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[Resume](#) | [Research](#) | [Teaching](#) | [Service](#)

Degrees Awarded:

<u>Degree</u>	<u>Field</u>	<u>School</u>	<u>Date received</u>
Doctor of Philosophy	Electrical Engineering and Computer Science	Massachusetts Institute of Technology	June 1999
Master of Science	Electrical Engineering and Computer Science	Massachusetts Institute of Technology	June 1994
Bachelor of Science, with distinction	Symbolic Systems	Stanford University	June 1991

Massachusetts Institute of Technology

Cambridge, MA

1991-1999

Ph.D. in Electrical Engineering and Computer Science, June 1999. [Dissertation](#) under [Thomas F. Knight, Jr.](#) on "Reversibility for Efficient Computing." Minor in VLSI design. Additional coursework in computer architecture, artificial intelligence (AI), and theoretical computer science. **M.S.** in Electrical Engineering and Computer Science, June 1994. [Masters thesis](#) under Jon Doyle on decision-theoretic AI. Student work experience as research assistant, teaching assistant, and UNIX sysadmin. Cumulative **GPA** at MIT: 4.9 (out of 5.0).

Stanford University

Stanford, CA

1987-1991

B.S., with distinction & departmental honors, in [Symbolic Systems](#), June 1991. Broad curriculum emphasizing computer science, mathematical logic, and artificial intelligence. Independent research & programming work exploring 3-D rendering and many AI techniques. **GPA** in major: 3.9 (out of 4.0). **GRE** scores: Verbal 730 (97%ile), Quantitative 800 (97%ile), Analytical 750 (96%ile) (all out of 800), Computer Science 850 (out of 900) (99%ile).

Professional Employment: (selected positions)

University of Florida

Gainesville, FL

Aug. 1999-present

Assistant professor (tenure-track) in the [Computer & Information Science & Engineering Department](#), and affiliate assistant professor in the [Electrical & Computer Engineering Department](#), of the [College of Engineering](#), both graduate and undergraduate schools. Position involves teaching graduate and undergraduate courses, advising students, supervising student projects, applying for research contracts and grants, leading research projects, and pursuing research, academic publications and patents, and performing services for the academic community.

Massachusetts Institute of Technology

Cambridge, MA

Summer 1999

Postdoctoral researcher in the [Artificial Intelligence Laboratory](#) under the supervision of [Dr. Tom Knight](#). Extended Ph.D. research, worked on publications, supervised a summer student.

Marketplace.Net, Inc.

San Jose, CA

March 1998-February 1999

Senior software engineer and web developer for this internet startup's web site, [StockMaster.com](#), providing public and corporate financial information services. Created custom extensions to the [Apache](#) web server for fast communication with an [ObjectStore](#) back-end object database. Created [prototype CGI-based software](#) for processing and displaying international stock and index data from [Dow Jones](#). Many other software engineering and site maintenance responsibilities.

NASA Ames Research Center

Mountain View, CA

Summer 1996

Aided the design and development of [high-level control software](#) for the [Deep Space One](#) autonomous spacecraft, part of [NASA's New Millennium](#) program. Created an object-oriented, extensible spacecraft simulator, using the [Common Lisp Object System](#). Contracted through [Caelum Research Corporation](#).

Newton Research Labs

Cambridge, MA

Fall 1995

Software design subcontractor for [Microsoft](#). Helped architect software to support the digital broadcast of multimedia & web content via DirectTV satellite.

IBM T. J. Watson Research Center

Hawthorne, NY

Summers 1994-1995

Research assistant in the [handwriting recognition group](#). Participated in R&D of [a large software system](#) in C for [on-line recognition of handwritten words using hidden Markov models](#) for statistical pattern recognition.

NEC Research Institute

Princeton, NJ

Summer 1993

Research intern working on decision-theoretic game-tree search algorithms.

SRI International

Menlo Park, CA

Summers 1990-1991

Helped develop the Tileworld software environment for simulation of agent architectures. Increased simulation performance, created an X interface in Common Lisp. Later, developed a system for conducting HCI (human-computer interaction) experiments for speech and handwriting recognition systems. Created an LCD tablet graphical interface in C using the X window system.

