Curriculum Vitae

1 Personal Information

Ronald I. Greenberg
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1.1 Educational Background

Massachusetts Institute of Technology   *Sept. 1983–August 1989*

Ph.D. in Electrical Engineering and Computer Science.

Thesis Title: Efficient Interconnection Schemes for VLSI and Parallel Computation
Advisor: Charles E. Leiserson

Advanced courses in subjects including algorithms, artificial intelligence, computational complexity, computer architecture, cryptography, parallel computation, programming languages, and VLSI design

Area Exam: Number Theoretic Algorithms
Minor: Engineering and Business Decision Making

GPA 5.0/5.0

Washington University, St. Louis, Missouri   *August 1979–May 1983*

B.S. & M.S. in Systems Science and Mathematics
B.S. in Computer Science
A.B. in Mathematics

Summa Cum Laude (GPA 3.99/4.0)

1.2 Academic Appointments

Loyola University of Chicago

Associate Professor and Professor of Computer Science   *August 1996 – present*

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Bar Ilan University

    Visiting Associate Professor of Computer Science   *Spring 2001*

University of Maryland

    Assistant Professor of Electrical Engineering   *August 1989 – August 1996*

1.3   Additional Employment and Consulting

Hanna Sacks Bais Yaakov High School

    Computing Curriculum Consultant and 9th grade Instructor   *Sept 2011 – June 2012*

Risetime, Inc.

    Consultant   *Summer 2005*
    Assisted in development of some Linux-based software products.

Yeshiva Shearis Yisroel

    Consultant   *Spring 2005*
    Assisted with mathematics enrichment.

National Technological University

    Consultant   *Spring 1990, Fall 1991, and Spring 1996*
    Offered University of Maryland courses via satellite and videotape.

Hughes & Luce

    Consultant   *July 1987*
    Provided concise mathematical approximations to a function for stock valuations.

Massachusetts Institute of Technology

    Teaching Assistant   *June 1987*
    Assisted in an intensive course, *Parallel Algorithms and Architectures*, for computing professionals. Supervised programming project on the Connection Machine.

AT&T Bell Laboratories

    Member of Technical Staff   *Summer 1986*
    Performed research on the dictionary problem and perfect hashing.

Johns Hopkins University Applied Physics Laboratory

    Technical Aide   *Summer 1982 and Summer 1980*
    Helped develop algorithm and produced computer software to perform multiscan correlation on radar reports to separate real tracks from false alarms. Worked on developing and justifying means of calculating open-loop responses from measured closed-loop responses in sampled-data control systems. Worked on mathematical characterization of infrared backgrounds for target detection problems.

Lockheed Missiles and Space Company

Technical Summer Hire *Summer 1981*
Helped develop improved algorithm for solving systems of nonlinear equations using interval analysis.

Washington University Systems Science and Mathematics Department

Instructional Assistant *January 1983, January 1982, Fall 1981, Fall 1980*
Met regularly with small groups of students to discuss topics from Introduction to Systems Science and Mathematics course.

Research Assistant *Spring 1980*
Wrote instructional module in applied mathematics.

1.4   Principal Honors

- Loyola University Experiential Learning Faculty Fellow 2017–19

- Selected for the Computing Research Association's Leadership in Science Policy Institute, 2011

- Senior Member of the Institute for Electrical and Electronics Engineers

- George Corcoran Award for Outstanding Contributions to Electrical Engineering Education (University of Maryland)

- Fannie and John Hertz Foundation Graduate Fellowship

- Valedictorian of Washington University Engineering School

- Langsdorf Fellowship (four-year full-tuition engineering fellowship at Washington University)

- Ranked 124th in 1981 Putnam Exam (nationwide collegiate mathematics competions)

- Ross R. Middlemiss Award for an outstanding graduating mathematics major (Washington University)

- Systems Science & Mathematics Dept. Outstanding Professional Achievement Award (Washington University)

- Society for Industrial and Applied Mathematics Award (Washington University student chapter)

- Antoinette Francis Dames Award for productive scholarship (Washington University)

- Elected to Tau Beta Pi, Phi Beta Kappa, and Pi Mu Epsilon Honor Societies

- National Merit Scholar

- High School Valedictorian

- Honors Group in Westinghouse Science Talent Search

2 Research and Scholarly Activities

2.1 Grants

For most grants from National Science Foundation, the review process provided information about the competitiveness of the program; typically, about 15% of proposals were funded. Where information on the funding rate is available, it is noted. Unfunded proposals listed here all received many favorable comments and high ratings.

2.1.1 Funded

- "Collaborative Research: Chicago Alliance For Equity in Computer Science (CAFECS)", National Science Foundation CNS-1738691, 10/15/17 – 09/30/21, $72,497 Loyola portion of a $2,011,529 collaboration, PI (with co-PI George Thiruvathukal). Approximately 20% of projects funded.

- "Track 2: CS10K: Accelerate ECS4ALL", National Science Foundation CNS-1542971, October 2015 to September 2020, $999,438, co-PI (with PI Lucia Dettori, and co-PIs Dale Reed, Don Yanek, and Brenda Wilkerson). Approximately 20% of projects funded.

- "What Features of the Exploring Computer Science Course Equitably Inspire Students to Pursue Further Computer Science Coursework?", National Science Foundation CNS-1543217, October 2015 to September 2019, $599,986, co-PI (with PI Steven McGee and co-PI Brenda Wilkerson). REU supplement $16,000 awarded March '17. Approximately 21–29% of projects funded.

- "Collaborative Research: Type I: A Taste of Computing: Adding a CS Entree to the Education Choices in a Large Urban School District", National Science Foundation CNS-1138417, September 2011 to August 2015, $176,149 Loyola portion within a $1,093,455 collaboration, principal investigator. Approximately 8–11% of projects funded.

- "ExCEL: Excellence in Computing at Every Level", National Science Foundation DUE-0728671, February 2008 to January 2014, $600,000, principal investigator (with co-PIs Howard Laten, Ken Olsen, Carol Scheidenhelm, and Chandra Sekharan). Approximately 36% of projects funded.

- "Collaborative Research: BPC-A: Improving Metropolitan Participation to Accelerate Computing Throughput and Success (IMPACTS)", National Science Foundation CNS-0837769, December 2008 to May 2011, $141,711 Loyola portion as lead institution on $340,000 collaboration of four institutions., principal investigator (with co-PIs William Honig, Konstantin Laüfer), Catherine Putonti, and George Thiruvathukal. Approximately 30% of projects funded.

- "CPATH CB: Content and Context: Building Collaborative Partnerships in Higher Education and Industry", National Science Foundation, Loyola subcontract for September 2008 to June 2009, $5,000, paid senior personnel.

- "General-Purpose Parallel Architectures and Routing Schemes", National Science Foundation CCF-9321388 and CCF-9796259, September 1994 to August 1998, $169,470, principal investigator.

- "General-Purpose Interconnection Networks and Routing Algorithms", University of Maryland General Research Board, June to August 1994, $6,000, principal investigator.

- "General-Purpose Parallel Architectures", National Science FoundationCCF-9109550, July 1991 to December 1993, $60,000, principal investigator.

- "Hardware-Efficient Parallel Computation", University of Maryland Minta Martin Fund for Aeronautical Research, 1990-91, $20,000, principal investigator.

2.1.2 Additional Applications

- "Developing Equitable Pathways to Success in Higher Education Computer Science Through Multiple Early College Credit Opportunities for High School Students", Spencer Foundation, Submitted June 2019, $399,901.77, PI with co-PIs Andrew Rasmussen and Lucia Dettori and Dale Reed and Steven McGee.

- "Providing Integrated Resources for Students Majoring in STEM (PRISMS)", National Science Foundation DUE-1742331, Submitted March 2019, $999.087, co-PI (with PI Patrick Daubenmire and co-PIs Linda C. Brazdil, Gail Baura, and Asim Gangopadhyaya).

- "Technology Opportunities for Participation in STEM Work (TOPSTEM)", National Science Foundation DRL-1657560, Submitted September 2017, $1,188,620, co-PI (with PI Linda C. Brazdil and co-PIs Patrick Daubenmire, and Karin Lange). Approximately 9% of projects funded.

- "Providing Integrated Resources for Students Majoring in STEM (PRISMS)", National Science Foundation DUE-1742331, Submitted March 2017, $993,929, co-PI (with PI Patrick Daubenmire and co-PIs Linda C. Brazdil, Asim Gangopadhyaya, and Stacy Wenzel). Approximately 14–17% of projects funded.

- "Robotics Running on STEAM", National Science Foundation DRL-1742239, Submitted March 2017, $583,035, principal investigator (with co-PIs Karin Lange, Gregory Matthews, Jeffrey Solin, and George Thiruvathukal). Approximately 15% of projects funded.

- "Technology Opportunities for Participation in STEM Work (TOPSTEM)", National Science Foundation DRL-1657560, Submitted August 2016, $1,047,027, co-PI (with PI Linda C. Brazdil and co-PIs Patrick Daubenmire, and Karin Lange). Approximately 11% of projects funded.

