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Academic & Research Positions

Northwestern University

Professor of Electrical Engineering and Computer Science, January 2008–
Professor of Managerial Economics and Decision Sciences, Kellogg Graduate School of
Management (Courtesy), January 2008–

Toyota Technological Institute at Chicago

Adjunct Professor, February 2007–

University of Chicago

Professor in Computer Science and the College, September 2003–December 2007
Associate Professor in Computer Science and the College, July 1994–August 1999
Assistant Professor in Computer Science and the College, July 1989–June 1994

NEC Research Institute, Princeton

Senior Research Scientist, September 1999–September 2003

Princeton University

Visiting Lecturer in Computer Science, September 2001–January 2002

Centrum voor Wiskunde en Informatica, Amsterdam

Visiting Professor, August 1996–August 1997

Education

Massachusetts Institute of Technology

Doctor of Philosophy in Applied Mathematics, June 1989.
Thesis Title: Complexity Theoretic Aspects of Interactive Proof Systems.
Thesis Advisor: Michael Sipser.

Cornell University

Bachelor of Arts with distinction, May 1985.
Summa Cum Laude in Mathematics.
Cum Laude in Computer Science.

Awards & Grants

ACM Fellow, 2007
NSF Presidential Faculty Fellow, 1992–1998.
Fulbright Scholar in The Netherlands, 1996–1997.
NSF General Grant, “Instance Complexity,” 2008–2011.
NSF General Grant, “Topics in Complexity Theory,” 1998–2001.
NSF Research Initiation Award, 1990–1992.
Office of Naval Research Graduate Fellow, 1985–1988.
Kieval Prize for best graduating mathematics major at Cornell, 1985.
Phi Beta Kappa and Phi Kappa Phi honor fraternities.

Students Advised	<p>Ph.D. Advisor: Varsha Dani (Chicago, March 2008), Jason Teutsch (Indiana, January 2007), Rahul Santhanam (Chicago, June 2005), Dieter van Melkebeek (Chicago, June 1999, ACM Doctoral Dissertation Award), Sophie Laplante (Chicago, December 1997), Lide Li (Chicago, August 1993), Carsten Lund (Chicago, March 1991, ACM Doctoral Dissertation Series Winner)</p> <p>Joint research included in Ph.D. Theses: Luis Antunes (Porto, February 2002), Tuğkan Batu (Cornell, August 2001), John Rogers (Chicago, June 1995), Stephen Fenner (Chicago, June 1991).</p>
Service	<p>Vice Chair, ACM SIGACT. Chair, Local Academic Advisory Committee, TTI-Chicago. Scientific Board, Electronic Colloquium on Computational Complexity. Executive Committee, DIMACS, 2000-2003. Panel member for NSF and other funding agencies. Computational Complexity Weblog, 2002-07, 4000 daily readers.</p>
Editorial Positions	<p><i>ACM Transactions on Computation Theory</i> (Editor-in-Chief) <i>Journal of the ACM</i> <i>Lecture Notes in Logic</i> <i>Information and Computation</i> <i>The Chicago Journal of Theoretical Computer Science</i> Computational Complexity Column in <i>Bulletin of the European Association for Theoretical Computer Science</i>, 2000-2004</p>
Conference Committees	<p>IEEE Conference on Computational Complexity Steering Committee 1995-2007, Chair 2000-2006, Program Committee 1995, 1999 (Chair), 2008 ACM Conference on Electronic Commerce General Chair 2008, Workshops Chair 2007, PC 2004, 2006, 2009 (co-Chair) IEEE Symposium on the Foundations of Computer Science PC 2002, 2006 ACM Symposium on the Theory of Computing PC 1997 WWW Conference E-Commerce Track PC 2003 Theoretical Aspects of Rationality and Knowledge PC 2007 Computing: The Australasian Theory Symposium PC 2001 FST & TCS Conference PC 1999</p>
Organizer	<p>DIMACS Special Focus on Computation and the Socio-Economic Sciences, 2004-2007 and co-organized several workshops in that focus. Workshop on Algebraic Methods in Computational Complexity, Dagstuhl, Oct., 2004. Workshop on Algebraic Methods in Quantum and Classical Models of Computation, Dagstuhl, October, 2002. NSF C-CR Quantum Planning Workshop, Elmsford, New York, January, 2002.</p>
U of C Service	<p>College Council, Physical Sciences Division (PSD) Long-Range Planning Committee, PSD Collegiate Division Committee, Departmental Director of Graduate Studies.</p>