Center for the Study of Language & Information

Stanford, CA

Summer 1989

Research intern at this Stanford-affiliated research facility. Developed PROSIT, a new logic programming language based on situation theory.

Microsoft Corporation

Redmond, WA

Summer 1988

Software engineer on Microsoft Works 2.0 for DOS; added many features in C.

Awards & Honors Won:

- Teacher of the Year award, presented by UF ACM student chapter, 1999-2000.
- [National Science Foundation Graduate Fellow](#), 1992-1995.
- World champion team member, [ACM Collegiate Programming Contest](#), 1991.

Research

Press exposure:

- Linda Dailey Paulson, “**Reversible Computing May Improve Mobile Performance,**” news article in *IEEE Computer*, March 2004, p. 21.
- Ram Mohan Rao, interview on reversible computing published in *Digit*, Indian pop-tech magazine, January 2004.
- Shane Peterson, “**Researching Reversible Computing,**” *Government Technology Spectrum*, January 2004.
- “**Are “reversible” computers more energy efficient, faster?**” *Planet Analog*, January 26, 2004.
- Winn L. Rosch, “**Chip designers try to beat the heat,**” *The Plain Dealer* (Ohio’s largest newspaper), Cleveland, OH, Nov. 11, 2003, <http://www.cleveland.com/tech/plaindealer/index.ssf?/base/business/1069324478246580.xml>.
- Ashlee Vance, “**Reversible computing is ‘the only way’ to survive Intel’s heat,**” *The Register* (IT News site), Nov. 14, 2003, <http://theregister.com/content/3/34006.html>.

- Amit Asaravala, “**Chip Design Reverses a Hot Trend,**” *Wired News*, Nov. 13, 2003, <http://www.wired.com/news/technology/0,1282,61118,00.html>.
- James Clark, “**‘Reversible’ Computers More Energy Efficient,**” *Slashdot*, Nov. 11, 2003, <http://slashdot.org/article.pl?sid=03/11/11/1812206&mode=thread&tid=126&tid=137>.
- Aaron Hoover, “**UF Researcher: ‘Reversible’ Computers More Energy Efficient, Faster,**” UF press release, Oct. 31, 2003, <http://www.napa.ufl.edu/2003news/efficientcomputer.htm>. Appeared in *ACM Technews*, <http://www.acm.org/technews/articles/2003-5/1103m.html#item8>, *AScribe Newswire*, <http://www.ascribe.org/cgi-bin/spew4th.pl?ascribeid=20031031.082024&time=08%2043%20PST&year=2003&public=1>, and *SuperComputingOnline.com*, <http://www.supercomputingonline.com/print.php?sid=4894>.
- Sarah Walker, segment on OCEAN on *Eyewitness News*, 9 WFTV, Orlando, FL, Jan. 2002.
- Aaron Hoover, “**Tapping a Virtual Goldmine: Univ. of Fla. research: Put idle PCs to work via Internet in ‘computing marketplace,’**” UF press release, Dec. 13, 2001, <http://www.napa.ufl.edu/2001news/compusell.htm>. Appeared in *Pompano Ledger*, Pompano Beach, FL, Dec. 20, 2001; *Pinellas News*, St. Petersburg, FL, Dec. 21, 2001; *Brevard Business News*, West Melbourne, FL, Jan. 7, 2002.
- Brad Fennessy, “**Idle computers may yield profit,**” *Alligator* (student newspaper), Gainesville, FL, April 17, 2002.
- Jay Stein, “**More Computing Power, Less Electrical Power,**” *ET Currents* (power industry newsletter), no. 7, March 2001.
- George Johnson, “**A Radical Computer Learns to Think in Reverse,**” *New York Times* Science section, June 15, 1999.

Press exposure, pending:

- David Greenfield, pending story on reversible computing for *Network Magazine*, CMP publishers.
- Kelly Vereas, pending story on reversible computing for *St. Petersburg Times*, St. Petersburg, FL.
- Martha Heil, pending story on reversible computing for *Discoveries and Breakthroughs Inside Science* (syndicated TV news series).
- Julia Pierce, pending story on reversible computing for *The Engineer* (technology news magazine), London, UK.

