Manuel Hermenegildo

Areas of Interest

Global Program Analysis, Verification, Debugging, and Optimization for Functional and Non-functional Properties (Time, Memory, Energy); Abstract Interpretation; Partial Evaluation; Parallelism and (Resource-Aware) Parallelizing Compilers; Constraint/Logic/Functional Programming Theory and Implementation; Abstract Machines; Automatic Documentation Tools; Execution Visualization; Sequential and Parallel Computer Architecture.

Education

Aug 1986	**PhD.**, Electrical and Computer Eng., University of Texas at Austin.
Aug 1984	**M. S.**, Electrical and Computer Eng., University of Texas at Austin.
Jun 1981	**M. S.**, Electrical Eng., Technical U. of Madrid.

Positions

Jan 07-...	**Distinguished Professor** (Jan 07-Jul 17, **Scientific Director**), *Madrid Institute for Advanced Research in Software Development Technology (IMDEA Software, software.imdea.org)*, Spain, *and*
Jan 90-...	**Full Professor** (Jan 90-May 94 **Associate Professor**), *Technical U. of Madrid*, Department of Computer Science; Spain.

Research. PhD. student and PostDoc supervision. Graduate and undergraduate teaching. Leader of the CLIP (Computational Logic, Implementation and Parallelism) Lab. Principal investigator in a large number of EU, international, and national projects on resource-aware computing, static analysis, automatic parallelization, verification, abstraction carrying code, global analysis of programs, constraint logic programming, program debugging, next generation program development tools, and others.

Built Institute from its foundation into a world-class institution. General scientific coordination of the Institute. *Director, EIT Digital Spain* (Spanish Node of the European Institute for Innovation and Technology EIT Digital KIC), and *Microsoft Research–IMDEA Software Joint Research Center*.

Feb 03-Dec 08	**Prince of Asturias Endowed Chair** in Information Science and Technology, *U. of New Mexico*, Departments of Computer Science and Electrical and Computer Engineering; Albuquerque, NM, USA

Research. PhD. student and PostDoc supervision. Graduate and undergraduate teaching.

May 00-Sep 02	**Director** of the *Spanish National Research Directorate* (Spanish central agency financing research in all areas of science and technology).

Creation of the directorate from a number of previously existing units. Design and management of all programs funding projects, human resources, and infrastructures, including starting the "Ramon y Cajal" fellowship program. Coordination with regional, European, and international programs. Benchmarking of the national S&T system. Member, board of directors of the Spanish Foundation for Science and Technology, the Spanish Scientific Research Council (CSIC), and the Spanish Center for Industrial and Technological Development (CDTI). Spanish representative in the European Union Advisory Committee for Research (CREST).

Oct 86-Dec 89	**Member, Technical Staff**, *MCC*, Parallel Processing Program and ACA/Systems Technology Lab.; Austin, Texas.
	Principal Investigator, PAL project: parallel and sequential high performance implementation of next generation languages and systems. Development of theoretical bases, execution models, and actual implementations of high-performance parallel logic programming systems. Design and simulation of coherent-cache, cluster-based multiprocessors. Performance studies of execution models on several parallel architectures and organizations.
Mar 87-Jan 90	**Assistant/Associate Professor** (adjunct), *University of Texas at Austin,* Computer Science Department.
	Teaching (Computer Architecture, Logic Programming). Supervision of PhD. students working in the areas of parallel computer architecture, parallel execution model theory and design, abstract interpretation, and automatic parallelization.
Jun 85-Aug 85	**Intern**, *MCC*; Austin, Texas.
Jul 84-Aug 84	**Intern**, *IBM Corp.*; Austin, Texas.
Nov 82-Aug 83	**Analyst**, *Philips S.A.*; Madrid, Spain.
	Technical management.
Jun 81-Aug 81	**Design Engineer** (praktikum), *Siemens Gmbh.*; Munich, Germany.
	Electronic circuit design and embedded systems development for audio and automotive applications.
Jan 80-Oct 82	**President**, *HC Electronics*; Madrid, Spain.
	Co-owned venture, involved in the development and licensing of electronic circuit designs and prototypes. Products included a Speech Scrambler marketed by Eurotronica S.A., and a Spectrum Scanning System installed at the National Optics Institute.

