

# Juan Antonio Navarro Pérez

## Curriculum vitae

### Experience

- since Aug 2014 **Software Engineer in Test**, *Google*, London, UK.
- 2012–2015 **Lecturer**, *University College London*, UK.  
Member of “Programming Principles, Logic and Verification Group”
- 2012 **Lecturer**, *Queen Mary, University of London*, UK.

### Postdoctoral research

- 2010–2011 **Postdoc**, *Technische Universität München*, Germany.  
Research group leader: Andrey Rybalchenko
- 2008–2009 **Postdoc**, *Max Planck Institute for Software Systems (MPI-SWS)*, Germany.  
Research group leader: Andrey Rybalchenko

### Education

- 2004–2007 **PhD in Computer Science**, *The University of Manchester*, UK.  
Thesis: “Encoding and Solving Problems in Effectively Propositional Logic”  
Supervisor: Andrei Voronkov
- 2003–2005 **Master in Computer Science**, *Universidad de las Américas Puebla*, Mexico.  
Thesis: “Semantics for non-monotonic reasoning: A logical approach”  
Supervisor: Mauricio Osorio
- 1999–2003 **BSc in Mathematics**, *Universidad de las Américas Puebla*, Mexico.  
Thesis: “Lógica Aplicada a Answer Sets”  
Supervisor: Mauricio Osorio

### Selected publications

- [aplas13] Juan Antonio Navarro Pérez and Andrey Rybalchenko. “Separation Logic Modulo Theories”. In: *APLAS'13: 11th Asian Symposium on Programming Languages and Systems*. Melbourne, Australia, 2013.
- [pldi11] Juan Antonio Navarro Pérez and Andrey Rybalchenko. “Separation Logic + Superposition Calculus = Heap Theorem Prover”. In: *PLDI'11: Proceedings of the 32nd ACM SIGPLAN conference on Programming language design and implementation*. San Jose, CA, USA: ACM Press, 2011.
- [cav09] Juan Antonio Navarro Pérez, Andrey Rybalchenko, and Atul Singh. “Cardinality Abstraction for Declarative Networking Applications”. In: *CAV'09: Proceedings of the 21st International Conference on Computer Aided Verification*. Vol. 5643. Lecture Notes In Computer Science. Grenoble, France: Springer, June 2009, pp. 584–598.

### Prizes and awards

- Sep 2013 **First Research Grant**, *EPSRC*, UK.  
Research title: Automating Separation Logic Reasoning
- 2010–2012 **Member level I**, *National System of Researchers (SNI)*, Mexico.
- 2006 **Magna Cum Laude (MSc)**, *Universidad de las Américas, Puebla*, Mexico.
- 2006 **Highest grade (MSc Computer Science)**, *Universidad de las Américas, Puebla*, Mexico.
- 2005 **PhD Scholarship**, *Mexican Council of Science and Technology (CONACyT)*, Mexico.
- 2004 **Honorable Mention**, *International Collegiate Programming Contest, ACM World Finals*.
- 2004 **Third Place**, *Java Challenge, International Collegiate Programming Contest, ACM World Finals*.

- 2003 **1st Place**, *México & Central América ACM Programming Contest*.
- 2003 **Magna Cum Laude (BSc)**, *Universidad de las Américas, Puebla, Mexico*.
- 2003 **Highest grade (BSc Mathematics)**, *Universidad de las Américas, Puebla, Mexico*.
- 2003 **Honorable Mention**, *International Collegiate Programming Contest, ACM World Finals*.
- 2002 **1st Place**, *México & Central América ACM Programming Contest*.
- 2000–2002 **Member of the Dean's List (School of Science)**, *Universidad de las Américas, Puebla*.
- 2002 **7th Place**, *México & Central América ACM Programming Contest*.
- 1998 **First Place**, *National Contest of the 12th Mexican Mathematics Olympiad*.
- 1997 **Second Place**, *National Contest of the 11th Mexican Mathematics Olympiad*.

