

Curriculum vitæ

Alain BRETTO

Citizenship : France

<http://users.info.unicaen.fr/bretto/>

Personal

Full Professor of Computer Science (exceptional class)

Professional adress :

University of Caen

Computer Science department

GREYC-CNRS UMR 6072

Bd Maréchal Juin

F 14032 Caen Cedex

E-mail : alain.bretto@unicaen.fr

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.14-Sept.14	Visiting Researcher, Institut Camille Jordan UMR-CNRS, (France).
Jan.10-Jan.11	Visiting Researcher, Telecom-ParisTech, (France).
Ap.09-Jul.09	Visiting Researcher, Northern Kentucky University, (USA).
Dec.07-Dec10	Head of the algorithmic team.(http://www.greyc.unicaen.fr/equipres)
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. http://www.info.unicaen.fr
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

- 2011- Logic and Computer Science.
- 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.
- 1994-1997 Operational Research and Optimization : Ecole Nationale Supérieure des Mines
Saint-Etienne.

Participation to Committee for Academic Promotion (As referee)

- Dr. Sami M.A. Halawani. Promotion to the rank of Full Professor. KING ABDULAZIZ UNIVERSITY. May 2012.
- Dr. Abdulfattah S. Mashat. Promotion to the rank of Full Professor. KING ABDULAZIZ UNIVERSITY April 2013.

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, Morocco.

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.
- A. Ducournau. Ph.D. Computer Science, University of Saint-Etienne, France. Hypergraphs : clustering, reduction and random walk for images segmentation.
Completion : September 2012.

Current Ph.D. Students

- Mohamad Badaoui. Ph.D. Computer Science, University of Caen, France and Ph.D. Mathematics, Libanon University, Libanon. G-graphs and Ramanujan Graphs. G-graphs and interconnexion networks.

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 Affine 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.
- G. Hochard. Ph.D. Computer Science, TelecomParisTech., (As Chair of the Jury).
Détection de changements en imagerie radar cohérente. Mars 2011.
- J. Attia. Doctorat de l'Université de Saint-Etienne (Rapporteur). Matching of photographic data with GIS data. September 2012.
- D. Sheela. Ph.D. Computer Science, Faculty of Information and Communication Engineering Anna University Chennai, India. (As referee).. Dimensioning strategies using

topological parameters in optical. March 2013.

- S. Lal, Ph.D. Computer Science, Birla institute of technology, Ranchi, India. (As referee). Enhancement of compressed images in wavelet based domain. April 2013.

Master Student Supervisor

- Trinité Mweranda. Master of Computer Science, University of Caen. **Collaboration with F. Rioult Associate Professor at University of Caen.** Measuring the thickness of a hypergraph sandwich. 2012-2013.
- Aurélie Leborgne. Master of Computer Science, University of Caen. **Collaboration with I. Bloch Professor at Telecom-ParisTech.** Hypergraphs Similarities : applications to image analysis. 2011-2012.
- Aurélien Ducournau. Master of Computer Science, University of Caen. **Collaboration with S. Rital, Telecom-ParisTech.** Algebraic and topological approach of partition hypergraphs : application to automatic image segmentation. 2009-2010.
- 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 Moham-

- med 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.

- 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”.
- 2010-2011 CNES PROJECT “Hypergraphs and Satellite Image Analysis’.”

Conference Program Committees invitation and Invited speaker.

- 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 and Key Note Speaker,
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 and Key Note Speaker,
ICAEEEE-2011 : International Conference on Advances in Electrical
Electronics Engineering (ICAEEEE-2011),
(February 25-26, 2011) MIT Moradabad, India,
<http://aspspider.ws/icaeee2011/>
- 2012 Member, Program Committee and Key Note Speaker.
International Conference on Emerging Technology Trends On Advanced Engineering Research,
ICETT-2012, 15th-18th of February, 2012, Kollam, Kerala, India,
<http://www.icett.com/users/keynote>.

