Sylvain Bouveret

Associate Professor

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Date of Birth: 9th september, 1982

Education

2004–2007	**PhD in Computer Science**, *University of Toulouse*.
2003–2004	**DEA (Master) in Computer Science**, *University of Toulouse*.
	Représentation de la Connaissance et Formalisation du Raisonnement
2001–2004	**Engineering degree**, *École Nationale Supérieure de l'Aéronautique et de l'Espace (Supaéro)*.
1999–2001	**Classes préparatoires aux grandes écoles**, *Lyon*.
1999	**Baccalauréat scientifique**.

Employment

since 2011	**Associate Professor**, *Grenoble INP – Ensimag, Grenoble Informatics Laboratory*.
	recipient of *Prime d'Encadrement Doctoral et de Recherche* since 2015
2007–2011	**Research Engineer**, *Onera Toulouse*.
2004–2007	**PhD thesis in Computer Science**, *Office National d'Études et de Recherche en Aérospatiale (ONERA), Institut de Recherche en Informatique de Toulouse (IRIT) and Centre National d'Études Spatiales (CNES)*.
	Title: *Algorithmic and Complexity Issues in Fair Resource Allocation Problems*
2004	**Master's thesis in Computer Science**, *INRA Toulouse*.
	Title: *Tree-decomposition Solving Methods for Valued Constraint Satisfaction Problems*
2004–2011	**Lecturer**, *Supaero Toulouse*.
	about 50h / year

Selected Publications

I have published 4 papers in international journals, 30 papers in international peer-reviewed conferences or workshops and 3 book chapters. The complete list of publications is appended at the end of this document.

IJCAI17	Bouveret, Sylvain, Cechlárová, Katarína, Elkind, Edith, Igarashi, Ayumi and Peters, Dominik. *Fair Division of a Graph*. In Proceedings of the 26th International Joint Conference on Artificial Intelligence (IJCAI'17), Melbourne, Australia
JAAMAS15	Bouveret, Sylvain and Lemaître, Michel (2015). *Characterizing conflicts in fair division of indivisible goods using a scale of criteria.* In Autonomous Agents and Multi-Agent Systems, 30(2): 259–290.Springer US
IJCAI11	Bouveret, Sylvain and Lang, Jérôme (2011). *A general elicitation-free protocol for allocating indivisible goods*. In Proceedings of the 22st International Joint Conference on Artificial Intelligence (IJCAI'11), Barcelona, Spain.
AIJ09	Bouveret, Sylvain and Lemaître, Michel (2009). *Computing leximin-optimal solutions in constraint networks*. In Artificial Intelligence, 173(2): 343-364.
JAIR08	Bouveret, Sylvain and Lang, Jérôme (2008). *Efficiency and Envy-freeness in Fair Division of Indivisible Goods: Logical Representation and Complexity*. In Journal of Artificial Intelligence Research (JAIR), 32: 525-564.

Distinctions

Reviewing	Distinguished (top 20%) Senior PC Member, IJCAI 2018
	Distinguished (top 20%) Senior PC Member, IJCAI 2016
	Best reviewer award, AAMAS 2015
	Runner-up (top 3) for best reviewer award, AAMAS 2012
Writing	Runner-up (top 3) for best paper award, AAMAS 2014

Platforms and Dissemination

Whale Main developer of the Web voting platform Whale – *WHich ALternative is Elected* (`https://whale.imag.fr/`). Regularly used for collective decision making situations (selection committees, best poster award in SAGEO 2014...). Used in scientific mediation operations and science fairs (Caen, 2016 and 2017, Toulouse 2018, Genova 2019)

Voter Autrement Online and *in situ* Voting experiment *Voter Autrement 2017*, organized during the French presidential election.

- Developer of the online experiment. **37739 participants**
- Local organizer (with R. Blanch) of the *in situ* experiment in Grenoble. **1066 participants**

Senate Auditioned by the French Senate, *Mission of Information on Electronic Voting* (`http://www.senat.fr/commission/loi/mission_dinformation_vote_electronique.html`)

National Assembly Mission of expertise (with R. Blanch), *Mission of Information on the Incidence of an Evolution of the Voting Procedure for the French Assembly*

Commissioned by **Cédric Villani**, mathematician, deputy and director of OPECST

Report: `http://recherche.noiraudes.net/resources/2018-05-28-rapport.pdf`

Presentations I regularly participate as **invited speaker** in summer schools, conferences or seminars.

