathematics*, 2 :61–67, 1999.



- [21] A. Bretto and B. Laget. Helly property associated with the discrete planes. *Southwest journal of pure and applied mathematics*, 1 :56–63, Juillet 1998.
- [22] A. Bretto, J. Azema, H. Cherifi, and B. Laget. Combinatoric and image processing. *Computer Vision, Graphic and Image Processing (Graphical Model and Image Processing)*, 59(5) :128–132, Septembre 1997.
- [23] A. Bretto and A. Faisant. Cayley graphs and G-graphs : some applications.. *Submitted to Journal of Symbolic Computation*, decembre 2008.
- [24] A. Bretto and T. Vallée. Hamiltonian clique covering. *Submitted to Discrete Applied Mathematics*, Avril 2010.

## Invited Publications

- [1] A. Bretto, L. Gilibert. Hypergraph-based Image Representation. *5th IAPR -TC-15 Workshop on Graph-based Representations in Pattern Recognition*, April 11-13, 2005 Poitiers (France). Lecture Notes in Computer Science, Volume 3434, (ISBN : 3-540-25270-3), (2005), p. 1-11.
- [2] A. Bretto. Algorithms for Helly Property Recognition in Hypergraph. Applications to Image Analysis.. *Tenth International Colloquium on Numerical Analysis and Computer Sciences with Applications*, Plovdiv 12-17, Hungaria August 2001, 5–8, 2001.
- [3] A. Bretto and S. Chastel. A Note on Valued Polyominoes Hypergraph Image Modeling. *International Journal of Computational and Numerical Analysis and Applications*. 1, 1 : 2002.
- [4] A. Bretto, E. M. Limarzi and F. Rania. Combinatorial Convexity and Mathematical Morphology. *estrato da : Atti Della Accademia Peloritana dei Pericolanti, Classe di Scienze Fisiche, Matematiche e Naturali*, Voll. LXXVI-LXXVII, Edizioni Scientifiche Italiane, (1998-1999) p 162-168.
- [5] A. Bretto. Categorical Image Analysis. *Discrete and Continuous Dynamical Systems Journal*, En préparation.

## International Refereed Conferences

- [1] A. Bretto, A. Ducournau, and S. Rital. A Hypergraph Reduction Algorithm for Joint Segmentation and Classification of Satellite Image Content, *15th Iberoamerican Congress On Pattern Recognition*, São Paulo, SP, Brazil, in November 08-11,2010.
- [2] A. Ducournau, S. Rital, A. Bretto, and B. Laget. Hypergraph Coarsening for Image Superpixelization, *International Symposium on Image/Video Communications*. September 30, Rabat, October 1-2,2010
- [3] A. Ducournau, S. Rital, and A. Bretto. A Hypergraph-Based Image Database Clustering Framework, *International Symposium on Image/Video Communications*. September 30, Rabat, October 1-2, 2010
- [4] A. Bretto and Y. Silvestre, Factorization of Cartesian Products of Hypergraphs, *Computing and Combinatorics, 16th Annual International Conference, COCOON 2010, Nha Trang, Vietnam, July 19-21, 2010. Proceedings, ((COCOON2010),Springer,Lecture Notes in Computer Science, Vol. 6196, (2010),173-181.*

- [5] Aurelien Ducournau, Sofiane Rital, Alain Bretto ; A multilevel spectral hypergraph partitioning approach for color image segmentation, *International Conference on Signal and Image Processing Applications (ICSIPA)*, IEEE International Conference on Signal and Image Processing Applications (ICSIPA), Kuala Lumpur in Malaysia,, 18-19 Sept.,2009 in IEEE Computer Science, (2010), 419 - 424,  
Digital Object Identifier : 10.1109/ICSIPA.2009.5478690.
- [6] , Alain Bretto, Yannick Silvestre, Thierry Vallée, Cartesian product of hypergraphs : properties and algorithms, *E. Markakis, I. Milis (Eds.) : 4th Athens Colloquium on Algorithms and Complexity (ACAC 2009)* EPTCS 4, 2009, pp. 22-28, doi :10.4204/EPTCS.4.3.
- [7] Alain Bretto, Cerasela Jaulin, Luc Gillibert and Bernard Laget, A New Property of Hamming Graphs and Mesh of d-ary Trees, *Computer Mathematics, 8th Asian Symposium, ASCM 2007, Singapore, December 15-17, 2007.*, Springer, Lecture Notes in Computer Science, **5081**, 2008, ISBN 978-3-540-87826-1, (2008), 139-150.
- [8] A. Bretto, T. Vallee. Hamiltonicity of Simplicial-Connected Graphs : an Algorithm Based on Clique Decomposition. *International Conference on Information Technology : New Generations (ITNG 2008)* Las Vegas, Nevada, USA April 7-9, 2008, IEEE Computer Society Order Number P3099, Library of Congress Number 2008923247, ISBN 978-0-7695-3099-4 (2008), pp. 904-909.
- [9] A. Bretto, C. Jaulin, K. G. Kirby and B. Laget. G-Graphs and Algebraic Hypergraphs. *IV Latin-American Algorithms, Graphs and Optimization Symposium, (LAGOS'07)*, Puerto Varas, Chile, November 25-29, 2007, Electronic Notes in Discrete Mathematics, **Vol. 30**, (2008), 153-158.
- [10] A. Bretto, L. Gillibert. G-graphs For The Cage Problem : A New Upper Bound. *International Symposium on Symbolic and Algebraic Computation (ISSAC'07)*, Davis Centre at the University of Waterloo in Waterloo, Ontario, Canada, July 29-August 1, 2007, ACM press, C. W. Brown Editor. ISBN :978-1-59593-743-8, 2007, p 49-53.
- [11] C. Hebert, A. Bretto and B. Cremilleux. Optimizing Hypergraph Transversal Computation with an Anti-Monotone Constraint *The 22nd Annual ACM Symposium on Applied Computing COEX Convention Center Seoul, Korea, March 11 - 15, 2007* ACM Publisher.
- [12] L. Gilibert, A. Bretto. Hypergraphs for Near-lossless Volumetric Compression” *International Conference on Information Technology : New Generations (ITNG 2007)*, Las Vegas, Nevada, USA April 2-4, 2007, IEEE Computer Society, ISBN 978-0-7695-2776-5, pp 229-233
- [13] L. Gillibert, A. Bretto. Near-lossless 3D-image Compression Using Hypergraphs. *Data Compression Conference (DCC'06)*, Snowbird, Utah, USA, March 28 - 30, 2006, IEEE Computer Society Press, 450.
- [14] A. Bretto, L. Gillibert. Symmetry and Connectivity in G-graphs. *International Colloquium on Graph Theory, (ICGT'05)*, Giens, France Spetember 12-16, 2005, Electronic Notes in Discrete Mathematics Vol. 22(2005), 481-486.
- [15] A. Bretto, L. Gillibert and B. Laget. Symmetric and Semisymmetric Graphs Construction Using G-graphs. *International Symposium on Symbolic and Algebraic Computation (ISSAC'05)*, Key Laboratory of Mathematics Mechanization, Chinese Academy of

