

Professional Curriculum Vitæ of

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## 1 Area of Expertise

Cutting-edge research in intelligent software and transfer of technology exploiting such research in the specification and implementation of intelligent systems and applications.

## 2 Statement of Interest

I am generally fascinated with schemes of reasoning and computation and the structure of language, whether artificial or natural, to formulate them. I view all formal reasoning as mathematical constraint-solving in some algebraic structure.

I have a solid experience in formal design and efficient implementation of very high-level and multi-paradigm software development environments, with an immediate, but not exclusive, emphasis on web-based computing, rule-based and constraint-based programming, object-orientation, logic and functional programming. I am also interested in combining (symbolic and fuzzy) Artificial Intelligence (AI), with (numerical) optimization as done in Operations Research (OR) and Probabilistic Models (Bayesian Reasoning).

Areas of application are: specification, implementation, and optimization of business and government organizational logistics, analytics, automated reasoning, computational linguistics, knowledge representation and acquisition, “Semantic Web” (XML, RDF(a,Schema), Linked Data, SKOS, SPARQL, JSON(-LD), Topic Maps, etc.), machine learning, data mining, bioinformatics, etc., . . .

## 3 Professional Experience

- **Independent Researcher**,<sup>1</sup> February 2016–present, [HAK Language Technologies](http://www.hak-language-technologies.com/).<sup>2</sup> Developing formal and practical technology for approximate constraint-based reasoning and learning in collaboration with Prof. [Gabriella Pasi](http://www.ir.disco.unimib.it/people/pasi-gabriella/) of the Information Retrieval Laboratory at Università degli Studi di Milano-Bicocca.<sup>3</sup>
- **Contractual Professor**, January 2015–January 2016, Université Claude Bernard Lyon 1. Head of the *LivEMUSIC* Project (**L**iving **E**nvironment **M**onitoring **U**se **S**cenario with **I**ntelligent **C**ontrol),<sup>4</sup> *Laboratoire d’InfoRmatique en Image et Systèmes d’information (LIRIS)* of the *Université Claude Bernard Lyon 1 (UCBL)*, under a grant from the *Programme Avenir Lyon Saint-Etienne (PALSE)*. Developed a use scenario in intelligent living-environment monitoring using actual data from [Data Grand Lyon](http://www.velov.grandlyon.com/?L=1). This was a use case demonstrating how AI technology leveraging learning knowledge from raw data (in this case [Velo’V](http://www.velov.grandlyon.com/?L=1) stations data)<sup>5</sup> and reasoning with this knowledge can enable “smart” monitoring of living environments, focusing on urban and social milieu ([IMU](http://imu.universite-lyon.fr/)).<sup>6</sup>
- **ANR Chair of Excellence**, January 2013–January 2015, Université Claude Bernard Lyon 1. Head of the *CEDAR* Project (**C**onstraint **E**vent-**D**riven **A**utomated **R**easoning),<sup>7</sup> LIRIS, UCBL, under a grant from the *Agence Nationale pour la Recherche (ANR)* as part of its Chair of Excellence program ([CHEX 2012](http://cedar.liris.cnrs.fr)). Carried out a systematic experimentation of state-of-the-art Knowledge Representation technology addressing two essential challenges: scalability and distribution in Knowledge Base Management Systems.
- **Senior Technical Staff Member**,<sup>8</sup> February 2009–December 2012, IBM Canada Ltd., IBM Application and Integration Middleware (AIM).<sup>9</sup> Expert in knowledge-based processing to endow AIM applications with advanced ontological reasoning capabilities for the rapid and effective integration of Semantic Web technology into software products. Also pushing the use of Bayesian technology for probabilistic rule-based computing. IBM France’s mediator to [ECAI 2012](http://www-01.ibm.com/software/info/ilog/) and [RuleML 2012](http://www-01.ibm.com/software/info/ilog/); IBM France’s representative as part of RuleML 2012’s organizing committee and [RuleML Challenge 2012](http://www-01.ibm.com/software/info/ilog/) organization as co-chair. Member of the W3C’s “**RIF**” Working Group on the “Rule Interchange Format;” responsible for IBM’s participation in the 01/2009–12/2011 European project [ONTORULE](http://www-01.ibm.com/software/info/ilog/)—“*Combining Ontologies and Rules*.”

<sup>1</sup><http://hassan-ait-kaci.net/hlt/doc/>

<sup>2</sup><http://www.hak-language-technologies.com/>

<sup>3</sup><http://www.ir.disco.unimib.it/people/pasi-gabriella/>

<sup>4</sup><http://cedar.liris.cnrs.fr/livemusic/>

<sup>5</sup><http://www.velov.grandlyon.com/?L=1>

<sup>6</sup><http://imu.universite-lyon.fr/>

<sup>7</sup>[cedar.liris.cnrs.fr](http://cedar.liris.cnrs.fr)

<sup>8</sup>IBM Band 10.

<sup>9</sup><http://www-01.ibm.com/software/info/ilog/>

- **Distinguished Scientist**, May 2003–January 2009, ILOG, Inc., Sunnyvale, CA (USA). Responsible for research and development in the area of Artificial Intelligence, Knowledge Representation, Automatic Reasoning, Rule-based and Constraint-based Programming, Semantic Web formalisms, Probabilistic Reasoning and Learning, and Software Verification. ILOG Principal representative in the W3C Working Group on the “Rule Interchange Format.”
- **Sabbatical Visitor**, May 2000–May 2003, ILOG, Gently (France). On leave from Simon Fraser University, I took an extended sabbatical visit to ILOG where I designed and implemented the first Java-based compiler for OPL, ILOG’s Optimization Programming Language, using a software tool I designed and implemented.<sup>10</sup>
- **Professor of Computing Science**, January 1994–September 2001, Simon Fraser University, School of Computing Science, Burnaby, BC, Canada. Full professorship appointment with tenure; Director, Intelligent Software Group. Until December 1996, NSERC Industrial Chair in Intelligent Software Systems. Research: Objects and Constraints for Intelligent Internet Resource Processing. Interests in programming paradigms based on logic, constraints, and type theory, and the formal interplay of *computation* and *approximation*. Teaching: CMPT117 (*Introduction to Internet Programming in Java and its Friends*), CMPT-212 (*WIN95 Application Programming with C++*), CMPT-383 (*Principles of Programming Languages*), CMPT-384 (*Symbolic Computing*), CMPT-883 (*Graduate seminar on advanced Internet application design*).
- **Senior Member of Research Staff**, September 1988–December 1993, Digital Equipment Corporation, Paris Research Laboratory, Rueil-Malmaison, France. Set up and led a research project (the Paradise Project) on executable constraint specifications. This effort extended my previous work on *LIFE* to encompass theory and practice of constraint-based programming, including the design and implementation of a multi-paradigm environment for advanced applications with enhanced programming productivity.
- **Adjunct Professor**, January 1991–June 1992, Université de Paris 7 and École Normale Supérieure, Paris. Taught graduate-level seminar on multi-paradigm and constraint-based programming, and supervised MS and PhD theses.
- **Member of Research Staff**, September 1984–September 1988, Advanced Computer Architecture Program, Microelectronics and Computer Technology Corporation, Austin, Texas. Conducted research project in “new generation” programming languages and architectures (*LIFE* Project). Logic, functional and object-oriented programming, type theory, symbolic computation, abstract machine compilers.
- **Adjunct Assistant Professor**, September 1984–September 1988, Department of Computer Sciences, University of Texas, Austin, TX. Courses taught: discrete mathematics for computer science (undergraduate), principles of programming languages (undergraduate), introduction to artificial intelligence (graduate), seminar on symbolic computation (graduate).
- **Teaching Assistant**, January 1982–September 1983, Department of Computer and Information Science, University of Pennsylvania, Philadelphia, PA. Database theory, compiler design, theory of computation.
- **Research Assistant**, June 1981–September 1981, Department of Computer and Information Science, University of Pennsylvania, Philadelphia, PA. Contributed to an automatic translation system from Interlisp to Franzlisp for the installation of the KI-One knowledge representation language.
- **Research Assistant**, June 1980–December 1980, Department of Decision Sciences, the Wharton School of Business, University of Pennsylvania, Philadelphia, PA. Contributed to the integration of a semantic network knowledge base into a decision support system: the Decision Aiding Information System (DAISY).
- **Operations Research Consultant**, November 1979–January 1980, Information for Investment Decisions, Inc. (I.I.D.), Washington, DC. Conceived and implemented a general model of production optimization in a multiple line production plant.

