

# Bruno Zanuttini's Vitæ\*

Full professor (“professeur des universités”) in computer science  
University of Caen, France  
Department of Computer Science and Mathematics, GREYC laboratory

January 15, 2024

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**N.B.** In the whole document, “Unicaen” means “Université de Caen Normandie” (University of Caen, formerly “Université de Caen Basse-Normandie”), and “Normandie Université” is the federation of Higher Education schools of which it is part.

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\*A constantly up-to-date version of this document is available at <http://zanuttini.users.greyc.fr/cv?lg=en>.

## 1 General information

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**Last name, given names**

Zanuttini, Bruno Léonce Amelio

**Born**

February 17th, 1978 in Dijon (France)

**Nationality**

French

**Family**

married, two children (born in 2008 and 2011)

## 2 Contact information

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**Postal address**

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## 3 Professional experience

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**2000–2003**

PhD student in Computer Science at Unicaen (national grant)

**2003–2004**

Temporary research and teaching assistant, department of Computer Science, GREYC laboratory

**September, 2004–August, 2018**

associate professor (French “maître de conférences”), Unicaen, Department of Mathematics and Computer Science, GREYC laboratory

**September, 2010–January, 2012**

“detached to CNRS” (no teaching duties)

**Since June, 2011**

holder of the “habilitation à diriger des recherches” in computer science (habilitation: French diploma enabling one to supervise PhD theses)

**Since September, 2018**

full professor (French “professeur des universités”), Unicaen, Department of Mathematics and Computer Science, GREYC laboratory

## 4 Education

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**1998**

licence in Mathematics, Unicaen

**1999**

licence in Computer Science and 1st year of master in Pure Mathematics, Unicaen

**2000**

master in Artificial Intelligence and Algorithmics, Unicaen

**2003**

PhD in Computer Science, Unicaen

thesis title: “Knowledge acquisition and reasoning in propositional logic”

supervised by Jean-Jacques Hébrard and Étienne Grandjean

reviewers: Miki Hermann, Pierre Marquis, and Victor Vianu

examiner: Michel Chein

**2011**

habilitation, Unicaen

thesis title: “Computational Aspects of Learning, Reasoning, and Deciding”

reviewers: Craig Boutilier, Peter Jonsson, and Michèle Sebag

examiners: Jérôme Lang, Abdel-illah Mouaddib, and Patrice Perny

## 5 Administrative charges

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**2006–2012**

cohead (with Brigitte Vallée) of master AMI (“Algorithms and Information Models”)

**January, 2007–August, 2008**

elected member of the committee for assistant professor positions, Unicaen

**November, 2007–November, 2016**

elected member of the council of the department of Computer Science, Unicaen

**March, 2008–December, 2010**

elected member of the council of the GREYC laboratory, Unicaen

**January, 2011–Decembre, 2021**

head of research group Models, Agents, Decision (MAD) at the GREYC lab

**September, 2012–August, 2017**

head of master DECIM (“Decision and Optimisation”)

**Since December, 2016**

member of the council of the department of Mathematics and Computer Science, Unicaen

**Since January, 2018**

head of Doctoral School MIIS (“Mathematics, Information, System Engineering”), Normandie Université

**Since September 2021**

elected membre of the council of the Faculty (French *UFR*) of Sciences, Unicaen

## 6 Research supervision

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**2006/2007**

main supervisor for Sébastien Picant’s PhD, “Application of Formal Verification Algorithms to the Validation of C and SystemC Code” (with industrial society Aeriologic, premature end for economical reasons).

**October, 2008-December, 2011**

supervisor of Boris Lesner’s PhD, “Benefits of Symbolic Reasoning for Representing and Solving Decision Problems” (national grant): publications during the PhD in national conferences JFPDA 2009 and 2010, RJCIA 2009 (best paper award), in national journal RIA (2010), in ICAPS 2011, and in EWRL 2011. Defence on December 8, 2011 (reviewers Yann Chevaleyre, Olivier Sigaud, examiners Olivier Buffet, Abdel-Ilah Mouaddib, Bruno Scherrer).

**October, 2011–February, 2015**

cosupervisor of Damien Bigot’s PhD, “Preference Representation and Learning” (national grant, supervisors Hélène Fargier and Jérôme Mengin, IRIT, Toulouse): publications during the PhD at national conferences JIAF 2012 and 2013, JFRB 2014, and at PL@ECAI 2012, UAI 2013, and STAIRS 2014. Defence on February 25th, 2015 (reviewers Patrice Perny, Frédéric Koriche, examiners Martin Cooper, Jérôme Lang).