Other Selected Activities, Honors, and Awards

- Google scholar >10k citations, h 58. Area rankings: 2nd in Abstract Interpretation, 7th in Logic Programming, 9th in Computational Logic, 17th in Program Analysis, 25th in Verification.

- **ACM Fellow**. "Julio Rey Pastor" **Prize for Research in Mathematics and Information and Communication Technologies**, 2006 (highest Spanish national scientific award in the areas of mathematics and information technology). "Aritmel" **Prize for Scientific Merit in Computer Science**, 2005. Elected member of the **Academia Europaea**, 2010. Member of the **Academia Europaea** selection committee.

- **Invited talks (keynotes) and/or tutorials** at LOPSTR'23, ICLP'22, CILC'22, PROLE'22, SAS'20, DPA@FCRC'19, LOPSTR'18, DPA@ECOOP'18, Dagstuhl'17, ICLP'17 (test of time award lecture), VPT'17@ETAPS, Dagstuhl'16, UninovaPhDForum'15, Dagstuhl'14, RichModelToolkit'11, RuleML'11, WLPE'11, TAPAS'10 (at SAS 2010), Datalog2.0 (2010), ProTest 09 workshop, 30 Years of Abstract Interpretation POPL'08 meeting, European Computer Science Summit'08, DAMP'07, EEAI'06, DAMP'06, ACM SAC'06, MoveLog'05, PPDP'05, EUROPAR'04, EU-IST GRIDS'04, SAS'03, PEPM'03, ICALP'02, ERCIM/CoLogNet'02, LPAR'01, CL'00, CMPP'00, AgentLink'99 WS, ICLP'99, AFLP'98, EUROPAR'97, ILPS'97, ICLP'97, AADEBUG'97, PAAM / PAP'97, CCL'96, EPIA'96, LPAR'94, JICSLP'92, WSA/SAS'92, IEEE CompEuro 92, ICLP'89 and at several other Workshops and Summer Schools.

- **Editorial Adviser** and former **Area Editor** (architecture and implementation) of *"Theory and Practice of Logic Programming"* (Cambridge U. Press) (formerly, the *"Journal of Logic Programming"*, Elsevier North-Holland), **Associate Editor** of the *"Journal of New Generation Computing"*

(Springer-Verlag), **Area Editor** of *"Journal of Applied Logic"* (Elsevier North-Holland), former **Associate Editor** of *"ACM Transactions on Programming Languages and Systems"* (ACM).

- **Program Committee Chair or Co-Chair**: *"2023 Static Analysis Symposium"*, SAS 2023, Cascais, Portugal; *"2022 ACM SIGPLAN International Symposium on Principles and Practice of Declarative Programming"*, PPDP 2022, Tsibili, Georgia; *"2019 ACM SIGPLAN Workshop on Partial Evaluation and Program Manipulation"*, PEPM 2019, Cascais, Portugal; *"2017 Workshop on Horn Clause-based Verification and Synthesis"*, HCVS 2017, Gotheborg, Sweden; *"2016 Conference on Logic-based Program Synthesis and Transformation"*, LOPSTR 2016, Edinburgh, UK; *"2016 Compiler Construction Conference"*, CC 2016, Barcelona, Spain; *"2013 National Computer Science Conference"*, CEDI 2013, Madrid, Spain; *"2012 European Computer Science Summit"*, ECSS 2012, Barcelona, Spain; *"2010 International Conference on Logic Programming"*, 2010, Edinburgh, UK; *"Verification, Abstract Interpretation and Model Checking"* VMCAI 2010, Madrid, Spain; *"2008 Declarative Aspects of Multicore Programming"* DAMP 2008 (San Francisco, CA, USA); *2008 International Symposium on Functional and Logic Programming (FLOPS'08)* (Ise, Japan); *"2005 Practical Aspects of Declarative Programming Symposium"* PADL'05 (Long Beach, CA, USA), *"2002 Static Analysis Symposium"*; SAS'02 (Madrid, Spain); *"Parallel Symbolic Computing"* track of EUROPAR'97, 1997 (Passau, Germany); *"Programming Languages: Implementations, Logics, and Programs"*, 1994 (Madrid, Spain) and 1995 (Utrecht, The Netherlands); *"North American Conference on Logic Programming"*, 1990, Austin, TX.