Some of my past presentations: `http://recherche.noiraudes.net/en/slides.php`

Peer-reviewing Activities

Editorial Board Member of the Editorial Board of the Journal of Artificial Intelligence Research (JAIR) since 2016.

SPC member IJCAI 2018 (**distinguished**), IJCAI 2016 (**distinguished**), IJCAI 2013

PC member IJCAI 2017, 2011

AAAI 2019, 2018, 2017, 2016, 2015, 2014, 2013, 2012, 2011

AAMAS 22019, 2018, 2017, 2016, 2015 (**best reviewer**), 2014, 2013, 2012 (**runner-up for best reviewer award**), 2011, 2010

ECAI 2016, 2014, 2010

COMSOC 2018, 2016

M-PREF 2018, 2016, 2015, 2014, 2013, 2012, 2010

STAIRS 2013, 2012, 2010

National conferences: RJCIA 2016, 2017, 2014, 2013, 2011, 2009. SAGEO 2018, 2017, 2016, 2015. MFI 2013

Reviewer Journal of Autonomous Agents and MultiAgent Systems (JAAMAS)

Journal of Artificial Intelligence Research (JAIR)

Artificial Intelligence (AIJ)

MultiCriteria Decision Analysis (MCDA)

Annals of Mathematics and Artificial Itelligence (AMAI)

Mathematical Social Sciences (MSS)

Social Choice and Welfare (SCWE)

ACM Transactions on Algorithms (TALG)

ACM Transactions of Computational Logics (TCL)

Transactions on Economics and Computation (TEAC)

National journals: Künstliche Intelligenz, Revue d'Intelligence Artificielle, Revue Internationale de Géomatique

Scientific Organization

CAISE 2020 Web and social media co-chair of the 32nd International Conference on Advanced Information Systems Engineering. About 150 participants expected.

FairDiv 2015 Local chair of the COST IC1205 Summer School on Fair Division (`http://fairdiv-15.imag.fr/`). About 50 international students.

RJCIA 2015 PC chair of the French doctoral conference on Artificial Intelligence (`http://pfia2015.inria.fr/conference-rjcia/`). About 20 submissions.

SAGEO 2014 Co-chair of the French conference on Geomatics SAGEO 2014 (`http://sageo2014.sciencesconf.org/`). About 150 participants.

Scientific Supervising Activities

PhD Students

since 2018 **Parham Shams**. *Allocation protocols for fair division problems*, ongoing. Joint supervision with Aurélie Beynier and Nicolas Maudet.

2013 – 2017 **André Sales Fonteles**. *Spatio-temporal crowdsourcing market systems*, defended on November 29th, 2017. Joint supervision with Jérôme Gensel.

2009 – 2012 **Charles Lumet**. *Fair resource allocation problems under uncertainty*, defended on December 17th, 2012. Joint supervision with Jérôme Lang and Michel Lemaître.

Post-doctorate Researchers

2014 – 2015 **Nikolaos Karanikolas** *Data visualization techniques for voting procedures*. Joint supervision with Renaud Blanch.

Master Students

M1, 2018 **Albin Soutif–Cormerais**. *Multiagent simulation of voters' behaviour*. M1 internship, joint supervision with Carole Adam.

M2R, 2017 **Dinara Seilkhanova**. *Interactive data visualization for large voting datasets*. M2 internship, joint supervision with Renaud Blanch.

M2R, 2017 **Bryan Fruchart**. *Voting with incomplete preferences*. M2 internship, joint supervision with Jérôme Lang.

M2, 2016 **Marie-Jeanne Natete**. *Development of a web voting platform: Whale*. M2 internship.

M1, 2014 **Corentin Cos**. *Data visualization techniques for voting procedures*, M1 internship, joint supervision with Renaud Blanch.

M1 2013 / M2R 2014 **Niklas Petersen**. *Enhancing the OSM Tagging System with an OWL Ontology*, M1 and M2 internships, joint supervision with Philippe Genoud

M2R 2010 **Lauriane Milan**. *Solving a network configuration problem using network calculus and constraint programming*, M2 internship, joint supervision with Marc Boyer.