## Teaching

- fall 2012 COMP2008 “*Theory III — Logic*”, Undergraduate module (50 participants) at UCL.
- fall 2012 COMP1002 “*Theory I — Logic*”, Undergraduate module (100 participants) at UCL.
- spring 2012 ELEM007 “*Intelligent agents and multi-agent systems*”, Master module (15 participants) at QMUL.

## Academic advising

### Interns

- 2013 Victor Popescu, “Extending a Theorem Prover for Separation Logic” at UCL.

### Thesis reviewing

- 2009 José Luis Carballido, *Benemérita Universidad Autónoma de Puebla, Mexico*.  
Title: “Fundamentos Matemáticos de la Semántica P-estable en Programación Lógica”  
Degree: Doctor in Mathematics
- 2009 José Inácio de Jesus Rodrigues, *Universidad de Sevilla, Spain*.  
Title: “Sobre Algunas Clases Polinomiales de Satisfacibilidad Proposicional”  
Degree: Doctor in Mathematics

## Professional service

### Member of program committee

- 2009, 2010, 2012, 2013 MICAI: Mexican International Conference on Artificial Intelligence
- 2011, 2012 CONIELECOMP: International Conference on Electronics, Communications and Computers
- 2008, 2011 ENC: Mexican International Conference on Computer Science
- 2006–2011 LANMR: Latin American Workshop on Non-Monotonic Reasoning
- 2006 WoLLIC: Workshop in Logic, Language and Computation

### Journal peer reviewing

- 2013 CyS: Computación y Sistemas
- 2010 TOPLAS: Transactions on Programming Languages and Systems
- 2010 TPLP: Theory and Practice of Logic Programming
- 2009, 2010 RIIA: Revista Iberoamericana de Inteligencia Artificial
- 2008 JAR: Journal of Automated Reasoning

### Conference peer reviewing

- 2009, 2013 VMCAl: Verification, Model Checking, and Abstract Interpretation
- 2007, 2013 CADE: Conference on Automated Deduction
- 2009, 2011 LPNMR: International Conference on Logic Programming and Non-monotonic Reasoning
- 2009 TASE: Theoretical Aspects of Software Engineering Conference
- 2008 LPAR: Logic Programming Artificial Intelligence and Reasoning
- 2007, 2008 MICAI: Mexican International Conference on Artificial Intelligence
- 2007 ASP: Answer Set Programming: Advances in Theory and Implementation

### Other reviewing service

- 2011 National postdoctoral internships funded by CONACyT in Mexico

## Technical editor

2002 Proceedings of the 7th International Conference on Parametric Optimization and Related Topics

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## Volunteer work

- since 2013 **STEM Ambassador**, *Science, Technology, Engineering and Mathematics Network*, London, UK.  
Promote STEM subjects and skills to young learners
- since 2010 **Writer and cofounder**, *Pedazos de Carbono*.  
Science popularising blog in Spanish, approx. 15k page views per month
- 2010 **Moderator**, *T<sub>E</sub>X – L<sup>A</sup>T<sub>E</sub>X Stack Exchange*.  
Question and answer site for T<sub>E</sub>X, L<sup>A</sup>T<sub>E</sub>X and other related systems
- 2002 **Organiser**, *6th Conference Cycle in Physics and Mathematics, and the 1st Conference Mini-cycle for lectures given by students*.
- 2001–2002 **Treasurer**, *Physics and Mathematics Student Society at UDLA*, Mexico.
- 1999–2000 **Coach**, *Team from the State of Puebla in the Mexican Mathematics Olympiad*, Mexico.

