

Curriculum Vitae

L. Richard Carley

PERSONAL DATA

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Citizenship: U.S.A. **Birth Date:** May 18, 1954 **Marital Status:** Married, with two daughters.

EDUCATION

- S.B. Electrical Engineering and Computer Science,
 Massachusetts Institute of Technology, 1976.
- S.M. Electrical Engineering and Computer Science,
 Massachusetts Institute of Technology, 1978.
- Ph.D. Electrical Engineering and Computer Science,
 Massachusetts Institute of Technology, 1984.

PROFESSIONAL EXPERIENCE

September 1984-Present

Professor (1992-Now), The ST Microelectronics Professor of Engineering (2001-2020),
Associate Professor (1989-92), and Assistant Professor (1984-89),
Department of Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, PA

Research Activities: Development of CAD tools to support analog circuit design, the design of high speed analog and RF integrated circuits, and the design of integrated micro-electro- mechanical systems (MEMS), nano-electro-mechanical systems (NEMS) and next-generation solid-state devices for sensing, actuation, information storage, and efficient energy generation and storage.

Teaching Activities: Responsible for teaching undergraduate and graduate courses in analog, RF IC design, and NEMS device design. Supervision of M.S. and Ph.D. thesis work.

October 1997-August 2002 (part-time effort)

Chief Circuit Designer and Co-Founder, Neolinear, Inc. (now a division of Cadence),
Responsible for guiding initial user interface and functionality for Neolinear's analog place and route design automation tool (NeoCell) and Neolinear's automated device sizing tool (NeoCircuit).
Provided Expertise on Analog Circuit Design process to Neolinear.

May 2001-August 2003 (on unpaid leave of absence from CMU)

Chief Executive Officer and Chief Technology Officer, IC Mechanics, Inc.,
425 N. Craig St., Suite 500, Pittsburgh, PA 15213 USA (www.icmechanics.com)

Led all technical and business aspects of IC Mechanics including staffing, raising capital, product design, and marketing. IC Mechanics was focused on low cost manufacturing of inexpensive inertial sensors for the hard disk drive shock sensing.

January 2006 – December 2008 (part time effort)

Chief Technologist for Renaissance Wireless (a.k.a., Resonance Semiconductor)
Pittsburgh, PA 15213 USA. Led in formulation of technical vision and product development. Focus of the Company was on using piezoelectric resonators to make oscillators and tunable filters.

SELECTED MAJOR HONORS

1. *Guillemin Prize* for best EE Undergraduate Thesis at MIT, 1976.
2. *Presidential Young Investigator*, National Science Foundation, 1985.
3. *Best Paper Award*, Design Systems, Languages and Software Area, 24th ACM/IEEE Design Automation Conference, June 1987, for the paper: R. Harjani, R. A. Rutenbar and L. R. Carley, "A Prototype Framework for Knowledge-Based Analog Circuit Synthesis".
4. *"Influential" Paper Recognition*, Paper originally published in 1987 ACM/IEEE Design Automation Conference – "A Prototype Framework for Knowledge-Based Analog Circuit Synthesis," by R. Harjani, R. A. Rutenbar and L. R. Carley – selected for inclusion in *25 years of Electronic Design Automation: A Compendium of Papers from the Design Automation Conference*, a special volume, published June 1988, including 77 papers (out of over 1600) deemed most influential over the first 25 years of this conference.
5. Panelist in Best Panel Session, "The Future Role of the Analog Circuit Designer," *1993 International Solid-State Circuits Conference*.
6. Invited *Keynote Address*, "Microelectromechanical Systems For Direct Access Data Storage", Fifth NASA Goddard Conference on Mass Storage Systems and Technologies, College Park MD, September 1996.
7. Elected a *Fellow of the IEEE*, award presented at International Solid-State Circuits Conference (ISSCC) in February of 1997.
8. Received the *STMicroelectronics Chair in Electrical and Computer Engineering*, Carnegie Mellon University, March 7th, 2001.
9. Winner, Best Paper Award, Design & Methodology Area, ACM/IEEE Design Automation Conference, for the paper: Hongzhou Lie, Amit Singhee, Rob A. Rutenbar and L. Richard Carley, "Remembrance of Circuits Past: Macromodeling by Data Mining in Large Analog Design Spaces," *Proc. of ACM/IEEE Design Automation Conference*, June 2002.
10. Winner, *2004 Semiconductor Research Corporation Technical Excellence Award* (jointly with CMU Professor Rob Rutenbar) for pioneering contributions in the field of electronic design automation for analog/mixed-signal design, November, 2004.
11. Runner-up for Best Paper Award at *IEEE Sensors Conference*, 2012. Y. Tang, Y. Zhang, G. K. Fedder, and L. R. Carley, "An Ultra-low Noise Switched Capacitor Transimpedance Amplifier for Parallel Scanning Tunneling Microscopy."