Publications:

Books:

- Michael P. Frank, *Nanocomputer Systems Engineering*, CRC Press, to be published 2004. In preparation.
- Michael P. Frank and Carlin J. Vieri, *Reversible Computing: From Theory To Engineering* (working title), MIT Press, Cambridge, Massachusetts. Currently under review and revision.

Book chapters:

- Michael P. Frank, "Theoretical Models of Nanocomputers," invited review chapter for the *Handbook of Computational Nanotechnologies*, American Scientific Publishers, to be published 2004. In preparation.
- Michael P. Frank, "Nanocomputers-Theoretical Models," invited article (review chapter) accepted for the [Encyclopedia of Nanoscience and Nanotechnology](#), Hari Singh Nalwa, ed., American Scientific Publishers, to be published March 2003. Manuscript at <http://www.cise.ufl.edu/research/revcomp/Nanocomputers.doc>.

Monographs:

- [Michael P. Frank](#), "[Reversibility for Efficient Computing](#)," Ph.D. thesis, [Massachusetts Institute of Technology](#), Cambridge, Massachusetts, May 1999. <http://www.ai.mit.edu/~mpf/thesis/phdthesis.html>.
- [Michael P. Frank](#), "[Advances in decision-theoretic AI: Limited rationality and abstract search](#)," Master's thesis, [Massachusetts Institute of Technology](#), Cambridge, Massachusetts, May 1994. <http://www.ai.mit.edu/~mpf/papers/Frank/Frank-94/Frank-94.html>.

Refereed journal articles:

- Michael P. Frank, "Physical Limits of Computing", *Computing in Science and Engineering*, 4(3):16-25, IEEE/AIP, May/June 2002. <http://www.cise.ufl.edu/-research/revcomp/physlim/plpaper.html> .
- [Michael P. Frank](#) and [Tom Knight](#), "[Ultimate theoretical models of nanocomputers](#)," *Nanotechnology* 9(3):162-176, Sep. 1998. Also presented at the [Fifth Foresight Conference on Molecular Nanotechnology](#), Palo Alto, CA, Nov. 1997. <http://www.ai.mit.edu/~mpf/Nano97/paper.html>.

Refereed journal articles, pending:

- Michael P. Frank, "Reversible computing," *IEEE Spectrum*, invited Nov. 2003, currently in preparation.

- Michael P. Frank and M. Josephine Ammer, ``**Relativized separation of reversible and irreversible space-time complexity classes**,'' *Information and Computation*. Invited. Submitted, conditionally accepted, currently being revised.
- Michael P. Frank, ``**Realistic theoretical models of nanocomputers**'' (working title), to be submitted to the journal *Nanotechnology*, in preparation.
- Michael P. Frank, Carlin Vieri, Saed Younis, "**The past and future of adiabatic circuits**" (working title), invited review article to be submitted to [*IEEE Circuits and Devices Magazine*](#), currently in preparation.
- Michael P. Frank, Thomas F. Knight, Carlin J. Vieri, and Saed G. Younis, ``**Some recent developments in adiabatic logic**,'' (working title), *IEEE J. of Solid-State Circuits*, in preparation for submission.
- Michael P. Frank and Norman H. Margolus, ``**Entropy and information: A unified physical and computational perspective**'' (working title), [*Entropy*](#). Submission invited, currently in preparation.
- Michael P. Frank and Norman H. Margolus, ``**Maximally scalable physically realistic models of computation must be mostly reversible**'' (working title), *International J. of Modern Physics D: Physics and Computers*. Submission invited, currently in preparation.

Magazine articles, pending:

- Michael P. Frank, "**Reversible Computing**," Developer 2.0 programmers' magazine (affiliated w. Dr. Dobb's Journal), India, Jan. 2004.

