

# Prof. Neil Gershenfeld

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## EMPLOYMENT

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Professor, MIT (7/92-)

Junior Fellow, Harvard University Society of Fellows (9/89-7/92)

Technician, Bell Labs (9/81-9/83; 6-12/84)

Visiting Scientist, San Francisco Laser Center (9/83-6/84)

Summer Fellow, Woods Hole Oceanographic Institution (6-9/80; 7-8/83)

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## EDUCATION

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*Graduate (1/85-1/90, MA, Ph.D.)*

Department of Applied and Engineering Physics, Cornell University, Ithaca, NY. Prof. Watt Webb, advisor, working with Profs. David Mermin, John Guckenheimer, Robert Pohl, and Jim Sethna. IBM Graduate Fellowship.

*Undergraduate (9/77-6/81, BA; 5/06, Honorary Ph.D.)*

Swarthmore College, Swarthmore, PA. Physics major, Engineering minor; graduated with High Honors, Phi Beta Kappa, and Sigma Xi; co-captain of the swim team.

*Secondary (9/74-6/77)*

Plymouth Whitemarsh High School, Plymouth Meeting, PA. Years also spent in Kingston, Jamaica and Oxford, England.

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## SELECTED HONORS

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Fellow, American Physical Society

50 leaders in science and technology, Scientific American

Top 100 public intellectuals, Prospect/FP

Principal Voice, CNN/Time/Fortune

Brain Scan, The Economist

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## BOOKS

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- (5) *Fab: The Coming Revolution On Your Desktop – from Personal Computers To Personal Fabrication*, Basic Books (2005).  
(BusinessWeek Best of 2005)
- (4) *The Physics of Information Technology*, Cambridge University Press (2000).
- (3) *When Things Start to Think*, Henry Holt and Company (1999).  
(Amazon top 10; Chinese, Spanish, Japanese, Italian, German, Korean, and Dutch translations)
- (2) *The Nature of Mathematical Modeling*, Cambridge University Press (1999).
- (1) *Time Series Prediction: Forecasting the Future and Understanding the Past*, Andreas S. Weigend and Neil A. Gershenfeld eds., Santa Fe Institute Studies in the Sciences of Complexity, Addison–Wesley (1993).

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## ARTICLES AND ESSAYS

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- (68) Review, *Physics of the Future*, N. Gershenfeld, *Physics Today* (64), p. 56 (2011).
- (67) *Inertial Measurement With Trapped Particles: A Microdynamical System*, E. Rehmi Post, George A. Popescu, and Neil Gershenfeld, *Applied Physics Letters* (96), p. 143501 (2010).
- (66) *Reconfigurable Asynchronous Logic Automata*, Neil Gershenfeld, David Dalrymple, Kailiang Chen, Ara Knaian, Forrest Green, Erik D. Demaine, Scott Greenwald, and Peter Schmidt-Nielsen, POPL'10 (ACM SIGACT-SIGPLAN Symposium on Principles of Programming Languages), January 17-23, Madrid, Spain (2010).
- (65) *Analog Logic Automata*, K. Chen, L. Leu, L. and N. Gershenfeld, *Proceedings of the IEEE Biomedical Circuits and Systems Conference (BioCAS)*, pp. 189-192 (2008).
- (64) *Asynchronous Logic Automata*, D.A. Dalrymple, N. Gershenfeld, and K. Chen, *Proceedings of AUTOMATA 2008*, pp. 313-322 (2008).
- (63) *Ultra-Small-Sample Molecular Structure Detection Using Microslot Waveguide Nuclear Spin Resonance*, Y. Maguire, I.L. Chuang, S. Zhang, and N. Gershenfeld, *Proceedings of the National Academy of Sciences* (104), pp. 9198-9203 (2007).
- (62) *Microfluidic Bubble Logic*, M. Prakash and N. Gershenfeld, *Science* (315), pp. 832-835 (2007).
- (61) *On the Search for Quantum Control of Electronic Spin by Shaped Ultrafast Optical Pulses*, J. Taylor, A. Florean, P. Bucksbaum, and N. Gershenfeld, *Quantum Computing: Back-Action* (AIP Press, 2006).
- (60) *Digital Printing of Digital Materials*, G.A. Popescu, P. Künzler, and N. Gershenfeld, *DF 2006 International Conference on Digital Fabrication Technologies*, Denver, Colorado (2006).
- (59) *Digital Materials for Digital Printing*, G.A. Popescu, N. Gershenfeld, and T. Mahale, *DF 2006 International Conference on Digital Fabrication Technologies*, Denver, Colorado (2006)
- (58) *Internet 0: Interdevice Internetworking*, N. Gershenfeld and D. Cohen, *IEEE Circuits and Devices* (22), pp. 48-55 (2006).