**January, 2014–February, 2017**

supervisor of Esther Nicart’s PhD, “Intuitive Feedback in a Man-Machine Collaboration” (industrial contract with Airbus Defence & Space, then Cordon Electronics): publications during the PhD at national conference IC 2015, at UAI 2016, at ICTAI 2016, and in national journal RIA (2017). Defence on February 6th, 2017 (reviewers Danieal Grigori, Marie-Hélène Abdel, examiners Yann Chevaleyre, Arnaud Saval, Bruno Grillières).

**October, 2015–September, 2018**

supervisor of Florian Benavent’s PhD, “Taking the User’s Recommendations into Account for Intelligent Digital Services” (funded by the “Région Basse-Normandie”). Publications in national conference JFPDA 2016 and at AAAI 2018. PhD not defended.

**September, 2017–August, 2018**

supervisor of Abdelkader Ouali’s post-doc, as part of the PepTraq project (grant by the “Région Normandie”).

**February, 2018–June, 2021**

supervisor (unofficially) of Jacques Everwyn’s PhD, “Discovery, explicitation, and management of semantical relations using deep learning for heterogeneous, huge, and untrustworthy data” (funded by Airbus Defence & Space, supervisor Abdel-illah Mouaddib). Publications at APIA 2019, MSAW 2019. Defence on June 14th, 2021 (reviewers Céline Rouveirol, Aldo Napoli, examiners Sébastien Ferré, Engelbert Mephu Nguifo, Fatiha Saïs).

**Since January, 2020**

supervisor of Sergej Scheck’s PhD, “Knowledge Compilation for Nondeterministic Action Languages” (funded by ANR Projet PING/ACK, cosupervised by Alexandre Niveau). Publications at National Conferences JFPDA 2020 and JFPDA 2021, and at ICAPS 2021 (*best student paper award* at ICAPS 2021). Defence on December 12, 2022 (reviewers Bernhard Nebel, Stefan Mengel, examiners Hélène Fargier, Andreas Herzig, Peter Jonsson).

**September, 2020–December, 2023**

supervisor of Junkang Li’s PhD, “Games with incomplete information: complexity, algorithmics, reasoning” (funded by Company NukkAI, Paris, cosupervised by Véronique Ventos). Publications at National Conferences JIAF 2022 and JIAF 2023, and at IJCAI 2022 and AAAI 2024. Defence on December 21th, 2023 (reviewers Nathan Sturtevant, Olivier Spanjaard, examiners Catalin Dima, Tristan Cazenave, Vincent Thomas).

**September, 2020–December, 2021**

supervisor of a team of 2 to 4 research engineers (total ca. 45 man.month) and up to 3 master interns for project One4You, in collaboration with the Industry (funded by Region Normandie).

**Since November, 2023**

supervisor of Geoffrey Laforest’s PhD, “Representation of epistemic states for reinforcement learning” (funded by AND project EpiRL, cosupervised by Alexandre Niveau and Olivier Buffet).

## 7 Funded projects

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**November, 2006–May, 2010**

local coordinator for project *Constraint Acquisition aNd Automatic Reformulation* (CANAR, national grant ANR-06-BLAN-0383-02)

**December, 2010–December, 2014**

principal investigator for project *Learning And Reasoning for Deciding Optimally using Numerical and Symbolic information* (LARDONS, national grant ANR-2010-BLAN-0215)

**October, 2010–October, 2014**

local coordinator for project *Tractability for Understanding and Pushing forward the Limits of Efficient Solving* (TUPLES, national grant ANR-2010-BLAN-0210)

**January, 2012–January, 2015**

involvement in project *Business Recommendation for Configurable Products* (BR4CP, national grant ANR-11-BS02-0008)

**January, 2017–December, 2018**

coordination (for the GREYC) for project PepTraQ, with researchers in life sciences (regional grant)

**Since March, 2019**

involvement in project *Preprocessing Information for Nontrivial Goals / Advanced Compilation of Knowledge* (BR4CP, national grant ANR-18-CE40-0011)

**June, 2019–December, 2021**

coordination (for the GREYC) for project One4You (collaboration with Industry, regional grant)