Refereed conference articles, published:

- Michael P. Frank, "**A Technology-Independent Model of Nanoscale Logic Devices**," *Technical Proceedings of the 2004 Nanotechnology Conference and Trade Show*, sponsored by NSTI, held in Boston, Mar. 7-11, 2004. Volume 2, chapter 2, pages 29-32. Paper: <http://www.cise.ufl.edu/research/revcomp/NT04-Frank.pdf>, poster (3'x4'): [NanoTech04-Poster.ppt](#), [.tif](#), extra slides: [NT04-extra-slides-ppt](#).
- Pradeep Padala and [Michael P. Frank](#), "**Design of a Self-evolving Scalable Matching Network for OCEAN**," poster paper accepted at the International Symposium on High-Performance Computing (HiPC'03), Dec. 2003.
- Pradeep Padala, Cyrus Harrison, Nicholas Pelfort, Erwin Jansen, [Michael P. Frank](#) and Chaitanya Chokkareddy, "**OCEAN: The Open Computation Exchange and Arbitration Network, A Market Approach to Meta computing**," in the proceedings of the International Symposium on Parallel and Distributed Computing (ISPDC'03), Oct. 2003. <http://www.cise.ufl.edu/research/ocean/docs/papers/ispdc.pdf>.
- Michael P. Frank, "**Common Mistakes in Adiabatic Logic Design and How to Avoid Them**," paper presented at Methodologies in Low-Power Design Workshop, part of the International Conference on Embedded Systems and

- Applications, at the International Multiconference in Computer Science & Computer Engineering, held in Las Vegas, Nevada, June 23-26, 2003. Paper at <http://www.cise.ufl.edu/research/revcomp/Frank-MLPD-03.doc>, [MLPD03-Mistakes-paper.ps](#), [MLPD03-Mistakes-paper.pdf](#); talk slides at [MLPD-03-Talk.ppt](#), [MLPD03-Mistakes-slides.ps](#), [MLPD03-Mistakes-slides.pdf](#).
- Michael P. Frank, “**Nanocomputer Systems Engineering**,” paper presented at the NanoEngineering World Forum, sponsored by the International Engineering Consortium, held in Marlborough, MA, June 23-25, 2003. Paper at <http://www.cise.ufl.edu/research/revcomp/NanoSysEng-WorldForum-Frank-03.doc>, [.ps](#), [.pdf](#); slides at [NanoEng-NCSE.ppt](#), [NanoEng-NCSE-Slides.ps](#), [.pdf](#).
 - Michael P. Frank, “**Reversible Computing: Quantum Computing's Practical Cousin**,” invited general introductory lecture presented at the [James H. Simons Foundation Conference on Quantum and Reversible Computing](#), Stony Brook, NY, May 28-31, 2003; abstract [.doc](#), [.pdf](#); lecture [.ppt](#), [.pdf](#).
 - Michael P. Frank, “**Nanocomputer Systems Engineering**,” proceedings of the 2003 [Nanotechnology Conference and Trade Show](#), held Feb. 23-27, 2003, San Francisco, CA. <http://www.cise.ufl.edu/research/revcomp/theory/-NanoTech2003/Frank-NanoTech-2003.doc>, [.ps](#). Poster slides in PowerPoint: [with audio narration](#) (29 MB); [without audio](#) (1.8 MB).
 - Sama Govindaramanujam, Cyrus Harrison, Erwin Jansen, Sriram Kumar Nallan, Sahib Singh, and [Michael P. Frank](#), “**Locating Suitable Resources in OCEAN**,” paper accepted for poster presentation at HiPC (High-Performance Computing), 2002. http://www.cise.ufl.edu/research/ocean/docs/papers/hipc02_poster.pdf.
 - [Michael P. Frank](#), [Tom Knight](#), [Norm Margolus](#), “**Reversibility in optimal scalable computer architectures**,” in Calude, Casti, Dineen, eds., *Unconventional Models of Computation* (proceedings of [the First International Conference on Unconventional Models of Computation](#), Jan. 1998), pages 165-182, Springer, 1998. http://www.ai.mit.edu/~mpf/rc/scaling_paper/-scaling.html.
 - [Michael P. Frank](#), [Carlin Vieri](#), M. Josephine Ammer, Nicole Love, [Norman H. Margolus](#), [Thomas F. Knight, Jr.](#), “**A scalable reversible computer in silicon**,” in *ibid.*, pages 183-200. <http://www.ai.mit.edu/~mpf/rc/flattop/ft.html>.
 - Sharon Oviatt, Philip Cohen, Martin Fong, and [Michael Frank](#), “**A rapid semi-automatic simulation technique for investigating interactive speech and handwriting**,” *Proceedings of the International Conference on Spoken Language Processing*, Bariff, Canada, October 1992.
 - Matthew L. Ginsberg, [Michael Frank](#), Michael P. Halpin, and [Mark C. Torrance](#), “**Search lessons learned from crossword puzzles**,” *Proceedings Eighth National Conference on Artificial Intelligence*, 1990.