- "Collaborative Research: BPC-DP: Broad-Based Recruiting to Post-Secondary Computing", National Science Foundation CNS-1042505, Submitted May 2010, $450,648, principal investigator (with co-PIs Andrew Harrington and George Thiruvathukal). Part of a $534,126 collaboration. Approximately 7–10% of projects funded.

- "Collaborative Research: BPC-LSA: Taste of Computing: Spicing Up Computer Science Education in a Large Urban School District", National Science Foundation CNS-1042405, Submitted May 2010, $165,617, principal investigator. Part of a $899,926 collaboration.

- "Initiating Widely-Available Computer Science Education in a Large Urban School District", National Science Foundation CNS-0948711, Submitted July 2009, $920,723, principal investigator (with co-PIs: Ljubomir Perkovic and Dale Reed). Approximately 18% of projects funded.

- "Improving Metropolitan Participation to Accelerate Computing Throughput and Success (IMPACTS)", National Science Foundation CNS-0739520, Submitted June 2007, $516,905, principal investigator (with co-PIs William Honig, Konstantin Laüfer), Catherine Putonti, and George Thiruvathukal. Approximately 13–16% of projects funded.

- "Illinois State Participation And Retention in Computing (ILSPARC)", Illinois Board of Higher Education, Submitted May 2007, $586,100, program director (with co-PI Samuel Kamin).

- "ExCEL: Excellence in Computing at Every Level", National Science Foundation DUE-0631025, Submitted April 2006, $500,000, principal investigator (with co-PIs Howard Laten, Steven McGee, Kenneth Olsen, and Chandra Sekharan). Approximately 29% of projects funded.

- 2003-04 Fulbright Faculty Fellowship. Recommended by CIES (the organization that conducts the U.S. review) and eliminated only in the final phase of selection in the destination country, with a small percentage of applicants ultimately receiving awards.

- "Message Routing and Problem Solving on Parallel Computer Networks", National Science Foundation CCF-9870266, Submitted November 1997, $156,505, principal investigator.

- National Science Foundation Presidential Young Investigator Program (1989)

- Office of Naval Research Young Investigator Program (1989)

2.2 Refereed Conference Publications

(Note that conference *presentations* are listed in a separate section for talks; in a few conferences, there was no published proceedings but often still a very selective reviewing process.) Papers listed in this section do appear in published proceedings. Also note that in computer science, conferences often are more prestigious venues than journals.

- Ronald I. Greenberg, Matthew Fahrenbacher, and George K. Thiruvathukal. Finding approximate Pythagorean triples (and applications to LEGO robot building). In *Computer Science Teachers Association National Conference*, July 2022. Nifty Assignments session. `http://csteachers.org/nifty`.

- Dale F. Reed and Ronald I. Greenberg. Using magic to teach computer programming. In *EDULEARN22 Proceedings*, 14th International Conference on Education and New Learning Technologies, pages 3240–3248. IATED, July 2022.

- Renee Fall, Seth Freeman, Ronald I. Greenberg, Dan Kaiser, and Nigamanth Sridhar. Computer science through concurrent enrollment: A strategy to broaden participation. In *Proceedings of the 51st SIGCSE Technical Symposium on Computer Science Education*, pages 805–806. Association for Computing Machinery, 2020. `https://doi.org/10.1145/3328778.3366981`.

- Ronald I. Greenberg, Julie Medero, Samuel A. Rebelsky, Frances P. Trees, and Dale Reed. The impact of CS for All on college placement in computer science. In *Proceedings of the 51st SIGCSE Technical Symposium on Computer Science Education*, pages 327–328. Association for Computing Machinery, 2020. `https://doi.org/10.1145/3328778.3366968`.

- Ronald I. Greenberg and George K. Thiruvathukal. Exercises integrating high school mathematics with robot motion planning. In *Proceedings of the 2019 IEEE Frontiers in Education Conference (FIE)*, pages 1–5, October 2019. Covington, KY. `https://doi.org/10.1109/FIE43999.2019.9028394`.

- Ronald I. Greenberg. Mathematics and programming exercises for educational robot navigation. In *Proceedings of the 2019 Global Conference on Educational Robotics (GCER)*. KISS Institute for Practical Robotics, July 2019. Norman, OK. `https://files.kipr.org/gcer/2019/Mathematics_and_Programming_Exercises_for_Educational_Robot_Navigation.pdf`.

- Ronald I. Greenberg, George K. Thiruvathukal, and Sara T. Greenberg. Integrating mathematics and educational robotics: Simple motion planning. In *Proceedings of the 10th International Conference on Robotics in Education, RiE 2019*, volume 1023 of *Advances in Intelligent Systems and Computing*, pages 262–269. Springer-Verlag, 2020. Vienna, Austria.

- Steven McGee, Ronald I. Greenberg, Randi McGee-Tekula, Jennifer Duck, Andrew M. Rasmussen, Lucia Dettori, and Dale F. Reed. An examination of the correlation of Exploring Computer Science course performance and the development of programming expertise. In *SIGCSE '19*, pages 1067–1073. Association for Computing Machinery, March 2019. `http://doi.org/10.1145/3287324.3287415`.

- Erin Henrick, Steven McGee, Ronald I. Greenberg, Lucia Dettori, Andrew M. Rasmussen, Don Yanek, and Dale F. Reed. Assessing the effectiveness of computer science RPPs: The case of CAFÉCS. In *2019 Research on Equity and Sustained Participation in Engineering, Computing, and Technology (RESPECT)*, February 2019. Minneapolis, MN. `https://doi.org/10.1109/RESPECT46404.2019.8985736`.

- Steven McGee, John Wachen, Lucia Dettori, Don Yanek, Faythe Brannon, Andrew M. Rasmussen, Dale F. Reed, and Ronald I. Greenberg. Standardizing facilitator development for exploring computer science professional development. In *2019 Research on Equity and Sustained Participation in Engineering, Computing, and Technology (RESPECT)*, February 2019. Minneapolis, MN. `https://doi.org/10.1109/RESPECT46404.2019.8985691`.

- Ronald I. Greenberg and Dale F. Reed. Using magic in computing education and outreach. In *Proceedings of 2018 IEEE Frontiers in Education Conference (FIE)*, pages 1–4, October 2018. `https://doi.org/10.1109/FIE.2018.8658626`.

- Lucia Dettori, Ronald I. Greenberg, Steven McGee, Dale Reed, Brenda Wilkerson, and Don Yanek. CS as a graduation requirement: Catalyst for systemic change. In *SIGCSE '18*, pages 406–407. Association for Computing Machinery, February 2018. `https://doi.org/10.1145/3159450.3159646`.

- Steven McGee, Randi McGee-Tekula, Jennifer Duck, Catherine McGee, Lucia Dettori, Ronald I. Greenberg, Eric Snow, Daisy Rutstein, Dale Reed, Brenda Wilkerson, Don Yanek, Andrew M. Rasmussen, and Dennis Brylow. Equal outcomes 4 all: A study of student learning in ECS. In *SIGCSE '18*, pages 50–55. Association for Computing Machinery, February 2018. `https://doi.org/10.1145/3159450.3159529`.

- Ronald I. Greenberg and Jeffery M. Karp. Motion planning for simple two-wheeled robots. In *Proceedings of the 2017 Global Conference on Educational Robotics (GCER)*. KISS Institute for Practical Robotics, July 2017. Norman, OK. `https://files.kipr.org/gcer/2017/Papers/motionplan.pdf`.

- Ronald I. Greenberg. Educational magic tricks based on error-detection schemes. In *Proceedings of 22nd Annual SIGCSE Conference on Innovation and Technology in Computer Science Education*, pages 170–175. ACM SIGCSE, July 2017.

- Ronald I. Greenberg. Pythagorean approximations for LEGO: Merging educational robot construction with programming and data analysis. In *Proceedings of the 8th International Conference on Robotics in Education, RiE 2017*, volume 630 of *Advances in Intelligent Systems and Computing*, pages 65–76. Springer-Verlag, 2018. Revised and expanded version of "Pythagorean Combinations for LEGO Robot Building" in 2016 Global Conference on Educational Robotics.

- Steven McGee, Randi McGee-Tekula, Jennifer Duck, Taylor White, Ronald I. Greenberg, Lucia Dettori, Dale F. Reed, Brenda Wilkerson, Don Yanek, Andrew Rasmussen, and Gail Chapman. Does a Taste of Computing increase computer science enrollment? In *2016 Research in Equity and Sustained Participation in Engineering, Computing, and Technology (RESPECT)*, August 2016. `https://doi.org/10.1109/RESPECT.2016.7836165`.

- Ronald I. Greenberg. Pythagorean combinations for LEGO robot building. In *Proceedings of the 2016 Global Conference on Educational Robotics (GCER)*. KISS Institute for Practical Robotics, July 2016. St. Augustine, FL. `http://files.kipr.org/gcer/2016/GCER_2016_Papers/Pythagorean_Combinations_for_Lego_Robot_Building.pdf`.