## 4 Education

- **Habilitation à diriger des recherches**,<sup>11</sup> March 1990, Université de Paris 7, Paris. Defense title: *Contribution à la Conception de Langages de Programmation Symbolique*. President of jury: Maurice Nivat. Referees: Jean Gallier, Jean-Jacques Lévy, Maurice Nivat. Defense committee: Patrick Baudelaire, Guy Cousineau, Irène Guessarian, Gérard Huet, Gert Smolka.

<sup>10</sup>**Jacc**—Just Another Compiler Compiler, a 100% Java yacc-compatible metacompiler extended with several features.

<sup>11</sup>Post-doctoral degree enabling the recipient to direct Ph.D. theses, while non-affiliated to a university. It is also a requirement to become full professor, replacing what used to be a *doctorat d'état*.

- **Ph.D. in Computer and Information Science**, September 1984, University of Pennsylvania, Philadelphia, PA. Dissertation title: *A Lattice-Theoretic Approach to Computation Based on a Calculus of Partially-Ordered Type Structures*. Supervisor: Prof. Peter Buneman. Defense committee: Alex Borgida, Timothy Finin, Jean Gallier, David MacQueen, Fernando Pereira.
- **Ph.D. Candidate in Computer and Information Science**, September 1982–September 1984, University of Pennsylvania, Philadelphia, PA. Principal interests in theory of computation, programming languages, automatic theorem proving, database theory, and artificial intelligence.
- **M.S.E. in Computer and Information Science**, May 1982, University of Pennsylvania, Philadelphia, PA.
- **Graduate Student in Computer and Information Science**, January 1981–May 1982, University of Pennsylvania, Philadelphia, PA.
- **Ph.D. Candidate in Operations Research**, September 1977–December 1980, University of Pennsylvania, The Wharton School of Business. Completed Ph.D. course requirements and passed doctoral preliminary examination. Interests in mathematical programming, deterministic and stochastic modeling, decision theory, multiple-criteria decision making, Saaty’s theory of hierarchies and eigenvalue analysis.
- **Graduate Student in Operations Research**, September 1976–May 1977, Stanford University. Mathematical foundations of operations research.
- **Maîtrise d’Informatique**, September 1974–June 1976, Institut de Mathématique Appliquée de Grenoble, Université de Grenoble, France. Computer science and operations research.
- **Diplôme d’Etudes Universitaires Générales**, June 1974, Université de Paris-Sud, Orsay, France. Mathematics and physics.
- **Préparation aux Grandes Ecoles d’Ingénieurs**, September 1971–June 1973, Lycée Chaptal, Paris, France. Pre-Engineering College: Mathematics, physics, chemistry.
- **Baccalauréat, Série C**, June 1971. Académie de Paris, France. Secondary School Diploma, Major: Mathematics.

## 5 Technical Publications

- “Fuzzy Lattice Operations on First-Order Terms over Signatures with Similar Constructors”<sup>12</sup> (with Gabriella Pasi), to appear in *Fuzzy Sets & Systems*, 2019.
- “Lattice Operations on Terms over Similar Signatures”<sup>13</sup> (with Gabriella Pasi), 27th International Symposium on Logic-based Program Synthesis and Transformation (LOPSTR 2017), Namur, Belgium, October 10–12, 2017 (see [slides](#)).<sup>14</sup>
- “An Efficient and Large-Scale Reasoning Method for the Semantic Web”<sup>15</sup> (with Samir Amir), *Journal of Intelligent Information Systems*, (accepted October 2016).
- “Classifying and Querying Very Large Taxonomies with Bit-Vector Encoding”<sup>16</sup> (with Samir Amir), *Journal of Intelligent Information Systems*, September 2015.
- “CEDAR—Efficient Reasoning for the Semantic Web”<sup>17</sup> (with Samir Amir), 10th International Conference on Signal Image Technology & Internet-Based Systems (SITIS 2014), Marrakech, Morocco, November 23–27, 2014
- “CedCOM: A Cache Only Memory Architecture for Big Data Applications”<sup>18</sup> (with Tanguy Raynaud, Rafiqul Haque), 11th ACS/IEEE International Conference on Computer Systems and Applications (AICCSA, 2014), Doha, Qatar, November 10–13, 2014.
- “An Abstract, Reusable, and Extensible Programming Language Design Architecture”<sup>19</sup> in: *Essays dedicated to Peter Buneman—In Search of Elegance in the Theory and Practice of Computation* (Edinburgh, UK), Val Tannen, Limsoon Wong, Leonid Libkin, Wenfei Fan, Wang-Chiew Tan, and Michael Fourman (Eds.), *Lecture Notes in Computer Science* Volume 8000, pp. 112–166. October 27–28, 2013.

<sup>12</sup><http://hassan-ait-kaci.net/pdf/fuzfotlat-preprint.pdf>

<sup>13</sup><http://hassan-ait-kaci.net/pdf/fuzfotlats-lopstr2017.pdf>

<sup>14</sup><http://hassan-ait-kaci.net/pdf/fuzfotlats-lopstr2017-slides.pdf>

<sup>15</sup><http://cedar.liris.cnrs.fr/papers/amir-ait-kaci-jiis-2016.pdf>

<sup>16</sup><http://cedar.liris.cnrs.fr/papers/hak-sa-jiis2015.pdf>

<sup>17</sup><http://cedar.liris.cnrs.fr/papers/SITIS-2014.pdf>

<sup>18</sup>[http://cedar.liris.cnrs.fr/papers/CedCom\\_AISCC2014.pdf](http://cedar.liris.cnrs.fr/papers/CedCom_AISCC2014.pdf)

<sup>19</sup><http://hassan-ait-kaci.net/pdf/hak-opb.pdf>

- “[CEDAR: a Fast Taxonomic Reasoner Based on Lattice Operations—System Demonstration](#)”<sup>20</sup> (with Samir Amir), Demo Track of the 12th International Semantic Web Conference and the 1st Australasian Semantic Web Conference, Sydney (Australia), October 21–25, 2013.
- “[Proceedings of the RuleML2012@ECAI Challenge](#)”<sup>21</sup> 6th International Symposium on Rules, Montpellier, France, co-edited by Hassan Aït-Kaci, Yuh-Jong Hu, Grzegorz J. Nalepa, Monica Palmirani, and Dumitru Roman, August 27–29, 2012.
- “[Life Su Doku](#)”<sup>22</sup> *Proceedings of the 2nd Tunisia–Japan Workshop on Symbolic Computation in Software Science (SCSS 2009)*,<sup>23</sup> Gammarth, Tunisia, September 2009.
- “[Children’s Magic Won’t Deliver the Semantic Web](#)”<sup>24</sup> *Communications of the ACM*, Vol. 52, no. 3, pp. 8–9, March 2009.
- “[Data models as constraint systems: A key to the semantic web](#)”<sup>25</sup> *Constraint Programming Letters*, vol. 1, pp. 33–88, November 2007.
- “[Description Logic vs. Order-Sorted Feature Logic](#)”<sup>26,27</sup> *Proceedings of the 20th Workshop on Description Logics*, Brixen-Bressanone, Italy, June 2007.
- “[Satisfiability Modulo Structures as Constraint Satisfaction: an Introduction](#)”<sup>28</sup> (with Bruno Berstel, Ulrich Junker, Michel Leconte, and Andreas Podelski), *Journées Francophones sur les Langages Applicatifs*, Aix-les-Bains, France, January 2007, pp. 2–8.
- “[An Axiomatic Approach to Feature Term Generalization](#)”<sup>29</sup> (with Yutaka Sasaki), *Proceedings of the European Conference on Machine Learning*, Freiburg, Germany, September 2001.
- “[Order-Sorted Feature Theory Unification](#)”<sup>30</sup> (with Andreas Podelski and Seth Copen Goldstein) *Journal of Logic Programming*, 30(2), pp. 99–124, February 1997.
- “[A Graphical Toolkit in LIFE](#)”<sup>31</sup> (with Bruno Dumant) *Proceeding of the Euro-Graphics Workshop on Programming Paradigms in Graphics*, Maastricht, The Netherlands, pp. 161–173, March 1995.
- “[Label-Selective  \$\lambda\$ -Calculus—Syntax and Confluence](#)”<sup>32</sup> (with Jacques Garrigue) *Theoretical Computer Science* 151, pp. 353–383, 1995.
- “[Functions as Passive Constraints in LIFE](#)”<sup>33</sup> (with Andreas Podelski) *ACM Transactions on Programming Languages and Systems*, 16(4), pp. 1279–1318, July 1994.
- “[A Database Interface for Complex Objects](#)” (with Marcel Holsheimer and Rolf de By) *Proceedings of the 11th International Conference on Logic Programming, (Genova, Italy)*, June 13–17, 1994.<sup>34</sup>
- “[The Typed Polymorphic Label-Selective  \$\lambda\$ -Calculus](#)”<sup>35</sup> (with Jacques Garrigue) *Proceedings of the 21st Annual ACM Symposium on Principles of Programming Languages*, Portland, Oregon, pp. 35–47. January, 1994.
- “[Label-Selective  \$\lambda\$ -Calculus: Syntax and Confluence \(short version\)](#)” (with Jacques Garrigue) *Proceedings of the 13th International Conference on Foundations of Software Technology and Theoretical Computer Science*, Bombay, India. Lecture Notes in Computer Science 761, December 1993.
- “[An Introduction to LIFE—Programming with Logic, Inheritance, Functions, and Equations](#)”<sup>36</sup> *Proceedings of the 10th International Logic Programming Symposium*, Vancouver, BC, Canada, October 1993, pp. 1–17.