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All of these papers are downloadable at
<http://papers.fortnow.com>

Refereed Journal Publications

- [1] Y. Chen, D. Reeves, D. Pennock, R. Hanson, L. Fortnow, and R. Gonen. Gaming prediction markets: Equilibrium strategies with a market maker. *Algorithmica*, 2009. To appear.
- [2] L. Fortnow and R. Vohra. The complexity of forecast testing. *Econometrica*, 77(1):93–105, 2009.
- [3] H. Buhrman, L. Fortnow, M. Koucký, J. Rogers, and N. Vereshchagin. Inverting onto functions and the polynomial hierarchy. *Theory of Computing Systems*, 2009. To appear.
- [4] H. Buhrman, L. Fortnow, I. Newman, and H. Röhrig. Quantum property testing. *SIAM Journal on Computing*, 37(5):1387–1400, 2008.
- [5] L. Fortnow, R. Impagliazzo, V. Kabanets, and C. Umans. On the complexity of succinct zero-sum games. *Computational Complexity*, 17(3):353–376, October 2008.
- [6] L. Fortnow and A. Klivans. Efficient learning algorithms yield circuit lower bounds. *Journal of Computer and System Sciences*, 75:27–36, January 2009. Special issue for selected papers from the 19th Annual Conference on Computational Learning Theory.
- [7] L. Antunes and L. Fortnow. Sophistication revisited. *Theory of Computing Systems*, 45(1):150–161, June 2009.
- [8] E. Fischer and L. Fortnow. Tolerant versus intolerant testing for Boolean properties. *Theory of Computing*, 2(9):173–183, 2006.
- [9] L. Antunes, L. Fortnow, D. van Melkebeek, and N. Vinodchandran. Computational depth: Concept and applications. *Theoretical Computer Science*, 354(3):391–404, April 2006. Special issue of selected papers from Foundations of Computation Theory (FCT 2003).
- [10] R. Beigel, L. Fortnow, and W. Gasarch. A tight lower bound for restricted PIR protocols. *Computational Complexity*, 15(1):82–91, May 2006.
- [11] L. Fortnow, R. Lipton, D. van Melkebeek, and A. Viglas. Time-space lower bounds for satisfiability. *Journal of the ACM*, 52(6):835–865, November 2005.
- [12] R. Beigel, L. Fortnow, and F. Stephan. Infinitely-often autoreducible sets. *SIAM Journal on Computing*, 6(3):595–608, 2006.
- [13] R. Beigel, H. Buhrman, P. Fejer, L. Fortnow, P. Grabowski, L. Longpré, A. Muchnik, F. Stephan, and L. Torenvliet. Enumerations of the Kolmogorov function. *Journal of Symbolic Logic*, 71(2):501–528, June 2006.