SELECT MEMBERSHIP IN PROFESSIONAL SOCIETIES

Fellow, Institute of Electrical and Electronics Engineers (IEEE), designated a Fellow in 1997,
IEEE Professional Societies: Solid State Circuits Society, Circuits and Systems Society,
Microwave Techniques Society, Magnetics Society, Communications Society, and Robotics &
Automation Society.

SELECT PROFESSIONAL ACTIVITIES

- Member IEEE Committee on RFID, Representative for Systems, Man and Computers Society of IEEE, 2015 – 2019.
- Conference General Chair IEEE RFID Technogy & Applications Conference, Shunde, CHINA, Sept. 21-23, 2016.
- Member National Academy of Sciences, Army Research Laboratory Review Panel for the Sensors and Electron Devices Division, 2001 - 2007.
- Member Editorial Board of *Analog Integrated Circuits and Signal Processing* Journal, Kluwer Academic Press, 1991-Present.
- Member Editorial Board of *Sensors* Journal, 2022-Present.

PATENTS

1. CMU sponsored patent: "Integrated Circuit have at Least a Sensor and A Processor Thereon," A. Gruss, T. Kanade, and L. R. Carley, U.S. Patent No. 5,107,103, issued 21 April 1992.
2. Semiconductor Research Corporation sponsored patent: "Fully Differential Operational Amplifier Having Frequency Dependent Impedance Division," L. R. Carley and K. Nakamura, U.S. Patent No. 5,146,179, issued 8 September 1992.
3. CMU sponsored patent: "Apparatus and Method for Fixed Delay Tree Search," J. Moon and L. R. Carley, U.S. Patent No. 5,136,593, issued 5 June 1992.
4. CMU sponsored patent: "Sample and Hold Circuit and Finite Impulse Response Filter Constructed Therefrom," L. R. Carley, application filed 14 September 1993. U.S. Patent No. 5,414,311 issued May 9, 1995.
5. CMU sponsored patent: "Four Rail Circuit Architecture for Ultra-Low Power and Voltage CMOS Circuit Design," L. R. Carley, US application filed 10 January 1995. US Patent No. 5,814,845 issued September 29, 1998.
6. CMU sponsored patent: "Microelectromechanical structure and process of making same," Inventors: L. R. Carley, M. L. Reed, G. K. Fedder, and S. Santhanam. Application filed 25 July 1995. U.S. Patent No. 5,717,631 issued February 10, 1998.
7. CMU sponsored patent: "An efficient memory-based architecture for implementing generalized adjustable-variance Viterbi detection," Inventor: L. Richard Carley. Application filed 19 May 1997. U.S. Patent No. 5,931,966 issued August 3, 1999.
8. CMU sponsored patent: "Microelectromechanical structure and process of making same," Inventors: L. R. Carley, M. L. Reed, G. K. Fedder, and S. Santhanam. Continuation in Part of (6), Application filed 3 October 1997. U.S. Patent No. 5,970,315 issued October 19, 1999.
9. CMU sponsored patent: "Multiple power supply circuit architecture," Inventors: L. Richard Carley, Ram K. Krishnamurthy, Akshay Aggarwal, Herman H. Schmit. U.S. Patent # 6,366,061. Issued April 2, 2002. Filed: January 13, 1999.
10. IC Mechanics, Inc. sponsored patent: "Thin film MEMS sensors employing electrical sensing and force feedback," Inventors: L. Richard Carley, Suresh Santhanam, Yu-Nu Hsu. United States Patent #6,536,280. Issued: March 25, 2003. Filed: September 12, 2000.