Refereed conference articles, pending:

- Michael P. Frank, “**A technology-independent model of nanoscale logic devices**,” NanoTech 2004 conference and trade show, March 7-11, 2004, Boston; abstract accepted, paper in preparation.

Technical reports:

- Shashank Shetty, Pradeep Padala and Michael P. Frank. “**A Survey of Market-Based Approaches to Distributed Computing**,” University of Florida, Technical Report TR03-013, Aug, 2003.
- Janik Borota, Michael Frank, John Fry, Atsushi Ito, Hideyuki Nakashima, Stanley Peters, Michael Reilly, and Hinrich Schutze, “**The PROSIT Language, version v1.0**,” manuscript, *Center for the Study of Language and Information*, Stanford, CA, 1994.

Contracts & grants awarded:

- Michael Frank (PI) and Huikai Xie (co-PI), “**Design & feasibility study for practical adiabatic logic driven by custom high- Q MEMS/NEMS clock/power resonators**,” white paper awarded a \$40,000, 1-year (2004) grant from Semiconductor Research Corporation in their Cross-disciplinary Semiconductor Research (CSR) program.
- \$5,000 grant from Harris Corporation to support UF’s effort in the ACM programming contest, 2003.
- 2001-2002: Two \$15,000 contracts from Siemens corporation to coach student teams working on a Siemens DSL modem project through UF’s Integrated Product & Process Design program.

Funding proposals written:

- Michael Frank & Huikai Xie, “**Design & Feasibility study for practical adiabatic logic driven by custom high- Q MEMS/NEMS clock/power resonators**,” \$40K white paper proposal to SRC CSR (Cross-disciplinary Semiconductor Research) program, Sep. 2003. **Funded.**
- Michael Frank, Joachim Hammer, Abdelsalam Helal, Jorg Peters, Sanjay Ranka, Mark Schmalz, “**OCEAN: A Peer-to-Peer Market for Allocating Grid Computing Resources**,” \$1M proposal to NSF STI (Strategic Technologies for the Internet) program, May 2003.
- “**Scalable Architectures and Engineering Analysis for Adiabatic Circuits and Reversible Computing**”, NSF/Eng/ECS/CAREER, July 2001.
- “**OCEAN: A Highly Liquid Market for Distributed Computation**,” NSF/STI, June 2001.
- “**Dawn of a New Field: Quantum Computer Systems Engineering**,” NSF/CISE/QuBIC, June 2001.
- “**Cost-Effective Adiabatic Digital System Technology for Low-Power Computing Applications**,” informal proposal to IBM, Jan. 2001.
- “**OCEAN: The Open Computation Exchange & Arbitration Network: An open platform and commodities market for distributed computation**,” business proposal presented to Cenetec, Nov. 2000.

- **"Adiabatic Logic for High-Bandwidth Networking Equipment: A Proposed Feasibility Study,"** invited proposal to Nortel Networks, Nov. 2000.
- **"Nanoelectronics Science and Engineering Center,"** NSF, collaboration with Clemson, Nov. 2000.
- **"Thermodynamically Efficient Models and Architectures for Maximally Scalable Computing,"** NSF/CISE/Arch./CAREER, Jul. 2000.
- **"Practical Energy-Recycling Computation for Mobile Tactical Applications,"** DARPA/ATO, Mar. 2000.
- **"Dynamic Optimization of Semi-Adiabatic Power-Managed Architectures,"** \$1M proposal to DARPA/PACC, Oct. 1999.