- **Conference Chair or Co-Chair**, *"ACM Principles of Programming Languages"* POPL 2010, Madrid, Spain, *"International Conference on Logic Programming"* ICLP 2006, Seattle, WA, USA, *"2005 Symposium on Practical Aspects of Declarative Languages"* PADL'05, Long Beach, CA, USA, *"2002 Static Analysis Symposium"* SAS'02, Madrid, Spain, *Joint "Algebraic and Logic Programming" and "Programming Languages: Implementations, Logics, and Programs"* conferences, 1994, Madrid, Spain, *First Spanish Conference on Declarative Programming*, PROLE'92, as well as many workshops since 1987 –latest ones the *2014-2016 Microsoft-IMDEA collaboration workshops* and the *"2017 Workshop on Horn Clause-based Verification and Synthesis"*, HCVS 2017, Gotheborg, Sweden.

- **Program Committee or ERC Member** for many conferences including ICLP'23, ICLP'22, PROLE'22, CILC'22, ICLP'21, CC'20, PADL'20, ICLP'20, LPOP'20, ICLP'18, CC'18, PACT'17 (ERC), ICLP'17, POPL'17 (ERC), FLOPS'16, AppLP'16, PLDI'16, TAPAS'15, LOPSTR'15, FOPARA'15, PADL'14, ECSS'14, POPL'13, ICLP'13, LOPSTR'13, Turing100'12, STOP'12, LPAR'12, PLDI'11, DAMP'11, ICLP'10, VMCAI'10, ICLP'08, SAS'08, ServiceWave'08, DAMP'08, FLOPS'08, TGC'07, SAS'07, TGC'06, FLOPS'06, PADL'06, ESOP'05, ICALP'05, PPSWR'05, AEPIA'05, PROLE'05, PADL'05, ICLP'04, EUMAS'04, PDCS'04, PROLE'04, PPDP'03, CP'03, PADL'03, EUMAS'03, PPDP'02, SAS'02, ICLP'01, SAS01, LOPSTR'01, POPL'00, LOPSTR'00, CMPP'00, ESOP'00, ECAI'00 CLPWS, PPDP'99, FLOPS'99, PADL'99, Irregular'99, POPL'97, ICLP'97, DPLE'97, CP'95, Europar'95, PLILP'94-95, PARLE'93, GULP-PRODE'92-94, PLILP'93-95, JICSLP'92, PAP'91, NACLP'90, ICLP'90, ICLP'89. **Session chairman** and **panelist** at several conferences and workshops.

- **President of the Scientific Advisory Board** of *INRIA*, **Member of the Scientific Advisory Board** of the *Schloss Dagstuhl* International Center, the Spanish *National Research Council*, *ACM SIGLOG*, *IFCoLog*, the *NOVA LINCS* center, and the *Initiative de Recherche et Innovation sur le Logiciel Libre, IRILL* center.

- **Selected to give the Keynote** on the 50th anniversary of Prolog at the International Conference on Logic Programming, and at the PrologDay in Paris, as well as keynotes at CILC and ProLe (Italian and Spanish) PL conferences.

- Most prolific author (most papers published) in the International Conference on Logic Programming, the top-level venue for work in this area, according to `dblp`.

- **Member** of ISTAG, the High-level Advisory Group of the Information Society Technologies Research Program (IST) of the European Union for Framework Program VI (2002-2006). President

of several working groups. Co-authored several "white books" and policy reports (not included in publications list).

- **Panel Member** ACM 50th Anniversary Workshop on Future Directions in Computer Science, the ALP Strategic Directions Meeting, and at several EU Vth, VIth, and VIIth Framework Program strategic planning meetings ("New Directions for ICTs in FP7 meeting: Grand challenges for basic research," "Next Generation GRIDs," "Global Computing," "Future Software Systems," "Advanced Embedded Systems," etc.).

- **Invited speaker** at the Danish EU presidency high-level meeting on the need for a European Research Council.

- **Scientific expert** at *Spanish Parliament* hearings on teaching Computer Science in Schools, and at *Spanish Senate* hearings, on software patents and open source software. Expert and National Representative for the OECD on Dissemination of Scientific Data and Results.