- [14] L. Fortnow, A. Pavan, and S. Sengupta. Proving SAT does not have small circuits with an application to the two queries problem. *Journal of Computer and System Sciences*, 74(3):358–363, May 2008. Special issue for selected papers from the 18th IEEE Conference on Computational Complexity.
- [15] Artur Czumaj, Funda Ergün, Lance Fortnow, Avner Magen, Ilan Newman, Ronitt Rubinfeld, and Christian Sohler. Approximating the weight of the euclidean minimum spanning tree in sublinear time. *SIAM Journal on Computing*, 35(1):91–109, 2005.
- [16] H. Buhrman, L. Fortnow, and A. Pavan. Some results on derandomization. *Theory of Computing Systems*, 38(2):211–227, February 2005. Special issue on the 20th Symposium on Theoretical Aspects of Computer Science.
- [17] L. Fortnow and J. Lutz. Prediction and dimension. *Journal of Computer and System Sciences*, 70(4):570–589, June 2005. Special issue for selected papers from the 15th Annual Conference on Computational Learning Theory.
- [18] J. Feigenbaum, L. Fortnow, D. Pennock, and R. Sami. Computation in a distributed information market. *Theoretical Computer Science*, 343(1-2):114–132, October 2005. Special issue on Game Theory Meets Theoretical Computer Science.
- [19] L. Fortnow and J. Rogers. Separability and one-way functions. *Computational Complexity*, 11(3-4):137–157, June 2002.
- [20] L. Fortnow, J. Kilian, D. Pennock, and M. Wellman. Betting Boolean-style: A framework for trading in securities based on logical formulas. *Decision Support Systems*, 39(1):87–104, 2005. Special Issue on the Fourth ACM Conference on Electronic Commerce.
- [21] S. Fenner, L. Fortnow, A. Naik, and J. Rogers. Inverting onto functions. *Information and Computation*, 186(1):90–103, October 2003.
- [22] R. Downey and L. Fortnow. Uniformly hard languages. *Theoretical Computer Science*, 298(2):303–315, 2003.
- [23] S. Fenner, L. Fortnow, S. Kurtz, and L. Li. An oracle builder’s toolkit. *Information and Computation*, 182(2):95–136, 2003.
- [24] Y. Zheng, J. Szustakowski, L. Fortnow, R. Roberts, and S. Kasif. Computational identification of operons in microbial genomes. *Genome Research*, 12(8):1221–1230, August 2002.
- [25] H. Buhrman, L. Fortnow, and S. Laplante. Resource-bounded Kolmogorov complexity revisited. *SIAM Journal on Computing*, 31(3):887–905, 2002.
- [26] H. Buhrman, S. Fenner, L. Fortnow, and L. Torenvliet. Two oracles that force a big crunch. *Computational Complexity*, 10(2):93–116, 2001.
- [27] L. Fortnow, A. Pavan, and A. Selman. Distributionally hard languages. *Theory of Computing Systems*, 34(3):245–262, 2001.

- [28] L. Fortnow. Time-space tradeoffs for satisfiability. *Journal of Computer and System Sciences*, 60(2):337–353, April 2000. Special issue for selected papers from the 12th IEEE Conference on Computational Complexity.
- [29] H. Buhrman and L. Fortnow. Two queries. *Journal of Computer and System Sciences*, 59(2):182–194, 1999. Special issue for selected papers from the 13th IEEE Conference on Computational Complexity.
- [30] H. Buhrman, L. Fortnow, D. van Melkebeek, and L. Torenvliet. Separating complexity classes using autoreducibility. *SIAM Journal on Computing*, 29(5):1497–1520, 2000.
- [31] L. Fortnow and J. Rogers. Complexity limitations on quantum computation. *Journal of Computer and System Sciences*, 59(2):240–252, 1999. Special issue for selected papers from the 13th IEEE Conference on Computational Complexity.
- [32] L. Fortnow. Relativized worlds with an infinite hierarchy. *Information Processing Letters*, 69(6):309–313, 1999.
- [33] L. Fortnow, J. Goldsmith, M. Levy, and S. Mahaney. L-printable sets. *SIAM Journal on Computing*, 28(1):137–151, 1999.
- [34] J. Feigenbaum, L. Fortnow, S. Laplante, and A. Naik. On coherence, random-self-reducibility, and self-correction. *Computational Complexity*, 7(2):174–191, 1998.
- [35] L. Fortnow, R. Freivalds, W. Gasarch, M. Kummer, S. Kurtz, C. Smith, and F. Stephan. On the relative sizes of learnable sets. *Theoretical Computer Science*, 197:139–156, 1998.
- [36] S. Fenner, L. Fortnow, and L. Li. Gap-definability as a closure property. *Information and Computation*, 130(1):1–17, 1996.
- [37] L. Fortnow and T. Yamakami. Generic separations. *Journal of Computer and System Sciences*, 52(1):191–197, 1996.
- [38] L. Fortnow and N. Reingold. PP is closed under truth-table reductions. *Information and Computation*, 124(1):1–6, 1996.
- [39] L. Fortnow and M. Kummer. On resource-bounded instance complexity. *Theoretical Computer Science A*, 161:123–140, 1996.
- [40] L. Fortnow and S. Laplante. Circuit lower bounds *a la* Kolmogorov. *Information and Computation*, 123(1):121–126, 1995.
- [41] S. Fenner, L. Fortnow, and S. Kurtz. The isomorphism conjecture holds relative to an oracle. *SIAM Journal on Computing*, 25(1):193–206, 1996.
- [42] L. Fortnow, J. Rompel, and M. Sipser. On the power of multi-prover interactive protocols. *Theoretical Computer Science A*, 134:545–557, 1994.
- [43] L. Fortnow, W. Gasarch, S. Jain, E. Kinber, M. Kummer, S. Kurtz, M. Pleszkoch, T. Slaman, R. Solovay, and F. Stephan. Extremes in the degrees of inferability. *Annals of Pure and Applied Logic*, 66:231–276, 1994.