<sup>20</sup>[http://iswc2013.semanticweb.org/sites/default/files/iswc\\_demo\\_3.pdf](http://iswc2013.semanticweb.org/sites/default/files/iswc_demo_3.pdf)

<sup>21</sup><http://ceur-ws.org/Vol-874/>

<sup>22</sup><http://hassan-ait-kaci.net/pdf/scss09.pdf>

<sup>23</sup><http://hassan-ait-kaci.net/pdf/life-sudoku.pdf>

<sup>24</sup><http://cacm.acm.org/magazines/2009/3/21771-childrens-magic-wont-deliver-the-semantic-web/fulltext>

<sup>25</sup><http://hassan-ait-kaci.net/pdf/cpl-article.pdf>

<sup>26</sup><http://hassan-ait-kaci.net/pdf/dl07.pdf>

<sup>27</sup>[http://hassan-ait-kaci.net/pps/hak\\_dl07.pps](http://hassan-ait-kaci.net/pps/hak_dl07.pps)

<sup>28</sup><http://hassan-ait-kaci.net/pdf/jfla07.pdf>

<sup>29</sup><http://hassan-ait-kaci.net/pdf/ecml01.pdf>

<sup>30</sup><http://hassan-ait-kaci.net/pdf/osf-theory-unification.pdf>

<sup>31</sup><http://hassan-ait-kaci.net/pdf/eurographics-95.pdf>

<sup>32</sup><http://hassan-ait-kaci.net/pdf/labelsel-tcs94.pdf>

<sup>33</sup><http://hassan-ait-kaci.net/pdf/toplas-94.pdf>

<sup>34</sup><http://hassan-ait-kaci.net/pdf/iclp94.pdf>

<sup>35</sup><http://hassan-ait-kaci.net/pdf/pop1-94.pdf>

<sup>36</sup><http://hassan-ait-kaci.net/pdf/ilps93.pdf>

- “Order-Sorted Feature Theory Unification (short version)” (with Andreas Podelski and Seth Copen Goldstein) *Proceedings of the 10th International Logic Programming Symposium*, Vancouver, BC, Canada, October 1993, pp. 506–524.
- “A Feature Constraint System for Logic Programming with Entailment”<sup>37</sup> (with Andreas Podelski and Gert Smolka) *Theoretical Computer Science*, 122, pp. 263–283. 1994.
- “Entailment and Disentailment of Order-Sorted Feature Constraints (Summary)”<sup>38</sup> (with Andreas Podelski) *Proceedings of the 1st International Workshop on Principles and Practice of Constraint Programming (Newport, Rhode Island, USA)*, Paris Kanellakis, Jean-Louis Lassez, and Vijay Saraswat, editors, pp. 1–5. 1993.
- “Entailment and Disentailment of Order-Sorted Feature Constraints”<sup>39</sup> (with Andreas Podelski) *Proceedings of the 4th International Conference on Logic Programming and Automated Reasoning (Saint Petersburg, Russia)*, Andrei Voronkov, editor, Lecture Notes in A.I. 698, Springer-Verlag, pp. 1–18. 1993.
- “Towards a Meaning of  $\mathcal{LIFE}$ ”<sup>40</sup> (with Andreas Podelski) *Journal of Logic Programming*, 16(3-4), pp. 195–234. 1993.
- “Logic Programming with Functions over Order-Sorted Feature Terms”<sup>41</sup> (with Andreas Podelski) *Proceedings of the 3rd International Workshop on Extensions of Logic Programming (Bologna, Italy)*, E. Lamma and P. Mello, editors. Springer-Verlag, LNAI 660, pp. 100–119. 1992.
- “A Feature-Based Constraint System for Logic Programming with Entailment (short version)” (with Andreas Podelski and Gert Smolka) *Proceedings of the 5th International Conference on Fifth Generation Computer Systems (Tokyo, Japan)*, pp. 1012–1022. 1992.
- “Towards a Meaning of  $\mathcal{LIFE}$  (short version)” (with Andreas Podelski) *Proceedings of the 3rd International Symposium on Programming Language Implementation and Logic Programming (Passau, Germany)*, Jan Maluszyński and Martin Wirsing, editors. Springer-Verlag, LNCS 528, pp. 255–274. 1991.
- “Warren’s Abstract Machine: A Tutorial Reconstruction”<sup>42</sup> MIT Press, Series in Logic Programming, 1991.
- “An Overview of  $\mathcal{LIFE}$ ”<sup>43</sup> *Next Generation Information System Technology: Proceedings of the 1st International East/West Data Base Workshop, Kiev, USSR, October, 1990*, J. with Schmidt and A.A. Stogny, editors. Springer-Verlag, LNCS 504, pp. 42–58. 1991.
- “A Glimpse of Paradise”<sup>44</sup> *Next Generation Information System Technology: Proceedings of the 1st International East/West Data Base Workshop, Kiev, USSR, October, 1990*, J. with Schmidt and A.A. Stogny, editors. Springer-Verlag, LNCS 504, pp. 17–25. 1991.
- “ $\mathcal{LIFE}$ —a Natural Language for Natural Language”<sup>45</sup> (with Patrick Lincoln) *T.A. Informations*, 30(1-2), Association pour le Traitement Automatique des Langues, Paris, France, pp. 37–67. 1989.
- “Implementing a Knowledge-Based Library Information System with Typed Horn Logic” (with Roger Nasr and Jungyun Seo) *Information Processing & Management* 26(2), pp. 249–268. 1990.
- “Resolution of Equations in Algebraic Structures” , Vols. I and II, (co-editor with Maurice Nivat), Academic Press, Boston, 1989.
- “Inheritance Hierarchies: Semantics and Unification”<sup>46</sup> (with Gert Smolka) *Journal of Symbolic Computation* 7, pp. 343–370. 1989.
- “Efficient Implementation of Lattice Operations”<sup>47</sup> (with Robert Boyer, Patrick Lincoln and Roger Nasr) *ACM Transactions on Programming Languages and Systems*, 11(1), pp. 115–146. January 1989.
- “Integrating Logic and Functional Programming”<sup>48</sup> (with Roger Nasr) *Journal of Lisp and Symbolic Computation* 2, pp. 51–89. 1989.

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<sup>37</sup><http://hassan-ait-kaci.net/pdf/tcs-94.pdf>