- **Elected Member** of the *ACM Europe Council*, **Member** of the *ACM Europe Technology Policy Committee*, **Elected Vice-President** and **Member of the Executive Board** of *Informatics Europe*. **Elected President** of the *Association for Logic Programming* (ALP) and the *Spanish Research Consortium in Informatics and Mathematics* (SpaRCIM, Spain's member in ERCIM). **Member of the Steering Board** and **Chair of the Spain Node Strategy Committee** of *EIT Digital*.

- **Member of the Steering Committee** of *ACM Principles of Programming Languages Conference (POPL)* (and POPL'2011 Most Influential Paper Award committee), *Verification, Abstract Interpretation and Model Checking Conference (VMCAI)*, *Static Analysis Symposium (SAS)*, *Functional and Logic Programming Symposium (FLOPS)*, *ACM Principles and Practice of Declarative Programming Symposium (PPDP)*, *Federated Logic Conference (FLoC)*, *Compiler Construction (CC)*, *International Symposium on Logic-Based Program Synthesis and Transformation (LOPSTR)*, and *Declarative Aspects of Multicore Programming Workshop* series.

- **Elected member of the steering boards** of the *European Association for Programming Languages and Systems* (EAPLS), and (twice) of the *Association for Logic Programming*.

- **Test of time award** (most influential paper in last 10 years) ICLP 2017 (with Jorge Navas, Edison Mera, and Pedro López), **Highest ranked paper** at PPDP 2016 (with Nataliia Stulova and José Morales). **Best paper award** at ICSOC 2011 (with Dragan Ivanovic and Manuel Carro) and at ICLP 2005 (with José Morales, Manuel Carro, and Germán Puebla).

- **Member of the winning team** at the 18th Prolog Programming contest, at ICLP 2011 in Lexington KY (with Michael Leuschel and Antonio Porto).

- Served on **tenure and promotion committees** or as a **center or department evaluator** for MPI (Germany), LERO (Ireland), K.U.Leuven (Belgium, University of Copenhagen (DIKU), T.U. Denmark (TUD), Cambridge U. (U.K.), Cyprus U., INRIA (France), Ecole Normale Superieure (France), U. of Porto (Portugal), U. of Melbourne (Australia), New Mexico State U. (USA), Ecole Polytechnique (France), Negev U. (Israel), etc. and several Spanish universities. **President** of the Spanish national **research performance evaluation commission** for the areas of Computer Science and Electronics (CNEAI). Member of Department Evaluation Advisory Board at *Informatics Europe*.

- **Area Coordinator** (parallelism and implementation technologies) of the EU Networks of Excellence in Computational Logic COMPULOG and CoLogNet.

- **Invited Lecturer** in the *EPFL IC distinguished lecture series*, October 2018, and in the distinguished visitor lecture series of New Mexico State University, October 1996. Former **lecturer** on the *"IEEE Computer Society Distinguished Visitor Program"*.

- **Invited Scientist**, August-September 1988, at the Japanese Institute for fifth generation computing (ICOT) in Tokyo.

- **Developed a number of practical software systems**, which are in the public domain, some of them with thousands of users, including the Ciao programming system, CiaoPP, LPdoc, the PiLLoW library, CP analyzers, PLAI, automatic parallelizers, &-Prolog, VisAndOr, etc.

- Participated in more than 50 **research projects**, in most of them as principal investigator, funded by the European Union and the Spanish Ministries, as well as NSF, MITI, etc. Also in several projects funded by industry.

- **Referee** for many journals (TOPLAS, Computing Reviews, TCS, TPLP/JLP, JSC, JPDC, FGCS, TODS, LOPLAS, IJPP, IEEE-TSE, JFGC, COMPLANG, JFLP, etc.), and conferences (POPL, SAS, IJCAI, ICLP, SLP, ILPS, PPDP, NACLP, JICSLP, ICPP, DCS, CONPAR, CP, CC, ESOP, EUMAS, PAP, PARLE, PLILP, ALP, POPL, WSA, EUROPAR, GULP, ICALP, ICPA, PODS, ASIAN, CAEPIA, PACT, PASCO, PPSWR, etc.).

- **Evaluator** and panel member for several institutions: EU (ESPRIT, IST FP IV, V, VI), NSF, DARPA, DoD, ICOT, ISF, INRIA, FULBRIGHT, the Australian, Austrian, Belgian, Danish, French, Irish, Swedish, Spanish, and UK funding agencies, etc.