Thesis and/or dissertation committees served on:

Ph.D. committee chairman (or co-chair) for:

- Erwin Jansen, 2001-
- Shawn Outman, 2002-
- Jeff King, 2002-

Ph.D. committee member for numerous students.

Masters thesis (& non-thesis) committee chairman (or co-chair) for numerous students.

Research talks given:

- **"Nanocomputer Systems Engineering,"** invited talk delivered at the Department of Electrical & Computer Engineering, FAMU/FSU College of Engineering, Feb. 25, 2004.
- **"The Imminent Practicality of Reversible Computing,"** invited talk delivered at the IBM T.J. Watson Research Center, Yorktown Heights, NY, Aug. 28, 2003. Powerpoint file at <http://www.cise.ufl.edu/research/revcomp/talks/IBM-Talk.ppt>.
- **"Common Mistakes in Adiabatic Logic Design and How to Avoid Them ,"** paper presented at Methodologies in Low-Power Design Workshop, part of the International Conference on Embedded Systems and Applications, at the International Multiconference in Computer Science & Computer Engineering, held in Las Vegas, Nevada, June 23-26, 2003. Paper at <http://www.cise.ufl.edu/research/revcomp/Frank-MLPD-03.doc>, [MLPD-Mistakes-paper.ps](#), [MLPD-Mistakes-paper.pdf](#); talk slides at [MLPD-03-Talk.ppt](#), [MLPD03-Mistakes-slides.ps](#), [MLPD03-Mistakes-slides.pdf](#).
- **"Nanocomputer Systems Engineering,"** paper presented at the NanoEngineering World Forum, sponsored by the International Engineering Consortium, held in Marlborough, MA, June 23-25, 2003. Paper at <http://www.cise.ufl.edu/research/revcomp/NanoSysEng-WorldForum-Frank-03.doc>, [.ps](#), [.pdf](#); slides at [NanoEng-NCSE.ppt](#), [NanoEng-NCSE-Slides.ps](#), [.pdf](#).

- **"Reversible Computing: Quantum Computing's Practical Cousin ,"** invited general introductory lecture presented at the [James H. Simons Foundation Conference on Quantum and Reversible Computing](#), Stony Brook, NY, May 28-31, 2003; abstract [.doc](#), [.pdf](#); lecture [.ppt](#), [.pdf](#).
- **"Physical Computing Theory, Ultimate Models, and the Tight Church's Thesis: A More Accurate Complexity Theory for Future Nanocomputing ,"** invited talk given to the Algorithms & Theory Club, CISE dept., UF, Tue., Sep. 17, 2002. Slides in PowerPoint at <http://www.cise.ufl.edu/research/revcomp/talks/Theory-talk.ppt>.
- Michael Frank and DoRon Motter, **"Quantum Computer Architectures for Physical Simulations ,"** invited talk presented by Frank at the [Quantum Computation for Physical Modeling](#) workshop sponsored by the Air Force research labs, held at Martha's Vineyard, Wed., May 8, 2002. Slides in PowerPoint at <http://www.cise.ufl.edu/research/revcomp/talks/QCPM-talk.ppt>.
- **"Systems Engineering for Reversible Quantum Nanocomputers ,"** invited talk given at University of Southern California, Dept. of Electrical Engineering (Architecture), Wed., May 1, 2002. Slides in PowerPoint at <http://www.cise.ufl.edu/research/revcomp/talks/USC-talk.ppt>.
- **"Cost/Performance/Power Efficiency of Adiabatic Circuits, as a function of Device On/Off Power Ratios ,"** talk given in the Brown Bag Seminar series, ECE Dept., UF, March 2002. Slides in PowerPoint at <http://www.cise.ufl.edu/research/revcomp/talks/Brown-Bag-Spr02.ppt> .
- **Lecture on adiabatic circuits**, untitled guest lecture delivered in Dr. Bill Eisenstadt's VLSI class, ECE dept., Spr. 2002, <http://www.cise.ufl.edu/research/revcomp/talks/LecForBill.ppt>.
- **"Cost/Performance/Power tradeoffs in Adiabatic Logic,"** talk given in the Brown Bag Seminar, ECE Dept., UF, March 2002.
- **"Can Hintikka's Independence-Friendly Logic Be Used to Prove the Non-Existence of the Reals?,"** talk to be given at the Logic Seminar, Math Dept., UF, March 2002.
- **"Robust and Universal Reversible Machines & High-Level Programming Languages in a Recombinase DNA System,"** talk given at the DARPA/NSF BioComp PI meeting, Nov. 2001.
- **"A Mathematical Theory of Existence,"** invited philosophy talk given to UF's Atheist/Agnostic Student Association, Nov. 2001.
- **"OCEAN: The Open Computation Exchange & Auctioning Network,"** talk given to the Harris Lab research group, summer 2001.
- **"DNA Computing, Reversibility, and Physical Models of Computing"**, invited talk given at the University of Delaware's ECE/CIS department, April 2001.
- **"Parallel and Distributed Technology and Infrastructure,"** personal research overview presented to the UF CISE department's Industrial Advisory Board, March 2001.
- **"Quantum Computational Networks,"** lecture series delivered as part of the Quantum Computing seminar, Mathematics Department, University of Florida, March 2001.