- (57) *Synchronization of Pseudo-Random Signals by Forward-Only Message Passing with Application to Electronics Circuits*, B. Vigoda, H. Dauwels, M. Frey, N. Gershenfeld, T. Koch, H.-A. Loeliger, and P. Merkli, *IEEE Transactions of Information Theory* (52), pp. 3843–3852 (2006).
- (56) *SEA: a Scalable Encryption Algorithm for Small Embedded Applications*, F. Standaert, G. Piret, N. Gershenfeld, and J. Quisquater, *Springer Lecture Notes in Computer Science* (3928), pp. 222–236 (2006).
- (55) *The Internet of Things*, N. Gershenfeld, R. Krikorian, and D. Cohen, *Scientific American* (291), pp. 76–81 (2004).
- (54) *Slitted Microstrip Fabrication Using Laser Micromachining for Small Sample Detection*, Y. Maguire, R. Elavarasan, I. Chuang, and N. Gershefeld, *The 45th Experimental Nuclear Magnetic Resonance Conference* (April, 2004).
- (53) *Physical One-Way Functions*, R. Pappu, B. Recht, J. Taylor, and N. Gershenfeld, *Science* (297), pp. 2026–2030 (2002).
- (52) *A Quantum Conversation*, N. Gershenfeld, *Science* (293), pp. 2035–7 (2001).
- (51) *An Immersive, Multi-User, Musical Stage Environment*, M. Reynolds, B. Schoner, J. Richards, K. Dobson, and N. Gershenfeld, *SIGGRAPH Proceedings*, ACM, New York, NY (2001).
- (50) *Bits and Chips*, N. Gershenfeld, *New Scientist* (169), p. 55–55 (March 17, 2001).
- (49) *Remotely Interrogated Temperature Sensors based on Magnetic Materials*, R. Fletcher and N. Gershenfeld, *IEEE Transactions on Magnetics* (36), pp. 2794–2795 (2000).
- (48) *Towards a Table-Top Quantum Computer*, Y. Maguire, E. Boyden, and N. Gershenfeld, *IBM Systems Journal* (39), pp. 823–839 (2000).
- (47) *E-broidery: Design and Fabrication of Textile-based Computing*, E.R. Post, M. Orth, P.R. Russo, and N. Gershenfeld, *IBM Systems Journal* (39), pp. 840–860 (2000).
- (46) *An Installation of Interactive Furniture*, O. Omojola, E.R. Post, M.D. Hancher, Y. Maguire, R. Pappu, B. Schoner, P.R. Russo, R. Fletcher, and N. Gershenfeld, *IBM Systems Journal* (39), pp. 861–879 (2000).
- (45) *Everything, the Universe, and Life*, N. Gershenfeld, *IBM Systems Journal* (39), pp. 932–934 (2000).
- (44) *Cluster-Weighted Sampling for Synthesis and Cross-Synthesis of Violin Family Instruments*, B. Schoner, C. Cooper, and N. Gershenfeld, *Proc. International Computer Music Conference*, Berlin, Germany (August 2000).
- (43) *Cluster-Weighted Modeling: Probabilistic Time Series Prediction, Characterization and Synthesis*, B. Schoner and N. Gershenfeld, in *Nonlinear Dynamics and Statistics*, edited by Alistair Mees (Birkhaeuser, Boston, 2000).
- (42) *TouchTags: Using Touch to Retrieve Information Stored in a Physical Object*, N. Gershenfeld, and B. Vigoda, *ACM SIGCHI Conference on Human Factors in Computing Systems*, Pittsburgh, PA (May, 1999).
- (41) *Cluster-Weighted Modeling for Time Series Analysis*, N. Gershenfeld, B. Schoner, and E. Metois, *Nature* (397), pp. 329–332 (1999).
- (40) *Reconfigurable Agile Tag Reader Technologies for Combined EAS and RFID Capability*, R. Fletcher, O. Omojola, E. Boyden, and N. Gershenfeld, *Proc. of the Second IEEE Workshop on Auto-*