11. IC Mechanics, Inc. sponsored patent: "Accelerometer-assisted servo writing for disk drives," Inventors: L. Richard Carley, Suresh Santhanam, Yu-Nu Hsu. United States Patent #6,778,348. Issued: August 17, 2004. Filed: August 25, 2000.
12. IC Mechanics, Inc. sponsored patent: "Use of momentum transfer actuators for motion control of flexible mechanical structures," Inventors: L. Richard Carley. United States Patent # 6,819,520. Issued: November 16, 2004. Filed: December 22, 2000.
13. IC Mechanics, Inc. sponsored patent: "Micromachined assembly with a multi-layer cap defining a cavity," Inventors: L. Richard Carley, United States Patent # US7492019 B2. Issued: 17 Feb 2009, Filed: March 7, 2003.
14. IC Mechanics, Inc. sponsored patent: "Micromachined assembly with a multi-layer cap defining a cavity," Inventors: L. Richard Carley and Suresh Santhanam, European Patent # EP1602124 A4. Issued: 24 Nov 2010, Filed: 25 Feb 2004.
15. IC Mechanics, Inc. sponsored patent: "Manufacture of MEMS structures in sealed cavity using dry-release MEMS device encapsulation," Inventors: L. Richard Carley. United States Patent # 7,008,812. Issued: March 7, 2006. Filed: May 30, 2000.
16. Neoliner/Cadence sponsored patent: "Method for automatically sizing and biasing circuits by means of a database," Inventors: Rodney Phelps, Ronald A. Rohrer, Anthony J. Gadiant, Rob A. Rutenbar, L. Richard Carley. U.S. Patent No. 7,058,916 issued June 6, 2006.
17. IC Mechanics, Inc. sponsored patent: "Encapsulation of MEMS devices using pillar-supported caps," Inventors: L. Richard Carley, Suresh Santhanam, Yu-Nu Hsu. United States Patent # 7,153,717. Issued: December 26, 2006. Filed: December 13, 2002.
18. Renaissance Wireless Corp. sponsored patent: "RF transceiver switching system," Inventors: L. Richard Carley, Emmanouil Metaxakis and Apostolos Samelis. US Patent Application Filed February 22, 2007.
19. CMU sponsored patent 2010-053: "Nanostructured Atomic Ion-Beam Nuclear Power Generators," Inventors: L. Richard Carley. US Provisional Patent Application filed Feb. 19, 2010.
20. Resonance Semiconductor Corp. patent: Sinha, Rajarishi, L. Richard Carley, Louis Caley Chomas, and Hugo Safar. "Protected resonator." U.S. Patent 8,080,823, issued Oct 4, 2011.
21. Resonance Semiconductor Corp. patent: Sinha, Rajarishi, L. Richard Carley, Louis Caley Chomas, and Hugo Safar. "Protected resonator." U.S. Patent 8,222,795, issued Jul 17, 2012.
22. Resonance Semiconductor Corp. patent: "Switchable Power Combiner," Inventors: Raj Sinha and L. Richard Carley. US Patent No. 8373519 issued Feb. 12, 2013.
23. Resonance Semiconductor Corp. patent: Sinha, Rajarishi, L. Richard Carley, Louis Caley Chomas, and Hugo Safar. "Protected resonator." U.S. Patent 8,487,511, issued July 16, 2013.
24. CMU sponsored patent application 2013-020: Luo, Yi, Yixuan Chen, Rozana Hussin, and L. R. Carley. A "Hot Electron Transistor Having Metal Terminals," International Appln. No. PCT/US2013/058053 submitted Sept. 4, 2013.
25. Resonance Semiconductor Corp. patent application: "Devices having a tunable acoustic path length and methods for their fabrication," Inventors: Rajarishi Sinha, L. Richard Carley, Deok-Yang Kim, US Patent 8,531,083 B2, issued Jul 16, 2013.
26. CMU sponsored patent: "Assembling and Applying Nano-Electro-Mechanical Systems," Inventors: L. Richard Carley. US Patent Application filed October 12, 2007. US Patent 8945970 issued Feb. 3, 2015.

