

Curriculum Vitæ

Luca de Alfaro

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Computer Science and Engineering Department
Jack Baskin School of Engineering, MS: SOE3
University of California, Santa Cruz
1156 High St., Santa Cruz, CA 95064, USA

Phone: +1 650 248-2856
e-mail: luca@dealfaro.com
web: <https://luca.dealfaro.com>

RESEARCH INTERESTS

Game theory and applications (reputation systems, crowdsourcing, network protocols, online collaboration).
Machine learning and applications (fairness in machine learning).
Web, mobile, and the cloud.

EDUCATION

January 1998	Ph.D., Computer Science	Stanford University
September 1997	M.S., Computer Science	Stanford University
September 1995	Doctorate, System and Computer Engineering	Politecnico di Torino, Italy
July 1990	B.S. Electrical Engineering	Politecnico di Torino, Italy

EMPLOYMENT

July 2018 to present	Professor, Department of Computer Science and Engineering	University of California, Santa Cruz
July 2011 to June 2018	Professor, Department of Computer Science	University of California, Santa Cruz
May 2011 to June 2011	Staff Research Scientist	Google, Inc
December 2009 to May 2011	Software Engineer	Google, Inc
July 2009 to June 2011	Associate Professor, Department of Computer Science	University of California, Santa Cruz
September 2008 to June 2011	On leave	University of California, Santa Cruz
September 2008 to December 2009	Visiting Scientist	Google, Inc

July 2005 to June 2009	Associate Professor, Department of Computer Engineering	University of California, Santa Cruz
July 2001 to June 2005	Assistant Professor, Department of Computer Engineering	University of California, Santa Cruz
June 2000 to July 2001	Assistant Research Engineer, Electrical Engineering and Computer Sciences	University of California, Berkeley
January 1998 to June 2000	Postdoctoral Scientist, Electrical Engineering and Computer Sciences	University of California, Berkeley
September 1991 to December 1997	Research Assistant, Department of Computer Science	Stanford University

HONORS

- 2020: **ESWEEK Test of Time Award**, for the paper *Interface Theories for Component-Based Design*, written with Thomas A. Henzinger, and originally published in the proceedings of the EMSOFT 2001 Conference. This is the second test-of-time award given in the history of ESWEEK. Embedded Systems Week (ESWEEK) is the premier event covering all aspects of hardware and software design for smart, intelligent and connected computing systems.
- 2020: **LICS 2020 Test of Time Award**, for the paper *Concurrent Omega-Regular Games*, written with Thomas A. Henzinger, and originally presented in the IEEE Symposium on Logic in Computer Science (LICS) 2000. Citation:

The setting of two player games on finite graphs, used to model interactions between systems and their environments, has been extensively studied in the context of synthesis and control. A key issue for *concurrent* games is that it requires probabilistic considerations. This paper handled concurrent games with ω -regular objectives (that is, the winning condition refers to the infinite path that the players generate). It studied the theoretical properties of the games and provided clever algorithms for computing the sets of winning states for three different qualitative modes of winning, reflecting different probabilistic guarantees. By settling several fundamental results of this theory, this is a landmark paper that has been extended to include further qualitative parameters (energy and other weighted games), richer winning conditions, and applications beyond traditional synthesis and control.

- 2016: **Best paper candidate**, AAAI Conference on Human Computation and Crowdsourcing (HCOMP)
- 2012: **ACM SIGSOFT Impact Paper Award**, for the paper: Luca de Alfaro and Thomas A. Henzinger. *Interface automata*. In Proceedings of ESEC/FSE-9, the joint 8th European Software Engineering Conference and 9th ACM SIGSOFT International Symposium on the Foundations of Software Engineering (Vienna, Austria, 10 - 14 September, 2001).
- 2001: **Best paper award**, 12th International Conference on Concurrency Theory (CONCUR)
- 2001: **NSF Early Faculty Career Award**
- 1998: **Samuel Thesis Award**, Stanford University
- 1998: **Nomination for ACM Doctoral Dissertation Award**, Stanford University
- 1990: **Graduation Cum Laude**, Politecnico di Torino, Italy

LANGUAGES

English, Italian, French, a bit of Spanish and German.

VISITING POSITIONS

1. Google Inc., visiting scientist, September 2008 to December 2009.
2. Max-Planck Institute for Computer Science, Saarbrücken, Germany, April 1999.
3. Department of Computer Science, Birmingham University, May 1999.
4. Laboratory for Computer Science, MIT, February–April 2001.
5. Digital Equipment Corporation, Marlborough, Massachusetts, September–November 2000.

PUBLICATIONS

According to Google Scholar, 11,056 citations, h-index: 49, i10-index: 89.

Books and Monographs

1. L. de Alfaro. *Formal verification of Probabilistic Systems*. Ph.D. Thesis, Stanford University, 1997. Technical Report STAN-CS-TR-98-1601.
2. L. de Alfaro. *Logica temporale e sistemi in tempo reale*. Doctoral Thesis, Politecnico di Torino, 1994.
3. L. de Alfaro. *Modem per canali ad alto tasso di errore: Codici e protocolli di comunicazione*. Bachelor Thesis, Politecnico di Torino, 1990.
4. A. Prat Bastai and L. de Alfaro. *Molecole ed Energia*. Petrini editore, 1985.

Edited Books

1. M. Abadi and L. de Alfaro (editors). *CONCUR: International Conference on Concurrency Theory*. Lecture Notes in Computer Science 3653, Springer-Verlag, 2005.
2. L. de Alfaro and S. Gilmore (editors). *Process Algebra and Probabilistic Methods*. Lecture Notes in Computer Science 2165, Springer-Verlag, 2001.