- [44] J. Feigenbaum, L. Fortnow, C. Lund, and D. Spielman. The power of adaptiveness and additional queries in random-self-reductions. *Computational Complexity*, 4:158–174, 1994.
- [45] L. Fortnow and M. Szegedy. On the power of two-local random reductions. *Information Processing Letters*, 44(6):303–306, 1992.
- [46] S. Fenner, L. Fortnow, and S. Kurtz. Gap-definable counting classes. *Journal of Computer and System Sciences*, 48(1):116–148, 1994. Special issue for selected papers from the 6th IEEE Structure in Complexity Theory Conference.
- [47] J. Feigenbaum and L. Fortnow. On the random-self-reducibility of complete sets. *SIAM Journal on Computing*, 22:994–1005, 1993.
- [48] L. Fortnow and C. Lund. Interactive proof systems and alternating time-space complexity. *Theoretical Computer Science A*, 113:55–73, 1993.
- [49] L. Babai, L. Fortnow, N. Nisan, and A. Wigderson. BPP has subexponential simulations unless EXPTIME has publishable proofs. *Computational Complexity*, 3:307–318, 1993.
- [50] C. Lund, L. Fortnow, H. Karloff, and N. Nisan. Algebraic methods for interactive proof systems. *Journal of the ACM*, 39(4):859–868, 1992.
- [51] L. Babai, L. Fortnow, and C. Lund. Nondeterministic exponential time has two-prover interactive protocols. *Computational Complexity*, 1(1):3–40, 1991.
- [52] L. Babai and L. Fortnow. Arithmetization: A new method in structural complexity theory. *Computational Complexity*, 1(1):41–66, 1991.
- [53] L. Fortnow and M. Sipser. Are there interactive protocols for co-NP languages? *Information Processing Letters*, 28:249–251, 1988.
- [54] L. Fortnow. The complexity of perfect zero-knowledge. In S. Micali, editor, *Randomness and Computation*, volume 5 of *Advances in Computing Research*, pages 327–343. JAI Press, Greenwich, 1989.

Reviewed Conference Publications

- [1] N. Devanur and L. Fortnow. A computational theory of awareness and decision making. In *Proceedings of the 12th Conference on Theoretical Aspects of Rationality and Knowledge*. 2009. To appear.
- [2] L. Fortnow. Program equilibria and discounted computation time. In *Proceedings of the 12th Conference on Theoretical Aspects of Rationality and Knowledge*. 2009. To appear.
- [3] L. Fortnow, R. Santhanam, and R. Williams. Fixed-polynomial size circuit bounds. In *Proceedings of the 24th IEEE Conference on Computational Complexity*. 2009. To appear.
- [4] L. Antunes and L. Fortnow. Worst-case running times for average-case algorithms. In *Proceedings of the 24th IEEE Conference on Computational Complexity*. 2009. To appear.