- Lucia Dettori, Ronald I. Greenberg, Steven McGee, and Dale Reed. The impact of meaningful high school computer science experiences in the Chicago Public Schools. In *2015 Research in Equity and Sustained Participation in Engineering, Computing, and Technology (RESPECT)*, August 2015. `https://doi.org/10.1109/RESPECT.2015.7296505`.

- Ronald I. Greenberg and Dale Reed. Tools for outreach presentations. In *Proceedings of 20th Annual SIGCSE Conference on Innovation and Technology in Computer Science Education*, page 331. ACM SIGCSE, July 2015.

- Ronald I. Greenberg. Fast and space-efficient location of heavy or dense segments in run-length encoded sequences. In *COCOON: Ninth International Computing and Combinatorics Conference*, volume 2697 of *Lecture Notes in Computer Science*, pages 528–536. Springer-Verlag, 2003.

- Ronald I. Greenberg and Lee Guan. Modeling and comparison of wormhole routed mesh and torus networks. In *Proceedings of the Ninth IASTED International Conference on Parallel and Distributed Computing and Systems*, pages 501–506, Washington, D. C., October 1997.

- Ronald I. Greenberg and Lee Guan. An improved analytical model for wormhole routed networks with application to butterfly fat-trees. In Hank Dietz, editor, *Proceedings of*

1997 International Conference on Parallel Processing, pages 44–48. IEEE Computer Society Press, August 1997.

- Ronald I. Greenberg and Lee Guan. An empirical comparison of networks and routing strategies for parallel computation. In *Proceedings of the Eighth IASTED International Conference on Parallel and Distributed Computing and Systems*, pages 265–269, Chicago, October 1996.

- Ronald I. Greenberg and Lee Guan. An empirical comparison of area-universal and other parallel computing networks. In *Proceedings of the ISCA 9th International Conference on Parallel and Distributed Computing Systems*, pages 260–267, September 1996. `http://www.math.luc.edu/~rig/pubs/empnets.pdcsisca.ps.Z`.

- Ronald I. Greenberg. Finding connected components on a scan-line array processor. In *Proceedings of 7th Annual ACM Symposium on Parallel Algorithms and Architectures*, pages 195–202. Association for Computing Machinery, 1995.

- Ronald I. Greenberg, Shih-Chuan Hung, and Jau-Der Shih. Parallel algorithms for single-layer channel routing. In *Algorithms and Computation: 4th International Symposium, ISAAC '93 Proceedings*, volume 762 of *Lecture Notes in Computer Science*, pages 456–465. Springer-Verlag, 1993.

- Ronald I. Greenberg and H.-C. Oh. Universal wormhole routing. In *Proceedings of the Fifth IEEE Symposium on Parallel and Distributed Processing*, pages 56–63. IEEE, 1993.

- Ronald I. Greenberg and Jau-Der Shih. Feasible offset and optimal offset for single-layer channel routing. In *Proceedings of 2nd Annual Israel Symposium on Theory of Computing and Systems*, pages 193–201. IEEE Computer Society Press, 1993.

- Ronald I. Greenberg and Jau-Der Shih. Minimizing channel density with movable terminals. In *Proceedings of the Third Great Lakes Symposium on VLSI (GLSV '93)*, pages 1–5. IEEE, 1993. Revised version in *Algorithmica*.

- Ronald I. Greenberg and H.-C. Oh. Packet routing in networks with long wires. In *Proceedings of 30th Annual Allerton Conference on Communication, Control, and Computing*, pages 664–673, 1992.

- Ronald I. Greenberg. The fat-pyramid: A robust network for parallel computation. In William J. Dally, editor, *Advanced Research in VLSI: Proceedings of the Sixth MIT Conference*, pages 195–213. MIT Press, 1990.

- Ronald I. Greenberg, Alexander T. Ishii, and Alberto L. Sangiovanni-Vincentelli. MulCh: A multi-layer channel router using one, two, and three layer partitions. In *Proceedings of the IEEE Intenrational Confernce on Computer-Aided Design(ICCAD-88)*, pages 88–91. IEEE Computer Society Press, 1988.

- Ronald I. Greenberg and Charles E. Leiserson. Randomized routing on fat-trees. In *Proceedings of 26th Annual Symposium on Foundations of Computer Science*, pages 241–249. IEEE Computer Society Press, 1985.

2.3   Refereed Journal Publications

- Steven McGee, Randi McGee-Tekula, Jennifer Duck, Ronald I. Greenberg, Lucia Dettori, Dale F. Reed, Brenda Wilkerson, Don Yanek, Andrew M. Rasmussen, and Gail Chapman. Does a Taste of Computing increase computer science enrollment? *Computing in Science & Engineering (Special Issue: Best of RESPECT 2016)*, 19(3):8–18, April 2017. `https://doi.org/10.1109/MCSE.2017.50`.

- Lucia Dettori, Ronald I. Greenberg, Steven McGee, and Dale Reed. The impact of the Exploring Computer Science instructional model in Chicago Public Schools. *Computing in Science & Engineering (Special Issue: Best of RESPECT 2015)*, 18(2):10–17, March/April 2016. `https://doi.org/10.1109/MCSE.2016.39`.

- Steven McGee, Ronald I. Greenberg, Dale F. Reed, and Jennifer Duck. Evaluation of the IMPACTS computer science presentations. *The Journal for Computing Teachers*, pages 26–40, Summer 2013. International Society for Technology in Education, `http://www.iste.org/resources/product?id=2853`.

- Ronald I. Greenberg and Lee Guan. On the area of hypercube layouts. *Information Processing Letters*, 84(1):41–46, September 2002.

- Ronald I. Greenberg, Shih-Chuan Hung, and Jau-Der Shih. Parallel algorithms for single-layer channel routing. *Parallel Processing Letters*, 7(3):267–277, 1997.

- Ronald I. Greenberg and H.-C. Oh. Universal wormhole routing. *IEEE Trans. Parallel and Distributed Systems*, 8(3):254–262, March 1997.

- Ronald I. Greenberg and Jau-Der Shih. Minimizing channel density with movable terminals. *Algorithmica*, 17(2):89–99, February 1997.

- Ronald I. Greenberg and Jau-Der Shih. Single-layer channel routing and placement with single-sided nets. *Computers & Mathematics With Applications*, 32(4):1–7, August 1996.

- Ronald I. Greenberg and H.-C. Oh. Packet routing in networks with long wires. *Journal of Parallel and Distributed Computing*, 31(2):153–158, December 1995.

- Ronald I. Greenberg and Jau-Der Shih. Feasible offset and optimal offset for general single-layer channel routing. *SIAM Journal on Discrete Mathematics*, 8(4):543–554, November 1995.

- Ronald I. Greenberg. The fat-pyramid and universal parallel computation independent of wire delay. *IEEE Trans. Computers*, 43(12):1358–1364, December 1994.

- Ronald Greenberg, Joseph JáJá, and Sridhar Krishnamurthy. On the difficulty of Manhattan channel routing. *Information Processing Letters*, 44(5):281–284, December 1992.

- Ronald I. Greenberg and F. Miller Maley. Minimum separation for single-layer channel routing. *Information Processing Letters*, 43(4):201–205, September 1992.

- Ronald I. Greenberg and Charles E. Leiserson. Randomized routing on fat-trees. In Silvio Micali, editor, *Randomness and Computation*, volume 5 of *Advances in Computing Research*, pages 345–374. JAI Press, 1989.

- M. J. Foster and Ronald I. Greenberg. Lower bounds on the area of finite-state machines. *Information Processing Letters*, 30(1):1–7, January 1989.

- Ronald I. Greenberg and Charles E. Leiserson. A compact layout for the three-dimensional tree of meshes. *Applied Mathematics Letters*, 1(2):171–176, 1988. Also see erratum in vol. 1, no. 3, p. 315.

- E. Y. Rodin, R. Greenberg, and B. Nelson. Matrix methods of approximating classical predator-prey problems. *Mathematical and Computer Modelling*, 10(4):307–313, 1988. http://dx.doi.org/10.1016/0895-7177(88)90008-8.

- E. R. Hansen and R. I. Greenberg. An interval Newton method. *Applied Mathematics and Computation*, 12:89–98, 1983.

2.4 Book Chapter

- Steven McGee, Randi McGee-Tekula, Lucia Dettori, Andrew M. Rasmussen, and Ronald I. Greenberg. Research methods for reaching urban students from groups underrepresented in STEM disciplines. In Todd Ruecker and Vanessa Svihla, editors, *Navigating Challenges in Qualitative Educational Research: Research, Interrupted*, chapter 3, pages 26–38. Routledge, 1st edition, 2019. `https://www.routledge.com/Navigating-Challenges-in-Qualitative-Educational-Research-Research-Interrupted/Ruecker-Svihla/p/book/9780367173623`.