Articles

Refereed Conference Papers

1. E. Pastor, L. de Alfaro, E. Baralis. Identifying Biased Subgroups in Ranking and Classification. In *KDD workshop on Responsible AI*, 2021.
2. E. Pastor, A. Gavgavian, E. Baralis, L. de Alfaro. How Divergent Is Your Data? In *Proceedings of the 47th International Conference on Very Large Data Bases (VLDB)*, Demo Track, 2021.
3. E. Pastor, L. de Alfaro, E. Baralis. Looking for Trouble: Analyzing Classifier Behavior via Pattern Divergence. *Proceedings of the 2021 ACM SIGMOD Conference*, 2021.
4. M. Zhang, L. de Alfaro, M. Mosko, C. Funai, T. Uptegrove, B. Thapa, D. Javorek, J.J. Garcia-Luna-Aceves. Adaptive Policy Tree Algorithm to Approach Collision-Free Transmissions in Slotted ALOHA. *Proceedings of the 17th International Conference on Mobile Ad-Hoc and Smart Systems (IEEE MASS)*, 2020.
5. S. Liang, L. de Alfaro. Online Top-K Selection in Crowdsourcing Environments. *Proceedings of the 6th International Conference on Computing and Data Engineering (ICDE)*, 2020.

6. M. Zhang, L. de Alfaro, J.J. Garcia-Luna-Aceves. Using Reinforcement Learning in Slotted Aloha for Ad-Hoc Networks. *Proceedings of the 23rd International ACM Conference on Modeling, Analysis, and Simulation of Wireless and Mobile Systems (MSWiM)*, pages 245-252, 2020.
7. M. Zhang, L. de Alfaro, J.J. Garcia-Luna-Aceves. An Adaptive Tree Algorithm to Approach Collision-Free Transmission in Slotted ALOHA. *Proceedings of the ACM SIGCOMM 2020 Workshop on Network Meets AI & ML (NetAI)*, 2020.
8. L. de Alfaro, M. Zhang, J.J. Garcia-Luna-Aceves. Approaching Fair Collision-Free Channel Access with Slotted ALOHA Using Collaborative Policy-Based Reinforcement Learning. *Proceedings of the IFIP Networking 2020 Conference*, 2020.
9. R. Agrawal, L. de Alfaro. Learning Edge Properties in Graphs from Path Aggregations. *Proceedings of The Web Conference*, 2019.
10. M. Daltayanni, A. Dasan, L. de Alfaro. Automated Audience Segmentation Using Reputation Signals. *Proceedings of KDD 2018, the 24th ACM SIGKDD Conference on Knowledge Discovery and Data Mining*, 2018.
11. L. de Alfaro, M. Di Pierro, R. Agrawal, E. Tacchini, G. Ballarin, M.L. Della Vedova, S. Moret. Reputation Systems for News on Twitter: A Large-Scale Study. <https://arxiv.org/abs/1802.08066>, 2018.
12. M.L. Della Vedova, E. Tacchini, S. Moret, G. Ballarin, M. Di Pierro and L. de Alfaro Automatic Online Fake News Detection Combining Content and Social Signals *Proceedings of 22nd FRUCT Conference*, 2018.
13. L. de Alfaro, V. Polychronopoulos, N. Polyzotis. Efficient Techniques for Crowdsourced Top-k Lists. *Proceedings of IJCAI, International Joint Conference on Artificial Intelligence*, 2017.
14. E. Tacchini, G. Ballarin, M.L. Della Vedova, S. Moret, L. de Alfaro. Some Like It Hoax: Automated Fake News Detection in Social Networks. *Proceedings of the Second Workshop on Data Science for Social Good (SoGood)*, Skopje, Macedonia, 2017. CEUR Workshop Proceedings Volume 1960, 2017.
15. S. Liang and L. de Alfaro. Efficient Selection of Pairwise Comparisons for Computing Top-Heavy Rankings. *Proceedings of the International Conference on Advances in Information Mining and Data Management (IMMM)*, 2017.
16. R. Agrawal, L. de Alfaro, V. Polychronopoulos. Learning from Graph Neighborhoods Using LSTMs. *Proceedings of the AAAI Workshop on Crowdsourcing, Deep Learning and Artificial Intelligence Agents*, held with the 31st AAAI Conference (AAAI-17), 2017.
17. R. Agrawal, L. de Alfaro. Predicting the quality of user contributions via LSTMs. *Proceedings of OpenSym 2016, the 12th International Symposium on Open Collaboration*, 2016.
18. L. de Alfaro, M. Shavlovsky. Dynamics of Peer Grading: An Empirical Study. *Proceedings of the 9th International Conference on Educational Data Mining (EDM)*, 2016.
19. L. de Alfaro, V. Polychronopoulos, N. Polyzotis. Efficient techniques for crowdsourced top-k lists. *Proceedings of the Conference on Human Computation and Crowdsourcing (HCOMP)*, ACM Press, 2015.
20. L. de Alfaro, V. Polychronopoulos, M. Shavlovsky. Reliable Aggregation of Boolean Crowdsourced Tasks. *Proceedings of the Conference on Human Computation and Crowdsourcing (HCOMP)*, ACM Press, 2015.