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## Skills and competences

### Languages

English Fluent  
Spanish Native  
German Basic

### Programming languages

Imperative: C/C++, Pascal, Java, Fortran  
Logic and functional: Prolog, OCaml, Haskell  
Symbolic and numerical: Mathematica, R, Matlab  
Web and scripting: Perl, Python, PHP, Ruby  
Document typesetting: (L<sup>A</sup>)T<sub>E</sub>X  
Web design: HTML, CSS, XML, JavaScript  
Databases: SQLite, MySQL  
Social media: Twitter and Facebook apps

### General interests

Programming, mathematics, science, philosophy and technology. Science popularising, promoting skepticism and critical thinking.

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## Full list of publications

### Conference and journal papers

- [aplas13] Juan Antonio Navarro Pérez and Andrey Rybalchenko. “Separation Logic Modulo Theories”. In: *APLAS'13: 11th Asian Symposium on Programming Languages and Systems*. Melbourne, Australia, 2013.
- [mhg13] Juan Antonio Navarro Pérez and Andrei Voronkov. “Planning with Effectively Propositional Logic”. In: *Programming Logics - Essays in Memory of Harald Ganzinger*. Ed. by Andrei Voronkov and Christoph Weidenbach. Vol. 7797. Lecture Notes in Computer Science. Springer, 2013, pp. 302–316.
- [arxiv13] Juan Antonio Navarro Pérez and Andrey Rybalchenko. “Separation Logic Modulo Theories”. In: *CoRR* abs/1303.2489 (2013).
- [snam12] Meeyoung Cha, Juan Antonio Navarro Pérez, and Hamed Haddadi. “The Spread of Media Content Through Blogs”. In: *Social Network Analysis and Mining* 2.3 (2012), pp. 249–264.
- [pldi11] Juan Antonio Navarro Pérez and Andrey Rybalchenko. “Separation Logic + Superposition Calculus = Heap Theorem Prover”. In: *PLDI'11: Proceedings of the 32nd ACM SIGPLAN conference on Programming language design and implementation*. San Jose, CA, USA: ACM Press, 2011.