<sup>38</sup><http://hassan-ait-kaci.net/pdf/ppcp93.pdf>

<sup>39</sup><http://hassan-ait-kaci.net/pdf/lpar93.pdf>

<sup>40</sup><http://hassan-ait-kaci.net/pdf/meaningoflife.pdf>

<sup>41</sup><http://hassan-ait-kaci.net/pdf/elp-92.pdf>

<sup>42</sup><http://wambook.sourceforge.net/>

<sup>43</sup><http://hassan-ait-kaci.net/pdf/overview-of-life.pdf>

<sup>44</sup><http://hassan-ait-kaci.net/pdf/paradise.pdf>

<sup>45</sup><http://hassan-ait-kaci.net/pdf/lifen1-89.pdf>

<sup>46</sup><http://hassan-ait-kaci.net/pdf/jsc-89.pdf>

<sup>47</sup><http://hassan-ait-kaci.net/pdf/encoding-toplas-89.pdf>

<sup>48</sup><http://hassan-ait-kaci.net/pdf/logicfunctional.pdf>



- “**BABEL: A Base for an Experimental Library**”<sup>49</sup> (with Roger Nasr and Jungyun Seo) *Proceedings of the ACM SIGIR International Conference on Information Retrieval*, Grenoble, France, June 1988.
- “Integrating Data Type Inheritance into Logic Programming” (with Roger Nasr) *Data Types and Persistence*, M. Atkinson, P. Buneman, and R. Morrison, editors, Springer-Verlag, pp. 121–136. 1988.
- “**Le Fun: Logic, equations, and Functions**”<sup>50</sup> (with Patrick Lincoln and Roger Nasr) *Proceedings of the Symposium on Logic Programming*, San Francisco, CA, pp. 17–23. September 1987.
- “**An Algebraic-Semantics Approach to the Effective Resolution of Type Equations**”<sup>51</sup> *Theoretical Computer Science* 45, pp. 293–351. 1986.
- “**LogIn: A Logic-Programming Language with Built-In Inheritance**”<sup>52</sup> (with Roger Nasr) *Journal of Logic Programming* 3, pp. 185–215. 1986.
- “**Logic and Inheritance**”<sup>53</sup> (with Roger Nasr) *Proceedings of the 13th ACM Symposium on Principles of Programming Languages*, Saint-Petersburg, FL, pp. 219–228. January 1986.
- “Type Subsumption as a Model of Computation” *Expert Database Systems* L. Kerschberg, editor. Benjamin Cummings Publishing Co., pp. 115–139. 1986.
- “Object-Oriented Database and Knowledge Systems” (with David Beech, Stephanie Cammarata, Larry Kerschberg, David Maier, and Carlo Zaniolo) *Expert Database Systems*, L. Kerschberg, editor. Benjamin Cummings Publishing Co., pp. 115–139. 1986.
- “**Solving Type Equations by Graph-Rewriting**”<sup>54</sup> *Proceedings of First International Conference on Rewriting Techniques and Applications*, Dijon, France, May 1985. J.P. Jouannaud, editor. Springer-Verlag, LNCS 202, pp. 158–179. 1985.
- “**An Algorithm for Finding a Minimal Recursive Path Ordering**”<sup>55</sup> *Revue d’Automatique, d’Informatique et de Recherche Opérationnelle—Informatique théorique* 19(4), pp. 359–382. 1985.

## 6 Technical Reports

- “**A Generic XML-Generating Metacompiler**”<sup>56</sup> May 2019. User Manual.
- “**How can we assign a probability to an event?**”<sup>57</sup> February 2019. English translation of a note in French authored by Hugo LAVENANT entitled “*Comment attribuer une probabilité à un évènement ?*.”
- “**Fuzzy Lattice-Theoretic Structures of First-Order Terms with Fuzzy Signatures**”<sup>58</sup> (with Gabriella Pasi), Journal Submission Preprint, July 31, 2017.
- “**HOOT—A Language for Expressing and Querying Hierarchical Ontologies, Objects, and Types**”<sup>59</sup> *CEDAR* Technical Report Number 16, *Université Claude Bernard Lyon 1, Département d’Informatique (LIRIS)*, December 2014.
- “**Design and Implementation of an Efficient Semantic Web Reasoner**”<sup>60</sup> (with Samir Amir) *CEDAR* Technical Report Number 14, *Université Claude Bernard Lyon 1, Département d’Informatique (LIRIS)*, November 2014.
- “**A Set-Complete Construction for Order-Sorted Set-Valued Features**”<sup>61</sup> *CEDAR* Technical Report Number 11, *Université Claude Bernard Lyon 1, Département d’Informatique (LIRIS)*, October 2014.
- “**The Cedar .Gdl Java Library for the Generalized Distributive Law—Design and Implementation**”<sup>62</sup> (with Kevin Sancho) *CEDAR* Technical Report Number 9, *Université Claude Bernard Lyon 1, Département d’Informatique (LIRIS)*, July 2014.

<sup>49</sup><http://hassan-ait-kaci.net/pdf/babel.pdf>

<sup>50</sup><http://hassan-ait-kaci.net/pdf/slp87.pdf>

<sup>51</sup><http://hassan-ait-kaci.net/pdf/tcs-86.pdf>

<sup>52</sup><http://hassan-ait-kaci.net/pdf/login-jlp-86.pdf>

<sup>53</sup><http://hassan-ait-kaci.net/pdf/login-popl-86.pdf>

<sup>54</sup><http://hassan-ait-kaci.net/pdf/rta85.pdf>

<sup>55</sup><http://hassan-ait-kaci.net/pdf/rairo85.pdf>

<sup>56</sup><http://www.hassan-ait-kaci.net/pdf/genXMLgen.pdf>

<sup>57</sup>[http://www.hassan-ait-kaci.net/pdf/assigning\\_probability.pdf](http://www.hassan-ait-kaci.net/pdf/assigning_probability.pdf)

<sup>58</sup><http://hassan-ait-kaci.net/pdf/fuzfotlat-preprint.pdf>

<sup>59</sup><http://cedar.liris.cnrs.fr/papers/ctr16.pdf>

<sup>60</sup><http://cedar.liris.cnrs.fr/papers/ctr12.pdf>

<sup>61</sup><http://cedar.liris.cnrs.fr/papers/ctr11.pdf>

<sup>62</sup><http://cedar.liris.cnrs.fr/interns/KevinSancho/ctr09/ctr09.pdf>

- “[Experiments with Scalable Triplestores](#)”<sup>63</sup> (with Mohand-Saïd Hacid, Rafiqul Haque, and Damien Fourure) *CEEDAR* Technical Report Number 5, *Université Claude Bernard Lyon 1, Département d’Informatique (LIRIS)*, October 2013.
- “[Efficient Encoding of Very Large Partial Orders—A Specification](#)”<sup>64</sup> *CEEDAR* Technical Report Number 4, *Université Claude Bernard Lyon 1, Département d’Informatique (LIRIS)*, August 2013.
- “[Fast Taxonomic Reasoning Based on Lattice Operations—System Demonstration](#)”<sup>65</sup> (with Samir Amir) *CEEDAR* Technical Report Number 3, *Université Claude Bernard Lyon 1, Département d’Informatique (LIRIS)*, August 2013.
- “[Classifying and Querying Very Large Taxonomies](#)”<sup>66</sup> (with Samir Amir) *CEEDAR* Technical Report Number 2, *Université Claude Bernard Lyon 1, Département d’Informatique (LIRIS)*, May 2013.
- “Complexity and Optimization of Combinations of Rules and Ontologies”<sup>67</sup> M24 Deliverable D3.3, Technical Report, ONTORULE Project (coordinated by Cristina Feier, with contributions from Hassan Aït-Kaci, Jürgen Angele, Jos de Bruijn, Hugues Citeau, Thomas Eiter, Adil El Ghali, Volha Kerhet, Eva Kiss, Roman Korf, Thomas Krekeler, Thomas Krennwallner, Stijn Heymans, Alessandro Mosca, Martín Rezk, Guohui Xiao), 2010.
- “Initial Combinations of Rules and Ontologies”<sup>68</sup> M12 Deliverable D3.2, Technical Report, ONTORULE Project (coordinated by Stijn Heymans with contributions from Jos de Bruijn, Martín Rezk, Hassan Aït-Kaci, Hugues Citeau, Roman Korf, Jörg Pührer, Cristina Feier, and Thomas Eiter), 2009.
- “Processing of initial combinations of rules and ontologies”<sup>69</sup> M12 Deliverable D3.5, Technical Report ONTORULE IST-2009-231875 Project, (author/coordinator Hassan Aït-Kaci, with contributions from Hugues Citeau and Roman Korf), 2009.
- “[Compiling Order-Sorted Theory Unification](#)” (with Martin Vorbeck), Technical Note, Intelligent Software Group, Simon Fraser University, 1996.
- “Generic Constraint-driven Configuration System Proposal” (with Denys Duchier) ISG Internal Report ISG-IR-1995-2, Intelligent Software Group, School of Computing Science, Simon Fraser University, September 1995.
- “[The Wild\\_LIFE Handbook](#)”<sup>70</sup> (with Bruno Dumant, Richard Meyer, Andreas Podelski, and Peter Van Roy), Pre-publication handbook, Digital Equipment Corporation, Paris Research Laboratory, Rueil-Malmaison, France, March 1994.
- “[Compiling Order-Sorted Feature Term Unification](#)”<sup>71</sup> (with Roberto Di Cosmo), PRL Technical Note 7, Digital Equipment Corporation, Paris Research Laboratory, Rueil-Malmaison, France, December 1993.
- “[The Typed Polymorphic Label-Selective  \$\lambda\$ -Calculus](#)”<sup>72</sup> (with Jacques Garrigue), PRL Research Report 35, Digital Equipment Corporation, Paris Research Laboratory, Rueil-Malmaison, France, October 1993.
- “[Order-Sorted Feature Theory Unification](#)”<sup>73</sup> (with Andreas Podelski and Seth Copen Goldstein), PRL Research Report 32, Digital Equipment Corporation, Paris Research Laboratory, Rueil-Malmaison, France, May 1993.
- “[Label-Selective  \$\lambda\$ -Calculus](#)”<sup>74</sup> (with Jacques Garrigue), PRL Research Report 31, Digital Equipment Corporation, Paris Research Laboratory, Rueil-Malmaison, France, May 1993.
- “[A Database Interface for Complex Objects](#)”<sup>75</sup> (with Marcel Holsheimer and Rolf A. de By), PRL Research Report 27, Digital Equipment Corporation, Paris Research Laboratory, Rueil-Malmaison, France, March 1993.
- “[A Feature Constraint System for Logic Programming with Entailment](#)”<sup>76</sup> (with Andreas Podelski and Gert Smolka) PRL Research Report 20, Digital Equipment Corporation, Paris Research Laboratory, Rueil-Malmaison, France, November 1992.
- “[Functions as Passive Constraints in LIFE](#)”<sup>77</sup> (with Andreas Podelski), PRL Research Report 13, Digital Equipment