21. M. Daltayanni, L. de Alfaro, P. Papadimitriou. WorkerRank: Using Employer Implicit Judgements To Infer Worker Reputation. *Proceedings of WSDM, the Eight International Conference on Web Search and Data Mining*, 2015.
22. L. de Alfaro, M. Shavlovsky. CrowdGrader: Crowdsourcing the Evaluation of Homework Assignments. In *Proceedings of SIGCSE 2014*, ACM Press, 2014.
23. L. de Alfaro, M. Shavlovsky. Attributing Authorship of Revisioned Content. In *Proceedings of WWW 2013: 22nd International Conference on the World Wide Web*, 2013.
24. V. Polychronopoulos, L. de Alfaro, J. Davis, H. Garcia-Molina, N. Polyzotis. Human-Powered Top-k Lists. In *Proceedings of the 16th International Workshop of the Web and Databases (WebDB)*, 2013.
25. A. Adabi and L. de Alfaro. Towards a Social Graph Recommendation Algorithm: Do We Trust Our Friends in Movie Recommendations? In *Proceedings of On the Move to Meaningful Internet Systems Workshop (OTM) 2012*. Lecture notes in Computer Science 7567, pages 637–647, Springer Verlag, 2012.
26. B.T. Adler, L. de Alfaro, S. Mola-Velasco, P. Rosso, A.G. West. Wikipedia vandalism detection: combining natural language, metadata, and reputation features. In *CICLing'11, Proceedings of the 12th international conference on Computational linguistics and intelligent text processing*, pages 277–288, Springer-Verlag, 2011.
27. B.T. Adler, L. de Alfaro, I. Pye. Detecting Wikipedia Vandalism Using WikiTrust. *PAN lab report, CLEF (Conference on Multilingual and Multimodal Information Access Evaluation)*, 2010.
28. K. Chatterjee, L. de Alfaro, V. Raman, C. Sánchez. Analyzing the Impact of Change in Multi-threaded Programs. In *FASE 2010: Fundamental Approaches to Software Engineering, ETAPS 2010, Lecture Notes in Computer Science 6013*, pages 293–307, Springer-Verlag, 2010.
29. K. Chatterjee, L. de Alfaro, T.A. Henzinger. Termination Criteria for Solving Concurrent Safety and Reachability Games. In *SODA 2009: ACM-SIAM Symposium on Discrete Algorithms*, ACM Press, 2009.
30. K. Chatterjee, L. de Alfaro, R. Majumdar, V. Raman. Algorithms for Game Metrics. In *FSTTCS 2008: IARCS Annual Conference on Foundations of Software Technology and Theoretical Computer Science*, 2008.
31. K. Chatterjee, L. de Alfaro, R. Majumdar. The Complexity of Coverage. In *APLAS 2008: Sixth ASIAN Symposium on Programming Languages and Systems*, Lecture Notes in Computer Science, Springer-Verlag, 2008.
32. K. Chatterjee, L. de Alfaro, I. Pye. Robust Content-Driven Reputation. In *Proceedings of AISEC 08: First ACM Workshop of AISEC*, ACM Press, 2008.
33. B.T. Adler, K. Chatterjee, L. de Alfaro, M. Faella, I. Pye, V. Raman. Assigning Trust to Wikipedia Content. In *WikiSym 2008: International Symposium on Wikis*, ACM Press, 2008.
34. B.T. Adler, L. de Alfaro, I. Pye, V. Raman. Measuring Author Contributions to the Wikipedia. In *WikiSym 2008: International Symposium on Wikis*, ACM Press, 2008.
35. P. Roy, D. Parker, G. Norman, L. de Alfaro. Symbolic Magnifying Lens Abstraction in Markov Decision Processes. In *QEST 2008: Proceedings of the International Conference on Evaluation of Systems*, IEEE Press, 2008.

36. P.A. Abdulla, N. Ben Henda, L. de Alfaro, R. Mayr, S. Sandberg. Stochastic Games with Lossy Channels. In *FOSSACS 08: Proceedings of the 11th International Conference on Foundations of Software Science and Computation Structures*, Lecture Notes in Computer Science, Springer-Verlag, 2008.
37. L. de Alfaro, K. Chatterjee, M. Faella, A. Legay. Qualitative Logics and Equivalences for Probabilistic Systems. In *QEST 2007: Proceedings of the 4th International Conference on the Quantitative Evaluation of Systems*, IEEE Computer Society Press, 2007.
38. L. de Alfaro, P. Roy. Solving Games via Three-Valued Abstraction Refinement. In *CONCUR 2007: Proceedings of the 18th International Conference on Concurrency Theory*, Lecture Notes in Computer Science, Springer-Verlag, 2007.
39. L. de Alfaro, P. Roy. Magnifying-Lens Abstraction for Markov Decision Processes. In *CAV 07: Proceedings of the 19th International Conference on Computer Aided Verification*, Lecture Notes in Computer Science, Springer-Verlag, 2007.
40. L. de Alfaro, M. Faella. Accelerated Algorithms for 3-Color Parity Games with an Application to Timed Games. In *CAV 07: Proceedings of the 19th International Conference on Computer Aided Verification*, Lecture Notes in Computer Science, Springer-Verlag, 2007.
41. L. de Alfaro, R. Majumdar, V. Raman, M. Stoelinga. Game Relations and Metrics. In *LICS 07: Proceedings of the 22nd IEEE Symposium on Logic in Computer Science*, 2007.
42. B. Adler, L. de Alfaro. A Content-Driven Reputation System for the Wikipedia. In *WWW 07: 16th International World Wide Web Conference*, 2007.
43. L. de Alfaro, M. Faella, A. Legay. An Introduction to the Tool Ticc. In *Proc. of TrustWorthy Workshop Software*, Dagstuhl Seminar Proceedings, Internationales Begegnungs- und Forschungszentrum für Informatik (IBFI), Schloss Dagstuhl, Germany, 2006.
44. K. Chatterjee, L. de Alfaro, and T.A. Henzinger. Strategy Improvement for Concurrent Reachability Games. In *QEST 06: International Conference on the Quantitative Evaluation of Systems*, IEEE Computer Society Press, 2006.
45. K. Chatterjee, L. de Alfaro, M. Faella, T.A. Henzinger, R. Majumdar, and M. Stoelinga. Compositional Quantitative Reasoning. In *QEST 06: International Conference on the Quantitative Evaluation of Systems*, IEEE Computer Society Press, 2006.
46. B. Adler, L. de Alfaro, L. Dias Da Silva, M. Faella, A. Legay, V. Raman and P. Roy. TICC: A Tool for Interface Compatibility and Composition. In *CAV 06: Proceedings of the 18th International Conference on Computer Aided Verification*, Lecture Notes in Computer Science, Springer-Verlag, 2006.
47. K. Chatterjee, L. de Alfaro, and T.A. Henzinger. The complexity of quantitative concurrent parity games. In *SODA 06: ACM-SIAM Symposium on Discrete Algorithms*, 2006.
48. B. Adler, L. de Alfaro, M. Faella. Average reward timed games. In *FORMATS 05: Proceedings of the 3rd International Conference on Formal Modelling and Analysis of Timed Systems*, Lecture Notes in Computer Science 3829, pages 65–80, Springer-Verlag, 2005.
49. L. de Alfaro, M. Faella, R. Majumdar, and V. Raman. Code-aware resource management. In *EMSOFT 2005: Proceedings of the 5th ACM International Conference on Embedded Software*, pages 191–202, ACM Press, 2005.