- **Faculty Adviser** for the ACM student chapter of the T.U. of Madrid.

- **Fulbright-Hays Scholarship** for Graduate Study in the U.S. (1983-84). **U. of Texas Graduate Research Grant** (1984-85). **MCC Graduate Research Grant** (1985-86).

- **Professional Societies**: ACM, IEEE (Computer Society), ALP (Assoc. for Logic Programming), EAPLS, ATI (Professional Computer Engineers' Assoc. of Spain), ERCIM/SpaRCIM, Informatics Europe, among others.

- **Member** of the Tau Beta Pi Engineering Honor Society.

Students and Recent Collaborators

Graduated Ph.D. Students (+ graduating university/current location):

Kalyan Muthukumar (U.T. Austin/IBM San Jose / Apple research), Yow-Yan Lin (U.T. Austin/Bellcore), María García de la Banda (T.U. Madrid/Melbourne University), Francisco Bueno (T.U. Madrid), Germán Puebla (T.U. Madrid), Pedro López García (T.U. Madrid/CSIC), Manuel Carro (T.U. Madrid/IMDEA Software), Daniel Cabeza Gras (T.U. Madrid), Jorge Navas (U. of New Mexico/SRI), Amadeo Casas (U. of New Mexico/Microsoft), Mario Méndez (U. of New Mexico/U.T. Austin), José Francisco Morales (T.U. Madrid/IMDEA Software), Pablo Chico (T.U. Madrid), Nataliia Stulova (T.U. Madrid/U. Berne), Isabel García-Contreras (T.U. Madrid/U. Waterloo).

Some recent collaborators (outside the IMDEA SW Institute and UPM, out of 142 total):

P. Stuckey (Melbourne U., Australia), R. Haemmerle (Leontech, Switzerland), M. Marron (Microsoft, USA) H. Muller (Xmos, UK) M. Rosendahl (U. of Roskilde, Denmark), K. Eder (U. Bristol, UK), K. Marriott (Monash U., Australia), E. Pontelli (New Mexico S.U., USA), G. Gupta (U.T. Dallas, USA), S. Debray (U. of Arizona, USA), U. Montanari (U. Pisa, Italy), F. Rossi (U. Pisa, Italy), K. Shen (Imperial College, UK), M. Codish (Ben Gurion U., Israel), M. Bruynooghe (K.U. Leuven, Belgium), P. Deransart (INRIA, France), J. Maluszynski (Linkoping U., Sweden), V. Santos-Costa (U. of Porto, Portugal), A. Pettorossi (U. Roma), M. Proietti (CNR), G. Barthe (MPI), M. Leuschel (U. Duesseldorf), O. Lhoták, J. Lipton, J. Gallagher (U. of Roskilde, Denmark), D. Kapur (U. of New Mexico, USA), D. Stefanovic (U. of New Mexico, USA).

Personal data / contact

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Email:	`manuel.hermenegildo at upm.es` `manuel.hermenegildo at imdea.org`
URLs:	`http://www.cliplab.org/~herme`
Phone:	+34-91-101-2202

Publications (in reverse chronological order)

Articles in Refereed Journals:

1. Philipp Körner, Michael Leuschel, João Barbosa, Vítor Santos-Costa, Verónica Dahl, Manuel V. Hermenegildo, Jose F. Morales, Jan Wielemaker, Daniel Diaz, Salvador Abreu, Giovanni Ciatto. *Fifty Years of Prolog and Beyond.* Theory and Practice of Logic Programming, 20th Anniversary Special Issue, Vol. 22, Num. 6, pages 776–858, Cambridge U. Press, May 2022.

2. Agostino Dovier, Andrea Formisano, Gopal Gupta, Manuel V. Hermenegildo, Enrico Pontelli, Ricardo Rocha. *Parallel Logic Programming: A Sequel.* Theory and Practice of Logic Programming, 20th Anniversary Special Issue, Vol. 22, Num. 6, pages 905–973, Cambridge U. Press, March 2022.

3. Emanuele De Angelis, Fabio Fioravanti, John P. Gallagher, Manuel V. Hermenegildo, Alberto Pettorossi, Maurizio Proietti. *Analysis and Transformation of Constrained Horn Clauses for Program Verification.* Theory and Practice of Logic Programming, Vol. FirstView, pages 1–69, Cambridge U. Press, November 2021.