- matic Identification Advanced Technologies*, Summit, New Jersey, (October 1999).
- (39) *Data-Driven Modeling of Nonlinear Microwave Devices*, Bernd Schoner and Neil Gershenfeld, *Digest 53rd ARFTG Conference on Nonlinearity Characterization*, Anaheim, California (June 1999).
  - (38) *Code-Division Multiplexing of a Sensor Channel: a Software Implementation*, J.R. Smith, C. Salt-house, and N. Gershenfeld, *IEEE Journal on Selected Areas in Communications* (17), pp. 725–31 (1999).
  - (37) *Parasitic Power Harvesting in Shoes*, J. Kymisis, C. Kendall, J. Paradiso, and N. Gershenfeld, *Second IEEE International Conference on Wearable Computing*, Atlanta, GA (October 1998).
  - (36) *Data-Driven Modeling and Synthesis of Acoustical Instruments*, B. Schoner, C. Cooper, C. Douglas, and N. Gershenfeld, *International Computer Music Conference* (selected as best paper), Ann Arbor, MI (August 98).
  - (35) *Electric Field Sensing for Graphical Interfaces*, J. Smith, T. White, C. Dodge, J. Paradiso, and N. Gershenfeld, *IEEE Computer Graphics and Applications*, pp. 54–59 (May/June 1998).
  - (34) *Quantum Computing with Molecules*, N. Gershenfeld and I. Chuang, *Scientific American* (278), pp. 66–71 (June 1998).
  - (33) *Experimental Implementation of Fast Quantum Searching*, I.L. Chuang, N. Gershenfeld, and M. Kubinec, *Physical Review Letters* (80), pp. 3408–3411 (1998).
  - (32) *Bulk Quantum Computation with Nuclear Magnetic Resonance: Theory and Experiment*, I.L. Chuang, N. Gershenfeld, M.G. Kubinec, and D.W. Leung, *Proceedings of the Royal Society A* (454), pp. 447–467 (1998).
  - (31) *Intrabody Buses for Data and Power*, E.R. Post, M. Reynolds, M. Gray, J. Paradiso, N. Gershenfeld, *First International Symposium on Wearable Computers*, pp. 52–5 (IEEE Computer Society, Los Alamitos CA, 1997).
  - (30) *Application of Smart Materials to Wireless ID Tags and Remote Sensors*, R. Fletcher, J.A. Levitan, J. Rosenberg, N. Gershenfeld, in *Materials for Smart Systems II*, edited by E.P. George et. al., pp. 557–62 (Materials Research Society, Pittsburgh PA, 1997).
  - (29) *The Future of Time Series: Learning and Understanding*, N. Gershenfeld and A. Weigend, in *Pattern Formation in the Physical and Biological Sciences*, edited by H.F. Nijhout, L. Nadel, and D.L. Stein (Addison-Wesley, Reading MA, 1997).
  - (28) *Bulk Spin Resonance Quantum Computation*, N. Gershenfeld and I. Chuang, *Science* (275), pp. 350–356 (1997).
  - (27) *Musical Applications of Electric Field Sensing*, J.A. Paradiso and N. Gershenfeld, *Computer Music Journal* (21), pp. 69–89 (1997).
  - (26) *Non-Contact Sensing of People and Things*, N. Gershenfeld, *SAE Convergence* 96.
  - (25) *Signal Entropy and the Thermodynamics of Computation*, N. Gershenfeld, *IBM Systems Journal* (35), pp. 577–587 (1996).
  - (24) *Digital Dressing, or Software to Wear*, N. Gershenfeld, *The New York Times Sunday Magazine Men's Fashion Supplement* (5/96).
  - (23) *Wearable Computing*, N. Negroponte and N. Gershenfeld, *WIRED* (12/95).