50. K. Chatterjee, L. de Alfaro, and T.A. Henzinger. The complexity of stochastic Rabin and Streett games. In *ICALP 05: Proceedings of the 32nd International Colloquium on Automata, Languages and Programming*, Lecture Notes in Computer Science 3580, pages 878–890, Springer-Verlag, 2005.
51. L. de Alfaro, M. Faella, and M. Stoelinga. Linear and branching metrics for quantitative transition systems. In *ICALP 04: Proceedings of the 31st International Colloquium on Automata, Languages and Programming*, Lecture Notes in Computer Science 3142, pages 97–109, Springer-Verlag, 2004.
52. L. de Alfaro, P. Godefroid, and R. Jagadeesan. Three-Valued abstractions of games: Uncertainty, but with Precision. In *LICS 04: Proceedings of the 19th IEEE Symposium on Logic in Computer Science*, pages 170–179, 2004.
53. L. de Alfaro, M. Faella, T.A. Henzinger, R. Majumdar, and M. Stoelinga. Model checking discounted temporal properties. In *TACAS 04: Proceedings of the 10th International Conference on Tools and Algorithms for the Construction and Analysis of Systems*, Lecture Notes in Computer Science 2988, pages 77–92, Springer-Verlag, 2004.
54. A. Chakrabarti, L. de Alfaro, T.A. Henzinger, and M. Stoelinga. Resource interfaces. In *EMSOFT 03: Proceedings of the 3rd International Workshop on Embedded Software*, Lecture Notes in Computer Science 2855, pages 117–133, Springer-Verlag, 2003.
55. L. de Alfaro, M. Faella, T.A. Henzinger, R. Majumdar, and M. Stoelinga. The element of surprise in timed games. In *CONCUR 03: Proceedings of the 14th International Conference*, Lecture Notes in Computer Science 2761, pages 144–158, Springer-Verlag, 2003.
56. L. de Alfaro and M. Faella. Information flow in concurrent games. In *ICALP 03: Proceedings of the 30th International Colloquium on Automata, Languages, and Programming*, Lecture Notes in Computer Science 2719, Springer-Verlag, 2003.
57. L. de Alfaro, T.A. Henzinger, and R. Majumdar. Discounting the future in systems theory. In *ICALP 03: Proceedings of the 30th International Colloquium on Automata, Languages, and Programming*, Lecture Notes in Computer Science 2719, pages 1022–1037, Springer-Verlag, 2003.
58. R. Passerone, L. de Alfaro, T.A. Henzinger, and A.L. Sangiovanni-Vincentelli. Convertibility verification and converter synthesis: Two faces of the same coin. In *ICCAD 02: Proceedings of the International Conference on Computer Aided Design*, pages 132–139, IEEE Computer Society Press, 2002.
59. L. de Alfaro, T.A. Henzinger, and M. Stoelinga. Timed interfaces. In *EMSOFT 02: Proceedings of the Second International Workshop on Embedded Software*, Lecture Notes in Computer Science, pages 108–122, Springer-Verlag, 2002.
60. A. Chakrabarti, L. de Alfaro, T.A. Henzinger, M. Jurdzinski, and F.Y.C. Mang. Interface compatibility checking for software modules. In *CAV 02: Proceedings of the 14th International Conference on Computer Aided Verification*, Lecture Notes in Computer Sciences 2404, pages 428–441, Springer Verlag, 2002.
61. A. Chakrabarti, L. de Alfaro, T.A. Henzinger, and F.Y.C. Mang. Synchronous and bidirectional component interfaces. In *CAV 02: Proceedings of the 14th International Conference on Computer Aided Verification*, Lecture Notes in Computer Sciences 2404, pages 414–427, Springer Verlag, 2002.
62. L. de Alfaro and T.A. Henzinger. Interface automata. In *ESEC/FSE 01: Proceedings of the Joint 8th European Software Engineering Conference and 9th ACM SIGSOFT International Symposium on the Foundations of Software Engineering*, pages 109–120, ACM Press, 2001.