**Since March, 2023**

coordination (for the GREYC) for project *Epistemic Reinforcement Learning* (EpiRL, national grant ANR-22-CE23-0029)

## 8 Main Publications

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### Selective International Journals

- [1] Alexandre Niveau, Hector Palacios, Sergej Scheck, and Bruno Zanuttini. A knowledge compilation perspective on queries and transformations for belief tracking. *Annals of Mathematics and Artificial Intelligence*, 2024. To appear.
- [2] Bruno Zanuttini, Jérôme Lang, Abdallah Saffidine, and François Schwarzentruher. Knowledge-Based Programs as Succinct Policies for Partially Observable Domains. *Artificial Intelligence*, 288, 2020. .
- [3] Peter Jonsson, Victor Lagerkvist, Gustav Nordh, and Bruno Zanuttini. Strong partial clones and the time complexity of SAT problems. *Journal of Computer and System Sciences*, 84:52–78, 2017. .

- [4] Martin C. Cooper, Aymeric Duchein, Achref El Mouelhi, Guillaume Escamocher, Cyril Terrioux, and Bruno Zanuttini. Broken triangles: From value merging to a tractable class of general-arity constraint satisfaction problems. *Artificial Intelligence*, 234:196–218, 2016. .
- [5] Frédéric Koriche and Bruno Zanuttini. Learning conditional preference networks. *Artificial Intelligence*, 174:685–703, 2010. .
- [6] Bruno Zanuttini and Stanislav Živný. A note on some collapse results of valued constraints. *Information Processing Letters*, 109:534–538, 2009. .
- [7] Élise Bonzon, Marie-Christine Lagasquie-Schiex, Jérôme Lang, and Bruno Zanuttini. Compact preference representation and Boolean games. *Journal of Autonomous Agents and Multi-Agent Systems*, 18(1):1–35, 2009. .
- [8] Gustav Nordh and Bruno Zanuttini. What makes propositional abduction tractable. *Artificial Intelligence*, 172:1245–1284, 2008. .
- [9] Ángel J. Gil, Miki Hermann, Gernot Salzer, and Bruno Zanuttini. Efficient algorithms for description problems over finite totally ordered domains. *SIAM Journal on Computing*, 38(3):922–945, 2008. .
- [10] Nadia Creignou, Phokion G. Kolaitis, and Bruno Zanuttini. Structure identification of Boolean relations and plain bases for co-clones. *Journal of Computer and System Sciences*, 74(7):1103–1115, 2008. .
- [11] Nadia Creignou and Bruno Zanuttini. A complete classification of the complexity of propositional abduction. *SIAM Journal on Computing*, 36(1):207–229, 2006. .
- [12] Bruno Zanuttini. New polynomial classes for logic-based abduction. *Journal of Artificial Intelligence Research*, 19:1–10, 2003. Research note. .
- [13] Jean-Jacques Hébrard and Bruno Zanuttini. An efficient algorithm for Horn description. *Information Processing Letters*, 88(4):177–182, 2003. .
- [14] Bruno Zanuttini and Jean-Jacques Hébrard. A unified framework for structure identification. *Information Processing Letters*, 81(6):335–339, 2002. .

## Selective International Conferences

- [1] Junkang Li, Bruno Zanuttini, and Véronique Ventos. Opponent-model search in games with incomplete information. In Jennifer Dy and Sriraam Natarajan, editors, *Proc. 38th AAAI Conference on Artificial Intelligence (AAAI 2024)*, 2024. To appear.
- [2] Junkang Li, Bruno Zanuttini, Tristan Cazenave, and Véronique Ventos. Generalisation of alpha-beta search for AND-OR graphs with partially ordered values. In Luc De Raedt, editor, *Proc. 31st International Joint Conference on Artificial Intelligence (IJCAI 2022)*, pages 4769–4775. ijcai.org, 2022.
- [3] Sergej Scheck, Alexandre Niveau, and Bruno Zanuttini. Knowledge Compilation for Non-deterministic Action Languages. In *Proc. International Conference on Automated Planning and Scheduling (ICAPS 2021)*, Guangzhou, China, August 2021. Best student paper award. .
- [4] Abdallah Saffidine, François Schwarzentruher, and Bruno Zanuttini. Knowledge-based policies for qualitative decentralized POMDPs. In Sheila McIlraith and Kilian Weinberger, editors, *Proc. 32nd AAAI Conference on Artificial Intelligence (AAAI 2018)*. AAAI Press, 2018. .