4. M.A. Sanchez-Ordaz, I. Garcia-Contreras, V. Perez-Carrasco, J. F. Morales, P. Lopez-Garcia, M. V. Hermenegildo. *VeriFly: On-the-fly Assertion Checking via Incrementality.* Theory and Practice of Logic Programming, Vol. 21, Num. 6, pages 768–784, Cambridge U. Press, September 2021. Special Issue on ICLP'21.

5. I. Garcia-Contreras, J. F. Morales, M. V. Hermenegildo. *Incremental and Modular Context-sensitive Analysis.* Theory and Practice of Logic Programming, Vol. 21, Num. 2, pages 196–243, Cambridge U. Press, January 2021.

6. N. Stulova, J. F. Morales, M. V. Hermenegildo. *Some Trade-offs in Reducing the Overhead of Assertion Run-time Checks via Static Analysis.* Science of Computer Programming, Vol. 155, pages 3–26, Elsevier North-Holland, April 2018. Selected and Extended papers from the 2016 International Symposium on Principles and Practice of Declarative Programming.

7. P. Lopez-Garcia, L. Darmawan, M. Klemen, U. Liqat, F. Bueno, M. V. Hermenegildo. *Interval-based Resource Usage Verification by Translation into Horn Clauses and an Application to Energy Consumption.* Theory and Practice of Logic Programming, Special Issue on Computational Logic for Verification, Vol. 18, Num. 2, pages 167–223, Cambridge U. Press, March 2018. arXiv:1803.04451.

8. U. Liqat, Z. Banković, P. Lopez-Garcia, M. V. Hermenegildo. *An Evolutionary Scheduling Approach for Trading-off Accuracy vs. Verifiable Energy in Multicore Processors.* Logic Journal of the IGPL, Vol. 25, Num. 6, pages 1006–1019, Oxford Academic Press, December 2017.

9. K. Eder, J.P. Gallagher, P. Lopez-Garcia, H. Muller, Z. Banković, K. Georgiou, R. Haemmerlé, M. V. Hermenegildo, B. Kafle, S. Kerrison, M. Kirkeby, M. Klemen, X. Li, U. Liqat, J. Morse, M. Rhiger, M. Rosendahl. *ENTRA: Whole-Systems Energy Transparency.* Microprocessors and Microsystems, Vol. 47, Part B, pages 278–286, Elsevier, November 2016.

10. I. Garcia-Contreras, J. F. Morales, M. V. Hermenegildo. *Semantic Code Browsing.* Theory and Practice of Logic Programming, 32nd Int'l. Conference on Logic Programming (ICLP'16) Special Issue, Vol. 16, Num. 5-6, pages 721–737, Cambridge U. Press, September 2016.

11. P. Lopez-Garcia, M. Klemen, U. Liqat, M. V. Hermenegildo. *A General Framework for Static Profiling of Parametric Resource Usage.* Theory and Practice of Logic Programming, 32nd Int'l. Conference on Logic Programming (ICLP'16) Special Issue, Vol. 16, Num. 5-6, pages 849–865, Cambridge U. Press, September 2016.

12. J.F. Morales, M. Carro, M. V. Hermenegildo. *Description and Optimization of Abstract Machines in a Dialect of Prolog.* Theory and Practice of Logic Programming, Vol. 16, Num. 1, pages 1–58, Cambridge University Press, January 2016.

13. N. Stulova, J. F. Morales, M. V. Hermenegildo. *Practical Run-time Checking via Unobtrusive Property Caching.* Theory and Practice of Logic Programming, 31st Int'l. Conference on Logic Programming (ICLP'15) Special Issue, Vol. 15, Num. 04-05, pages 726–741, Cambridge U. Press, September 2015. http://arxiv.org/abs/1507.05986.

14. A. Serrano, P. Lopez-Garcia, M. V. Hermenegildo. *Resource Usage Analysis of Logic Programs via Abstract Interpretation Using Sized Types.* Theory and Practice of Logic Programming, 30th Int'l. Conference on Logic Programming (ICLP'14) Special Issue, Vol. 14, Num. 4-5, pages 739–754, Cambridge U. Press, July 2014.