2.5 Highly Cited Tech Reports to Revise for Journal Publication

- Ronald I. Greenberg. Fast and simple computation of all longest common subsequences. Technical report, Comp. Sci. Res. Repos. (`http://arXiv.org`), 2011. Article ID cs/0211001v2.

- Ronald I. Greenberg. Bounds on the number of longest common subsequences. Technical report, Comp. Sci. Res. Repos. (http://arXiv.org), 2003. Article ID cs/0301030v2.

- Ronald I. Greenberg. Computing the number of longest common subsequences. Technical report, Comp. Sci. Res. Repos. (http://arXiv.org), 2003. Article ID cs/0301034v1.

2.6 Patents

Richard J. Prengaman, Robert E. Thurber, Joe Phipps, Ronald I. Greenberg, Wai L. Hom, James F. Jaworski, and Guy W. Riffle. Retrospective data filter. U. S. Patent #4,550,318, October 29, 1985. Application 06/345,325 filed Feb. 3, 1982.

2.7 Selected Other Products

- Erin Henrick, Steven McGee, Danny Schmidt, Ronald I. Greenberg, Dale Reed, Andrew M. Rasmussen, Don Yanek, Lucia Dettori, and Haley Williamson. Assessing the impact of a CSforALL research-practice partnership using the PROSPER framework: A case study of the Chicago Alliance for Equity in Computer Science (CAFÉCS) [poster]. In *American Educational Research Association (AERA) Annual Meeting*, April 2023. Chicago, IL. https://doi.org/10.51420/conf.2023.8.

- Steven McGee, Lucia Dettori, Ronald I. Greenberg, Andrew M. Rasmussen, Dale F. Reed, and Don Yanek. Chicago alliance for equity in computer science. In 2022 NNERPP Yearbook, December 2022. https://drive.google.com/file/d/1aWbf9qEtlJiRc7MR4hz view.

- Steven McGee, Lucia Dettori, Ronald I. Greenberg, Andrew M. Rasmussen, Dale F. Reed, and Don Yanek. Chicago alliance for equity in computer science. In 2021 NNERPP Year In Review, December 2021. https://drive.google.com/file/d/1C6qh1xI_n9o8F6PRTgWSThCpujQ2Utpk/view.

- Steven McGee, Randi McGee-Tekula, Lucia Dettori, Ronald I. Greenberg, John Wachen, and Mark Johnson. Investigating which elements of ecs teaching motivate subsequent computer science course taking. Technical report, The Learning Partnership, May 2021.

- Erin Henrick, Steven McGee, Lucia Dettori, Troy Williams, Andrew M. Rasmussen, Don Yanek, Ronald I. Greenberg, and Dale F. Reed. Research-practice partnership strategies to conduct and use research to inform practice. In *American Educational Research Association (AERA) Annual Meeting*, April 2021. https://doi.org/10.51420/conf.2021.3.

- Steven McGee, Lucia Dettori, Ronald I. Greenberg, Andrew M. Rasmussen, Dale F. Reed, and Don Yanek. Chicago alliance for equity in computer science. In 2020 NNERPP Year In Review, December 2020. `https://drive.google.com/file/d/1XW5i2dJOYZdMTD8KZ1bvUbABnsxPmSSj`.

- Mark Johnson, Faythe Brannon, Lucia Dettori, Ronald Greenberg, Steven McGee, Andrew Rasmussen, and Don Yanek. CAFÉCS computer science teaching assistant program. 2019 STEM for All Video Showcase, `http://stemforall2019.videohall.com/presentations/1616`, May 2019.

- Steven McGee, Lucia Dettori, Don Yanek, Andrew M. Rasmussen, Ronald I. Greenberg, Dale F. Reed, and Erin Henrick. "Chicago Alliance For Equity in Computer Science (CAFÉCS): Cycles of improvement". Poster at Symposium on Computer Science and Learning Sciences, Northwestern University, April 2019. Evanston, IL. `https://ecommons.luc.edu/cs_facpubs/224`.

- Steven McGee, Randi McGee-Tekula, Jennifer Duck, Lucia Dettori, Andrew M. Rasmussen, Erica Wheeler, and Ronald I. Greenberg. "Study of access and outcomes from advanced computer science coursework in the Chicago Public Schools" poster in Structured Poster Session CS for All: An intersectional approach to unpacking equity in computer science education. In *American Educational Research Association (AERA) Annual Meeting*, April 2019.

- Steven McGee, Lucia Dettori, Don Yanek, Andrew M. Rasmussen, Ronald I. Greenberg, Dale F. Reed, and Erin Henrick. "Chicago Alliance For Equity in Computer Science (CAFÉCS): Cycles of improvement" poster in Special Session: A discussion of research practice partnerships in CS education. In *SIGCSE '19*, March 2019. Minneapolis, MN. `https://ecommons.luc.edu/cs_facpubs/227`.

- Steven McGee, Ronald I. Greenberg, Lucia Dettori, Andrew M. Rasmussen, Randi McGee-Tekula, Jennifer Duck, and Erica Wheeler. An examination of factors correlating with course failure in a high school computer science course. Technical Report 5, The Learning Partnership, August 2018. `https://ecommons.luc.edu/cs_facpubs/205`.

- Steven McGee, Lucia Dettori, Ronald Greenberg, Andrew Rasmussen, Dale Reed, and Don Yanek. CAFÉCS: Supporting quality CS access 4 all Chicago students. 2018 STEM for All Video Showcase, `http://stemforall2018.videohall.com/presentations/1178`, May 2018.

- Ronald I. Greenberg and Steven McGee. ECS evaluation survey instruments. `http://ecommons.luc.edu/cs_facpubs/93`, October 2014. Compilation of multiple surveys: ECS student preSurvey pp. 1–2, ECS student postSurvey pp. 3–4, teacher background survey pp. 5–11, teacher ECS workshop feedback form pp. 12–13, teacher ECS implementation survey pp. 14–24.

- Ronald I. Greenberg. My materials supporting the Exploring Computer Science curriculum. `http://ecommons.luc.edu/cs_facpubs/81`, 2012.

- Ronald I. Greenberg. Open source classroom polling (interactive response) facility. `http://ecommons.luc.edu/cs_facpubs/110`, February 2012.

- Joanna Goode, Gail Chapman, Lucia Dettori, Theresa Steinbach, Dale Reed, Ron Greenberg, and Don Yanek. Exploring Computer Science with a Taste of Computing. `http://tasteofcomputing.cdm.depaul.edu/images/PDF/ECS_ToC%20Final%20R1.pdf`, 2011. Version of ECS curriculum with integrated experiences providing preparation for Microsoft Office Specialist Certification as demanded by a few early adopters of Taste of Computing.

- Ronald I. Greenberg and H.-C. Oh. A systolic simulation and transformation system. Technical Report EE-TR-93-027, University of Maryland Electrical Engineering Department, March 1993.

- Ronald I. Greenberg and Jau-Der Shih. Finding a maximum-density planar subset of a set of nets in a channel. Technical Report UMIACS-TR-92-25, University of Maryland Institute for Advanced Computer Studies, February 1992.

- Ronald I. Greenberg. *Efficient Interconnection Schemes for VLSI and Parallel Computation*. PhD thesis, Department of Electrical Engineering & Computer Science, Massachusetts Institute of Technology, August 1989. MIT/LCS/TR-456.

- Ronald I. Greenberg. Area-universal networks. VLSI Memo 524, Massachusetts Institute of Technology, 1989.

- Ron Greenberg, Cindy Phillips, and Joel Wein. Euclidean traveling salesman heuristics. In Connection Machine Projects Technical Report MIT/LCS/RSS 4, Laboratory for Computer Science, Massachusetts Institute of Technology, January 1989.

2.8 Talks

2.8.1 Presentations by R. I. Greenberg

"Finding Approximate Pythagorean Triples (and Applications to LEGO Robot Building)"

   In the "Nifty Assignments" session at CSTA 2022 Annual Conference. July 17, 2022.

"Using Maagic to Teach Computer Programming".

   EDULEARN22, 14th International Conference on Education and New Learning Technologies. July 5, 2022. Corresponds to conference publication. Presented jointly with Dale Reed.

"Research-practice partnership strategies to conduct and use research to inform practice."

American Educational Research Association (AERA) Annual Meeting. April 2021. Joint work with Erin Henrick, Steven McGee, Lucia Dettori, Troy Williams, Andrew M. Rasmussen, Don Yanek, and Dale F. Reed. Presented by Erin Henrick. Paper posted at `https://doi.org/10.51420/conf.2021.3`.

"Computer Science through Concurrent Enrollment: A Strategy to Broaden Participation"

Webinar hosted by National Center for Computer Science Education. May 20, 2020. Presented jointly with Renee Fall, Seth Freeman, Dan Kaiser, and Debbie K. Jackson.

"Mathematics and Programming Exercises for Educational Robot Navigation."

2019 Global Conference on Educational Robotics. Norman, OK. July 11, 2019. See conference publication for co-authors.

"Integrating mathematics and educational robotics: Simple motion planning."