- [5] Florian Benavent and Bruno Zanuttini. An experimental study of advice in sequential decision-making under uncertainty. In Sheila McIlraith and Kilian Weinberger, editors, *Proc. 32nd AAAI Conference on Artificial Intelligence (AAAI 2018)*. AAAI Press, 2018. .
- [6] Fabien Labernia, Bruno Zanuttini, Brice Mayag, Florian Yger, and Jamal Atif. Online learning of acyclic conditional preference networks from noisy data. In Vijay Raghavan and Srinivas Aluru, editors, *Proc. 17th IEEE International Conference on Data Mining (ICDM 2017)*. IEEE Computer Society Press, 2017. .
- [7] Esther Nicart, Bruno Zanuttini, Hugo Gilbert, Bruno Grilhères, and Frédéric Praca. Building document treatment chains using reinforcement learning and intuitive feedback. In Amol Mali and Miltos Alamaniotis, editors, *Proc. 28th International Conference on Tools with Artificial Intelligence (ICTAI 2016)*, 2016. .
- [8] Martin C. Cooper, Achref El Mouelhi, Cyril Terrioux, and Bruno Zanuttini. On broken triangles. In Subbarao Kambhampati, editor, *Proc. 25th International Joint Conference on Artificial Intelligence (IJCAI 2016)*, pages 4135–4139. AAAI Press, 2016. Sister conference paper (best of CP). .
- [9] Alexandre Niveau and Bruno Zanuttini. Efficient representations for the modal logic S5. In Subbarao Kambhampati, editor, *Proc. 25th International Joint Conference on Artificial Intelligence (IJCAI 2016)*, pages 1223–1229. AAAI Press, 2016. .
- [10] Hugo Gilbert, Bruno Zanuttini, Paul Weng, Paolo Viappiani, and Esther Nicart. Model-free reinforcement learning with skew-symmetric bilinear utilities. In Alexander Ihler and Dominik Janzing, editors, *Proc. 32nd Conference on Uncertainty in Artificial Intelligence (UAI 2016)*, pages 252–261. AUAI Press, 2016. .
- [11] Jérôme Lang and Bruno Zanuttini. Probabilistic knowledge-based programs. In Qiang Yang and Michael Wooldridge, editors, *Proc. 24th International Joint Conference on Artificial Intelligence (IJCAI 2015)*, pages 1594–1600. AAAI Press, 2015. .
- [12] Martin Cooper, Achref El Mouelhi, Cyril Terrioux, and Bruno Zanuttini. On broken triangles. In Barry O’Sullivan, editor, *Proc. 20th International Conference on Principles and Practice of Constraint Programming (CP 2014)*, volume 8656 of *Lecture Notes in Computer Science*, pages 9–24. Springer, 2014. Best Technical Track Paper. .
- [13] Thibaut Vallée, Grégory Bonnet, Bruno Zanuttini, and François Bourdon. A study of Sybil manipulations on hedonic games. In Alessio Lomuscio and Paul Scerri, editors, *Proc. 13th International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2014)*, pages 21–28, 2014. .
- [14] Damien Bigot, Hélène Fargier, Jérôme Mengin, and Bruno Zanuttini. Probabilistic conditional preference networks. In Ann Nicholson and Padhraic Smyth, editors, *Proc. 29th Conference on Uncertainty in Artificial Intelligence (UAI 2013)*. AUAI Press, 2013. .
- [15] Paul Weng and Bruno Zanuttini. Interactive value iteration for Markov decision processes with unknown rewards. In Francesca Rossi, editor, *Proc. 23rd International Joint Conference on Artificial Intelligence (IJCAI 2013)*, 2013. .
- [16] Achref El Mouelhi, Philippe Jégou, Cyril Terrioux, and Bruno Zanuttini. Some new tractable classes of CSPs and their relations with backtracking algorithms. In Carla Gomes and Meinolf Sellmann, editors, *Proc. 10th International Conference on Integration of AI and OR Techniques in Constraint Programming (CPAIOR 2013)*, volume 7874 of *Lecture Notes in Computer Science*, pages 61–76. Springer, 2013. .
- [17] Peter Jonsson, Victor Lagerkvist, Gustav Nordh, and Bruno Zanuttini. Complexity of SAT problems, clone theory and the exponential time hypothesis. In Sanjeev Khanna, editor,