<sup>63</sup><http://cedar.liris.cnrs.fr/papers/ctr5.pdf>

<sup>64</sup><http://cedar.liris.cnrs.fr/papers/ctr4.pdf>

<sup>65</sup><http://cedar.liris.cnrs.fr/papers/ctr3.pdf>

<sup>66</sup><http://cedar.liris.cnrs.fr/papers/ctr2.pdf>

<sup>67</sup><http://ontorule-project.eu/outcomes?func=fileinfo&id=46>

<sup>68</sup><http://ontorule-project.eu/outcomes?func=fileinfo&id=18>

<sup>69</sup><http://ontorule-project.eu/outcomes?func=fileinfo&id=19>

<sup>70</sup>[http://hassan-ait-kaci.net/pdf/WildLIFE\\_HANDBOOK.pdf](http://hassan-ait-kaci.net/pdf/WildLIFE_HANDBOOK.pdf)

<sup>71</sup><http://hassan-ait-kaci.net/pdf/PRL-TN-7.pdf>

<sup>72</sup><http://www.hpl.hp.com/techreports/Compaq-DEC/PRL-RR-35.pdf>

<sup>73</sup><http://www.hpl.hp.com/techreports/Compaq-DEC/PRL-RR-32.pdf>

<sup>74</sup><http://www.hpl.hp.com/techreports/Compaq-DEC/PRL-RR-31.pdf>

<sup>75</sup><http://www.hpl.hp.com/techreports/Compaq-DEC/PRL-RR-27.pdf>

<sup>76</sup><http://www.hpl.hp.com/techreports/Compaq-DEC/PRL-RR-20.pdf>

<sup>77</sup><http://www.hpl.hp.com/techreports/Compaq-DEC/PRL-RR-13.pdf>



Corporation, Paris Research Laboratory, Rueil-Malmaison, France, June 1991.

- “[Toward a Meaning of  \$\mathcal{LIFE}\$](#) ”<sup>78</sup> (with Andreas Podelski), PRL Research Report 11, Digital Equipment Corporation, Paris Research Laboratory, Rueil-Malmaison, France, June 1991.
- “The WAM: A (Real) Tutorial” PRL Research Report 5, Digital Equipment Corporation, Paris Research Laboratory, Rueil-Malmaison, France, January 1990.
- “ $\mathcal{LIFE}$ : A Natural Language for Natural Language” (with Patrick Lincoln), MCC Technical Report ACA-ST-074-88, Microelectronics and Computer Technology Corporation, Austin, Texas, February 1988.
- “Inheritance Hierarchies: Semantics and Unification” (with Gert Smolka), MCC Technical Report Number AI-057-87, Microelectronics and Computer Technology Corporation, Austin, Texas, May 1987.
- “BABEL: A Base for an Experimental Library” (with Roger Nasr and Jungyun Seo), MCC Technical Report Number AI-379-86, Microelectronics and Computer Technology Corporation, Austin, Texas, December 1986.
- “The Efficient Implementation of Object Inheritance” (with Robert Boyer, Patrick Lincoln and Roger Nasr), MCC Technical Report Number AI-102-87, Microelectronics and Computer Technology Corporation, Austin, Texas, October 1986.
- “Le Fun: Logic, equations, and Functions” (with Patrick Lincoln and Roger Nasr), MCC Technical Report Number AI-444-86, Microelectronics and Computer Technology Corporation, Austin, Texas, October 1986.
- “Residuation: A New Paradigm for Integrating Logic and Functional Programming” (with Roger Nasr), MCC Technical Report Number AI-359-86, Microelectronics and Computer Technology Corporation, Austin, Texas, October 1986.
- “LOGIN: A Logic Programming Language with Built-In Inheritance” (with Roger Nasr), MCC Technical Report Number AI-068-85, Microelectronics and Computer Technology Corporation, Austin, Texas, July 1985.
- “A Crash Course in Discrete Mathematics for Computer Science” MCC Technical Report Number AI-057-85, Microelectronics and Computer Technology Corporation, Austin, Texas, April 1985.
- “A New Model of Computation Based on a Calculus of Type Subsumption” Technical Report Number MS-CIS-83-40, C.I.S. Department, University of Pennsylvania. November 1983.
- “Outline of a Calculus of Type Subsumption” Technical Report Number MS-CIS-83-34, C.I.S. Department, University of Pennsylvania. August 1983.

## 7 Software

- [Jacc—Just another compiler compiler](#) (software tool—LALR(k) compiler generator).<sup>79</sup>

## 8 Invited Lectures and Positions

- **Panel participant**, “[The Semantic Web Challenges and Potentials](#)”, Special Panel Session on the Future of the Web, 4<sup>th</sup> International Conference on Web Research, April 26, 2018, Tehran, Iran.
- **Keynote speaker**, “[Today’s Semantic Web: What it amounts to; Why it is ill-conceived; How it could be fixed](#),” 4<sup>th</sup> International Conference on Web Research, April 25, 2018, Tehran, Iran.
- **Invited lecturer**, “[Scripts déclaratifs pour le traitement analytique des données par contraintes](#)”, *Journées Inaugurales du PréGDR CNRS sur les Aspects Formels et Algorithmiques en Intelligence Artificielle*, June 14, 2016, Montpellier, France.
- **Invited lecturer**, “[Towards Declarative Scripting: Combining CP and Analytics](#)”, *Centre de Recherche en Informatique de Lens*, March 17, 2016, Lens, France.
- **Panel member**, “[Towards Declarative Scripting: Combining CP and Analytics](#)” Workshop panel on Constraint Programming and Analytics,<sup>80</sup> 21st International Conference on Principles and Practice of Constraint Programming, August 31, 2015, Cork, Ireland.

<sup>78</sup><http://www.hpl.hp.com/techreports/Compaq-DEC/PRL-RR-11.pdf>

<sup>79</sup>[http://hassan-ait-kaci.net/hlt/doc/hlt/jaccdoc/000\\_START\\_HERE.html](http://hassan-ait-kaci.net/hlt/doc/hlt/jaccdoc/000_START_HERE.html)

<sup>80</sup><http://booleconferences.ucc.ie/cp2015workshops/cpandanalytics>

- **Keynote speaker**, “What Formalism(s) for the Semantic Web?” *11th International Conference on Concept Lattices and Their Applications (CLA 2014)*, October 7–10, 2014, Košice, Slovakia.<sup>81</sup>
- **Keynote speaker**, “Is It Possible to Make the Semantic Web a Reality?” *3rd International Workshop on Web Services and Formal Methods (INTIS’13)*, November 29–30, 2013, Tangiers, Morocco.<sup>82</sup>
- **Keynote speaker**, “Rule-based computing in industry—concepts, issues, perspectives” *8th International Workshop on Web Services and Formal Methods (WS-FM’11)*, September 1–2, 2011, Clermont-Ferrand, France.<sup>83</sup>
- **Keynote speaker**, “A Sorted-Graph Unification Approach to the Semantic Web” *The 2011 IEEE/WIC/ACM International Conferences on Web Intelligence and Intelligent Agent Technology, Web Intelligence*, 22–27 August 2011, Campus Scientifique de la Doua, Lyon, France.<sup>84</sup>
- **Invited lecturer**, *Rencontres sur la Recherche en Informatique (R2I 2011)*, Université Mouloud Mammeri de Tizi-Ouzou, Faculté de Génie Electrique et d’Informatique, Département d’Informatique, Laboratoire de Recherche en Informatique (LARI), June 12–14, 2011, Tizi-Ouzou, Algeria
- **Invited lecturer**, *2nd workshop on Practical Ontologies (CASCON 2010)*, Markham, ON, Canada, November 3, 2010.<sup>85</sup>
- **Keynote speaker**, *Colloque sur l’Optimisation et les Systèmes d’Information (COSI 2010)*, Ouargla, Algeria, April 18–20, 2010.<sup>86</sup>
- **Invited lecturer**, *A Sorted-Graph Unification Approach to the Semantic Web*, National Research Council of Canada, Fredericton, NB, Canada, September 17, 2009.<sup>87</sup>
- **Invited lecturer**, *Journées Françaises sur les Langages Applicatifs*, Aix-les-Bains, France, January 2007.<sup>88</sup>
- **Invited lecturer**, *Rule-based computing in industry—concepts, issues, perspectives*, *IFIP WG on Rules*, IFIP.WG16 on Rewriting, Paris, France, June 24, 2007.<sup>89</sup>
- **Invited lecturer**, *A Formalism of Order-Sorted Feature Objects*, 2nd International School on Rewriting, Nancy, France, July 2007.<sup>90</sup>
- **Invited panel participant**, *Go (semantic) Web, Young wo/man!*, 12th International Conference on Principles and Practice of Constraint Programming (CP’06), Nantes, France, 2006.<sup>91</sup>
- **Invited lecturer**, (with Andreas Podelski), International Conference on Constraint Databases, Paris, France, June 2004.
- **Keynote speaker**, *An Abstract and Reusable Programming Language Architecture*, Language Descriptions, Tools and Applications (LDTA’03), Warsaw, Poland, April 2003.<sup>92</sup>
- **Invited lecturer**, Le Croisic, France, January 2002.
- **Keynote speaker**, *What Objects for the Semantic Web?*, Conférence sur les Logiques et Modèles Objet, (LMO’01), Le Croisic, France, January 2001.<sup>93</sup>
- **Invited lecturer**, *A Formalism of Feature Structures*, invited lectures at several scientific venues on constraint and logic programming between 1994 and 2000.<sup>94</sup>
- **Invited lecturer**, *Is Computer Programming a Science?*, Simon Fraser University President’s Faculty Lecture Series, January 1995.<sup>95</sup>
- **Invited lecturer**, *Technology Transfer in North-America, Colloque sur la Recherche Scientifique*, Algiers, Algeria, August, 1994.<sup>96</sup>