15. D. Ivanovic, M. Carro, M. V. Hermenegildo. *A Sharing-Based Approach to Supporting Adaptation in Service Compositions.* Computing, Vol. 95, Num. 6, pages 453–492, Springer Wien, June 2013.

16. M. V. Hermenegildo, F. Bueno, M. Carro, P. Lopez-Garcia, E. Mera, J.F. Morales, G. Puebla. *An Overview of Ciao and its Design Philosophy.* Theory and Practice of Logic Programming, Vol. 12, Num. 1–2, pages 219–252, Cambridge University Press, January 2012.

17. J. F. Morales, R. Haemmerlé, M. Carro, M. V. Hermenegildo. *Lightweight compilation of (C)LP to JavaScript.* Theory and Practice of Logic Programming, 28th Int'l. Conference on Logic Programming (ICLP'12) Special Issue, Vol. 12, Num. 4-5, pages 755–773, Cambridge U. Press, 2012.

18. E. Albert, P. Arenas, G. Puebla, M. Hermenegildo. *Certificate Size Reduction in Abstraction-Carrying Code.* Theory and Practice of Logic Programming, Vol. 12, Num. 3, pages 283–318, 2012.

19. P. Chico de Guzmán, A. Casas, M. Carro, M. V. Hermenegildo. *Parallel Backtracking with Answer Memoing for Independent And-Parallelism.* Theory and Practice of Logic Programming, 27th Int'l. Conference on Logic Programming (ICLP'11) Special Issue, Vol. 11, Num. 4–5, pages 555–574, Cambridge U. Press, July 2011.

20. G. Puebla, E. Albert, M. V. Hermenegildo. *Efficient Local Unfolding with Ancestor Stacks.* Theory and Practice of Logic Programming, Vol. 11, Num. 1, pages 1–32, Cambridge U. Press, January 2011.

21. A. Stivala, P. J. Stuckey, M. García de la Banda, M. V. Hermenegildo, A. Wirth. *Lock-free Parallel Dynamic Programming.* Journal of Parallel and Distributed Computing, Vol. 70, Num. 8, pages 839–848, Elsevier, 2010.

22. P. Lopez-Garcia, F. Bueno, M. V. Hermenegildo. *Automatic Inference of Determinacy and Mutual Exclusion for Logic Programs Using Mode and Type Analyses.* New Generation Computing, Vol. 28, Num. 2, pages 117–206, Ohmsha, Ltd. and Springer, 2010.

23. D. Cabeza, M. Hermenegildo. *Non-Strict Independence-Based Program Parallelization Using Sharing and Freeness Information.* Theoretical Computer Science, Vol. 410, Num. 46, pages 4704–4723, Elsevier Science, October 2009.

24. E. Albert, G. Puebla, M. V. Hermenegildo. *Abstraction-Carrying Code: A Model for Mobile Code Safety.* New Generation Computing, Vol. 26, Num. 2, pages 171–204, March 2008.

25. M. V. Hermenegildo, G. Puebla, F. Bueno, P. Lopez-Garcia. *Integrated Program Debugging, Verification, and Optimization Using Abstract Interpretation (and The Ciao System Preprocessor).* Science of Computer Programming, Vol. 58, Num. 1–2, pages 115–140, Elsevier North-Holland, October 2005.

26. G. Gupta, E. Pontelli, K. Ali, M. Carlsson, M. V. Hermenegildo. *Parallel Execution of Prolog Programs: a Survey.* ACM Transactions on Programming Languages and Systems, Vol. 23, Num. 4, pages 472–602, ACM Press, July 2001.

27. D. Cabeza, M. Hermenegildo. *Distributed WWW Programming using (Ciao) Prolog and the PiLLoW Library.* Theory and Practice of Logic Programming, Vol. 1, Num. 3, pages 251–282, Cambridge U. Press, May 2001.

28. M. Hermenegildo. *Parallelizing Irregular and Pointer-Based Computations Automatically: Perspectives from Logic and Constraint Programming.* Parallel Computing, Vol. 26, Num. 13–14, pages 1685–1708, Elsevier Science, December 2000.

29. M. García de la Banda, M. V. Hermenegildo, K. Marriott. *Independence in CLP Languages.* ACM Transactions on Programming Languages and Systems, Vol. 22, Num. 2, pages 269–339, ACM Press, March 2000.