63. L. de Alfaro, T.A. Henzinger, and F.Y.C. Mang. The control of synchronous systems part II. In *CONCUR 01: Concurrency Theory, Proceedings of the 12th International Conference*, Lectures Notes in Computer Science 2154, pages 566–581, Springer-Verlag, 2001.
64. L. de Alfaro, T.A. Henzinger, and R. Majumdar. Symbolic algorithms for infinite-state games. In *CONCUR 01: Concurrency Theory, Proceedings of the 12th International Conference*, Lectures Notes in Computer Science 2154, pages 536–550, Springer-Verlag, 2001.
65. L. de Alfaro, T.A. Henzinger, and R. Jhala. Compositional methods for probabilistic systems. In *CONCUR 01: Concurrency Theory, Proceedings of the 12th International Conference*, Lectures Notes in Computer Science 2154, pages 351–365, Springer-Verlag, 2001.
66. L. de Alfaro, T.A. Henzinger, and R. Majumdar. From verification to control: Dynamic programs for omega-regular objectives. In *LICS 01: Proceedings of the 16th International IEEE Symposium on Logic in Computer Science*, pages 279–290, 2001.
67. L. de Alfaro and R. Majumdar. Quantitative solution of omega-regular games. In *STOC 01: Proceedings of the 33rd ACM Symposium on Theory of Computing*, pages 675–683, 2001.
68. L. de Alfaro. Model checking the world wide web. In *CAV 01: Proceedings of the 13th Conference on Computer Aided Verification*, Lectures Notes in Computer Science, pages 337–349, Springer-Verlag, 2001.
69. L. de Alfaro, T.A. Henzinger, and F.Y.C. Mang. MCWEB: A model-checking tool for web site debugging. Poster presented at *WWW 10: 10th World Wide Web Conference*, Hong Kong, 2001.
70. L. de Alfaro, R. Alur, R. Grosu, T. Henzinger, M. Kang, R. Majumdar, F. Mang, C. Meyer-Kirsch, and B.Y. Wang. JMocha: A model checking tool that exploits design structure. In *ICSE 01: Proceedings of the 23rd International Conference on Software Engineering*, pages 835–836, IEEE Computer Society Press, 2001.
71. L. de Alfaro, T.A. Henzinger, and F.Y.C. Mang. The control of synchronous systems. In *CONCUR 00: Concurrency Theory, Proceedings of the 11th International Conference*. Lecture Notes in Computer Science 1877, pages 458–473, Springer-Verlag, 2000.
72. L. de Alfaro, T.A. Henzinger, and F.Y.C. Mang. Detecting errors before reaching them. In *CAV 00: Proceedings of the 12th International Conference on Computer Aided Verification*, Lecture Notes in Computer Science 1855, pages 186–201, Springer-Verlag, 2000.
73. L. de Alfaro and T.A. Henzinger. Concurrent omega-regular games. In *LICS 00: Proceedings of the 15th Annual IEEE Symposium on Logic in Computer Science*, pages 141–154, 2000.
74. L. de Alfaro, M. Kwiatkowska, G. Norman, D. Parker and R. Segala. Symbolic model checking of concurrent probabilistic processes using MTBDDs and the Kronecker representation. In *TACAS 00: Proceedings of Tools and Algorithms for the Construction and Analysis of Systems*. Lecture Notes in Computer Science 1785, pages 395–410, Springer-Verlag, 2000.
75. R. Alur, L. de Alfaro, T.A. Henzinger, and F.Y.C. Mang. Automating modular verification. In *CONCUR 99: Concurrency Theory, Proceedings of the 10th International Conference*. Lecture Notes in Computer Science 1664, pages 82–97, Springer-Verlag, 1999.
76. L. de Alfaro. Computing minimum and maximum reachability times in probabilistic systems. In *CONCUR 99: Concurrency Theory, Proceedings of the 10th International Conference*. Lecture Notes in Computer Science 1664, pages 66–81, Springer-Verlag, 1999.