Robotics in Education (RiE 2019). Vienna, Austria. April 10, 2019. See conference publication for co-authors.

"Using magic in computing education and outreach."

2018 IEEE Frontiers in Education Conference (FIE). San Jose, CA. October 4, 2018. Corresponds to conference publication. Presented jointly with Dale Reed.

"Fostering experiential learning & reflection assignments in Engaged Learning courses."

Loyola University Focus on Teaching and Learning. August 16, 2018. Presented jointly with Sandra Kaufmann, Cheryl Mc Philimy, and Catherine Putonti.

"History of CAFECS."

National Science Foundation Computer Science For All Research-Practice Partnerships workshop. Evanston, IL. March 1, 2018. Presented jointly with Lucia Dettori, Dale Reed, Steven McGee, Don Yanek, and Andrew Rasmussen.

"CS as a graduation requirement: Catalyst for systemic change."

SIGCSE '18, Baltimore, MD. February 22, 2019. See conference publication for all co-presenters.

"Separating markup from text."

2017 Chicago Colloquium on Digital Humanities and Computer Science (DHCS). Chicago, IL. November 19, 2017. Joint work with George K. Thiruvathukal.

"Motion planning for simple two-wheeled robots."

2017 Global Conference on Educational Robotics. Norman, OK. July 10, 2017. Joint work with Jeffery M. Karp. Corresponds to conference publication.

"Educational magic tricks based on error-detection schemes."

Proceedings of the 22nd Annual SIGCSE Conference on Innovation and Technology in Computer Science Education. Bologna, Italy. July 4, 2017. Corresponds to conference publication.

"Pythagorean Approximations for LEGO: Merging Educational Robot Construction with Programming and Data Analysis."

> 8th International Conference on Robotics in Education. Sofia, Bulgaria. April 27, 2017. Corresponds to conference publication.

"Educational Magic Tricks Based on Error-Detecting Codes."

> 2016 SIAM Conference on Applied Mathematics Education. Philadelphia, PA. September 30, 2016.

"Pythagorean Combinations for LEGO Robot Building."

> 2016 Global Conference on Educational Robotics. St. Augustine, FL. July, 8, 2016. Corresponds to conference publication.

"The Impact of Meaningful High School Computer Science Experiences in the Chicago Public Schools."

> 2015 Research in Equity and Sustained Participation in Engineering, Computing, and Technology (RESPECT). Raleigh, NC. August 14, 2015. See conference publication for co-authors.

"Resources for K–12 Outreach."

> STARS Celebration 2015. Raleigh, NC. August 14, 2015.

"Outreach Activities Targeted for Age Groups: Scratch for K–5 (Part I) and Botball for Grades 6–12 (Part II)."

> STARS Celebration 2015. Raleigh, NC. August 14, 2015.

"Tools for Outreach Presentations."

> SIGCSE Conference on Innovation and Technology in Computer Science Education. Vilnius, Lithuania. July 7, 2015. Joint work with Dale Reed. Corresponds to conference publication.

"Outreach in STEM."

> Loyola Mathematics/Statistics Teaching Seminar. April 15, 2015.

"Computer Science Magic."

> AAAS Family Science Days. Chicago, IL. February 16, 2014.

"Hands-On Creation of Android Apps for Novices using App Inventor."

> Chicago Chapter of the Association for Computing Machinery and Loyola Computer Science Department Colloquium. Chicago, IL. September 19, 2012. Presented jointly with William Honig.

"Android Mobile App Development for Everybody."

> Loyola ITS Tech Conference (Tech Day). Chicago, IL. April 5, 2012. Presented jointly with William Honig.

"Panel discussion: Computational Thinking Across the Curriculum."

> DePaul University College of Computing and Digital Media Computational Thinking Across the Curriculum Workshop. Chicago, IL. June 10, 2010. Panel discussion: Computational Thinking Across the Curriculum. With Matt Bauer, Baker Franke, Allen Frantzen, John Lillis, Amber Settle, Midge Wilson, and Ljubomir Perkovic (moderator).

"Attracting and Retaining an Expanded and Diverse Student Body in Sciences, Mathematics, and Computing."

> Loyola Focus on Teaching. January 13, 2010. Presented jointly with Andrew Harrington.

"Bounds on the Number of Longest Common Subsequences."

> SIAM Conference on Discrete Mathematics. Nashville, TN. June 13, 2004

"Fast and Space-Efficient Location of Heavy or Dense Segments in Run-Length Encoded Sequences."

> COCOON: Ninth International Computing and Combinatorics Conference. Big Sky, MT. July 27, 2003. Corresponds to conference publication.

"Analytical and Empirical Analyses of Interconnection Networks for Parallel Computing."

> Illinois Institute of Technology Electrical and Computer Engineering Department Distinguished Speaker Seminar Series. Chicago, IL. April 25, 2003.

"An Improved Analytical Model for Wormhole Routed Networks with Application to Butterfly Fat-Trees."

> International Conference on Parallel Processing. Bloomingdale, IL. August 12, 1997. Joint work with Lee Guan. Corresponds to conference publication.

"An Empirical Comparison of Networks and Routing Strategies for Parallel Computing."

> IASTED International Conference Parallel and Distributed Computing and Systems. Chicago, IL. October 18, 1996. Joint work with Lee Guan. Corresponds to conference publication.

"Feasible Offset for General Single-Layer Channel Routing."

> Loyola University. Chicago, IL. September 13, 1996.

"Some Applications of Sophisticated Mathematics to Randomized Computing."

> Conference in Honor of the 90th Birthday of Professor Arnold Ross at Ohio State University. Columbus, OH. August 11, 1996.

"Finding Connected Components on a Scan Line Array Processor."

> Center for Computing Sciences. Bowie, MD. March 11, 1996.

"General-Purpose Message Routing Algorithms."

Loyola University. Chicago, IL. February 16, 1996.

Bar-Ilan University. Ramat-Gan, Israel. July 11, 1996

"Finding Connected Components on a Scan Line Array Processor."

ACM Symposium on Parallel Algorithms and Architectures. Santa Barbara, CA. July 18, 1995. Corresponds to conference publication.

"Universal Wormhole Routing."

Supercomputing Research Center. February 23, 1994.

University of Maryland Institute for Advanced Computer Studies Seminar on Algorithms. College Park, MD. February 24, 1994.

"General-Purpose Routing Algorithms."

DIMACS Workshop on Organizing and Moving Data in Parallel Computers at Princeton University. Princeton, NJ. January 27, 1994.

"Universal Parallel Computation Independent of Wire Delay."

National University of Singapore. Singapore. December 23, 1993.

"Parallel Algorithms for Single-Layer Channel Routing."

International Symposium on Algorithms and Computation, Hong Kong. December 17, 1993.

"Feasible Offset and Optimal Offset for Single-Layer Channel Routing."

IBM Israel Scientific Center. Haifa, Israel. June 10, 1993.

Israel Symposium on the Theory of Computing and Systems. Natanya, Israel. June 9, 1993. Joint work with Jau-Der Shih. Corresponds to conference publication.

"Feasible Offset for Single-Layer Channel Routing."

University of Maryland Institute for Advanced Computer Studies Seminar on Algorithms. College Park, MD. May 5, 1993.

"Packet Routing in Networks With Long Wires."

Allerton Conference on Communication, Control, and Computing. Monticello, IL. October 1, 1992. Joint work with H-C. Oh. Corresponds to conference publication.

"The Fat-Pyramid: A Robust Network for Parallel Computation."

MIT VLSI Conference. Cambridge, MA. April 3, 1990. Corresponds to conference publication.

Supercomputing Research Center. Bowie, MD. March 22, 1990

Workshop on High Performance Computing, University of Maryland. December 20, 1989.

"MulCh: A multi-layer channel router using one, two, and three layer partitions."

MIT VLSI Research Review. Cambridge, MA. May 22, 1989.

"Efficient multi-layer channel routing."

Georgia Institute of Technology. Atlanta, GA. March 30, 1989.

University of Maryland. College Park, MD. April 10, 1989.

"Area-universal networks."

Polytechnic University. Brooklyn, NY. February 6, 1989.

Princeton University. Princeton, NJ. February 28, 1989.

University of Southern California. Los Angeles, CA. March 17, 1989.

"Hardware-efficient interconnection schemes for general-purpose parallel computation."

Supercomputing Research Center. Bowie, MD. February 22, 1988.

Bell Communications Research. Morristown, NJ. March 21, 1988.

Columbia University. New York, NY. April 6, 1988.

Rutgers University. Piscataway, NJ. April 7, 1988.

New York University. New York, NY. May 11, 1988.

"Randomized routing and hardware-efficient parallel computation."

Washington University Computer Science Colloquium Series. St. Louis, MO. May 20, 1987.

"A sampling of fundamental techniques in artificial intelligence."

Cap Gemini America, Cranford, NJ. August 19, 1986.

"Randomized routing on fat-trees."

IEEE Symposium on Foundations of Computer Science, Portland, OR. October 22, 1985. Joint work with Charles Leiserson. Corresponds to conference publication.