- [tplp10] Nuno P. Lopes, Juan Antonio Navarro Pérez, Andrey Rybalchenko, and Atul Singh. “[Applying Prolog to Develop Distributed Systems](#)”. In: *Theory and Practice of Logic Programming, 26th Int'l. Conference on Logic Programming (ICLP'10) Special Issue* 10.4–6 (July 2010). Ed. by M. Hermenegildo and T. Schaub, pp. 681–696.
- [cav09] Juan Antonio Navarro Pérez, Andrey Rybalchenko, and Atul Singh. “[Cardinality Abstraction for Declarative Networking Applications](#)”. In: *CAV'09: Proceedings of the 21st International Conference on Computer Aided Verification*. Vol. 5643. Lecture Notes In Computer Science. Grenoble, France: Springer, June 2009, pp. 584–598.
- [padl09] Juan Antonio Navarro Pérez and Andrey Rybalchenko. “[Operational Semantics for Declarative Networking](#)”. In: *PADL'09: Proceedings of the Eleventh International Symposium on Practical Aspects of Declarative Languages*. Lecture Notes in Computer Science 5418. Savannah, GA, USA: Springer, Jan. 2009, pp. 76–90.
- [ijcar08] Juan Antonio Navarro Pérez and Andrei Voronkov. “[Proof Systems for Effectively Propositional Logic](#)”. In: *IJCAR'08: Proceedings of the 4th International Joint Conference on Automated Reasoning*. Lecture Notes in Computer Science 5195. Sydney, Australia: Springer, Aug. 2008, pp. 426–440.
- [cade07] Juan Antonio Navarro Pérez and Andrei Voronkov. “[Encodings of Bounded LTL Model Checking in Effectively Propositional Logic](#)”. In: *CADE-21: Proceedings of the 21st International Conference on Automated Deduction*. Lecture Notes in Artificial Intelligence 4603. Bremen, Germany: Springer, 2007, pp. 346–361.
- [jlc06] Mauricio Osorio, Juan Antonio Navarro Pérez, José Arrazola, and Verónica Borja Macías. “[Logics with Common Weak Completions](#)”. In: *Journal of Logic and Computation* 16.6 (Dec. 2006), pp. 867–890.
- [jlc05] Mauricio Osorio, Juan Antonio Navarro Pérez, José Arrazola, and Verónica Borja Macías. “[Ground Nonmonotonic Modal Logic S5: New Results](#)”. In: *Journal of Logic and Computation* 15.5 (Oct. 2005), pp. 787–813.
- [aaai05] Juan Antonio Navarro Pérez and Andrei Voronkov. “[Generation of Hard Non-Clausal Random Satisfiability Problems](#)”. In: *AAAI'05/IAAI'05: Proceedings of the Twentieth National Conference on Artificial Intelligence and the Seventeenth Conference on Innovative Applications of Artificial Intelligence*. Pittsburgh, PA, USA: AAAI Press, July 2005.
- [apal05] Mauricio Osorio, Juan Antonio Navarro Pérez, and José Arrazola. “[Safe Beliefs for Propositional Theories](#)”. In: *Annals of Pure and Applied Logic* 134.1 (June 2005). Ed. by R. de Queiroz, B. Poizat, and S. Artemov, pp. 63–82.
- [iberamia04] Mauricio Osorio and Juan Antonio Navarro Pérez. “[Answer Set Programming and S4](#)”. In: *IBERAMIA'04: Proceedings of the IX Ibero-American Conference on Artificial Intelligence*. Lecture Notes in Computer Science 3315. Puebla, México: Springer, Nov. 2004.
- [tplp04] Mauricio Osorio, Juan Antonio Navarro Pérez, and José Arrazola. “[Applications of Intuitionistic Logic in Answer Set Programming](#)”. In: *Theory and Practice of Logic Programming* 4.3 (May 2004). Ed. by Maurice Bruynooghe, pp. 325–354.
- [wollic02] Mauricio Osorio, Juan Antonio Navarro Pérez, and José Arrazola. “[A Logical Approach for A-Prolog](#)”. In: *WoLLIC'02: Proceedings of the 9th Workshop on Logic, Language, Information and Computation*. Ed. by Ruy de Queiroz, Luiz Carlos Pereira, and Edward Hermann Haeusler. Vol. 67. Electronic Notes in Theoretical Computer Science. Rio de Janeiro, Brazil: Elsevier, 2002, pp. 265–275.
- [lopstr01] Mauricio Osorio, Juan Antonio Navarro Pérez, and José Arrazola. “[Equivalence in Answer Set Programming](#)”. In: *LOPSTR'01: Proceedings of the 11th International Workshop on Logic Based Program Synthesis and Transformation*. Ed. by Alberto Pettorossi. Lecture Notes in Computer Science 2372. Paphos, Cyprus: Springer, Nov. 2001, pp. 57–75.
- [cic01] Mauricio Osorio and Juan Antonio Navarro Pérez. “[Decision Problem of Substrings in Context Free Languages](#)”. In: *CIC-X: Memorias del X Congreso Internacional de Computación*. Ed. by Juan Humberto Sossa Azuela, Herbert Freeman, and C. Vizcaíno. CIC-IPN, 2001, pp. 239–249.

#### Workshop and short papers

- [hcss13] Juan Antonio Navarro Pérez. “[Separation Logic Modulo Theories](#)”. In: *HCSS 2013 – High Confidence Software and Systems Conference*. 2013.