- Proc. 24th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA 2013)*, pages 1264–1277, 2013. .
- [18] Jérôme Lang and Bruno Zanuttini. Knowledge-based programs as plans: Succinctness and the complexity of plan existence. In Burkhard C. Schipper, editor, *Proc. 14th conference on Theoretical Aspects of Rationality and Knowledge (TARK 2013)*, 2013. .
  - [19] Jérôme Lang and Bruno Zanuttini. Knowledge-based programs as plans: The complexity of plan verification. In Luc De Raedt, editor, *Proc. 20th European Conference on Artificial Intelligence (ECAI 2012)*, pages 504–509, 2012. .
  - [20] Achref El Mouelhi, Philippe Jégou, Cyril Terrioux, and Bruno Zanuttini. On the efficiency of backtracking algorithms for constraint satisfaction problems. In Robert H. Sloan, editor, *Proc. 12th International Symposium on Artificial Intelligence and Mathematics (ISAIM 2012)*, 2012. .
  - [21] Boris Lesner and Bruno Zanuttini. Efficient policy construction for MDPs represented in probabilistic PDDL. In Fahiem Bacchus, Carmel Domshlak, Stefan Edelkamp, and Malte Helmert, editors, *Proc. 21st International Conference on Automated Planning and Scheduling (ICAPS 2011)*, pages 146–153. AAAI Press, 2011. .
  - [22] Frédéric Koriche and Bruno Zanuttini. Learning conditional preference networks with queries. In Craig Boutilier, editor, *Proc. 21st International Joint Conference on Artificial Intelligence (IJCAI 2009)*, pages 1930–1935, 2009. Distinguished Paper. .
  - [23] Christian Bessiere, Thierry Petit, and Bruno Zanuttini. Making bound consistency as effective as arc consistency. In Craig Boutilier, editor, *Proc. 21st International Joint Conference on Artificial Intelligence (IJCAI 2009)*, pages 425–430, 2009. .
  - [24] Élise Bonzon, Marie-Christine Lagasque-Scheix, Jérôme Lang, and Bruno Zanuttini. Boolean games revisited. In Gerhard Brewka, Silvia Coradeschi, Anna Perini, and Paolo Traverso, editors, *Proc. 17th European Conference on Artificial Intelligence (ECAI 2006)*, pages 265–269. IOS Press, 2006. .
  - [25] Gustav Nordh and Bruno Zanuttini. Propositional abduction is almost always hard. In Leslie Pack Kaelbling, editor, *Proc. 19th International Joint Conference on Artificial Intelligence (IJCAI 2005)*, pages 534–539, 2005. .
  - [26] Ángel J. Gil, Miki Hermann, Gernot Salzer, and Bruno Zanuttini. Efficient algorithms for constraint description problems over finite totally ordered domains: Extended abstract. In David Basin and Michael Rusinovitch, editors, *Proc. 2nd International Joint Conference on Automated Reasoning (IJCAR 2004)*, number 3097 in Lecture Notes in Computer Science, pages 244–258, 2004. .
  - [27] Bruno Zanuttini. Approximation of relations by propositional formulas: complexity and semantics. In Sven Koenig and Robert C. Holte, editors, *Proc. 5th Symposium on Abstraction, Reformulation and Approximation (SARA 2002)*, number 2371 in Lecture Notes in Artificial Intelligence, pages 242–255. Springer, 2002. .
  - [28] Bruno Zanuttini. Approximating propositional knowledge with affine formulas. In Frank van Harmelen, editor, *Proc. 15th European Conference on Artificial Intelligence (ECAI 2002)*, pages 287–291. IOS Press, 2002. .

## Book Chapters

- [1] Yann Chevaleyre, Frédéric Koriche, Jérôme Lang, Jérôme Mengin, and Bruno Zanuttini. Learning ordinal preferences on multiattribute domains: The case of CP-nets. In Johannes

- Fürnkranz and Eyke Hüllermeier, editors, *Preference Learning*, pages 273–296. Springer, 2010.
- [2] François Rioult, Bruno Zanuttini, and Bruno Crémilleux. Nonredundant generalized rules and their impact in classification. In Zbigniew Ras and Li-Shiang Tsay, editors, *Advances in Intelligent Information Systems*, number 265 in Studies in Computational Intelligence, pages 3–25. Springer-Verlag, 2010.