- [5] H. Buhrman, L. Fortnow, and R. Santhanam. Unconditional lower bounds against advice. In *Proceedings of the 36th International Colloquium on Automata, Languages and Programming*, 2009. To appear.
- [6] L. Fortnow and R. Vohra. The complexity of forecast testing. In *Proceedings of the 9th ACM Conference on Electronic Commerce*, page 139. ACM, New York, 2008.
- [7] Y. Chen, L. Fortnow, N. Lambert, D. Pennock, and J. Wortman. Complexity of combinatorial market makers. In *Proceedings of the 9th ACM Conference on Electronic Commerce*, pages 190–199. ACM, New York, 2008.
- [8] L. Fortnow and R. Santhanam. Infeasibility of instance compression and succinct PCPs for NP. In *Proceedings of the 40th ACM Symposium on the Theory of Computing*, pages 133–142. ACM, New York, 2008.
- [9] Y. Chen, D. Reeves, D. Pennock, R. Hanson, L. Fortnow, and R. Gonen. Bluffing and strategic reticence in prediction markets. In *The 3rd International Workshop On Internet And Network Economics*, volume 4858 of *Lecture Notes in Computer Science*, pages 70–81. Springer, Berlin, 2007.
- [10] H. Buhrman, L. Fortnow, M. Koucký, J. Rogers, and N. Vereshchagin. Inverting onto functions and the polynomial hierarchy. In *Proceedings of the 2nd International Computer Science Symposium in Russia*, *Lecture Notes in Computer Science*, pages 92–103. Springer, 2007.
- [11] L. Antunes, L. Fortnow, A. Pinto, and A. Souto. Low-depth witnesses are easy to find. In *Proceedings of the 22nd IEEE Conference on Computational Complexity*, pages 46–51. IEEE, New York, 2007.
- [12] Y. Chen, L. Fortnow, E. Nikolova, and D. Pennock. Betting on permutations. In *Proceedings of the 8th ACM Conference on Electronic Commerce*, pages 326–335. ACM, New York, 2007.
- [13] L. Fortnow, J. Hitchcock, A. Pavan, N.V. Vinodchandran, and F. Wang. Extracting kolmogorov complexity with applications to dimension zero-one laws. In *Proceedings of the 33rd International Colloquium on Automata, Languages and Programming*, number 4051 in *Lecture Notes in Computer Science*, pages 335–345. Springer, Berlin, 2006.
- [14] L. Fortnow and A. Klivans. Efficient learning algorithms yield circuit lower bounds. In *Proceedings of the Nineteenth Annual Conference on Computational Learning Theory*, volume 4005 of *Lecture Notes in Computer Science*, pages 350–363. Springer, Berlin, 2006.
- [15] L. Fortnow and M. Ogihara. Very sparse leaf languages. In *Proceedings of the 31st International Symposium on Mathematical Foundations of Computer Science*, volume 4162 of *Lecture Notes in Computer Science*, pages 375–386. Springer, Berlin, 2006.
- [16] L. Fortnow, T. Lee, and N. Vereshchagin. Kolmogorov complexity with error. In *Proceedings of the 23rd Symposium on Theoretical Aspects of Computer Science*, number 3884 in *Lecture Notes in Computer Science*, pages 137–148. Springer, Berlin, 2006.
- [17] L. Fortnow and A. Klivans. Linear advice for randomized logarithmic space. In *Proceedings of the 23rd Symposium on Theoretical Aspects of Computer Science*, volume 3884 of *Lecture Notes in Computer Science*, pages 469–476. Springer, Berlin, 2006.