- **"Reversible Logic and Its Looming Importance"**, Logic Seminar lecture, Mathematics Department, University of Florida, February 2001.
- **"OCEAN: The Open Computation Exchange & Arbitration Network: An Open Platform and Commodities Market for Distributed Computation"**, business proposal presented to the Cenetec technology incubator firm, November 2000.
- **"Adiabatic circuits and reversible logic: Prospects for Improving Computational Efficiency in Present and Future Computing Technologies,"** AeMES seminar, AeMES Department, University of Florida, September 2000.
- **"Adiabatic logic circuits for ultra-low-power computing,"** presentation to Intersil corporation, June 2000.
- **"Ultra-Low-Power Computing via Adiabatic CMOS: Current Status and Future Prospects,"** Brown Bag Seminars in Electronics, Electrical and Computer Engineering Department, University of Florida, May 2000.
- **"Nanotechnology Research at the UF Computer & Information Science & Engineering Department (CISE),"** presentation to Sandia National Labs, April 2000.
- **"Adiabatic logic circuits for energy-limited applications,"** presentation to Siemens Corporation, March 2000.
- **"Thermodynamically reversible computing technology for low-power/high-performance applications,"** presentation to Harris Corporation, December 1999.
- **"Thermodynamically reversible computing technology for low-power/high-performance applications,"** presentation to the UF Industrial Advisory Board, October 1999.
- **"Reversibility for Efficient Computing,"** job talk, University of Florida, June 1999. (Job was offered.)
- **"Reversibility for Efficient Computing,"** thesis defense, MIT EECS Dept., May 1999. (Thesis was approved.)
- **"Reversibility in Optimally Scalable Computer Architectures,"** talk prepared for the First International Conference on Unconventional Models of Computation, Auckland, New Zealand, January 1998. (Colleague delivered talk.)
- **"A Scalable Reversible Computer in Silicon,"** talk prepared for the First International Conference on Unconventional Models of Computation, Auckland, New Zealand, January 1998. (Colleague delivered talk.)
- **"Reversibility for Efficient Computing,"** job talk, Texas Instruments DSP Research Division, December 1997. (Job was offered.)
- **"Ultimate Theoretical Models of Nanocomputers,"** presented at the Fifth Foresight Conference on Molecular Nanotechnology, November 1997.
- **"The O.C.E.A.N. Project: An Open Computation Exchange & Arbitration Network,"** MIT AI Lab student seminar, February 1997.
- **"Low-Energy Computing for Implantable Medical Devices,"** MIT Clinical Decision-Making Group research seminar, February 1996.
- **"Quantum Computation Primitives,"** area exam talk, MIT EECS Dept., February 1996.