77. L. de Alfaro, T.A. Henzinger, and O. Kupferman. Concurrent reachability games. In *FOCS 98: Proceedings of the 39th Annual IEEE Symposium on Foundations of Computer Science*, pages 564–575, 1998.
78. L. de Alfaro. Stochastic transition systems. In *CONCUR 98: Concurrency Theory, Proceedings of the 9th International Conference*. Lecture Notes in Computer Science 1466, pages 423–438. Springer-Verlag, 1998.
79. L. de Alfaro. How to Specify and verify the long-run average behavior of probabilistic systems. In *LICS 98: Proceedings of the 13th Annual IEEE Symposium on Logic in Computer Science*, pages 454–465, 1998.
80. L. de Alfaro, Z. Manna, H.B. Sipma, and T.E. Uribe. Visual verification of reactive systems. In *TACAS 97: Proceedings of Tools and Algorithms for the Construction and Analysis of Systems*. Lecture Notes in Computer Science 1217, pages 334–350. Springer-Verlag, 1997.
81. L. de Alfaro, A. Kapur, and Z. Manna. Hybrid diagrams: A deductive-algorithmic approach to hybrid system verification. In *STACS 97: Proceedings of the 14th Annual Symposium on Theoretical Aspects of Computer Science*. Lecture Notes in Computer Science 1200, pages 153–164. Springer-Verlag, 1997.
82. L. de Alfaro. Temporal logics for the specification of performance and reliability. In *STACS 97: Proceedings of the 14th Annual Symposium on Theoretical Aspects of Computer Science*. Lecture Notes in Computer Science 1200, pages 165–176. Springer-Verlag, 1997.
83. A. Browne, L. de Alfaro, Z. Manna, H.B. Sipma, and T.E. Uribe. Diagram-based formalisms for the verification of reactive systems. In *Workshop on Visual Reasoning, International Conference on Automated Deduction*, 1996.
84. L. de Alfaro and Z. Manna. Temporal verification by diagram transformations. In *CAV 96: Proceedings of the 8th International Conference on Computer Aided Verification*. Lecture Notes in Computer Science 1102, pages 288–299. Springer-Verlag, 1996.
85. A. Bianco and L. de Alfaro. Model checking of probabilistic and nondeterministic systems. In *FSTTCS 95: Proceedings of the 15th Conference on the Foundations of Software Technology and Theoretical Computer Science*. Lecture Notes in Computer Science 1026, pages 499–513. Springer-Verlag, 1995.
86. L. de Alfaro and Z. Manna. Verification in continuous time by discrete reasoning. In *AMAST 95: Proceedings of Algebraic Methodology and Software Technology, 4th International Conference*. Lecture Notes in Computer Science 936, pages 292–306. Springer-Verlag, 1995.
87. Z. Manna, N. Bjørner, A. Browne, E. Chang, M. Colon, L. de Alfaro, H. Devarajan, H. Sipma, and T. Uribe. STeP: The Stanford temporal prover. In *TAPSOFT 95: Proceedings of Theory and Practice of Software Development*. Lecture Notes in Computer Science 915, pages 793–794. Springer-Verlag, 1995.
88. L. de Alfaro. Determination of automorphic codes. In *Proceedings of the International Conference on Digital Signal Processing*, pages 840–844. North Holland Press, 1987.

Refereed Journal Papers

1. K. Chatterjee, L. de Alfaro, T.A. Henzinger. Qualitative Concurrent Parity Games. *ACM Transactions on Computational Logic*, 12, 4, Article 28, 51 pages. July 2011.
2. B.T. Adler, L. de Alfaro, A. Kulshrestha, I. Pye. Reputation Systems for Open Collaboration. *Communications of the ACM*, accepted for publication on August 17, 2010.

3. K. Chatterjee, L. de Alfaro, T.A. Henzinger. Qualitative Concurrent Parity Games. *ACM Transactions on Computational Logic*, accepted for publication on August 9, 2010.
4. L. de Alfaro, P. Roy. Solving Games via Three-Valued Abstraction Refinement. *Information and Computation*, volume 208, issue 6, pages 666-676, June 2010.
5. K. Chatterjee, L. de Alfaro, R. Majumdar, V. Raman. Algorithms for Game Metrics. *Logical Methods in Computer Science*, Volume 6 (3:13), pages 1–27, 2010.
6. L. de Alfaro, M. Faella, M. Stoelinga. Linear and Branching System Metrics. *IEEE Transactions on Software Engineering*, pages 258–273, volume 35, number 2, March 2009.
7. L. de Alfaro, K. Chatterjee, M. Faella, A. Legay. Qualitative Logics and Equivalences for Probabilistic Systems. *Logical Methods in Computer Science*, volume 5, issue 2, paper 7, 2009.
8. L. de Alfaro, R. Majumdar, V. Raman, M. Stoelinga. Game Refinement Relations and Metrics. *Logical Methods in Computer Science*, volume 4, issue 3, paper 7, 2008.
9. L. de Alfaro, T.A. Henzinger, O. Kupferman. Concurrent Reachability Games. *Theoretical Computer Science* 386 (3), 188–217. Elsevier, 2007.
10. L. de Alfaro, M. Faella, T.A. Henzinger, R. Majumdar, and M. Stoelinga. Model checking discounted temporal properties. *Theoretical Computer Science*, Volume 345, Issue 1, pages 139–170, Elsevier, November 2005.
11. L. de Alfaro and R. Majumdar. Quantitative Solution of Omega-Regular Games. *Journal of Computer and Systems Science* **68**, pages 374–397, 2004.
12. L. de Alfaro and M. Stoelinga. Interfaces: a game-theoretic framework to reason about component-based systems. In *Electronic Notes on Theoretical Computer Science* **97**, pages 3–23, Elsevier Science Publishers, 2003.
13. L. de Alfaro and A. Kapur. Hybrid diagrams. *Theoretical Computer Science* **290(1)**, pages 565–597, 2002.
14. L. de Alfaro. From fairness to chance. *Electronic Notes on Theoretical Computer Science* **22**, Elsevier Science Publishers, 2000.
15. L. de Alfaro and A.R. Meo. Codes for second and third order GH-ARQ schemes. *IEEE Transactions on Communication* **42(2–4)**, pages 899–910, 1994.

Invited Papers

1. L. de Alfaro, L. Dias da Silva, M. Faella, A. Legay, P. Roy, M. Sorea. Sociable Interfaces. In *FRODOS 05: Proceedings of Frontiers of Combining Systems, 5th International Workshop*, Lectures Notes in Computer Science 3717, pages 81–105, Springer-Verlag, 2005.
2. L. de Alfaro and T.A. Henzinger. Interface-based Design. In *Engineering Theories of Software-intensive Systems* (M. Broy, J. Gruenbauer, D. Harel, and C.A.R. Hoare, eds.), NATO Science Series: Mathematics, Physics, and Chemistry, Vol. 195, Springer, 2005, pp. 83-104.
3. L. de Alfaro and T.A. Henzinger. Interface-Based Design. In *Engineering Theories of Software Intensive Systems*, proceedings of the Marktoberdorf Summer School, Kluwer, 2004.
4. K. Chatterjee, L. de Alfaro, and T.A. Henzinger. Trading memory for randomness. In *QEST 04: Proceedings of the First International Conference on Quantitative Evaluation of Systems*, IEEE Computer Society Press, 2004.