- (22) *Entrainment and Communication with Dissipative Pseudorandom Dynamics*, N. Gershenfeld, and G. Grinstein, *Physical Review Letters* (74), pp. 5024–7 (1995).
- (21) *Why I Am/Am Not a Physicist*, *Physics Today*, pp. 50–51 (July, 1995).
- (20) *Applying Electric Field Sensing to Human–Computer Interfaces*, T.G. Zimmerman, J.R. Smith, J.A. Paradiso, D.A. Allport, N. Gershenfeld, *ACM/ SIGCHI–95*.
- (19) *Results Of The Time Series Prediction Competition at the Santa Fe Institute*, A.S. Weigend and N.A. Gershenfeld, in *Proceedings of 1993 IEEE International Conference on Neural Networks*, p. 1786–93 (IEEE Press, New York, 1993).
- (18) *The Future of Forecasting*, N. Gershenfeld, *Proceedings of the SPIE* (2038) p. 241 (1993).
- (17) *Information in Dynamics*, N. Gershenfeld, in *Proceedings of the Workshop on Physics of Computation*, D. Matzke ed., pp. 276–280 (IEEE Press, New York 1993), pp. 276–280.
- (16) *Dimension Measurement on High–Dimensional Systems*, N. A. Gershenfeld, *Physica D* (55), p. 135 (1992).
- (15) *Measurement of Glasslike and Crystalline Elasticity in Quasicrystals*, J.E. VanCleve, N.A. Gershenfeld, K. Knorr, and P.A. Bancel, *Physical Review B* (41), p. 980 (1990).
- (14) *An Experimentalist’s Introduction to the Observation of Dynamical Systems*, N. Gershenfeld, in *Direction in Chaos*, Vol II, edited by Hao Bai–lin (World Scientific, Singapore, 1988), p. 310 (reviewed in *Amer. Sci.* (78), p. 73 (1990)).
- (13) *Percolating Cermet Thin Film Thermistors Between 50mK–300K and 0–20 Tesla*, N.A. Gershenfeld, J.E. VanCleve, W.W. Webb, H.E. Fischer, N.A. Fortune, J.S. Brooks, and M.J. Graf, *The Journal of Applied Physics* (64), p. 4760 (1988).
- (12) *Versatile Low Temperature and High Magnetic Field Thermometers: The Low Temperature Magneto–Resistance of Thin Film Cermets*, N.A. Gershenfeld, J. VanCleve, M.J. Graf, N.A. Fortune, and J.S. Brooks, *Proceedings of the 18th Intl. Conf. on Low Temp. Physics*, *Japanese Journal of Applied Physics supplement* (26–3) p. 1741 (1987).
- (11) *State–Selective Detection of H<sub>2</sub> by 1+1 REMPI via the C<sup>1</sup>Π<sub>u</sub>(ν' = 0, J') States*, A.H. Kung, T. Trickl, N.A. Gershenfeld, and Y.T. Lee, *Chemical Physics Letters* (144), p. 427 (1988).
- (10) *Temperature Dependence of Photon Stimulated Desorption Ground State and Excited States from NaCl*, E. Taglauer, N.H. Tolk, R. Riedel, E. Colavita, G. Margaritondo, N. Gershenfeld, N. Stoffel, J.A. Kelber, G. Loubriel, A.S. Bommanavar, M. Bakshi, Z. Huric, *Surface Science* (169) p. 267 (1986).
- (9) *XUV Generation in Pulsed Free Jets: Theory of Operation and Application to Detection*, A.H. Kung, N.A. Gershenfeld, C.T. Rettner, D.S. Bethune, E.E. Marinero, and R.N. Zare, in *Laser Techniques in the Extreme Ultraviolet*, edited by S.E. Harris and T.B. Lucatorto, *AIP Conf. Proc.* 119, p. 10 (1984).
- (8) *The Measurement of Optically Thick Atomic Vapor Densities by the Nonlinear Least–Squares Fitting of Absorption or Fluorescence Spectra*, N. Gershenfeld, *Nuclear Instruments and Methods A* (224) p. 570 (1984).
- (7) *Desorption Induced by Electronic Transitions*, N. Tolk, P. Bucksbaum, N.A. Gershenfeld, J.S. Kraus, R.J. Morris, D.E. Murnick, J.C. Tully, R.R. Daniels, G. Margaritondo, and N.G. Stoffel, *Nuclear Instruments and Methods B* (230) p. 457 (1984).
- (6) *A Recurring Textbook Error: Graphs of the Hydrogen Radial Probability Density*, N. Gershenfeld,

American Journal of Physics (52)p. 81 (1984).

- (5) *APL and the Numerical Solution of High–Order Linear Differential Equations*, N.A. Gershenfeld, E. H. Schadler, and O. M. Bilaniuk, American Journal of Physics (51) p. 743 (1983).
- (4) *A Versatile, High Precision Process Controller*, N. Gershenfeld and R. Darling, AT&T Bell Labs TM83–11131–41.
- (3) *An Optically Pumped  $^6\text{Li}$  Target for PNC Studies*, D.E. Murnick, N. Gershenfeld, Y. Niv, and P.G. Pappas, in *Lasers in Nuclear Physics*, edited by C. Bemis and H.K. Carter, Harwood Academic, Chur (1982) p. 395.
- (2) *Selective Withdrawal from a Rotating Stratified Current with Applications to OTEC*, J.A. Whitehead, Jr., and N. Gershenfeld, Ocean Engineering (8) p. 507 (1981).
- (1) *Rotating Flume with Uniformly Flowing, Linear Stratified Water*, N. Gershenfeld, R. E. Frazel, and J. A. Whitehead, Jr., Reviews of Scientific Instruments (52) p. 1556 (1981).