M2R 2009 **Charles Lumet**. *Fair resource allocation problems under uncertainty*, M2 internship, joint supervision with Jérôme Lang and Michel Lemaître.

Participation in PhD Committees

Dec. 2016 **Anastasia Damamme**, 12th December, 2016, University Paris Dauphine – *A Multiagent Approach for Fair Division Problems*

Nov. 2014 **Lydia Tlilane**, 28th November 2014, University Paris Dauphine – *Matroids and their implication in indivisible resource allocation: approximation algorithms with performance guarantees*

Apr. 2013 **Julien Lesca**, 22th April 2013, University Pierre and Marie Curie, Paris – *Exploiting rank dependent aggregation functions for multiobjective decision making: optimization procedures and incentive mechanisms*

Nov. 2010 **Javier Murillo Espinar**, November 2010, University of Girona – *Egalitarian Behaviour in Multiunit Combinatorial Auctions*

Other Administrative Responsibilities

2017– Co-supervisor (with S. Viardot) of the programme on Information Systems Engineering at Ensimag. About 120 students (60 M1 + 60 M2).

2016– In charge (with J.-P. Chevallet) of the scientific animation of the research area on *Data and Knowledge Processing at Large Scale* at LIG

7 research teams, about 100 researchers

2012–2020 Elected member (twice) of the board of Ensimag engineering school

2013–2016 Elected member of the personnel committee at LIG

2014– In charge of the management of the Sustainable Development Plan at Ensimag

Teaching

Ensimag (since 2011)

I teach about 240 hours/year, shared among lectures (CM), seminars (TD), practical works (TP), and am in charge of several courses. The main courses I teach are listed below.

since 2018 — **Artificial Intelligence**, *Ensimag 3rd year*.
Introduction to AI, Constraints Satisfaction Problems, Games, 9h/year

since 2016 — **Foundations of Imperative Programming**, *Ensimag 1st year*.
Algorithmics in Python, 33h/year

since 2015 — **Challenge OpenData**, *Ensimag 3rd year*.
Web Interactive Open Data Visualization, 15h/year

since 2014 — **Algorithmics and Discrete Optimization**, *Ensimag 2nd year*.
Branch and Bound, Dynamic Programming, Dependence and Cache Analysis, 18h/year

since 2014 — **Object Oriented Programming**, *Ensimag 2nd year*.
Introduction to Java Programming, 18h/year

since 2014 — **Introduction to Algorithmics and Relational Databases**, *Preparatory Class, 2nd year*.
Relational Algebra, SQL, Algorithmics in Python, Introduction to complexity

since 2013 — **Geographic Information Systems**, *Ensimag 3rd year + Master Big Data*.
Introduction to GIS, Postgres/PostGIS, OpenStreetMap, 15h/year

since 2011 — **Foundations of Database Management Systems**, *Ensimag 2nd year + Master 1 MOSIG*.
Relational Algebra, SQL, Transactions, Conception, 60h/year

2012–2015 — **Software Engineering**, *Ensimag 3rd year*.
Development cycles, UML, design patterns, 18h/year

2011–2014 — **Algorithmics and Object-Oriented Programming**, *Ensimag 2nd year*.
Introduction to Java Programming, Branch and Bound, Event programming, Dynamic programming

ISAE–Supaéro (2004–2011)

2008–2011 — **Introduction to Functional Programming**, *Supaéro 1st year*.
Introduction to OCaml programming, 10h/year

2004–2011 — **Object Oriented Conception and Programming**, *Supaéro 2nd year*.
Introduction to Java programming, Graphical User Interfaces, Design Patterns, UML Conception, 35h/year

2005–2006 — **Algorithmics and C Programming**, *Supaéro 1st year*.
Introduction to C programming, 24h/year

2005–2006 — **Combinatorial Optimization**, *Supaéro 3rd year*.
Constraint Satisfaction and Optimization Problems, Linear Programming, ILOG OPL Studio 5h/year

2005–2008 — **Databases**, *Supaéro 3rd year*.
Relational Queries with SQL, 2h30/year

2005–2008 — **Introduction to LaTeX**, *Supaéro 1st year*.
Introduction to typesetting with LaTeX, TeXlive 2005, 6h/year

2005–2007 — **Practical Project on Aerodynamics and Informatics**, *Supaéro 2nd year*.
Numerical computation of flows with the Vortex method and Java, 5h/year

Publications

Book Chapters

Trends 17   Bouveret, Sylvain (2017). **Social Choice on the Web**. In Endriss, Ulle, editors, Trends in Computational Social Choice, : 387–402. Chapitre 20. AI Access.