30. M. V. Hermenegildo, G. Puebla, K. Marriott, P. Stuckey. *Incremental Analysis of Constraint Logic Programs.* ACM Transactions on Programming Languages and Systems, Vol. 22, Num. 2, pages 187–223, ACM Press, March 2000.

31. G. Puebla, M. V. Hermenegildo. *Abstract Multiple Specialization and its Application to Program Parallelization.* J. of Logic Programming. Special Issue on Synthesis, Transformation and Analysis of Logic Programs, Vol. 41, Num. 2&3, pages 279–316, Elsevier - North Holland, November 1999.

32. F. Bueno, M. García de la Banda, M. V. Hermenegildo. *Effectiveness of Abstract Interpretation in Automatic Parallelization: A Case Study in Logic Programming.* ACM Transactions on Programming Languages and Systems, Vol. 21, Num. 2, pages 189–238, ACM Press, March 1999.

33. K. Muthukumar, F. Bueno, M. García de la Banda, M. Hermenegildo. *Automatic Compile-time Parallelization of Logic Programs for Restricted, Goal-level, Independent And-parallelism.* Journal of Logic Programming, Vol. 38, Num. 2, pages 165–218, Elsevier - North-Holland, February 1999.

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1. M. V. Hermenegildo. *50-Years of Prolog and Beyond (invited talk).* November 2022. Keynote given at the Prolog 50th Anniversary 'Prolog Day Symposium'.

2. M. V. Hermenegildo. *Some reflections on Prolog's evolution, status, and future on the 50th anniversary of the birth of Prolog (abstract of invited talk).* 38th International Conference on Logic Programming (ICLP'22 at FLoC'22), August 2022.

3. Manuel V. Hermenegildo, Pedro Lopez-Garcia, Alberto Pettorossi, Maurizio Proietti. *Preface, Fundamenta Informaticae, Special Issue on the 26th International Symposium on Logic-Based Program Synthesis and Transformation: LOPSTR 2016.* Vol. 177, Num. 3–4, pages 1–3, IOS Press, December 2020.

4. V. Perez-Carrasco, M. Klemen, P. Lopez-Garcia, J.F. Morales, M. V. Hermenegildo. *Cost Analysis of Smart Contracts via Parametric Resource Analysis.* Proceedings of the 27th Static Analysis Symposium (SAS 2020), LNCS, Vol. 12389, pages 7–31, Springer, November 2020.

5. J. Gallagher, M. V. Hermenegildo, B. Kafle, M. Klemen, P. Lopez-Garcia, J.F. Morales. *From big-step to small-step semantics and back with interpreter specialization (invited paper).* Proceedings of the Eighth International Workshop on Verification and Program Transformation (VPT 2020), Electronic Proceedings in Theoretical Computer Science (EPTCS), pages 50–65, Open Publishing Association (OPA), 2020. Co-located with ETAPS 2020.

6. M. V. Hermenegildo, I. Garcia-Contreras, J. Morales, P. Lopez-Garcia, M. Klemen, I. Casso. *Multivariant Assertion-based Guidance of Top-down Horn Clause-based Analysis in CiaoPP.* Workshop on Declarative Program Analysis (DPA 2019), 1 pages, July 2019. (Abstract of invited talk). Associated to FCRC 2019.

7. M. V. Hermenegildo, M. Carro, P. Lopez-Garcia, J.F. Morales, J. Arias, I. Garcia-Contreras, M. Klemen, N. Stulova. *25 Years of Ciao (abstract of invited tutorial).* Pre-proceedings of the 28th International Symposium on Logic-based Program Synthesis and Transformation (LOPSTR'18), September 2018.

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28. M. Hermenegildo. *Computational Models for Sequential and Parallel Execution of Logic Programs on a Reconfigurable Architecture.* Ms. Thesis, The University of Texas at Austin, ENS Bldg. 515, Austin, TX 78712, 122 pages, June 1984.

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1. Hermenegildo, M.V., Morales, J.F., Lopez-Garcia, P., Carro, M.. *Types, modes and so much more – the Prolog way.* Prolog - The Next 50 Years, LNCS, Num. 13900, pages 23–37, Springer, July 2023.

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