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## PATENTS

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- (35) 8,035,414: *Asynchronous logic automata*, N. Gershenfeld, K. Chen, and D. Dalrymple (10/11/11).
- (34) 8,013,629: *Reconfigurable logic automata*, D. Dalrymple, E. Demaine, N. Gershenfeld, F. Green, and A. Knaian (9/6/11).
- (33) 7,918,244: *Microfluidic bubble logic devices*, M. Prakash and N. Gershenfeld (4/5/11).
- (32) 7,860,687: *Analog continuous time statistical processing*, B. Vigoda and N. Gershenfeld (12/28/10).
- (31) 7,848,838: *Digital assembler for digital materials*, N. Gershenfeld, P. Kunzler, and G.A. Popescu (12/7/10).
- (30) 7,784,495: *Microfluidic bubble logic devices*, M. Prakash and N. Gershenfeld (8/31/10).
- (29) 7,560,927: *Slitted and stubbed microstrips for high sensitivity, near-field electromagnetic detection of small samples and fields*, Y. Maguire, N. Gershenfeld, I. Chuang (7/14/09).
- (28) 7,209,867: *Analog Continuous Time Statistical Porcessing*, B. Vigoda and N. Gershenfeld (4/24/07).
- (27) 6,891,382: *Three-dimensional characterization using a one-dimensional electrode array*, E. Post and N. Gershenfeld (5/10/05).
- (26) 6,791,452: *Platform for item sensing and identification*, R. Fletcher, N. Gershenfeld, P. Yarin, and H. Ishii (9/14/04).
- (25) 6,724,310: *Frequency–based wireless monitoring and identification using spatially inhomogeneous structures*, N. Gershenfeld and R. Fletcher (4/20/04).
- (24) 6,693,540: *Wireless Monitoring and Identification using Spatially Inhomogeneous Structures*, N. Gershenfeld and R. Fletcher (2/17/04).
- (23) 6,642,837: *Method and Apparatus for Touch–Activated Identification and Information Transfer*, B. Vigoda and N. Gershenfeld (11/4/03).
- (22) 6,584,214: *Identification and Verification using Complex Three–Dimensional Structural Features*, R. Pappu, N. Gershenfeld, and J.R. Smith (6/24/03).
- (21) 6,493,933: *Method of Making Flexible Electronic Circuitry*, E.R. Post and N. Gershenfeld (12/17/02).

- (20) 6,472,987: *Wireless Monitoring and Identification using Spatially Inhomogeneous Structures*, N. Gershenfeld and R. Fletcher (10/29/02).
- (19) 6,460,557: *Transmissionless Pressure—Control Valve*, J. Levitan, N. Gershenfeld, and E. Blanco (10/8/02).
- (18) 6,211,799: *Method and Apparatus for Transbody Transmission of Power and Information*, E.R. Post, B. Nivi, and N. Gershenfeld (4/3/01).
- (17) 6,208,253: *Wireless Monitoring of Temperature*, R. Fletcher and N. Gershenfeld (3/27/01).
- (16) 6,200,508: *Method of Fabricating Electro—Mechanical Devices by Multilayer Deposition*, J. Jacobson, J. Albert, and N. Gershenfeld (3/13/01).
- (15) 6,066,954: *Apparatus for Resolving Presence and Orientation within a Defined Space*, N. Gershenfeld and J. Smith (5/23/00).
- (14) 6,051,981: *Method and apparatus for characterizing movement of a mass within a defined space*, N. Gershenfeld and J. Smith (4/18/00).
- (13) 6,025,726: *Method and apparatus for determining three—dimensional position, orientation and mass distribution*, N. Gershenfeld and J. Smith (2/15/00).
- (12) 6,025,725: *Electrically Active Resonant Structures for Wireless Monitoring and Control*, N. Gershenfeld and R. Fletcher (2/15/00).
- (11) 6,000,833: *Efficient Synthesis of Complex Systems*, N. Gershenfeld, E. Metois, and B. Schoner (12/16/99).
- (10) 5,936,412: *Method For Resolving Presence, Orientation, and Activity in a Defined Space*, N. Gershenfeld and J. Smith (8/10/99).
- (9) 5,914,610: *Apparatus and Method for Characterizing Movement of a Mass Within a Defined Space*, N. Gershenfeld and J. Smith (6/22/99).
- (8) 5,914,701: *Non—Contact System For Sensing And Signalling By Externally Induced Intra—Body Currents*, D. Allport, N. Gershenfeld, and T. Zimmerman (8/6/97).
- (7) 5,917,322: *Method and Apparatus for Quantum Information Processing*, I. Chuang and N. Gershenfeld.
- (6) 5,844,415: *Method for Three—Dimensional Positions, Orientation, and Mass Distribution*, N. Gershenfeld and J.R. Smith (12/1/98).
- (5) 5,790,025: *Tamper Detection Using Bulk Multiple Scattering*, N. Amer, D. DiVincenzo, N. Gershenfeld (8/4/98).
- (4) 5,612,973, 5,729,388, 5,737,360: *System Employing Dissipative Pseudorandom Dynamics For Communications and Measurement*, N. Gershenfeld and G. Grinstein (3/18/97, 3/17/98, 4/7/98).
- (3) 5,579,337: *System Employing Dissipative Pseudorandom Dynamics and Selective Feedback for Communications and Measurement*, G. Grinstein and N. Gershenfeld (11/26/96).
- (2) 5,247,261: *Method and Apparatus for Electromagnetic Non—Contact Position Measurement With Respect To One Or More Axes*, N.A. Gershenfeld (9/21/93).
- (1) 4,906,968: *Percolating Cermet Thin Film Thermistor*, N.A. Gershenfeld, W.W. Webb, J. Van-Cleve, J.V. Mantese, and E.T. Swartz (4/6/90).