MIT Theory of Computation Seminar. Cambridge, MA. October 10, 1985.

"A randomized algorithm for routing on fat-trees."

MIT VLSI Research Review. Cambridge, MA. May 20, 1985.

"An Interval Arithmetic Newton Method for Solving Systems of Nonlinear Equations."

Illinois State Academy of Science Annual Meeting. Decatur, IL. April 1982.

"Multi-Scan Correlation to Separate Radar Tracks from False Alarms."

Illinois State Academy of Science Annual Meeting. Bloomington, IL. April 1981.

Presentations by co-authors

"Using Research-Practice Partnerships to Improve Practice in Chicago Public Schools."

> 2019 Research, Policy and Practice (R2P) Conference. Philadelphia, PA. May 2019. Joint work with Erin Henrick, Steven McGee, Lucia Dettori, Andrew Rasmussen, and Dale F. Reed. Presented by Erin Henrick.

"An examination of factors correlating with course failure in a high school computer science course."

> American Educational Research Association (AERA) Annual Meeting. Toronto, ON. April 6, 2019. Joint work with Steven McGee, Lucia Dettori, Andrew M. Rasmussen, Erica Wheeler, Randi McGee-Tekula, and Jennifer Duck. Presented by Steven McGee.

"An examination of the correlation of Exploring Computer Science course performance and the development of programming expertise."

> SIGCSE '19. Minneapolis, MN. March 2, 2019. See conference publication for all co-authors. Presented by Steven McGee.

"Assessing the effectiveness of computer science RPPs: The case of CAFÉCS".

> 2019 Research in Equity and Sustained Participation in Engineering, Computing, and Technology (RESPECT). Minneapolis, MN. February 27, 2019. See conference publication for all co-authors. Presented by Erin Henrick.

"Soul of CAFECS."

> National Science Foundation Computer Science For All Research-Practice Partnerships workshop.

- Seattle, WA. October 25, 2018. Presented by Steven McGee and Don Yanek.

- Waltham, MA. October 29, 2018. Presented by Steven McGee and Andrew Rasmussen.

- Austin, TX. November 8, 2018. Presented by Lucia Dettori and Steven McGee.

- Atlanta, GA. December 7, 2018. Presented by Lucia Dettori and Don Yanek.

"Does exploring computer science increase computer science enrollment?"

> American Educational Research Association (AERA) Annual Meeting. New York, NY. April 14, 2018. Joint work with Steven McGee, Randi McGee-Tekula, Jennifer Duck, Lucia Dettori, Don Yanek, and Andrew Rasmussen, and Dale F. Reed. Presented by Steven McGee. Paper posted at https://www.academia.edu/36446926/Does_Exploring_Computer_Science_Increase_Computer_Science_Enrollment?

"Equal outcomes 4 all: A study of student learning in ECS"

SIGCSE '18. Baltimore, MD. February 22, 2019. See conference publication for all co-authors. Presented by Steven McGee.

"Enabling computer science for all in Chicago."

Illinois Education Research Council, Naperville, IL. November 9, 2017. Joint work with Steven McGee, Randi McGee-Tekula, Jennifer Duck, Lucia Dettori, Dale Reed, Brenda Wilkerson, Don Yanek, and Andrew Rasmussen. Presented by Steven McGee.

"Does a taste of computing increase computer science enrollment."

2016 Research in Equity and Sustained Participation in Engineering, Computing, and Technology (RESPECT). Atlanta, GA. August 12, 2016. See conference publication for all co-authors. Presented by Steven McGee.

"Assessing the promise of the Exploring Computer Science program."

2016 American Educational Research Association Annual Meeting. Washington, DC. April 12, 2016. Presented by Steven McGee; paper posted at `https://www.academia.edu/24322151/Assessing_the_Promise_of_the_Exploring_Computer_Science_Program`

"Modeling and comparison of wormhole routed mesh and torus networks."

IASTED International Conference on Parallel and Distributed Computing and Systems. Washington, DC. October, 1997. Corresponds to conference publication. Presented by Lee Guan.

"An empirical comparison of area-universal and other parallel computing networks."

ISCA 9th International Conference on Parallel and Distributed Computing Systems. September, 1996. Corresponds to conference publication. Presented by Lee Guan.

"Minimizing channel density with movable terminals"

Third Great Lakes Symposium on VLSI. March, 1993. Corresponds to conference publication. Presented by Jau-Der Shih.

"MulCh: A multi-layer channel router using one, two, and three layer partitions."

IEEE International Conference on Computer-Aided Design (ICCAD-88). Santa Clara, CA. November, 1988. See conference publication for all co-authors. Presented by Alex Ishii.

3 Teaching and Advising

3.1 Courses taught

I have taught the following courses (at Loyola University, Bar Ilan University, and University of Maryland).

semester	course	
Fall 2023	COMP 264	Introduction to Computer Systems (two sections)
Fall 2023	COMP 390	Broadening Participation in STEM (Computing, Math, & Science)
Spring 2023	COMP 264	Introduction to Computer Systems
Spring 2023	COMP 390	Broadening Participation in STEM (Computing, Math, & Science)
Fall 2022	COMP 264	Introduction to Computer Systems
Fall 2022	COMP 390	Broadening Participation in STEM (Computing, Math, & Science)
Spring 2022	COMP 390	Broadening Participation in STEM (Computing, Math, & Science)
Spring 2022	COMP 163	Discrete Structures
Fall 2021	COMP 264	Introduction to Computer Systems
Fall 2021	COMP 390	Broadening Participation in STEM (Computing, Math, & Science)
Spring 2021	COMP 264	Introduction to Computer Systems
Spring 2021	COMP 390	Broadening Participation in STEM (Computing, Math, & Science)
Fall 2020	COMP 390	Broadening Participation in STEM (Computing, Math, & Science)
Fall 2020	COMP 395	Professional Development and Career Growth in CS/IT
Fall 2020	COMP 399	Computer Science Seminar
Spring 2020	COMP 264	Introduction to Computer Systems
Spring 2020	COMP 390	Broadening Participation in STEM (Computing, Math, & Science)
Spring 2020	COMP 388	Computing Career Preparation
Fall 2019	COMP 264	Introduction to Computer Systems
Fall 2019	COMP 390	Broadening Participation in STEM (Computing, Math, & Science)
Fall 2019	COMP 388	Computing Career Preparation
Spring 2019	COMP 264	Introduction to Computer Systems
Spring 2019	COMP 390	Broadening Participation in STEM (Computing, Math, & Science)
Spring 2019	COMP 388	Computing Career Preparation
Fall 2018	COMP 264	Introduction to Computer Systems
Fall 2018	COMP 390	Broadening Participation in STEM (Computing, Math, & Science)
Spring 2018	COMP 264	Introduction to Computer Systems (two sections)
Fall 2017	COMP 264	Introduction to Computer Systems
Fall 2017	COMP 390	Broadening Participation in STEM (Computing, Math, & Science)
Spring 2017	COMP 460	Algorithms & Complexity
Spring 2017	COMP 264	Introduction to Computer Systems
Fall 2016	COMP 264	Introduction to Computer Systems
Fall 2016	COMP 390	Broadening Participation in STEM (Computing, Math, & Science)
Spring 2016	COMP 264	Introduction to Computer Systems
Fall 2015	COMP 163	Discrete Structures
Fall 2015	COMP 264	Introduction to Computer Systems
Fall 2015	COMP 390	Broadening Participation in STEM (Computing, Math, & Science)
Spring 2015	COMP 264	Introduction to Computer Systems
Fall 2014	COMP 163	Discrete Structures
Fall 2014	COMP 264	Introduction to Computer Systems
Fall 2014	COMP 390	Broadening Participation in STEM (Computing, Math, & Science)
Spring 2014	COMP 163	Discrete Structures
Spring 2014	COMP 264	Introduction to Computer Systems
Fall 2013	COMP 163	Discrete Structures
Fall 2013	COMP 390	Broadening Participation in STEM (Computing, Math, & Science)
Spring 2013	COMP 163	Discrete Structures
Spring 2013	COMP 264	Introduction to Computer Systems
Fall 2012	COMP 163	Discrete Structures
Fall 2012	COMP 390	Computer Science Project*
Spring 2012	COMP 250	Introduction to Scientific and Technical Communication