- 2013 Member, Program Committee and Key Note Speaker.
International Conference on Mobile Communication and Embedded System Technology, (MECON-2013), to be held on 17th-18th January 2013 at Amity School of Engineering and Technology (ASET), Amity University Campus, Sec-125 India.
<http://www.mecon2013.com/>
- 2013 Member, Program Committee and Key Note Speaker.
9th International Conference on Heterogeneous Networking for Quality, Reliability, Security and Robustness, January 11-12, 2013 Greater Noida, India.
<http://qshine.org/2013/show/home>.
- 2014 Key Note Speaker.
Second International Conference on Emerging Trends in Electronics and Communication (ICETEC 2014),
Maria College of Engineering & Technology,
Attoor.Thiruvattar P.O. Kanayakumari District. Pin : 629177 India.
- 2014 Invited Speaker.
Conference on Computational Algebra, Computational Number Theory and Applications, (CACNA 2014) 17th-19th December ;
University of Kashan, Iran.
<http://cacna2014.kashanu.ac.ir/>
- 2015 Member, Program Committee and Invited Speaker.
International Conference on Cognitive Computing and Information Processing CCIP - 2015 (3 - 4 March 2015)
JSS Academy of Technical Education, Noida, India.
<http://www.ccip.jssaten.ac.in/>
- 2015 Main Speaker.
LICMA '15 Lebanese International Conference on Mathematics and Applications
Lebanese University - Faculty of Science
from 26 to 29 May 2015 Beirut, Lebanon
<http://www.licma.net/index.php?p=1>
- 2016 Member, Program Committee .
5th International Conference on Informatics, Electronics & Vision (ICIEV)
13-14 May, 2016, Dhaka, Bangladesh! 5th ICIEV
<http://cennser.org/ICIEV/>

Society Review, and Activities of Associate Editor.

PROFICIENT

- 2000-2009 EUROPEAN MATHEMATICAL SOCIETY.
2007-2009 AMERICAN MATHEMATICAL SOCIETY.

ASSOCIATE EDITOR ACTIVITIES

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| 2009- | Associate editor : | INFORMATION SCIENCES JOURNAL |
| | Publisher : Elsevier | Impact Factor : 2,83 |
| 2011- | Associate editor : | APPLIED MATHEMATICS & INFORMATION SCIENCES |
| | Publisher : Natural Sciences | Impact Factor : 0,642 |

Expertise Activities

- 2008- Expert to the French Ministry of Higher Education and Research, (International Folders).
- 2009- Expert to the National Science Foundation, (USA).
- 2014- Scientific Advisor to Saint-Etienne metropole.

National and international responsibilities and Distinction

- 2015- Member of the CONSEIL NATIONAL DE L'ENSEIGNEMENT SUPERIEUR ET DE LA RECHERCHE.
- 2015- Member (elected in October) of the ACCADEMIA PELORITANA DEI PERICOLANTI.

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), (May 2005).
- University of California, Irvine (USA)** : Institute for Mathematical Behavioral Sciences, Department of Cognitive Sciences. (February-June 2006).
- Nothern Kentucky University, (Kentucky, USA)** : Department of Comuter Science. (February-June 2007).
- Nothern Kentucky University, (Kentucky, USA)** : Department of Comuter Science. (February-July 2009).

Invited Talk

- 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, Janary 2001, September 2001, May 2002, Janary-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

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).

“Key note speaker.” (January 2013).

MECON-2013 conference, (India).

Publications

Books

- [1] A. Bretto. *Introduction to Hypergraph Theory and their Use in Engeneering and Image Processing*. Advances in Imaging and Electron Physics (Monographic Serie), March 2004.
- [2] A. Bretto. *Hypergraph theory : an Introduction*. Mathematical Engineering, International Collection. Springer Verlag, 2013.
- [3] A. Bretto, A. Faisant, and F. Hennercart. *Elément de théorie des graphes*. IRIS International Collection. Springer Verlag, 2012.