## — SELECTED LECTURES, INTERVIEWS, ARTICLES, AND AWARDS —

- *Bits and Atoms*, Frontiers of IT, IBM 100, Yorktown Heights, 11/11.
- *3D Printing Breaks Out Of Its Mold*, Physics Today, 10/11.
- *eDay*, keynote, Rotterdam, 9/11.
- *Make It in Manufacturing*, House of Commons, Westminster, 9/11.
- *Future en Seine*, Paris, 6/11.
- *The Future of Fabrication*, Maker Faire, San Mateo, 5/11.
- *Global Philanthropy Forum*, Redwood City, 4/11.
- *Online Universe is About to Grow*, The Boston Globe, 2/11.
- *Business Day*, The New York Times, 1/11.
- *EDUCAUSE Annual Conference*, keynote, Anaheim, 10/10.
- *TEDGlobal*, Oxford 7/10.
- *DOD HPCMP*, keynote, Schaumburg, 6/10.
- *Tiny Metal Beads Suspended in Electric Fields Make Cheaper, Simpler Motion Sensors*, Popular Science, 4/10.
- *NSF ENG Distinguished Lecture*, DC, 2/10.
- *The Replicator, No Longer a Star Trek Dream*, The Tyee, 1/10.
- *Reconfigurable Asynchronous Logic Automata*, POPL'10 invited talk, Madrid, 1/10.
- *Programming Bits and Atoms*, Quantum to Cosmos Festival, Perimeter Institute, 10/09
- *The Way Forward*, Time, Fortune, 2/09
- *Is MIT Obsolete?*, SEED, 2/09
- *Inaugural Alumni Meeting for Principal Voices*, CNN, 12/08
- *The Fab Life*, Forbes, 8/08
- *Programming Bits and Atoms*, SC07 Keynote, Reno, 11/07
- *Equipping Grass-Roots Invention*, Tianjin (China), 6/07
- *Putting the 'fab' in fabrication*, Physics World, 6/07
- *Flow of Tiny Bubbles Mimics Computer Circuitry*, MRS Bulletin, 5/07
- *Keynote*, Agoria General Assembly, Brussels (Belgium), 3/07
- *Design Indaba*, Cape Town (South Africa), 2/07
- *Amazing Meeting 5*, Las Vegas, 1/07
- *Wanzen für die Welt*, brand eins, 11/06
- *A Factory of One's Own*, Fortune, 11/06
- *Appropriate technology: Make anything, anywhere*, Nature, 8/06
- *Nature/Google/O'Reilly Sci-Foo*, Mountain View, 8/06
- *Imagine, the Third Dimension*, engine, 8/06.
- *Fabulous Fabrication*, Engineering News, 7/06.

- Honorary Degree, Swarthmore College, 6/06.
- World Economic Forum Young Global Leaders, Vancouver (Canada), 6/06.
- Keynote, *TUSIAD Congress*, Ankara (Turkey), 4/06
- Modern-Day Leonardo, Chicago Museum of Science and Industry, 4/06.
- *Bits and Atoms*, TED, Monterey, 2/06.
- Keynote, *IEDM*, Washington DC, 12/05.
- *Festival della Scienza*, Genoa (Italy), 11/05.
- *From EPC to Internet 0*, iD People, 11/05.
- *Science Friday*, NPR, 11/05.
- *Fab Labs unshackle kids' imaginations*, CNN, 11/05.
- *IDEAS*, Boston, 10/05.
- *Bits and Atoms*, PopTech, Camden ME, 10/05.
- *CEATEC*, Tokyo, Japan, 10/05.
- Inaugural keynote, *Digital Fabrication 2005*, Denver, 9/05.
- *Ars Electronica*, Graz (Austria), 9/05
- *SRC Architectures for Nanoelectronics*, Portland, 9/05.
- *AAAS Science 125th Anniversary*, Washington DC, 7/05.
- *Brain Scan*, *The Economist*, 6/05.
- *Weekend America*, NPR, 6/05.
- *Customize This*, *I.D. Magazine*, 6/05.
- *Absolutely Fab*, *The Australian Financial Review*, 6/05.
- *Bits and Atoms*, Microsoft CEO Summit, Redmond, 5/05.
- *A Factory of One's Own*, *Newsweek*, 2/05.
- *Maker: Welcome to the Fab Lab*, *Make*, 2/05.
- *Digital 'Fab Labs' Put Design Into Action*, *San Francisco Chronicle*, 2005.
- The Prospect/Foreign Policy Top 100 Public Intellectual, 10/05.
- *How To Make (almost) Anything*, *Boston Globe*, 1/05.
- *Personal Fabrication*, World Economic Forum, Davos (Switzerland), 1/05.
- *The Dream Factory*, *Wired*, 12/04.
- Keynote, *Army Science Conference*, Orlando, 12/04.
- *Communication Research Leader of the Year*, *Scientific American 50 Award*, 10/04.
- *Top 40 Thinkers*, *IEEE Spectrum's 40th anniversary*, 10/04.
- Keynote, *Embedded Connectivity Summit*, Austin, 10/04.
- *Personal Fabrication*, *Edge*, 7/23/03.
- *Science in Hollywood: Content and Communication*, National Academy of Sciences, Los Angeles, 1/11/03.
- Intel Keynote with the Flying Karamazov Brothers, Consumer Electronics Show, Las