- [18] L. Fortnow, R. Impagliazzo, V. Kabanets, and C. Umans. On the complexity of succinct zero-sum games. In *Proceedings of the 20th IEEE Conference on Computational Complexity*, pages 323–332. IEEE, New York, 2005.
- [19] L. Fortnow and A. Klivans. NP with small advice. In *Proceedings of the 20th IEEE Conference on Computational Complexity*, pages 228–234, New York, 2005. IEEE.
- [20] E. Fischer and L. Fortnow. Tolerant versus intolerant testing for Boolean properties. In *Proceedings of the 20th IEEE Conference on Computational Complexity*, pages 135–140. IEEE, New York, 2005.
- [21] L. Fortnow, R. Santhanam, and L. Trevisan. Hierarchies for semantic classes. In *Proceedings of the 37th ACM Symposium on the Theory of Computing*, pages 348–355. ACM, New York, 2005.
- [22] H. Buhrman, L. Fortnow, I. Newman, and N. Vereshchagin. Increasing Kolmogorov complexity. In *Proceedings of the 22nd Symposium on Theoretical Aspects of Computer Science*, number 3404 in *Lecture Notes in Computer Science*, pages 412–421. Springer, Berlin, 2005.
- [23] L. Fortnow and R. Santhanam. Hierarchy theorems for probabilistic polynomial time. In *Proceedings of the 45th IEEE Symposium on Foundations of Computer Science*, pages 316–324. IEEE, New York, 2004.
- [24] R. Beigel, L. Fortnow, and F. Stephan. Infinitely-often autoreducible sets. In *Proceedings of the 14th Annual International Symposium on Algorithms and Computation*, volume 2906 of *Lecture Notes in Computer Science*, pages 98–107. Springer, Berlin, 2003.
- [25] L. Antunes and L. Fortnow. Sophistication revisited. In *Proceedings of the 30th International Colloquium on Automata, Languages and Programming*, volume 2719 of *Lecture Notes in Computer Science*, pages 267–277. Springer, 2003.
- [26] L. Antunes, L. Fortnow, and V. Vinodchandran. Using depth to capture average-case complexity. In *14th International Symposium on Fundamentals of Computation Theory*, volume 2751 of *Lecture Notes in Computer Science*, pages 303–310. Springer, Berlin, 2003.
- [27] L. Fortnow, A. Pavan, and S. Sengupta. Proving SAT does not have small circuits with an application to the two queries problem. In *Proceedings of the 18th IEEE Conference on Computational Complexity*, pages 347–350. IEEE, New York, 2003.
- [28] R. Beigel and L. Fortnow. Are Cook and Karp ever the same? In *Proceedings of the 18th IEEE Conference on Computational Complexity*, pages 333–336. IEEE, New York, 2003.
- [29] J. Feigenbaum, L. Fortnow, D. Pennock, and R. Sami. Computation in a distributed information market. In *Proceedings of the 4th ACM Conference on Electronic Commerce*, pages 156–165. ACM, New York, 2003.
- [30] L. Fortnow, J. Kilian, D. Pennock, and M. Wellman. Betting Boolean-style: A framework for trading in securities based on logical formulas. In *Proceedings of the 4th ACM Conference on Electronic Commerce*, pages 144–155. ACM, New York, 2003.