5. L. de Alfaro and M. Stoelinga. Interfaces: A Game-Theoretic Framework to Reason about Open Systems. In *FOCLASA 03: Proceedings of the 2nd International Workshop on Foundations of Coordination Languages and Software Architectures*, 2003.
6. L. de Alfaro. Quantitative Verification and Control via the Mu-Calculus. In *CONCUR 03: Proceedings of the 14th International Conference*, Lecture Notes in Computer Science 2761, pages 103–127, Springer-Verlag, 2003.
7. L. de Alfaro. Game models for open systems. In *Proceedings of the International Symposium on Verification (Theory in Practice)*, Lecture Notes in Computer Science 2772, Springer-Verlag, 2003.
8. L. de Alfaro and T.A. Henzinger. Interface Theories for Component-Based Design. In *EMSOFT 01: Proceedings of the First International Workshop on Embedded Software*, Lecture Notes in Computer Science 2211, pages 148–165, Springer-Verlag, 2001.
9. L. de Alfaro. The verification of probabilistic systems under memoryless partial-information policies is hard. In *PROBMIV 99: Proceedings of Probabilistic Methods in Verification*. Technical Report CSR-99-8, pages 19–32, University of Birmingham, 1999.

LECTURES

Invited Talks at Conferences and Workshops

1. *The Symbolic Approach to Repeated Games*. Invited talk at the 16th EACSL Annual Conference on Computer Science and Logic (CSL), in joint session with the Annual Meeting on Games and Automata for Synthesis and Verification, Lausanne, Switzerland, 2007.
2. *Interface-Driven Software Composition and Scheduling*. Invited talk at the Workshop on Event-Based Semantics, Seattle, USA, 2007.
3. *Interface Theories in Practice*. Invited talk at the Workshop on Games in Design and Verification (GDV 06), Seattle, USA, 2006.
4. *Sociable Interfaces*. Invited talk at the 5th International Workshop on Frontiers of Combining Systems (FRODOS 2005), Vienna, Austria, 2005.
5. *Real-time component interfaces*. Invited talk at the Workshop on Games for Logic and Programming Languages, Edinburgh, UK, 2005.
6. *Types for real-time components*. Invited talk at the Third International Symposium on Formal Methods for Components and Objects (FMCO 2004), Leiden, The Netherlands, 2004.
7. *Games as Interfaces for Real-Time Components*. Invited talk, Symposium on Semantic Foundations of Engineering Design Languages (SFEDL), Barcelona, Spain, 2004.
8. *Quantitative verification and control via the mu-calculus*. Invited keynote talk, Concurrency Theory. 14th International Conference (CONCUR), Marseille, France, 2003.
9. *Games as types for component-based design*. Invited talk, 2nd International Workshop on Foundations of Coordination Languages and Software Architectures (FOCLASA), Marseille, France, 2003.
10. *Modeling open systems as games*. Invited talk, International Symposium on Verification (Theory in Practice), Taormina, Italy, 2003.
11. *Behavioral component interfaces*. Invited talk, *Workshop on Component Based Systems: Foundations and Design Methods*, UNU/IIST, Macau, October 28–30, 2002.

12. *Games and mu-calculus*. Invited talk, *Workshop on Mathematical Aspects of Systems*, Montreal, September 30–October 4, 2002, Montreal, Canada.
13. *Interfaces as Games*. Invited talk, *Eighteenth Workshop on the Mathematical Foundations of Programming Semantics*, Tulane University, March 2002.
14. *Algorithmic verification of probabilistic systems*. Keynote speaker, Dagstuhl Seminar on Probabilistic Methods in Verification, May 2000.
15. *Probabilistic issues in the reachability analysis of open systems*. Invited talk, Workshop on Probabilistic Methods in Verification (PROBMIV 98), June 1998.
16. *Abstractions and diagram transformations*. Invited speaker, 6th CSLI Workshop on Logic, Language and Computation, Stanford University, 1997.

Other Invited Lectures

1. *A Content-Driven Reputation System for the Wikipedia*. Google Tech Talk, Mountain View, CA, June 2007.
2. *A Content-Driven Reputation System for the Wikipedia*. Department of Computer Science, Università di Torino, Italy, March 2007.
3. *A Content-Driven Reputation System for the Wikipedia*. Politecnico di Torino, Italy, March 2007.
4. *Interfaces as Models of Open Systems*. Invited talk at the University of Naples, Department of Computer Science, Naples, Italy, 2006.
5. *Interfaces: A model for component-based design*. Verimag, Grenoble, France, September 2002.
6. *Concurrent games, fixpoint logics, and quantification*. Berkeley Logic Colloquium, February 16, 2001.
7. *Verification of probabilistic systems*. Dept. of Electrical Engineering, University of Colorado at Boulder, May 1999.
8. *Concurrent reachability games*. Dept. of Computer Science, University of Pisa, Italy, September 1998.
9. *Verifying long-run average properties of probabilistic systems*. State University of New York at Stony Brook, March 1998.
10. *Formal verification of reliability and performance properties of probabilistic systems*. Computer Science Laboratory, SRI International, Menlo Park, CA, USA. May 1997.
11. *Formal verification of system performance and reliability*. Verimag, Grenoble, France. March 1997.
12. *Hybrid diagrams*. Verimag, Grenoble, France. March 1997.
13. *Model-checking reliability and performance properties of untimed and timed systems*. Dept. of Electrical Engineering and Computer Science, University of California, Berkeley, USA. November 1996.
14. *Temporal verification by diagram transformations*. Dept. of Electrical Engineering and Computer Science, University of California, Berkeley, USA. April 1996.