Handbook 16   Bouveret, Sylvain, Chevaleyre, Yann and Maudet, Nicolas (2016). **Fair Allocation of Indivisible Goods**. In Brandt, Felix, Conitzer, Vincent, Endriss, Ulle, Lang, Jérôme and Procaccia, Ariel D., editors, *Handbook of Computational Social Choice*, Chapter 12. Cambridge University Press.

IA 14   Bouveret, Sylvain, Lang, Jérôme et Lemaître, Michel (2014). **Systèmes multiagents : décision collective**. In Marquis, Pierre, Papini, Odile et Prade, Henri (Éditeurs), *Représentation des connaissances et formalisation des raisonnements, volume 1 série : Panorama de l'Intelligence Artificielle* (chapter 15). Cepaduès. (In French)

Journals

JAAMAS 16   Baumeister, Dorothea, Bouveret, Sylvain, Lang, Jérôme, Nguyen, Nhan-Tam, Nguyen, Trung Thanh, Rothe, Jörg and Saffidine, Abdallah (2016). **Positional Scoring-Based Allocation of Indivisible Goods**. In *Autonomous Agents and Multi-Agent Systems*: 1–28.Springer US

JAAMAS 15   Bouveret, Sylvain and Lemaître, Michel (2015). **Characterizing conflicts in fair division of indivisible goods using a scale of criteria**. In *Autonomous Agents and Multi-Agent Systems*, 30(2): 259–290.Springer US

AIJ 09   Bouveret, Sylvain and Lemaître, Michel (2009). **Computing leximin-optimal solutions in constraint networks**. In *Artificial Intelligence*, 173(2): 343-364.

JAIR 08   Bouveret, Sylvain and Lang, Jérôme (2008). **Efficiency and Envy-freeness in Fair Division of Indivisible Goods: Logical Representation and Complexity**. In *Journal of Artificial Intelligence Research* (JAIR), 32: 525-564.

International Peer-reviewed Conferences

AAAI 18   Aziz, Haris, Bouveret, Sylvain, Caragiannis, Ioannis, Giagkousi, Ira and Lang, Jérôme (2018). **Knowledge, Fairness, and Social Constraints**. In *Proceedings of the 32nd AAAI conference on Artificial Intelligence (AAAI'18)*, New Orleans, Louisiana, USA. AAAI Press.

IJCAI 17   Bouveret, Sylvain, Chevaleyre, Yann, Durand, François and Lang, Jérôme (2017). **Voting by Sequential Elimination with few Voters**. In *Proceedings of the 26th International Joint Conference on Artificial Intelligence (IJCAI-17)*, Melbourne, Australia.

IJCAI 17   Bouveret, Sylvain, Cechlárová, Katarína, Elkind, Edith, Igarashi, Ayumi and Peters, Dominik (2017). **Fair Division of a Graph**. In *Proceedings of the 26th International Joint Conference on Artificial Intelligence (IJCAI-17)*, Melbourne, Australia.

AAAI 17   Aziz, Haris, Bouveret, Sylvain, Lang, Jérôme and Mackenzie, Simon (2017). **Complexity of Manipulating Sequential Allocation**. In *Proceedings of the 31st AAAI conference on Artificial Intelligence (AAAI'17)*, San Francisco, California, USA. AAAI Press.

ECAI 14   Bouveret, Sylvain and Lang, Jérôme (2014). **Manipulating picking sequences**. In *Proceedings of the 21st European Conference on Artificial Intelligence (ECAI'14)*, Prague, Czech Republic. IOS Press.

ECAI 14   Baumeister, Dorothea, Bouveret, Sylvain, Lang, Jérôme, Nguyen, Nhan-Tam, Nguyen, Trung Thanh and Rothe, Jörg (2014). **Scoring Rules for the Allocation of Indivisible Goods**. In *Proceedings of the 21st European Conference on Artificial Intelligence (ECAI'14)*, Prague, Czech Republic. IOS Press.