- [31] H. Buhrman, L. Fortnow, and A. Pavan. Some results on derandomization. In *Proceedings of the 20th Symposium on Theoretical Aspects of Computer Science*, volume 2607 of *Lecture Notes in Computer Science*, pages 212–222. Springer, Berlin, 2003.
- [32] H. Buhrman, R. Chang, and L. Fortnow. One bit of advice. In *Proceedings of the 20th Symposium on Theoretical Aspects of Computer Science*, volume 2607 of *Lecture Notes in Computer Science*, pages 547–558. Springer, Berlin, 2003.
- [33] H. Buhrman, L. Fortnow, I. Newman, and H. Röhrig. Quantum property testing. In *Proceedings of the Fourteenth ACM-SIAM Symposium on Discrete Algorithms*, pages 480–488. ACM, New York, 2003.
- [34] Artur Czumaj, Funda Ergün, Lance Fortnow, Avner Magen, Ilan Newman, Ronitt Rubinfeld, and Christian Sohler. Sublinear approximation of Euclidean minimum spanning tree. In *Proceedings of the Fourteenth ACM-SIAM Symposium on Discrete Algorithms*, pages 813–822. ACM, New York, 2003.
- [35] L. Fortnow and J. Lutz. Prediction and dimension. In *Proceedings of the Fifteenth Annual Conference on Computational Learning Theory*, volume 2375 of *Lecture Notes in Computer Science*, pages 380–395. Springer, Berlin, 2002.
- [36] T. Batu, E. Fischer, L. Fortnow, R. Kumar, R. Rubinfeld, and P. White. Testing random variables for independence and identity. In *Proceedings of the 42nd IEEE Symposium on Foundations of Computer Science*, pages 442–451. IEEE, New York, 2001.
- [37] L. Antunes, L. Fortnow, and D. van Melkebeek. Computational depth. In *Proceedings of the 16th IEEE Conference on Computational Complexity*, pages 266–273. IEEE, New York, 2001.
- [38] L. Fortnow. Comparing notions of full derandomization. In *Proceedings of the 16th IEEE Conference on Computational Complexity*, pages 28–34. IEEE, New York, 2001.
- [39] R. Beigel, N. Alon, M. S. Apaydin, L. Fortnow, and S. Kasif. An optimal procedure for gap closing in whole genome shotgun sequences. In *Proceedings of the 5th Annual International Conference on Computational Molecular Biology*, pages 22–30. ACM, New York, 2001.
- [40] T. Batu, L. Fortnow, R. Rubinfeld, W. D. Smith, and P. White. Testing that distributions are close. In *Proceedings of the 41st IEEE Symposium on Foundations of Computer Science*, pages 259–269. IEEE, New York, 2000.
- [41] L. Fortnow and D. van Melkebeek. Time-space tradeoffs for nondeterministic computation. In *Proceedings of the 15th IEEE Conference on Computational Complexity*, pages 2–13. IEEE, New York, 2000.
- [42] H. Buhrman, S. Fenner, L. Fortnow, and D. van Melkebeek. Optimal proof systems and sparse sets. In *Proceedings of the 17th Symposium on Theoretical Aspects of Computer Science*, volume 1770 of *Lecture Notes in Computer Science*, pages 407–418. Springer, Berlin, 2000.
- [43] L. Fortnow, A. Pavan, and A. Selman. Distributionally-hard languages. In *Proceedings of the 5th Annual International Computing and Combinatorics Conference*, volume 1627 of *Lecture Notes in Computer Science*, pages 184–193. Springer, Berlin, 1999.

- [44] H. Buhrman and L. Fortnow. One-sided versus two-sided error in probabilistic computation. In *Proceedings of the 16th Symposium on Theoretical Aspects of Computer Science*, volume 1563 of *Lecture Notes in Computer Science*, pages 100–109. Springer, Berlin, 1999.
- [45] L. Fortnow and P. Kimmel. Beating a finite automaton in the big match. In *Proceedings of the 7th Conference on Theoretical Aspects of Rationality and Knowledge*, pages 225–234. Morgan Kaufmann, San Francisco, 1998.
- [46] R. Beigel, H. Buhrman, and L. Fortnow. NP might not be as easy as detecting unique solutions. In *Proceedings of the 30th ACM Symposium on the Theory of Computing*, pages 203–208. ACM, New York, 1998.
- [47] L. Fortnow and J. Rogers. Complexity limitations on quantum computation. In *Proceedings of the 13th IEEE Conference on Computational Complexity*, pages 202–209. IEEE, New York, 1998.
- [48] H. Buhrman, L. Fortnow, and T. Thierauf. Nonrelativizing separations. In *Proceedings of the 13th IEEE Conference on Computational Complexity*, pages 8–12. IEEE, New York, 1998.
- [49] H. Buhrman and L. Fortnow. Two queries. In *Proceedings of the 13th IEEE Conference on Computational Complexity*, pages 13–19. IEEE, New York, 1998.
- [50] R. Downey and L. Fortnow. Uniformly hard languages. In *Proceedings of the 13th IEEE Conference on Computational Complexity*, pages 228–233. IEEE, New York, 1998.
- [51] L. Fortnow and S. Laplante. Nearly optimal language compression using extractors. In *Proceedings of the 15th Symposium on Theoretical Aspects of Computer Science*, volume 1373 of *Lecture Notes in Computer Science*, pages 84–93. Springer, Berlin, 1998.
- [52] H. Buhrman, S. Fenner, and L. Fortnow. Results on resource-bounded measure. In *Proceedings of the 24th International Colloquium on Automata, Languages and Programming*, volume 1256 of *Lecture Notes in Computer Science*, pages 188–194. Springer, 1997.
- [53] L. Fortnow. Nondeterministic polynomial time versus nondeterministic logarithmic space: Time-space tradeoffs for satisfiability. In *Proceedings of the 12th IEEE Conference on Computational Complexity*, pages 52–60. IEEE, New York, 1997.
- [54] H. Buhrman and L. Fortnow. Resource-bounded Kolmogorov complexity revisited. In *Proceedings of the 14th Symposium on Theoretical Aspects of Computer Science*, volume 1200 of *Lecture Notes in Computer Science*, pages 105–116. Springer, Berlin, 1997.
- [55] S. Fenner, L. Fortnow, A. Naik, and J. Rogers. Inverting onto functions. In *Proceedings of the 11th IEEE Conference on Computational Complexity*, pages 213–222. IEEE, New York, 1996.
- [56] J. Feigenbaum, L. Fortnow, S. Laplante, and A. Naik. On coherence, random-self-reducibility, and self-correction. In *Proceedings of the 11th IEEE Conference on Computational Complexity*, pages 59–67. IEEE, New York, 1996.
- [57] L. Fortnow, J. Goldsmith, M. Levy, and S. Mahaney. L-printable sets. In *Proceedings of the 11th IEEE Conference on Computational Complexity*, pages 97–106. IEEE, New York, 1996.