Book Chapters

- [4] A. Bretto. *Applied Graph Theory in Computer Vision and Pattern Recognition.*, volume 51 of *Studies in Computational Intelligence*, chapter Digital Topologies on Graphs. Springer-Verlag, February 2007. ISBN-10 : 3-540-68019-5, ISBN-13 : 978-3-540-68019-2.
- [5] C. Tanasescu, R. Marinescu-Ghemeci, and A. Bretto. *Optimization Theory, Decision Making, and Operations Research Applications*, chapter Incidence Graphs of Bipartite G-Graphs, pages 141–151. *Mathematincs Proceedings in Mathematics & Statistics*. Springer-Verlag, November 2012. ISBN-978-1-4614-5133-4, ISBN-978-1-4614-5134-1 (eBook).

Journal Articles

- [6] I. Bloch, A. Bretto, and A. Loborgne. Robust similarity between hypergraphs based on valuations and mathematical morphology operators. *Discrete Applied Mathematics*, Vol. 183 183, March 2015, Page 2-19.
- [7] Aurélien Ducournau and Alain Bretto. Random walks in directed hypergraphs and application to semi-supervised image segmentation. *Computer Vision and Image Understanding,(CVIU)*, 120 :91–102, 2014.
- [8] A. Bretto, Y. Silvestre, and T. Vallée. Factorization of cartesian product of hypergraphs : structure and algorithms. *Theoretical Computer Science*, 475 :47–58, 2013.
- [9] I. Bloch and A. Bretto. Mathematical morphology on hypergraphs, applications to similarity and positive kernel. *Computer Vision and Image Understanding*, 117 :342–354, 2013.

- [10] Aurélien Ducournau, Alain Bretto, Soufiane Rital, and Bernard Laget. A reductive approach to hypergraph clustering : An application to image segmentation. *Pattern Recognition*, 45(7) :2788–2803, 2012.
- [11] A. Bretto and A. Faisant. Cayley graphs and g-graphs : some applications. *Journal of Symbolic Computation*, 46(12) :1403–1412, December 2011.
- [12] A. Bretto, A. Faisant, and L. Gillibert. New graphs related to (p,6) and (p,8)-cages. *Computers and Mathematics with Applications*, 62(6) :2472–2479, September 2011.
- [13] T. Vallée and A. Bretto. A new closure concept preserving graph hamiltonicity and based on neighborhood equivalence. *Discrete Mathematics*, 311 :336–341, 2011.
- [14] A. Bretto and T. Vallée. A new clique-covering sufficient condition for hamiltonicity of graphs. *Information Processing Letters*, 109(20) :1156–1160, 2009.
- [15] A. Bretto and L. Gillibert. Hypergraphs for multi-dimensional lossless image compression. *Fundamenta Informaticae*, 91(3-4) :533–546, 2009.
- [16] A. Bretto and L. Gillibert. G-graphs : an efficient tool for constructing symmetric and semi-symmetric graphs. *Discrete Applied Mathematics*, 156(14) :2719–2739, 2008.
- [17] Céline Hébert, Alain Bretto, and Bruno Crémilleux. A data mining formalization to improve hypergraph minimal transversal computation. *Fundamenta Informaticae*, 80(4) :415–433, 2007.
- [18] Alain Bretto, Alain Faisant, and Luc Gillibert. G-graphs : A new representation of groups. *Journal of Symbolic Computation.*, 42(5) :549–560, 2007.
- [19] Alain Bretto. Hypergraphs and the helly property. *Ars Combinatoria.*, 78, 2006.
- [20] Alain Bretto, Alain Faisant, and Thierry Vallée. Compatible topologies on graphs : An application to graph isomorphism problem complexity. *Theoretical Computer Science.*, 362(1-3) :255–272, 2006.
- [21] P. Y. Bischoff and A. Bretto. 3-dimensional zerotree for wavelet image compression. *Int. J. Comput. Numer. Anal. Appl*, 2(4) :401–412, 2002.
- [22] A. Bretto, E. M. Li Marzi, and F. Rania. Some latticial and convex aspects of mathematical morphology. *Rendiconti del Circolo Matematico di Palermo*, 70(Ser.II)(1) :121–134, 2002.
- [23] A. Bretto, S. Ubéda, and J. Žerovnik. A polynomial algorithm for the strong helly property. *Information Processing Letters*, 81(1) :55–57, January 2002.
- [24] A. Bretto and A. Faisant. Topologies on bipartite graphs. *Rendiconti del Seminario Matematico di Messina.*, 8(Ser.II) :11–18, 2002.
- [25] A. Bretto, H. Cherifi, and D. Aboutajdine. Hypergraph imaging : an overview. *Pattern Recognition*, 35(3) :651–658, 2002.
- [26] A. Bretto. Modélisation d’image par hypergraphe de polyominos valués. *Rendiconti del Seminario Matematico di Messina.*, II(7 :1) :1–6, 2002.
- [27] A. Bretto and E. M. Li Marzi. Mathematical morphology and poset geometry. *International Journal of Mathematics and Mathematical Sciences*, 28(8) :447–453, 2001.
- [28] A. Bretto. Comparability graphs and digital topology. *Computer Vision, Graphic and Image Processing (Image Understanding)*, 82 :33–41, 2001.