<sup>81</sup><http://cedar.liris.cnrs.fr/papers/hak-cla2014.pdf>

<sup>82</sup><http://hassan-ait-kaci.net/pdf/hak-intis2013.pdf>

<sup>83</sup><http://hassan-ait-kaci.net/pdf/wsfm2011.pdf>

<sup>84</sup><http://wi-consortium.org/wicweb/pdf/WI-IAT11/AitKaci-wiat11-talk.pdf>

<sup>85</sup><http://ontorule-project.eu/dissemination/events/cascon-2010>

<sup>86</sup><http://www.isima.fr/cosi/cosi2010/>

<sup>87</sup><http://www.nrc-cnrc.gc.ca/eng/events/it/2009/09/17/approach-semantic-web.html>

<sup>88</sup><http://hassan-ait-kaci.net/pdf/jfla07.pdf>

<sup>89</sup><http://hassan-ait-kaci.net/pdf/ifip07.pdf>

<sup>90</sup><http://hassan-ait-kaci.net/pdf/hak-isr07.pdf>

<sup>91</sup><http://hassan-ait-kaci.net/pdf/cp06-panel.pdf>

<sup>92</sup><http://hassan-ait-kaci.net/pdf/ldta03.pdf>

<sup>93</sup><http://hassan-ait-kaci.net/pdf/webob.pdf>

<sup>94</sup><http://hassan-ait-kaci.net/pdf/osf.pdf>

<sup>95</sup><http://www.hassan-ait-kaci.net/pdf/sfupres.pdf>

<sup>96</sup><http://hassan-ait-kaci.net/pdf/techtrans.pdf>

- **Invited lecturer**, *Programming with Logic, Inheritance, Functions, and Equations*, ILPS'93, Vancouver, BC (Canada), 1993.<sup>97</sup>
- **Visiting researcher**, Nippon Telecom. (NTT), Knowledge Creation Group, Intelligent Communications Laboratory, NTT Research Laboratories, Kyoto, Japan, March 31–April 30, 1999.
- **Visiting professor**, Université Scientifique de Nice, France, July 1–31, 1997.
- **Invited lecturer**, Third International Symposium on Programming and Systems, Algiers, Algeria, April 14–16, 1997.
- **Invited lecturer**, *Jornadas de Informática e Investigación Operativa*, Universidad de la República, Montevideo, Uruguay, December 12–14, 1996.
- **Visiting professor**, Universidad de la República, Montevideo, Uruguay, December 7–14, 1996.
- **Invited lecturer**, Conference on Head-driven Phrase Structure Grammars, Marseille, France, May 20–22, 1996.
- **Invited speaker**, German Research Center for Artificial Intelligence (DFKI), Programming Systems Lab, October 23–24, 1995.
- **Invited speaker**, INPG, *École d'Informatique et de Mathématique Appliquée*, Grenoble, October 19–20, 1995.
- **Invited lecturer**, 3rd International Conference on Conceptual Structures, Santa Cruz, California, August 14–18, 1995.
- **Invited lecturer**, SFU President Faculty Lecture Series, Simon Fraser University, Burnaby, BC, January 19, 1995.
- **Invited speaker**, Laboratory for Logic, Databases, and Advanced Programming, Department of Computer Science, New Mexico State University, Las Cruces, New Mexico, October 20–21, 1994.
- **Invited lecturer**, *First Conference on Languages and Models for Objects (LMO'94)*, Grenoble, France, October 12–13, 1994.
- **Invited lecturer**, 6th European Summer School on Logic, Language, and Information, Copenhagen, Denmark, August 1994.
- **Invited lecturer**, *Colloque sur la Recherche Scientifique*, Algiers, Algeria, August, 1994.
- **Invited lecturer**, *22ème Ecole de Printemps d'Informatique Théorique: Programmation par Contraintes*, Châtillon-sur-Seine, France, May 1994.
- **Invited lecturer**, series of talks on New Developments in Programming and Specification Languages, CWI, Amsterdam, The Netherlands, December 1993.
- **Invited lecturer**, *Journée LIFE*, Logic Programming Group of AFCET, Paris, France, November 1993.
- **Invited lecturer**, pre-conference tutorial on *LIFE* at the Logic Programming Symposium, Vancouver, BC, Canada, October 1993.
- **Invited lecturer**, NATO Advanced Study Institute on Constraint Logic Programming, Tallinn, Estonia, August 1993.
- **Invited lecturer**, AFCET colloquium on Impacts of Logic Programming, Versailles, France, June 1993.
- **Invited lecturer**, 1st Spanish Conference on Declarative Programming, Madrid, Spain, September 1992.
- **Invited lecturer**, 3rd International Conference on Algebraic and Logic Programming, Pisa, Italy, September 1992.
- **Invited lecturer**, *Journées Françaises sur les Langages Applicatifs*, Tréguier, France, February 1992.
- **Invited lecturer**, 5th Portuguese Conference on Artificial Intelligence, Albufeira, Portugal, October 1991.
- **Invited lecturer**, 7th Colloquium on Advanced Data Base Systems, Lyon, France, September 1991.
- **Invited lecturer**, 3rd International Conference on Programming Language Implementation and Logic Programming, Passau, Germany, August 1991.
- **Invited lecturer**, pre-conference tutorial on the Warren Abstract Machine, 8th International Conference on Logic Programming, Paris, France, June 1991.
- **Invited lecturer**, Dutch Workshop on Database Programming Languages, Enschede, The Netherlands, May 1991.
- **Invited lecturer**, 5th International Workshop on Unification, Leeds, UK, July 1990.
- **Co-organizer**, with Maurice Nivat of L.I.T.P., Université de Paris 7, France, of an international technical conference sponsored by MCC and INRIA—the Colloquium on the Resolution of Equations in Algebraic Structures, Lakeway, TX, May 1987.