semester	course	
Spring 2012	COMP 264	Introduction to Computer Systems
Fall 2011	COMP 125	Visual Information Processing
Fall 2011	COMP 163	Discrete Structures
Fall 2011	COMP 390	Computer Science Project*
Spring 2011	COMP 250	Introduction to Scientific and Technical Communication
Spring 2011	COMP 264	Introduction to Computer Systems
Fall 2010	COMP 125	Visual Information Processing
Fall 2010	COMP 163	Discrete Structures
Spring 2010	COMP 264	Introduction to Computer Systems
Spring 2010	COMP 353/453	Database Programming
Fall 2009	COMP 125	Visual Information Processing
Fall 2009	COMP 163	Discrete Structures
Fall 2009	COMP 171	Scripting Language Practicum
Spring 2009	COMP 150	Introduction to Computing
Spring 2009	COMP 264	Introduction to Computer Systems
Fall 2008	COMP 163	Discrete Structures
Spring 2008	COMP 170	Introduction to Object-Oriented Programming
Spring 2008	COMP 219	Introduction to UNIX
Spring 2008	COMP 264	Introduction to Computer Systems
Fall 2007	COMP 163	Discrete Structures
Fall 2007	COMP 250	Introduction to Scientific and Technical Communication
Spring 2007	COMP 150	Introduction to Computing
Spring 2007	COMP 264	Introduction to Computer Systems
Fall 2006	COMP 125	Visual Information Processing
Fall 2006	COMP 163	Discrete Structures
Fall 2006	COMP 171	Scripting Language Practicum
Spring 2006	COMP 317/417	Social & Ethical Issues in Computing
Spring 2006	COMP 353/453	Database Programming
Fall 2005	COMP 264	Introduction to Computer Systems
Fall 2005	CSED 401	Introduction to Programming and Computer Science
Spring 2005	COMP 211	Discrete Structures
Spring 2005	COMP 363	Design and Analysis of Computer Algorithms
Spring 2005	COMP 378/484	Artificial Intelligence
Fall 2004	COMP 260	Digital Logic & Computer Design
Fall 2004	COMP 460	Algorithms & Complexity
Spring 2004	COMP 462	Advanced Computer Architecture
Spring 2004	COMP 260	Digital Logic & Computer Design
Fall 2003	COMP 462	Advanced Computer Architecture
Fall 2003	COMP 460	Algorithms & Complexity
Spring 2003	COMP 462	Advanced Computer Architecture
Spring 2003	COMP 460	Algorithms & Complexity
Fall 2002	COMP 462	Advanced Computer Architecture
Fall 2002	COMP 460	Algorithms & Complexity
Spring 2002	COMP 460	Algorithms & Complexity
Spring 2002	COMP 388	Foundations of Computer Science
Fall 2001	COMP 462	Advanced Computer Architecture
Fall 2001	COMP 388	Foundations of Computer Science
Spring 2001	88-903	Advanced Computer Architecture
Spring 2000	COMP 462	Advanced Computer Architecture
Fall 1999	COMP 462	Advanced Computer Architecture

semester	course	
Spring 1999	COMP 363	Design and Analysis of Computer Algorithms
Spring 1999	COMP 462	Advanced Computer Architecture
Fall 1998	COMP 363	Design and Analysis of Computer Algorithms
Fall 1998	COMP 462	Advanced Computer Architecture
Spring 1998	COMP 211	Discrete Structures
Spring 1998	COMP 462	Advanced Computer Architecture
Fall 1997	COMP 362	Computer Architecture
Spring 1997	COMP 462	Advanced Computer Architecture
Fall 1996	COMP 462	Advanced Computer Architecture
Fall 1996	COMP 363	Design and Analysis of Computer Algorithms
Spring 1996	ENEE 446	Digital Computer Design
Fall 1995	ENEE 446	Digital Computer Design
Spring 1995	ENEE 648K	Fundamental Algorithmics
Fall 1994	ENEE 488D	Data Structures and Algorithms
Spring 1994	ENEE 648K	Fundamental Algorithmics
Fall 1993	ENEE 648T	VLSI Architectures
Spring 1993	ENEE 450	Discrete Structures
Spring 1993	ENEE 608B	Computer Seminar
Fall 1992	ENEE 488D	Data Structures and Algorithms
Spring 1992	ENEE 648X	VLSI Algorithms
Fall 1991	ENEE 488D	Data Structures and Algorithms
Spring 1991	ENEE 350	Computer Organization
Fall 1990	ENEE 450	Discrete Structures
Spring 1990	ENEE 648C	VLSI Design
Fall 1989	ENEE 648C	VLSI Design

*Run as a service learning course for broadening participation in computing

Student teaching evaluations at the University of Maryland consistently stood out as high and contributed to earning the George Corcoran Award for Outstanding Contributions to Electrical Engineering Education. Such comparative results are not available at Loyola University, but I have received good quantitative scores and many positive written comments, such as the following:

- "Dr. Greenberg showed an admirable amount of flexibility over the course of the semester. He allowed us to give our input on the way the class was going as well as the structure of the lectures, and he took this advice into account to make the class more suited to our needs. He is very approachable for help and did a great job teaching this course." (COMP 264 Spring 2019)

- "I personally enjoyed being a student of Dr. Greenberg and regard his genius very highly." (COMP 264 Spring 2018)

- "I have greatly enjoyed taking this service learning course under Dr. Greenberg's guidance this semester. I have particularly enjoyed his detailed instructions and well-rounded online Sakai materials and video demonstration that showed me many perspectives that I otherwise never considered. The structure of the course is well-thought and well-rounded, and the in-class & out-of-class service experience for me perfectly

supplemented each other. I appreciate the work that Dr. Greenberg put in on preparing the materials and also facilitating the online forum/blog. It was nice to read other students' experiences and to share with each other the different things we get out of the course, since most of the students don't get to meet each other." (COMP 390 Fall 2017)

- "Very knowledgeable professor Can see that he is passionate about the subject Very willing to help students Homework sometimes difficult Great prep for exams Great course" (COMP 264 Spring 2016)

- "This class was really interesting, and Dr. Greenberg was an amazing teacher who made all of the concepts easier to understand." (COMP 163 Fall 2015)

- "I unexpectedly came to enjoy this course. Dr. Greenberg was a pleasure to have as a professor." (COMP 163 Spring 2014)

- "Very good communication with students; always answering emails and resolving students' difficulties right away." (COMP 264 Spring 2013)

- "RIG is one of the best professors at Loyola. .... Simply amazing." (COMP 163 Fall 2012)

- "He's definitely a priceless asset to the Loyola faculty." (COMP 250 Spring 2012)

- "Big Rig is a legend. I am not worthy to be taught by such a man. He was programmed to be the best teacher in history and I am inclined to agree." (COMP 264 Spring 2011)

- "I thoroughly enjoyed the course as it taught me how to write technical papers. It is definitely helpful and has taught me how to effectively communicate in a professional environment." (COMP 250 Spring 2011)

- "Dr. Greenberg is an amazing professor. Easily one of the best professor I have had at Loyola. His lectures are clear and he makes sure everyone understands the material. I actually looked forward to completing the homework for his class because it is just the right amount of challenge and it is very helpful for the exams. He allows students to ask questions and he is very approachable. He makes himself accessible outside the classroom. VERY INTELLIGENT Professor! BEST PROFESSOR AT LOYOLA! I will definitely take another class with Dr. Greenberg." (COMP 163 Fall 2010)

- "Prof. Greenberg did a great job of teaching the class. He interacts well with the students and is available outside of class to answer questions." (COMP 353/453 Spring 2010)

- He was an excellent teacher, one of the best I have had thus far at Loyola. (COMP 163 Fall 2009)

- Great Job! Greenberg is infinitely awesome. (COMP 150 Spring 2009)

- Extremely helpful, especially outside of class. Great teacher. (COMP 163 Fall 2007)

- Overall, Dr. Greenberg is awesome. (COMP 264 Spring 2007)

- prof (sic) Greenberg is one of the best math teachers I have ever had. Everyone has a different way of explaining math, and some are far better than others. When I take a math course, I judge the teacher by comparing the lectures to the explanations in the book — Is it easier to understand the teacher or the book? Greenberg's lectures were so much easier to understand than the book they made the subject a pleasure to learn. (COMP 163 Fall 2006)

- Overall, I enjoyed the course, and I think Dr Greenberg did a nice job presenting the material. I also really liked the fact he was very easy to find if you needed help. He was very helpful and patient, even when you didn't get something after going over the topic 20 times. (COMP 163 Fall 2006)

- I think this Computer Ethics class was interesting. The book had some good material to read and the professor went over the reading pretty well. The assignmnets (sic) were challenging, but not too difficult and I think the final presentation and final paper were the best assignments. I liked the professor, the class, and the material and I learned a lot in this semester. Great job and keep on offering this course. (COMP/CSED 317/417 Spring 2006)

- Great class, really enjoyed it. (COMP 260 Spring 2004)

- Great class. It was challenging, but Dr. Greenberg was fair. A lot of work... difficult homeworks, but fair exams. Great book & good lecture notes. Dr. Greenberg = A. (COMP 460 Spring 2003)

- Very good teacher, who can give me a clear explanation on every question I brought up. (COMP 462 Fall 2002)

- The instructor is good and very co-operative. Loyola should be proud to have him. (COMP 462 Fall 2002)

- I give Dr. Greenberg an A+! (COMP 388 Fall 2001)

- Dr. Greenberg was able to take complex subject matter and make it understandable to me. (COMP 363 Spring 1999)

- He was very good in the class overall. He has an indepth knowledge of the subject. We learn a lot in the class overall. Thanks for an excellent class. (COMP 462 Spring 1999)

- Dr. Greenberg was an excellent teacher who is very enthusiastic about the material and was always willing to reteach material to individual students at office hours. He was also very supportive through email and the course web page. (COMP 211 Spring 1998)

- Dr. Greenberg can manage to take a difficult subject and explain it in a way that anyone can understand. (COMP 211 Spring 1998)

- Very knowledgeable, well prepared, good assignments. (COMP 462 Spring 1998)

- I think the website was a great idea. I think that the lectures were well organized and very clear. (COMP 362 Fall 1997)

- Everything is perfect. (COMP 462 Spring 1997)

3.2   Advising

- Since June 2013, as Loyola Computer Science Undergraduate Program Director, I have overseen advising of all undergraduates in majors and minors of the Department. Previously, regularly advised a share of undergraduate and graduate students.