- [29] S. Rital, A. Bretto, D. Aboutajdine, and H. Cherifi. A combinatorial based technique for impulsive noise removing in images. *Intenational Journal of Image Processing and Communication*, 7(3-4) :115–129, 2001.
- [30] A. Bretto and B. Laget. Helly type theorems and graphs. *Rendiconti del Circolo Matematico di Palermo*, 65(Ser. II) :59–65, 2000.
- [31] A. Bretto. Some geometrical and topological aspects of graph theory. *Rendiconti del Seminario Matematico di Messina*, II(5) :15–29, 1999.
- [32] A. Bretto. A note on intersecting graphs. *Southwest journal of pure and applied mathematics*, 2 :61–67, 1999.
- [33] A. Bretto and B. Laget. Helly property associated with the discrete planes. *Southwest journal of pure and applied mathematics*, 1 :56–63, 1998.
- [34] 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, September 1997.
- [35] Alain Bretto and J el Priolon. Price dynamics in a sequential financial market. *submitted to European Journal of Operational Research (20 pages)*, 2013.

International Refereed Conferences

- [36] Isabelle Bloch, Alain Bretto, and Aur lie Leborgne. Similarity between hypergraphs based on mathematical morphology. In *ISMM*, volume 7883 of *Lecture Notes in Computer Science*, pages 1–12. Springer, 2013.
- [37] A. Bretto and J. Priolon. A new approach to asset pricing with rational agents behaving strategically. In *CIFEr, Computational Intelligence for Financial Engineering and Economics*, IEEE Computational Intelligence Society, pages 168–174, March 29-30 2012.
- [38] I. Bloch and A. Bretto. Mathematical morphology on hypergraphs : Preliminary definitions and results. In Springer, editor, *Discrete Geometry for Computer Imagery - 16th IAPR International Conference, DGCI 2011*, volume 6607, pages 429–440, Nancy France, April 6-8 2011.
- [39] A. Bretto, A. Ducournau, and S. Rital. A hypergraph reduction algorithm for joint segmentation and classification of satellite image content. In Springer, editor, *15th Iberoamerican Congress On Pattern Recognition CIARP2010*, volume 6419 of *Lecture Notes in Computer Science*, pages 38–46, S o Paulo, SP Brazil, November 08-11 2010.
- [40] A. Bretto and Y. Silvestre. Factorization of cartesian products of hypergraphs. In Springer, editor, *Computing and Combinatorics, 16th Annual International Conference, COCOON 2010*, volume 6196 of *Lecture Notes in Computer Science*, pages 173–181, Nha Trang, Vietnam, July 19-21 2010.
- [41] Alain Bretto, Yannick Silvestre, and Thierry Vall e. Cartesian product of hypergraphs : properties and algorithms. In *ACAC*, pages 22–28, 2009.
- [42] A. Ducournau, S. Rital, and A. Bretto. A multilevel spectral hypergraph partitioning approach for color image segmentation. In IEEE Computer Society, editor, *International Conference on Signal and Image Processing Applications (ICSIPA)*, pages 419–424, Kuala Lumpur in Malaysia, September 18-19 2009.