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<sup>97</sup><http://hassan-ait-kaci.net/pdf/life.pdf>

## 9 Technical Committees and Review Boards

- **Program committee member**, 35th International Conference on Logic Programming (ICLP 2019), Las Cruces, NM (USA), September 21–25, 2019.
- **Program committee member**, 16ème Colloque sur l’Optimisation et les Systèmes d’Information (COSI 2019), Tizi Ouzou, Algeria, June 24–26, 2019.
- **Program committee member**, 15ème Colloque sur l’Optimisation et les Systèmes d’Information (COSI 2018), Oran, Algeria, September 24–26, 2018.
- **Program committee member**, 34th International Conference on Logic Programming (ICLP 2018), Oxford, UK, July 14–17, 2018.
- **Program committee member**, 13ème Colloque sur l’Optimisation et les Systèmes d’Information (COSI 2016), Sétif, Algeria, May 30–June 1, 2016.
- **Program committee member**, 12ème Colloque sur l’Optimisation et les Systèmes d’Information (COSI 2015), Oran, Algeria, June 1–3, 2015.
- **Program committee member**, 11ème Colloque sur l’Optimisation et les Systèmes d’Information (COSI 2014), Bejaïa, Algeria, June 8–10, 2014.
- **Program committee member**, 27th Conference of the Association for the Advancement of Artificial Intelligence (AAAI 2013), Bellevue, WA, USA, July 14–18, 2013.
- **Program committee member**, 10ème Colloque sur l’Optimisation et les Systèmes d’Information (COSI 2013), Algiers, Algeria, June 9–11, 2013.
- **Program committee member**, Jury d’admission du concours des directeurs de recherche 2ème classe, INRIA Paris, June 2013.
- **Program committee member**, Jury d’admissibilité du concours des chargés de recherche 2ème classe, INRIA Rhône-Alpes, May 2013.
- **Program committee member**, 3rd International Conference on Business Intelligence and Technology (BUSTECH 2013), Valencia, Spain, May 27–June 1, 2013.<sup>98</sup>
- **Program committee member**, 4th Canadian Semantic Web Symposium (CSWS 2013), Montreal, QC, Canada, 10 July 2013.
- **Program committee co-chair**, 6th International RuleML Challenge, Montpellier, France, August 26–28, 2012.<sup>99</sup>
- **Program committee member**, 6th International Symposium on Rules (RuleML 2012), Montpellier, France, August 26–28, 2012.
- **International program committee member**, International Conference on Data Mining, Computational and Business Intelligence (DMCBI 2012), Bhubaneswar, Orissa, India, February 16–17, 2012.
- **Program committee member**, 3rd Canadian Semantic Web Symposium (CSWS 2011), Vancouver, BC, Canada, 5 August 2011.
- **Program committee member**, 1st International Conference on Business Intelligence and Technology (BUSTECH 2011), Rome, Italy, September 25–30, 2011.<sup>100</sup>
- **Program committee member**, 5th International Symposium on Rules: Research Based, Industry Oriented (RuleML 2011), Barcelona, Spain, July, 19–21 2011.<sup>101</sup>
- **Program committee member**, 4th International Web Rule Symposium: Research Based and Industry Focused (RuleML 2010) Washington, DC, USA, October 21–23, 2010.<sup>102</sup>
- **Program committee member**, RuleML Challenge 2010, Washington, DC, USA, October 21–23, 2010.<sup>103</sup>
- **Research Track Program committee member**, International Semantic Web Conference (ISWC 2010), Shanghai, China, November 7–11, 2010.<sup>104</sup>

<sup>98</sup><http://www.iaia.org/conferences2013/ComBUSTECH13.html>

<sup>99</sup><http://ceur-ws.org/Vol-874>

<sup>100</sup><http://www.iaia.org/conferences2011/BUSTECH11.html>

<sup>101</sup><http://www.defeasible.org/ruleml2011/home>

<sup>102</sup><http://www.csw.inf.fu-berlin.de/ruleml2010/e/>

<sup>103</sup><http://ruleml-challenge.cs.nccu.edu.tw/>

<sup>104</sup><http://iswc2010.semanticweb.org/>

- **Program committee member**, International Symposium on Rule Interchange and Applications (RuleML 2009) November 5–7, 2009.<sup>105</sup>
- **Program committee member**, 14th International Workshop on Formal Methods for Industrial Critical Systems (FMICS 2009) Eindhoven, The Netherlands November 2–3, 2009.<sup>106</sup>
- **Program committee member**, 8th International Semantic Web Conference (ISWC 2009), Washington, DC, USA, October 25–29, 2009.<sup>107</sup>
- **Program committee member**, 10th International Workshop on Rule-Based Programming (RULE 09), Brasilia, Brazil, June 28, 2009.<sup>108</sup>
- **Principal investigator**, ILOG’s participation in Work Package 3 of European project OntoRule, since Jan. 2009.<sup>109</sup>
- **Steering committee member**, International Workshop on Rule-Based Programming (RULE), since 2008.
- **ILOG’s principal representative**, the W3C “Rule Interchange Format” (RIF) Working Group, since Jan. 2004.<sup>110</sup>
- **Review committee member**, *Concours de recrutement de Chargés de Recherche—CR2*, Institut National de Recherche en Informatique et Automatique (INRIA), Rocquencourt, France, May/June 2003.
- **Committee member**, Evaluation Committee for Software Engineering and Symbolic Computing, Institut National de Recherche en Informatique et Automatique (INRIA), Paris, France, October 2002.
- **Program committee member**, 4<sup>th</sup> International Conference on Principles and Practice of Declarative Programming, Pittsburg, PA, USA, Oct. 6–8, 2002.
- **Review committee member**, *Concours de recrutement de Chargés de Recherche—CR1*, Institut National de Recherche en Informatique et Automatique, (INRIA) Rocquencourt, France, February 2002.
- **Program committee member**, International Symposium on Innovation in Information and Technology, Amman, Jordan, May 2002.
- **Program committee member**, 10<sup>èmes</sup> *Journées Francophones de Programmation Logique et Programmation par Contraintes*, Paris, France, April 2001.
- **Program committee member**, 12<sup>ème</sup> *Congrès Francophone de Reconnaissance des Formes et Intelligence Artificielle*, Paris, France, Feb. 2000.
- **Program committee member**, 3rd International Workshop on Distributed and Internet Programming with Logic and Constraint Languages, to be held in conjunction with the International Conference on Logic Programming, in Las Cruces, New Mexico, USA, November 1999.
- **Program committee member**, Fourth Conference on Languages and Models for Objects (LMO’97), Brest, France, October 22–24, 1997.
- **Program committee member**, Second International Symposium on Knowledge Retrieval, Use, and Storage for Efficiency (KRUSE’97), Vancouver, BC, August 11–13th, 1997.
- **Program committee member**, 3rd International Symposium on Programming and Systems (ISPS’97), Algiers, Algeria, April 14–16, 1997.
- **Program committee member and publicity committee member**, 8th IEEE International Conference on Tools with Artificial Intelligence, Toulouse, France, November 16–19, 1996.
- **Program committee member**, 20th German Annual Conference on Artificial Intelligence, Dresden, Germany, September, 17–19, 1996.
- **Program committee member**, *Cinquièmes Journées Francophones de Programmation Logique et programmation par Contraintes*, Clermont-Ferrand, France, June 1996.
- **Program committee member**, International Logic Programming Symposium, Portland, Oregon, December 4–7, 1995
- **Program committee member**, *Conférence sur les Langages et Modèles à Objets*, Nancy, France, October 12–13, 1995.

<sup>105</sup><http://www.defeasible.org/ruleml2009/>

<sup>106</sup><http://www.dsic.upv.es/workshops/fmics2009/>

<sup>107</sup><http://iswc2009.semanticweb.org/>

<sup>108</sup><http://www.lix.polytechnique.fr/rule/>

<sup>109</sup><http://ontorule-project.eu/>

<sup>110</sup><http://www.w3.org/2005/rules/wg>



- **Program committee member**, International Conference on Principles and Practice of Constraint Programming, Marseille, France, September 19–22, 1995
- **Program committee member**, 3rd International Conference on Conceptual Structures, Santa Cruz, California, August 14–18, 1995.
- **Program committee member**, International Workshop on Knowledge Retrieval, Use, and Storage for Efficiency, Santa Cruz, California, August 11–13, 1995
- **Program committee member**, *Journées Françaises sur la Programmation Logique*, Dijon, France, May 17–19, 1995.
- **Program committee member**, Joint COMPUNET/ELSNET Workshop on Computational Logic for Natural Language Processing, Edinburgh, Scotland, April 3–5, 1995.
- **Editorial board member**, (since 1994) *Journal of Functional and Logic Programming*, Electronic Journal, MIT Press, Cambridge, Massachusetts.
- **Program committee member**, 3rd Int. Conf. on Information and Knowledge Management, Gaithersburg, MD, Nov. 1994.
- **Organizing committee member**, *22ème École de Printemps d’Informatique Théorique: Programmation par Contraintes*, Châtillon-sur-Seine, France, May 1994.
- **Program committee member**, 8th European Conference on Object-Oriented Programming, Bologna, Italy, July 1994.
- **Program committee member**, 10th International Conference on Logic Programming, Budapest, Hungary, June 1993.
- **Program committee member**, Joint International Conference and Symposium on Logic Programming, Washington, DC, November 1992.
- **Scientific committee member**, Research Review of the *Laboratoire D’informatique de l’École Polytechnique*, Palaiseau, France, April 1992.
- **Program committee member**, Conference on Extending Data Base Technology, Vienna, Austria, March 1992.
- **Program committee member**, 19th ACM Symposium on Principles of Programming Languages, Albuquerque, NM, January 1992.
- **Editorial board member**, (since 1992) *Methods of Logic in Computer Science*, Ralph Wilkerson and Rick L. Smith, editors, Ablex Publishing Corporation, Norwood, NJ.
- **Program committee member**, International Logic Programming Symposium, San Diego, CA, October 1991.
- **Program committee member**, Conference on Data Base Programming Languages, Napflion, Greece, August 1991.
- **Program committee member**, 1st International Workshop on Processing Declarative Knowledge, Kaiserslautern, Germany, July 1991.
- **Program committee member**, 18th ACM Symposium on Principles of Programming Languages, Orlando, FL, January 1991.
- **Program committee member**, North-American Conference on Logic Programming, Austin, TX, October 1990.
- **Program committee member**, Conference on Extending Data Base Technology, Venice, Italy, March 1990.