Lectures at Schools

1. *Games in Design and Verification*. Invited doctoral lecture, University of Salerno, Department of Computer Science, Baronissi, Italy, 2006.
2. *Stochastic Games*. Spring School on Infinite Games and Their Applications, Bonn, Germany, March 2005.
3. *Formal methods for component-based design*. Invited lecture, Summer Research Institute, École Polytechnique Federale de Lausanne (EPFL), Switzerland, 2003.
4. *Compositional Verification*. SFM-02:MC, 2nd International School on Formal Methods for the Design of Computer, Communication and Software Systems: Model Checking, 9-14 September 2002, Bertinoro, Italy.
5. *Compositional Verification*. MOVEP 2002, 5th International Summer School on Modelling and Verification of Parallel Processes, June 2002, Nantes, France.

UNIVERSITY ACTIVITY

Leadership

- Vice-Chair, Computer Science and Engineering Department, 2021–present.
- Chair, Computer Science Department, 2017–18. The Computer Science Department was then fused with part of the Computer Engineering Department to form the new Computer Science and Engineering Department.

Postdoctoral advisor

1. Krishnendu Chatterjee (UC Santa Cruz, 2008–2009). Krishnendu Chatterjee is now an Assisant Professor at the Institute for Science and Technology, Vienna, Austria.
2. Maria Sorea (UC Santa Cruz, 2005). Maria Sorea is now a Research Associate at the School of Computer Science of the University of Manchester, UK.
3. Marco Faella (UC Santa Cruz, 2002–2005). Marco Faella is now an Assistant Professor in the Department of Physics at University of Naples, Italy.
4. Mariëlle Stoelinga (UC Santa Cruz, 2001–2004). Mariëlle Stoelinga is now an Assistant Professor in the Department of Computer Science of the University of Twente, the Netherlands.

Graduate students

1. Golam Muktadir (Ph.D., 2018–present),
2. Molly Zhang (Ph.D., 2018–21),
3. Shenshen Liang (Ph.D., 2015-2020),
4. Rakshit Agrawal (Ph.D., 2015–2019),
5. Shenshen Liang (Ph.D., 2014–2020),
6. Maria Daltayanni (Ph.D., 2010–2015),
7. Michael Shavlovsky (Ph.D., 2010–2017),

8. Vassilis Polychronopoulos (Ph.D., 2012–2017),
9. Ian Pye (Ph.D., 2008–2010),
10. Bo Adler (Ph.D., 2005–2010),
11. Vishwananth Raman (Ph.D., 2004–2010; thesis: *Game Relations, Metrics, and Refinements*),
12. Pritam Roy (Ph.D., 2004–2009; thesis: *Interval-based abstraction refinement*).
13. Ashwini Ananthateerta (MS, 2002–2004; thesis: *Early Error Detection*),
14. Vaibhav Bhandari (MS, 2002–2004; thesis: *Chai: A Tool for Synchronous Interfaces*)
15. Ashwani Kumar (MS, 2002–2004; thesis: *Flexi: A Tool for Interface Automata*)

ENTREPRENEURSHIP

CrowdGrader LLC, Founder and Director, 2013–present. CrowdGrader LLC (<http://www.crowdgrader.org>) is a cloud-based startup that brings peer grading to any classroom.

Camiolog Inc, Co-Founder (2012). I co-founded Camio (<https://camio.com>) in 2012, and continue my involvement on a one-day a week basis till present. Camio provides machine learning and intelligence video analysis.

SSB Progetti srl, Co-Founder and member of the board. I am a co-founder of SSB Progetti srl. (<http://www.ssbprogetti.it>). SSB Progetti is a leader in the design of web portals for banks, financial institutions, and other large corporations in the Italian market. SSB Progetti was founded in 1988, and I was on its board until 1998. SSB Progetti was acquired by Deloitte in 2020.

PROFESSIONAL ACTIVITY

Conference Steering Committees

1. European Joint Conferences on Theory and Practice of Software (ETAPS), www.etaps.org, 2007–present.
2. Workshop on Games in Design and Verification (GDV), 2004.
3. Joint Workshop on Process Algebra and Probabilistic Methods (PAPM-PROBMIV), 2001-2003.
4. International Workshop on Probabilistic Methods in Verification (PROBMIV), 1998–2000.

Conference Program Committee Chair

1. Program Committee Chair, 12th International Conference on Foundations of Software Science and Computation Structures (FOSSACS), York, England, 2009.
2. Program Committee co-Chair, 9th ACM & IEEE Conference on Embedded Software (EMSOFT), Atalanta, USA, 2008.
3. Program Committee chair (and conference organizer), 16th International Conference on Concurrency Theory (CONCUR), San Francisco, California, USA, 2005.
4. Workshop on Games in Design and Verification (GDV), Boston, USA, 2004.
5. Program Committee Chair and Steering Committee member, Joint Workshop on Process Algebra and Probabilistic Methods (PAPM-PROBMIV), Aachen, Germany, 2001.