- Vegas, 1/9/03.
- *Time To Make The Computer Vanish*, Discover, 1/03.
  - *Crypto–chip boosts ID security*, MSNBC, 9/20/02.
  - *The Electronic Shepherd*, Tromsø, 8/30/02.
  - *The Programmable Building*, Tech Review, 7,8/02.
  - *Bits and Atoms: An Interview with Neil Gershenfeld*, EDUCAUSE Review (37), 3,4/02.
  - Ciutat de Barcelona Prize, Media House, 2002
  - *Appropriate Information Technology*, Ladakh, India, 2/28/02.
  - Keynote, EDUCAUSE, Indianapolis, 10/30/01.
  - Keynote, Forum International, Montreal, Canada, 10/17/01.
  - *Building Intelligence*, Urban Land Institute, Boston, 10/6/01.
  - *Media House* installation, Metapolis, Barcelona, Spain, 9/27/02.
  - *Fondamenta*, Venice, 6/17/01.
  - Keynote, ALTS, Palm Springs, 5/15/01.
  - *Things That Think*, Global Business Policy Council, Rio de Janeiro, Brazil, 3/12/01.
  - *MacNeil–Lehrer News Hour*, 11/23/00.
  - *Strads For The Masses!*, Red Herring, p. 344, 1/4/00.
  - Silver Medal, ID Magazine Interactive Media Design Review, UnPrivate House, 6/00.
  - *Reimagining the Cosmos*, Atlantic Unbound, 5/3/00.
  - *Night Moves*, Tom Clancy, p. 126, 4/00.
  - *Putting a Chip in Every Pot*, The New York Times, D1, 3/13/00.
  - *Il libro é morto, viva il libro: il pc non uccide la lettura*, Il Tutto Libri Tempo, 3/11/00.
  - *A Quantum Leap for PCs*, U.S. News and World Report, Cover Story, 1/3/00.
  - White House/Smithsonian Millennium Science and Technology Panels, Washington DC, 12/31/99.
  - *Representing the World in a Computer*, Science, 8/6/99.
  - *Beyond the PC: Atomic QC*, USA Today (cover, B1, B2), 7/14/1999.
  - *The Un–Private House*, The Museum of Modern Art, 6–9/30.
  - MIT Outstanding Graduate Teaching Award, 5/99.
  - *The Connection*, 4/28/99.
  - *The Future of Thermodynamics*, Il Ciocco, Italy, 4/19/99.
  - *Sensor Sensibility*, New Scientist, 3/6/99.
  - *The World as Interface*, Wired, 3/99.
  - *Fresh Air*, 2/9/99.
  - *The Editors Recommend*, Scientific American, 2/99.
  - *Rebuilding Futureland*, The Boston Globe, p. D1, 1/31/99.
  - *Author dreams up high–tech lives*, USA Today, 1/22/99.