- ``**Automatic Programming and the Programmer's Apprentice Project**,'' MIT Clinical Decision-Making Group journal club talk, October 1992
 - ``**Virtual Reality for Computer-Supported Cooperative Work (and Medical Applications)**,'' MIT Clinical Decision-Making Group research seminar, April 1992.
 - ``**Rational Distributed Reasoning**,'' MIT Clinical Decision-Making Group journal club talk, March 1992.
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Teaching

Courses taught:

- CIS 4930/6930, "**Physical Limits of Computing**", novel research-survey course, (grad/undergrad) Spr. 2000, (grad) Spr. 2002, Fall 2003.
- CDA 5155, "**Principles of Computer Architecture**" (grad), Fall 2001, Fall 2002, Summer 2003, Spring 2004.
- COT 3100, "**Applications of Discrete Structures**" (undergrad), Fall 1999, Spr. 2001, Spring 2002, Fall 2003, Spring 2004.
- CDA 3101, "**Computer Organization**" (undergrad), Fall 2000.
- CIS 4912C/4913C, "**Integrated Product & Process Design**" (undergrad), Fall 2000, Spr. 2001, Fall 2001, Spr. 2002.
- CIS 4914, "**Senior Project**" (undergrad), Spr. 2000-ongoing
- CIS 4905/6905, "**Individual Study**" (grad/undergrad), ongoing
- CIS 6971/6972/7979/7980, "**Graduate Research**", ongoing
- Graduate teaching assistant and recitation section instructor, MIT course 6.034, "**Introduction to Artificial Intelligence**," Fall 1991.

Additional advisement & mentoring:

- Mentor for UF's University Minority Mentoring Program, academic year 2000-2001 and 2001-2002. Assigned 3 freshman mentees each year.
 - Faculty Liason and Programming Contest Coach for the University of Florida's ACM Student Chapter, 1999- .
 - Mentored a high school summer student as part of MIT's Research Science Institute summer program, Summer 1999.
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Service:

International:

- Reviewer for a number of international conferences & journals 2002-2004
- Co-Chairman, Conference on "Mathematics & Applications of Reversible, Randomized, and Quantum Computing Systems (MARRQCS)" at SPIE International Symposium on Optical Science and Technology, 2002 (canceled, not enough submissions).
- Reviewer, International Workshop on Logic Synthesis, April 2001.
- Chairman, Conference on "Quantum and Reversible Computation and Biocomputing" at SPIE International Symposium on Optical Science and Technology, 2001 (canceled, not enough submissions).
- Program committee member, conference on "[Parallel and Distributed Methods for Image Processing IV](#)" part of SPIE's International Symposium on Optical Science and Technology, to be held 30 Jul-4 Aug, 2000, San Diego, CA.
- Reviewer, *Physica D*, 1997.
- Reviewer, *Computational Intelligence*, special issue on "Games: Planning and Learning," 1994.

National:

- Panel Member, NSF SBIR (Small Business Innovative Research) program, MEMS/Microelectronics, Spr. 2003.

Regional:

- Contest judge, [Southeast Regional ACM collegiate programming contest](#), 1999-2001.

University level:

- Commencement marshal, University of Florida, Fall 2001-
- UF ACM programming contest team coach, 1999-
- Member, UF Laptops in Education committee, 2000-2001.
- Member, Stanford University's (world-championship winning) team in 1990-91 ACM International Collegiate Programming Contest

Collegiate level:

- Faculty coach, Integrated Product & Process Design Program, University of Florida College of Engineering, academic years 2000-'01 and '01-'02. Supervised a DSL modem design project for Siemens corporation.

Departmental level:

- Member, scholarship committee, UF CISE Dept., 2003-
- Member, facilities committee, UF CISE Dept., 1999-2001
- Member, graduate committee, UF CISE Dept., 2000-2002
- Faculty liason to Microsoft Research, 2000-
- Faculty liason to student ACM chapter, UF CISE Dept., Fall 2000-
- Organized local “GridWars” programming competition, MIT AI Lab Olympics, January 1993.

Memberships in professional organizations:

- [Institute of Electrical and Electronics Engineers](#) - Member, including Circuits & Systems Society, Electron Devices Society, Computer Society, Power Electronics Society, and Solid-State Circuits Society, 2000-. (In process of renewing.)
- [Association for Computing Machinery](#), member, 1990-1992, 2004.
- [American Association for the Advancement of Science](#), subscribing member.
- [Sigma Xi](#), membership offered (twice) (Will join when can afford.)

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