- [icwsm09] Meeyoung Cha, Juan Antonio Navarro Pérez, and Hamed Haddadi. “Flash Floods and Ripples: The Spread of Media Content through the Blogosphere”. In: *Proceedings of the ICWSM 2009 Data Challenge Workshop*. **Best paper award**. 2009.
- [arw07] Juan Antonio Navarro Pérez. “Encodings of Bounded LTL Model Checking in Effectively Propositional Logic”. In: *ARW’07: Proceedings of the Workshop on Automated Reasoning*. London, U.K., Apr. 2007.
- [sat07] Juan Antonio Navarro Pérez and Andrei Voronkov. “[Encodings of Problems in Effectively Propositional Logic](#)”. In: *SAT’07: Proceedings of the 10th International Conference on Theory and Applications of Satisfiability Testing*. Lecture Notes in Computer Science 4501. Invited talk given by second author. Lisbon, Portugal: Springer, 2007, p. 3.
- [arw06] Juan Antonio Navarro Pérez. “Translations to Propositional Satisfiability”. In: *ARW’06: Proceedings of the Workshop on Automated Reasoning*. Bristol, U.K., Apr. 2006.
- [arw05] Juan Antonio Navarro Pérez. “Generation of Hard Non-Clausal Random Satisfiability Problems”. In: *ARW’05: Proceedings of the Workshop on Automated Reasoning*. Edinburgh, Scotland, July 2005.
- [lanmr04] Luis Angel Montiel and Juan Antonio Navarro Pérez. “Computing Preferred Safe Beliefs”. In: *LA-NMR’04: Proceedings of the First Latin America Workshop on Non-Monotonic Reasoning*. Ed. by Mauricio Osorio and Alessandro Provetti. CEUR Workshop Proceedings 92. México, D.F., México, Apr. 2004.
- [esslli03] Juan Antonio Navarro Pérez. “Properties of Translations for Logic Programs”. In: *ESSLLI’03: Student Session of the Eighth European Summer School in Logic, Language and Information*. Ed. by Balder ten Cate. Vienna, Austria, Aug. 2003.
- [asl03] Mauricio Osorio and Juan Antonio Navarro Pérez. “Modal Logic  $S5_2$  and FOUR (abstract)”. In: *ASL’03: Proceedings of the 2003 Annual Meeting of the Association for Symbolic Logic*. Chicago, IL, USA, June 2003.
- [lc02] Mauricio Osorio, Juan Antonio Navarro Pérez, and José Arrazola. “Consistent neg-extensions of Superintuitionistic Theories (abstract)”. In: *LC’02: Proceedings of the 2002 Logic Colloquium*. Münster, Germany, Aug. 2002.
- [iclp02] Mauricio Osorio, Juan Antonio Navarro Pérez, and José Arrazola. “[Debugging in A-Prolog: A Logical Approach \(abstract\)](#)”. In: *ICLP’02: Proceedings of the 18th International Conference on Logic Programming*. Ed. by Peter J. Stuckey. Lecture Notes in Computer Science 2401. Copenhagen, Denmark: Springer, Aug. 2002, pp. 482–483.
- [esslli02] Juan Antonio Navarro Pérez. “Answer Set Programming through  $G_3$  Logic”. In: *ESSLLI’02: Student Session of the Seventh European Summer School in Logic, Language and Information*. Ed. by Malvina Nissim. Trento, Italy, Aug. 2002.
- [micai02] Mauricio Osorio, Juan Antonio Navarro Pérez, and José Arrazola. “Si-logics for Non-Monotonic Reasoning”. In: *Proceedings of the Workshop on Logic and Computation, held at the Mexican International Conference on Artificial Intelligence (MICAI’02)*. Mérida, México, Apr. 2002.

## Theses

- [phd] Juan Antonio Navarro Pérez. “Encoding and Solving Problems in Effectively Propositional Logic”. PhD thesis. The University of Manchester, 2007.
- [master] Juan Antonio Navarro Pérez. “Semantics for Nonmonotonic Reasoning: A Logical Approach”. MA thesis. Universidad de las Américas, Puebla, 2006.
- [bcs] Juan Antonio Navarro Pérez. “Lógica Aplicada a Answer Sets”. Bachelor’s Thesis. Universidad de las Américas, Puebla, 2003.