- *Simplifying The PC*, Business Week, 11/9/98.
- *Molecular Quantum Computation*, Lincoln Laboratory Distinguished Lecture Series, 10/15/98.
- *PostScript Meets Pasta: MIT Media Lab cooking up new inventions*, San Francisco Chronicle, p. D1, 10/9/98.
- *Things That Think*, Isaac Newton Institute for Mathematical Sciences, 8/7/98.
- CNN Headline News, 7/98.
- *Molecular Quantum Computation*, Benqsque Center for Physics, 7/9/98.
- *Atoms, Bits, and Cars*, Plenary speaker, International Symposium on Automotive Technology & Automation, Duesseldorf, 6/1/98.
- *Quantenmechanik und die Suche nach der Nadel im Heuhaufen*, Physikalische Bl?tter, p. 502, 6/98.
- *Molecular Quantum Computation*, Fermilab Colloquium, 5/27/98.
- Finalist, 1998 Discover Magazine Award for Technological Innovation
- *The Computer Too Weird for Einstein*, The Independent, p. 12, 4/20/98.
- *Quantum Computing Is Becoming More Than Just a Good Idea*, New York Times, p. C3, 4/28/98.
- *Starting Up Quick Quantum Searches*, Science News, p. 244, 4/18/98.
- *Machine Inference*, NSF/Institute for Mathematics and its Applications, 3/7/98.
- *Bulk Spin Resonance Quantum Computation*, Institute for Scientific Interchange, Torino, Italy, 7/97
- *Things That Think*, Harvard University Class of '37 Lecture, Cambridge, MA, 6/97
- *Cluster-Weighted Modeling for Prediction and Characterization*, The Aspen Center for Physics, Aspen, CO, 6/97
- *Qubit by Qubit*, The Sciences, pp. 11-46, 5/97.
- *Wake Up To Quantum Coffee*, New Scientist, pp. 27-31, 3/15/1997.
- *A Quantum Leap*, San Jose Mercury News (Knight-Ridder wire), 3/4/97.
- *Brave New World*, Modern Maturity, pp. 24-25, 3-4/97.
- *Atoms As The Smallest Quantum Bits*, Science News, p. 135, 3/1/97
- *Quantum Computing: Cue The Qubits*, The Economist, pp. 91-92, 2/22/97
- *Things That Think*, Family Circle, 1/97
- *Bulk Spin Resonance Quantum Computation*, Institute for Theoretical Physics, Santa Barbara, CA, 12/96
- *Wired Flesh*, CNBC, 10/96
- PBS Scientific American Frontiers, Alan Alda, 10/96
- San Jose Mercury News, 10/96
- NBC Nightly News, 7/96
- ABC Chronicle 6/96
- Business Week, 6/96

- WIRED, 5/96
- The Discovery Channel, 5/96.
- *Daten aus dem Schuh*, Wirtschaftswoche, pp. 96–99, 3/14/96.
- *Virtuoso Computing*, The Swarthmore College Alumni Bulletin, 2/96.
- Spirit Cabinet performances by Penn & Teller (with Tod Machover and Joe Paradiso), 94/95.
- TV Globo, David Presas, Brazil, 3/95.
- BBC Discovery, Tracey Logan, 11/94.
- Codirector, *Digital Expression*, MIT, 10/94 (with Peter Sellars, Peter Gabriel, Laurie Anderson, Max Matthews, Nolan Bushnell, Douglas Trumbull, Jane Alexander, Michael Schulhof, and Ray Smith).
- Program Committee, IEEE Society for Low Power Electronics, San Diego, 10/94.
- Codirector, Miniworkshop on Nonlinear Time Series Analysis, Summer School on Condensed Matter Physics, International Center for Theoretical Physics, Trieste, Italy, 8/94.
- New Scientist, 4/94.
- Member, National Academy of Science Infotech panel, 1993.
- Lecturer, Neural Information Processing Systems, Denver, 11/93.
- *The State of Time Series Analysis and the Future of Time Series Forecasting*, University of Michigan, Ann Arbor, 4/93.
- Institut d'Etudes Scientifiques de Cargese, Corsica, France, 9/92.
- *Physics and the Future of Music* (Physics Department Colloquium) and *Learning From Experience: Time Series, Complexity, and Physics* (Theory Group Seminar), Cornell University, 11/92.
- Codirector, Time Series Analysis Competition and NATO ARW workshop, at the Santa Fe Institute, 1991–1992 (reported in *Science*, 10/91).
- Hypercello performances by Yo–Yo Ma of Tod Machover's *Begin Again Again ...*, Tanglewood, Massachusetts (8/91), and Tokyo, Japan (11/91). Reviewed in the *New York Times*, 8,9/91.
- *Physical Measurement and Interpretation of Cello Control Parameters*, Yamaha Research Laboratories, Hammamatsu, Japan (11/91), International Computer Music Conference, Montreal, Canada (10/91), Xerox Palo Alto Research Center, California (9/91).
- *Dimension Measurement on High–Dimensional Systems*, NATO ASI, Patras, Greece, 7/91.
- Service de Physique du Solide et de Resonance Magnetique, CEN Saclay, France, 10–12/90.
- Shanghai, Nanjing, Beijing, and Shenyang, People's Republic of China; spoke under the auspices of the Chinese Academy of Sciences at Fudan and Nanjing Universities and the Institutes of Physics, Theoretical Physics, Semiconductor Physics, and Metallurgy in Beijing and Shenyang. 5/24–6/26/87.