- [43] A. Bretto, C. Jaulin, L. Gillibert, and Bernard Laget. A new property of hamming graphs and mesh of d-ary trees. In Springer, editor, *8th Asian Symposium in Computer Mathematics*, volume 5081 of *Lecture Notes in Computer Science*, pages 139–150, Singapore, December 15-17 2008.
- [44] A. Bretto and T. Vallee. Hamiltonicity of simplicial-connected graphs : an algorithm based on clique decomposition. In IEEE Computer Society, editor, *International Conference on Information Technology : New Generations ITNG 2008*, IEEE Computer Society, pages 153–158, Las Vegas, Nevada, USA, April 7-9 2008.
- [45] A. Bretto, C. Jaulin, K. G. Kirby, and B. Laget. G-graphs and algebraic hypergraphs. In *IV Latin-American Algorithms, Graphs and Optimization Symposium, LAGOS'07*, volume 30 of *Electronic Notes in Discrete Mathematics*, pages 153–158, Puerto Varas Chile, November 25-29 2008.
- [46] Luc Gillibert and Alain Bretto. Hypergraphs for near-lossless volumetric compression. In *ITNG*, IEEE Computer Society, pages 229–233, 2007.
- [47] Alain Bretto and Luc Gillibert. G-graphs for the cage problem : a new upper bound. In *ISSAC*, ACM New-York, pages 49–53, 2007.
- [48] Céline Hébert, Alain Bretto, and Bruno Crémilleux. Optimizing hypergraph transversal computation with an anti-monotone constraint. In *SAC*, ACM New-York, pages 443–444, 2007.
- [49] Luc Gillibert and Alain Bretto. Near-lossless 3d-image compression using hypergraphs. In *DCC*, IEEE Computer Society, page 450, 2006.
- [50] Alain Bretto and Luc Gillibert. Hypergraph-based image representation. In *GbrPR*, volume 3434 of *Lecture Notes in Computer Science*, pages 1–11. Springer, 2005.
- [51] A. Bretto and L. Gilibert. Symmetry and connectivity in g-graphs. In *International Colloquium on Graph Theory, (ICGT'05)*, volume Vol. 22, pages 481–486, Giens France, September 12-16 2005. CNRS-INRIA, Electronic Notes in Discrete Mathematics.
- [52] Alain Bretto, Luc Gillibert, and Bernard Laget. Symmetric and semisymmetric graphs construction using g-graphs. In *International Symposium on Symbolic and Algebraic Computation (ISSAC)*, ACM New-York, pages 61–67, 2005.
- [53] Alain Bretto and Luc Gillibert. Hypergraph lossless image compression. In *International Conference on Information Technology, (ITCC 2005)*, IEEE Computer Society, pages 46–50, 2005.
- [54] Alain Bretto and Luc Gillibert. Symmetry and connectivity in g-graphs. *Electronic Notes in Discrete Mathematics*, 22 :481–486, 2005.
- [55] A. Bretto and B. Laget. A new graphical graphical and computational representation of groups. In *Tenth International Conference on Applications of Computer Algebra.(ACA-2004)*, pages 25–32, Beaumont, USA, July 23-26 2004. Lamart UNiversity, Beaumont, National Science Foundation, (NSF).
- [56] Alain Bretto and Luc Gillibert. Graphical and computational representation of groups. In *International Conference on Computational Science*, volume 3039 of *Lecture Notes in Computer Science*, pages 343–350. Springer, 2004.
- [57] A. Bretto and A. Faisant. A new way for associating a graph to a group. In *The 16 th Czech and Slovak International Conference on Number Theory.*, volume 55 of *Mathematica Slovaca*, Bratislava, Slovakia, June 12-17, 2005 2003.

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