## 10 Research Grants

- 01/2015–01/2016 **Programme Avenir Lyon Saint-Etienne: *LivEMUSIC*** Project (Living Environment Monitoring Use Scenarios with Intelligent Control); *Université Claude Bernard Lyon 1 (LIRIS)*, Villeurbanne, France. Total awarded funds: 150K €.
- 01/2013–01/2015 **Agence National de la Recherche, Chair of Excellence: *CEDAR*** Project (Constraint Event-Driven Automated Reasoning); *Université Claude Bernard Lyon 1 (LIRIS)*, Villeurbanne, France. Total awarded funds: 500K €.
- 2004–2006 **Réseau National sur la Technologie des Langages: MANIFICO** Project (*Métacompilation Non-Intrusive du Filtrage par Contraintes*);<sup>111</sup> ILOG joint industrial research project with LORIA (Nancy, France) and INRIA (Rocquencourt, France). Total awarded funds: 2M €.

- 1998–2001 **National Science and Engineering Research Council of Canada:** Investigation of a Formalism for Indefinite Computation and Approximation; Simon Fraser University. Total awarded funds: (CND) \$24K per year, for 3 years.
- 1994–1999 **National Science and Engineering Research Council of Canada:** MPR Teltech Industrial Chair in Intelligent Software Systems; Simon Fraser University. Total awarded funds: (CND) \$400K per year, for 5 years.
- 1993–1996 **Principal investigator:** ILOG participation in ESPRIT Basic Research Action **CONTESSA** Working Group (Constraint Database Systems) Consortium gathering 8 European academic and industrial research centers. Awarded funds: travel and workshop attendance for the working group meetings over three years.
- 1992–1994 **Principal investigator:** ILOG participation in ESPRIT Basic Research Action **ACCLAIM** Project (Advancing Concurrent Constraint Languages Implementation and Methodology). Awarded funds for ILOG: 100K ECU (approx. US \$150K) 3 person×years over three years (1992–1995).

## 11 Academic Supervision

- **Samir Amir**, post-doctoral fellow, LIRIS, UCBL, January 2013–January 2015, *CEDAR* Project’s Language Track Manager.
- **Rafiqul Haque**, post-doctoral fellow, LIRIS, UCBL, January 2013–January 2015, *CEDAR* Project’s Experimental Track Manager.
- **Tanguy Raynaud**, Master 2 intern, *Informatique*, UCBL, February–July 2014, “A Cache Only Memory Architecture for Big Data Applications.”
- **Minwei Chen**, Master 2 intern, *Informatique*, UCBL, March–July 2014, “CedTMart: A Triplestore for Storing and Querying Blinked Data.”
- **Kevin Sancho**, Master 2 intern, *Informatique*, UCBL, February–June 2014, “The Cedar .Gdl Java Library for the Generalized Distributive Law.”
- **Sara Allaoui**, Master 2 intern, *Informatique*, UCBL, February–June 2014, “Development of a SPARQL interface for managing complex objects with *LIFE*.”
- **Trevor van Dyk**, CMPT-415 Project, CS, SFU, May 1999–August 1999, “JNet—A multi-platform interface for Internet of an artificial neural network library.”
- **Manuel Zahariev**, CMPT-888 Project, SFU, January 1999–May 1999, “Compiling AI Programming Languages.”
- **Osmar Zaiane**, (co-supervisor) PhD, CS, SFU CMPT, 1996–1999, “Web Mining and Multimedia Mining.”<sup>112</sup>
- **Alejandro Garcia**, Visiting Researcher, Universidad de la Republica, Bahia Blanca, Argentina, January 1997–March 1997, “Compiling Defeasible Logic Programming.”
- **Cécile Capponi**, PostDoctoral Researcher, INRIA Rhône-Alpes, Grenoble, France, October 1995–October 1996, “Typing in Conceptual Lattice.”
- **Andrew Fall**, (co-supervisor), PhD, CS, SFU CMPT, “Reasoning with Taxonomies.” 1994–1996.<sup>113</sup>
- **Yutaka Sasaki**, Visiting Researcher, NTT Intelligent Communication Laboratory, May 1995–May 1996, “Inductive Logic Programming.”
- **Denys Duchier**, Post-doctoral Research Associate, Intelligent Software Group, Simon Fraser University’s School of Computing Science, September 1994–February 1996, “Extension of Wild\_*LIFE* 1.02 and Constraint Compilation Research.”
- **Serge Le Huitouze**, Post-doctoral Research Associate, Intelligent Software Group, Simon Fraser University’s School of Computing Science, October 1994–July 1996, “Memory Management in *LIFE* and Constraint Research.”
- **Sanjay Gupta**, MSc Student, CS, SFU, “A Database Interface for *LIFE* with Persistent Objects.” Completed: November, 1996.
- **Bruno Dumant**, PhD, Université de Paris 7, France. Ph.D. thesis: “Interprétation Abstraite de *LIFE* et Application à l’Optimisation de sa Compilation.” Completed: May, 1996.

<sup>112</sup><http://www.cs.ualberta.ca/~zaiane/htmldocs/phd.html>

<sup>113</sup><http://www.cs.sfu.ca/cs/people/GradStudents/fall/personal/index.html>

- **Richard Meyer**, DEA, École Nationale des Mines de Paris, France. Engineering thesis: “*Wild\_LIFE: A C Implementation of an Interpreter for LIFE.*” Completed: June, 1990.
- **Jacques Garrigue**, MSc, École Normale Supérieure, Paris, France. Master’s thesis: “*Le λ-Calcul Label-Sélectif.*” Completed: June, 1992.
- **Christophe Bonnet**, MSc, École Normale Supérieure, Paris, France. Master’s thesis: “*Un Métacompilateur pour la Programmation Logique par Contraintes.*” Completed: June, 1992.

## 12 Reviewing Activities

Referee and/or external examiner for several PhD theses and *Habilitations à Diriger des Recherches (HDR)* at—non-exhaustively:

- INRIA Rhône-Alpes (Nabil Layaïda)
- Université de Nancy/LORIA (Pierre-Étienne Moreau)
- École Polytechnique (Gilles Dowek, Alain Deutsch, Benoît Vaugon)
- Université d’Orsay (François-Xavier Josset)
- Université Joseph Fourier de Grenoble, (Rachid Echahed, Cécile Capponi, Jérôme Euzenat, Yves Lepage), etc.,

as well as review member several INRIA review committees, including *Conseil Scientifique d’Évaluation du Laboratoire d’Informatique de l’École Polytechnique (LIX)*, Palaiseau, France, under Gilles Kahn’s chairmanship.

## 13 Awards and Professional Affiliations

- **Association for Computing Machinery**, member since 1982.
- **Association for Logic Programming**, member since 1990.
- **IEEE**, member since 1995.
- **Fellow of the Advanced Systems Institute of British Columbia**, 1994–1995.

## 14 Miscellaneous

- Public relations appearances in non-technical media:
  - Newsletter article (The SPARK Letter, B.C. Science Council) – Sept. 1994.
  - Press release (SFU Media & Public Relations) – Nov. 8, 1994.
  - Radio interview (CKST - AM 1040: Nightline B.C.) – Nov. 12, 1994.
  - Newspaper article (The Province, Vancouver, B.C.) – Nov. 17, 1994.
  - Newspaper article (The News, Burnaby, B.C.) – Nov. 20, 1994.
  - Radio interview (CBC - FM 97.7: Vent d’Ouest) – Nov. 23, 1994.
  - TV interview (CBC TV Ch. 7: Ce Soir en Colombie Britannique) – December, 1994.
  - Newsletter article (Update, Centre for Systems Science, SFU) – January, 1994.
  - TV interview (CBC TV Ch. 7: Ce Soir en Colombie Britannique) – March, 1994.
  - Magazine article (BC Business Magazine) – March 1995.

## 15 Addendum

- **Languages:** French (native), English (fluent), Arabic (fair), Amazigh (notions).
- **References:** See list on separate document (see also <http://www.linkedin.com/in/hak2007>).