- Sciences, Beijing, China, July 24-27, 2005, ACM press, M. Kauers Editor. ISBN :1-59593-095-7, 2005, p 61-67.
- [16] A. Bretto, L. Gillibert. Hypergraph Lossless Image Compression. *International Conference on Information Technology (ITCC 2005)*, Las Vegas. IEEE Computer Society, 4-6 April, 2005, volume 1 46-50.
- [17] A. Bretto, B. Laget. A New Graphical Graphical and Computational Representation of Groups. *Tenth International Conference on Applications of Computer Algebra.(ACA-2004)*, Beaumont, USA, 23-25 July 2004. National Science Foundation, (NSF), 2004 25-32, (ISBN : 0-9759946-0-3).
- [18] A. Bretto, L. Gillibert. Graphical and Computational Representation of Groups. *Fourth International Conference in computer Science.(ICCS'2004)*, *Computer Algebra Systems and Their Applications, CASA'2004*, Karkow, Poland, 6-9 June 2004. Lecture Notes in Computer Science 3039 Springer-Verlag pp 343-350.
- [19] A. Bretto, A. Faisant. A new way for associating a graph to a group. *The 16 th Czech and Slovak International Conference on Number Theory. Bratislava, 12-17 June 2003.* *Mathematica Slovaca* **55** , No.1, (2005), 1-8.
- [20] S. Chastel, P. Colantoni A. Bretto. Displaying Image Neighborhood Hypergraph. *10th International Conference on Discrete Geometry for Computer Imagery (DGCI'2002)*, Achille J.-P. Braquelaire, Jacques-Olivier Lauchaud, Anne Vialard (Eds.) : Discrete Geometry for Computer Imagery, 10th International Conference, DGCI 2002, Bordeaux, France, April 3-5, 2002, Proceedings. Lecture Notes in Computer Science 2301 Springer 2002,124-135.
- [21] S. Rital, A. Bretto, H. Cherifi and D. Aboutajdine. A combinatorial edge detection algorithm on noisy images. *4th EURASIP-IEEE Region 8, International Symposium on Video / Image Processing and Multimedia Communications, Zadar, Croatia, 16-19 June 2002.*
- [22] A. Bretto, H. Cherifi and S. Ubéda. An efficient Algorithm for Helly Property Recognition in Linear Hypergraph. *8th International Workshop on Computational Image Analysis (IWCIA)*, Elsevier, Philadelphia, U.S.A., August 23-24, Vol 46, Electronic Notes in Theoretical Computer Science 2001
- [23] S. Rital, A. Bretto, H. Cherifi and D. Aboutajdine. Application of Adaptive Hypergraph Model to Impulsive Noise Detection. *9th International Conference on Computer Analysis of Images and Patterns CAIP'2001*, Springer-Verlag, 2001, Warsaw, Poland, September 5-7, Lecture Note in Computer Sciences, 34–42.
- [24] S. Rital, A. Bretto, H. Cherifi and D. Aboutajdine. Image Adaptive Modelling by Hypergraph application to Impulsive Noise Cancellation. *International Conference on image and signal processing (ICISP'2001)*, 2, Agadir Marocco, Avril 2001, 853–862.
- [25] A. Bretto and H. Cherifi. Noise Detection and Cleaning by Hypergraph Model. *International Conference on Information Technology : Coding and Computing, (ITCC)*, Las Vegas 2000, IEEE Computer Sciences, 416–419.
- [26] M. Elhassouni, S. Rital, A. Bretto, H. Cherifi and D. Aboutajdine. Image Modeling by Hypergraph : Application to Noise Cancellation. *Vision Interface*, 2000, 2, Avril 234–245.
- [27] S. Rital, A. Bretto, H. Cherifi and D. Aboutajdine. La Modélisation d'Image par Hypergraphe : Application au Débruitage. *ISIVC'2000,IAPR*, 2000, 2, Avril 25–34.

- [28] M. Elhassouni, A. Bretto, H. Cherifi and D. Aboutajdine. La Modélisation d'Image par Hypergraphe : Application à la Détection de Contours. *ISIVC'2000,IAPR*, 2000, 2, Avril 35–43.
- [29] A. Bretto, H. Cherifi and D. Aboutajdine. Hypergraph Image Model : An Overview. *ISIVC'2000,IAPR*, 2000, 2, Avril 35–43.
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