AAMAS 14   Bouveret, Sylvain and Lemaître, Michel (2014). **Characterizing Conflicts in Fair Division of Indivisible Goods Using a Scale of Criteria**. In *Proceedings of the 13th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS'14)*, Paris, France. ACM. Runner up for best paper award.

ECAI 12   Lumet, Charles, Bouveret, Sylvain and Lemaître, Michel (2012). **Fair division of indivisible goods under risk**. In *Proceedings of the 20th European Conference on Artificial Intelligence (ECAI'12)*, Montpellier, France. IOS Press.

IJCAI 11   Bouveret, Sylvain and Lang, Jérôme (2011). **A general elicitation-free protocol for allocating indivisible goods**. In *Proceedings of the 22st International Joint Conference on Artificial Intelligence (IJCAI'11)*, Barcelona, Spain.

ECAI 10   Bouveret, Sylvain, Endriss, Ulle and Lang, Jérôme (2010). **Fair Division under Ordinal Preferences: Computing Envy-Free Allocations of Indivisible Goods**. In *Proceedings of the 19th European Conference on Artificial Intelligence (ECAI'10)*, Lisbon, Portugal. IOS Press.

ADT 09   de Keijzer, Bart, Bouveret, Sylvain, Klos, Tomas and Zhang, Yingqian (2009). **On the complexity of efficiency and envy-freeness in fair division of indivisible goods with additive preferences**. In *Proceedings of the 1st International Conference on Algorithmic Decision Theory (ADT'09)*, Venice, Italy. Springer Verlag.

IJCAI 09   Bouveret, Sylvain, Endriss, Ulle and Lang, Jérôme (2009). **Conditional Importance Networks: A Graphical Language for Representing Ordinal, Monotonic Preferences over Sets of Goods**. In *Proceedings of the 21st International Joint Conference on Artificial Intelligence (IJCAI'09)*, Pasadena, California, USA.

IJCAI 07   Bouveret, Sylvain and Lemaître, Michel (2007). **New Constraint Programming Approaches for the Computation of Leximin-Optimal Solutions in Constraint Networks**. In Veloso, Manuela M., editors, *Proceedings of the 20th International Joint Conference on Artificial Intelligence (IJCAI'07)*, Hyderabad, India.

IJCAI 05   Bouveret, Sylvain and Lang, Jérôme (2005). **Efficiency and envy-freeness in fair division of indivisible goods: logical representation and complexity**. In Kaelbling, Leslie Pack and Saffiotti, Alessandro, editors, *Proceedings of the Nineteenth International Joint Conference on Artificial Intelligence (IJCAI'05)*, Edinburgh, Scotland. Professional Book Center.

AAMAS 05   Bouveret, Sylvain, Lemaître, Michel, Fargier, Hélène and Lang, Jérôme (2005). **Allocation of indivisible goods: a general model and some complexity results**. In Dignum, Frank, Dignum, Virginia, Koenig, Sven, Kraus, Sarit, Singh, Munindar P. and Wooldridge, Michael, editors, *4rd International Joint Conference on Autonomous Agents and Multiagent Systems (AAMAS'05)*, Utrecht, The Netherlands. ACM. (short paper).

International Peer-reviewed Workshops

W2GIS 17   Ziébelin, Danielle, Hobus, Kim, Genoud, Philippe and Bouveret, Sylvain (2017). **Heterogeneous Data Integration Using Web of Data Technologies**. In *Proceedings of the 15th International Symposium on Web and Wireless Geographical Information Systems (W2GIS 2017)*, Shanghai, China.

MoMM 17   Sales Fonteles, André, Bouveret, Sylvain and Gensel, Jérôme (2017). **A programming framework for Spatial Crowdsourcing**. In *Proceedings of the 15th International Conference on Advances in Mobile Computing and Multimedia (MoMM 2017)*, Salzbourg, Austria.

COMSOC 16   Karanikolas, Nikos, Blanch, Renaud and Bouveret, Sylvain (2016). **Edge-Compressed Majority Graph: Where Social Choice Meets Information Visualization**. In *Proceedings of the Sixth International Workshop on Computational Social Choice (COMSOC'16)*, Toulouse, France.