- [58] H. Buhrman, L. Fortnow, and L. Torenvliet. Using autoreducibility to separate complexity classes. In *Proceedings of the 36th IEEE Symposium on Foundations of Computer Science*, pages 520–527. IEEE, New York, 1995.
- [59] L. Fortnow, R. Freivalds, W. Gasarch, M. Kummer, S. Kurtz, C. Smith, and F. Stephan. Measure, category and learning theory. In *Proceedings of the 22nd International Colloquium on Automata, Languages and Programming*, volume 944 of *Lecture Notes in Computer Science*, pages 558–569. Springer, 1995.
- [60] S. Fenner and L. Fortnow. Beyond $P^{NP} = NEXP$. In *Proceedings of the 12th Symposium on Theoretical Aspects of Computer Science*, volume 900 of *Lecture Notes in Computer Science*, pages 619–627. Springer, Berlin, 1995.
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Nonresearch Papers

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- [20] L. Fortnow. The role of relativization in complexity theory. *Bulletin of the European Association for Theoretical Computer Science*, 52:229–244, February 1994. Computational Complexity Column.
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Invited Talks

- [1] “Computational Awareness”, Keynote Speaker, First Asian Association for Algorithms and Computation Annual Meeting, Hong Kong, April 27, 2008.
- [2] “Beyond NP: The Work and Legacy of Larry Stockmeyer”, Keynote Address, 37th ACM Symposium on Theory of Computing, Baltimore, May 22, 2005.
- [3] “My Favorite Ten Complexity Theorems of the Past Decade II”, Invited Talk, Workshop on Hew Horizons in Computing (NHC)—Recent Trends in Theoretical Computer Science, Kyoto, March 3, 2005.
- [4] “Church, Kolmogorov and von Neumann: Their Legacy Lives in Complexity”, Netherlands Theory Day, Utrecht, March 7, 2003.
- [5] “History of Complexity,” 17th IEEE Conference on Computational Complexity, Montreal, May 22, 2002.

[6] “Perspectives on Lower Bounds: Diagonalization,” DIMACS Workshop on Computational Intractability, New Brunswick, April 13, 2000.

[7] “One Complexity Theorist’s View of Quantum Computation,” Computing: The Australasian Theory Symposium, Canberra, February 1, 2000.

[8] “Separating Classes,” Logic Colloquium ’98, Prague, August 10, 1998.

[9] “25 Years of P versus NP,” The 25th Anniversary Celebration for Paul Vitanyi at CWI, Amsterdam, November 15, 1996.

[10] “My Favorite Ten Complexity Theorems of the Past Decade,” The 14th Conference on the Foundations of Software Technology and Theoretical Computer Science, Madras, India, December 17, 1994.

[11] “The Isomorphism Conjecture Holds Relative to an Oracle,” Annual Meeting of the Association of Symbolic Logic, South Bend, Indiana, March 11, 1993.

Various seminars at universities and research labs throughout the United States and around the world.