- Supervised several Loyola students in independent study courses/projects.

- Supervised the following U. of Maryland Ph.D. students:

  Lee Guan, thesis completed 1997
  Thesis title: *Message Routing and Problem Solving in Multiprocessor Networks*
  Employment after Ph.D.: ACE*COMM

  Shih-Chuan Hung, thesis completed 1996
  Thesis title: *Efficient Algorithms for VLSI Placement and Routing Problems*
  Employment after Ph.D.: Quickturn Design Systems

  Hyeong-Cheol Oh, thesis completed 1993
  Thesis title: *Efficient Communication Schemes for Massively Parallel Computers*
  Employment after Ph.D.: Korea University

  Jau-Der Shih, thesis completed 1993
  Thesis title: *Efficient Algorithms for Channel Routing and Placement Problems*
  Employment after Ph.D.: National Pingtung Teachers College, Taiwan

- Served on thesis committees of the following students at U. of Maryland: Ying-Min Huang Ph.D. 1994, Sukhveen K. Bedi M.S. 1994, Hyun Chul Hong M.S. 1994, Fong-Chih Shao Ph.D. 1994, Frank Thomas Hady Ph.D. 1993, David Robert Helman M.S. 1993, Po-Yang Frank Lin Ph.D. 1993, Shawn Patrick Scoles M.S. 1993, Minze V. Chien Ph.D. 1992, Sridhar Krishnamurthy Ph.D. 1992, Savitha Balakrishnan M.S. 1992, David Chi-Chung Lu M.S. 1992, Ming Lu M.S. 1992, Zhi-Ming Lin Phd 1991, Jagannathan Narasimhan Ph.D. 1991, Umesh Bakhru M.S. 1991, Meenal V. Jobalia M.S. 1991, Tuan A. Le M.S. 1991, Tariq Shabbir M.S. 1990

4 Service

4.1 Professional Service

- Served as coach for middle school teams in Botball educational robotics program and hosted Botball workshop and competition events at Loyola, 2013–2019.

- Member of organizing committee for "CS Splash" event for Chicago Public Schools in anticipation of Board of Education vote that instituted a computer science requirement for high school graduation, 2015–2016.

- Member of Advisory Board for NSF project "Value of Computational Thinking Across Grade Levels 9–12 (VCTAL), 2010–2015.

- Computing Research Association's Computing Community Consortium Leadership in Science Policy Institute, 2011.

- Loyola University liaison to National Center for Women and Information Technology, 2008–present. Member of selection committee for Aspirations in Technology awards for high school women Spring 2009.

- Member of NSF panels to review grant proposals, 2002, 2013, and 2019. Reviewer of several other NSF proposals in Computer Systems Architecture Program and Microelectronic Systems Architecture Program.

- Member of Illinois Technology Association Curriculum Alignment Committee, 2008–2009.

- Pre-publication reviewer for textbooks on Python programming, Visual Basic progamming, discrete mathematics, computer ethics, and computer systems, 2006–2009.

- Member of program committee for International Conference on Parallel Processing (ICPP) 1998 and International Parallel Processing Symposium (IPPS) 1996. Publications chair for International Parallel Processing Symposium (IPPS) 1995. Chaired sessions at additional conferences.

- Member of Society for Industrial and Applied Mathematics (SIAM)
  President of Washington University student chapter 1981–82.
  Vice-President of Washington University student chapter 1980–1981.

- Senior Member of Institute for Electrical and Electronics Engineers (IEEE), IEEE Computer Society, and IEEE Chicago section.

- Member of Association for Computing Machinery (ACM), ACM Special interest group on Algorithms and Computation Theory (SIGACT), Computer Science Teachers Association (CSTA), and Chicago chapters of ACM and CSTA.
  President of Chicago chapter of ACM 2012–14.

- Served as referee for dozens of papers submitted to journals including *SIAM Journal on Computing*, *IEEE Transactions on Computers*, *IEEE Transactions on Networks*, *IEEE Transactions on Parallel and Distributed Systems*, *Journal of the Association for Computing Machinery*, *Journal of Parallel and Distributed Computing*, *Algorithmica*, *Combinatorica*, *Information Processing Letters*, *Computing Surveys*, *Discrete Applied Mathematics*, *Mathematical Systems Theory*, *Information and Computation*, *Computers & Mathematics with Applications*, and *Computer Aided Geometric Design*

- Reviewer of several textbook manuscripts.

- Reviewer of many papers for conferences such as

  - Frontiers in Education (FIE)
  - Innovation and Technology in Computer Science Education (ITiCSE)
  - SIGCSE Techinical Symposium
  - Research on Equity and Sustained Participation in Engineering, Computing, and Technology (RESPECT)
  - International Conference on Parallel and Distributed Computing and Systems (PDCS)
  - International Conference on Parallel and Distributed Systems (ICPADS)
  - International Conference on Parallel Processing (ICPP)
  - International Parallel Processing Symposium (IPPS)
  - Symposium on Parallel and Distributed Processing (SPDP)
  - Symposium on Parallel Algorithms and Architectures (SPAA)
  - ACM Symposium on Theory of Computing (STOC)
  - IEEE Foundations of Computer Science (FOCS)

- Wrote articles in *SIGACT News*:

  - "Library Cataloging of Conference Proceedings", Volume 21, Number 3, Summer 1990, pages 84–87.
  - "Towards an Online Rolodex", Volume 21, Number 3, Summer 1990, page 88.

4.2   University Service

Loyola U.

- Computer Science Department's representative to College of Arts & Sciences Academic Council, 2013–present.

- Computer Science Department liaison to University's Dual Credit Program, 2014–present.

- Participation in University's Phi Beta Kappa Chapter, including maintainence of PBK web site, 2005–present. Chapter Vice-President 2013–2015. Chapter President 2015–2017. Arranging Phi Beta Kappa Visiting Scholar for Fall 2016.

- Regular participation in Science Week planning, including bringing in speakers drawing large audiences, 2008–present.

- Interviewing candidates for Presidential/Ignatian Scholarships, 2010, 2011, 2012, 2014, 2016, and 2017.

- Faculty advisor Women in Science and Mathematics (WISAM) student group 2013–2016.

- Served on committee to review applications for the President's Intercampus Collaborative Research Stimulation Awards program, 2010.

- Participation as a "treasure" in the University's annual EVOKE (Encouraging Vocation through Knowledge & Experience) "Ramble" event, 2009–2011.

- Served as a judge in University's Ethics Bowl, 2006.

- Information Technologies Steering Committee, 1999–2000.

Loyola U. Computer Science Department (Mathematical and Computer Sciences before 2002)

- Computer Science Department Undergraduate Program Director, 2013–present.

- Member of tenure-track faculty search committee (two positions), 2021–22.

- Chair of non-tenure-track faculty search committee (two positions), 2021.

- Computer Science Rank and Tenure committee (two reviews), 2020.

- Member of Cybersecurity tenure-track faculty search committee, 2018–19.

- Chair of Cybersecurity tenure-track faculty search committee, 2017–18.

- Computer Science Department faculty evaluation committee, 2013–16, 2018, 2022.

- Mid-Probationary Review committees, 2010, 2015.

- Solicited and coordinated 5 contributions from Integrated DNA Technologies, McKesson Corporation, Salesforce, and alumni for student scholarships and conference attendance, 2009–2016.

- Managing departmental web content and design 2008–2012.

- Organizing department colloquium series 2006–present.

- Leading department's K–12 outreach program 2006–present. Many visits to various venues and hosting of groups at Loyola.

- Principal Computer Science liaison to Core Committe; established four courses as part of the new University Core. 2004–2006.

- Computer Science Graduate Program Director, 1999–2000.

- Active on many departmental committees 1996–present.

U. of Maryland Institute for Advanced Computer Studies

- Appointment, Promotion, and Tenure Committee, 1992–93

U. of Maryland Electrical Engineering Department

- Facilities and Services Committee, 1994–96
     Chairman, 1994–95

- Computer Committee, 1993–95

- Graduate Studies and Research Committee, 1992–94

- Ad hoc committee to review PhD requirements, 1990–92

- Facilities Committee, 1990–92

- M.S./Ph.D. Exam Panel, 1992–94