COMSOC 16   Bouveret, Sylvain and Lemaître, Michel (2016). **Efficiency and Sequenceability in Fair Division of Indivisible Goods with Additive Preferences**. In *Proceedings of the Sixth International Workshop on Computational Social Choice (COMSOC'16)*, Toulouse, France.

W2GIS 15   Sales Fonteles, André, Bouveret, Sylvain and Gensel, Jérôme (2015). **Opportunistic Trajectory Recommendation for Task Accomplishment in Crowdsourcing Systems**. In Gensel, Jérôme and Tomko, Martin, editors, *Proceedings of the 14th International Symposium on Web and Wireless Geographical Information Systems (W2GIS 2015)*, Grenoble, France.

MoMM 15   Sales Fonteles, André, Bouveret, Sylvain and Gensel, Jérôme (2015). **Heuristics for Task Recommendation in Spatiotemporal Crowdsourcing Systems**. In Chen, Liming Luke, Steinbauer, Matthias, Khalil, Ismail and Anderst-Kotsis, Gabriele, editors, *Proceedings of the 13th International Conference on Advances in Mobile Computing and Multimedia (MoMM 2015)*, Brussels, Belgium.

MobiGIS 14   Sales Fonteles, André, Bouveret, Sylvain and Gensel, Jérôme (2014). **Towards matching improvement between spatio-temporal tasks and workers in mobile crowdsourcing market systems**. In *Proceedings of the Third ACM SIGSPATIAL International Workshop on Mobile Geographic Information Systems (MobiGIS 2014)*, Dallas / Forth Worth, Texas, USA.

COMSOC 14   Bouveret, Sylvain and Lang, Jérôme (2014). **Manipulating picking sequences**. In *Proceedings of the Fifth International Workshop on Computational Social Choice (COMSOC'14)*, Pittsburgh, Pennsylvania.

COMSOC 14   Baumeister, Dorothea, Bouveret, Sylvain, Lang, Jérôme, Nguyen, Nhan-Tam, Nguyen, Trung Thanh, Rothe, Jörg and Saffidine, Abdallah (2014). **Scoring Rules for the Allocation of Indivisible Goods**. In *Proceedings of the Fifth International Workshop on Computational Social Choice (COMSOC'14)*, Pittsburgh, Pennsylvania.

EUMAS 13   Baumeister, Dorothea, Bouveret, Sylvain, Lang, Jérôme, Nguyen, Trung Thanh, Rothe, Jörg and Saffidine, Abdallah (2013). **Positional Scoring Rules for the Allocation of Indivisible Goods**. In *Proceedings of the 11th European Workshop on Multi-Agent Systems (EUMAS'13)*, Toulouse, France.

WSCAI 11 Lumet, Charles, Bouveret, Sylvain and Lemaître, Michel (2011). **Fair division of indivisible goods under risk**. In *Proceedings of the IJCAI-2011 Workshop on Social Choice and Artificial Intelligence*, Barcelona, Spain.

HotSWUp 11 Bouveret, Sylvain, Brunel, Julien, Chemouil, David and Dagnat, Fabien (2011). **Towards a categorical framework to ensure correct software evolutions**. In *Proceedings of the Third Workshop on Hot Topics in Software Upgrades (HotSWUp'11)*, Hannover, Germany.

COMSOC 10 Bouveret, Sylvain, Endriss, Ulle and Lang, Jérôme (2010). **Fair Division under Ordinal Preferences: Computing Envy-Free Allocations of Indivisible Goods**. In *Proceedings of the 3rd International Workshop on Computational Social Choice (COMSOC'10)*, Düsseldorf, Germany.

COMSOC 06 Bouveret, Sylvain and Lemaître, Michel (2006). **Finding leximin-optimal solutions using constraint programming: new algorithms and their application to combinatorial auctions**. In Endriss, Ulle and Lang, Jérôme, editors, *Proceedings of the 1st International Workshop on Computational Social Choice (COMSOC'06)*, ILLC, University of Amsterdam.

WMSPC 06 Bouveret, Sylvain and Lemaître, Michel (2006). **Comparison of two constraint programming algorithms for computing leximin-optimal allocations**. In Prestwich, Steven and Hnich, Brahim, editors, *Proceedings the workshop on Modelling and Solving Problems with Constraints, ECAI'06*, Riva del Garda, Italy.