27. Resonance Semiconductor Corp. patent: "Devices having a tunable acoustic path length and methods for their fabrication," Inventors: Rajarishi Sinha, L. Richard Carley, Deok-Yang Kim, US Patent 8981618 B2, issued Mar 17, 2015.
28. Resonance Semiconductor Corp. patent: "Manufacturing method of an array of BAW resonators with mask controlled resonant frequencies," Inventors: Raj Sinha and L. Richard Carley, Deok-Yang Kim - US Patent 9,362,880, issued 2016.

PUBLICATIONS

Theses

1. L.R. Carley, *The Feasibility of Detecting Coronary Artery Turbulence Using Phonoangiography*. S.B. Thesis in EE&CS at MIT, June 1976.
2. L.R. Carley, *An Automated Procedure for Tracking Nerve Threshold (Theoretical Considerations)*. S.M. Thesis in EE&CS at MIT, June 1978.
3. L.R. Carley, *Characterizing and Comparing the Aftereffects of Activity at Successive Nodes of Ranvier from Frog Sciatic Nerve Fibers*, Ph.D. Thesis in EE&CS at MIT, June 1984.

Books / Book Chapters

1. L.R. Carley, "Presynaptic Neural Information Processing," in *Neural Information Processing Systems*, D. Anderson (ed.), American Institute of Physics, New York NY, 1988.
2. R. Harjani, R.A. Rutenbar, and L.R. Carley, "A Prototype Framework for Knowledge-Based Analog Circuit Synthesis," in *25 years of Electronic Design Automation: A Compendium of Papers from the Design Automation Conference*, IEEE Press, 1988.
3. L. R. Carley, "Automated Design of Operational Amplifiers: A Case Study," in *Introduction to Analog VLSI Design Automation*, M. Ismail (editor), Boston, MA, Kluwer Academic Publishers, 1990.
4. T. Kanade, A. Gruss, and L. R. Carley, "A VLSI Sensor Based Rangefinding System," in *Robotics Research*, H. Miura and S. Arimoto (editors), pp. 49-56, Cambridge MA, MIT Press, 1990.
5. A. Gruss, L. R. Carley, and T. Kanade, "A Fast Lightstripe Rangefinding System with Smart VLSI Sensor," in *Machine Vision for Three Dimensional Scenes*, H. Freeman (editor), pp. 381-397, San Diego CA, Academic Press, 1990.
6. T. Kanade, A. Gruss, L. R. Carley, "A VLSI sensor based rangefinding system," in *Robotics Research. Fifth International Symposium*, H. Miura, S. Arimoto (eds.), pp. 49-56, Cambridge, MA, USA, MIT Press; 1990.
7. L. R. Carley, "An Oversampling Analog-to-Digital Converter Topology for High Resolution Signal Acquisition Systems," in *Oversampling Delta-Sigma Data Converters*, James Candy and Gabor D. Temes (eds.), New York: IEEE Press, 1991.
8. L. R. Carley, "A Noise-Shaping Coder Topology for 15+ Bit Converters," in *Oversampling Delta-Sigma Data Converters*, James Candy and Gabor D. Temes (eds.), New York: IEEE Press, 1991.
9. L. R. Carley, "A 16-Bit 4th Order Noise-Shaping D/A Converter," in *Oversampling Delta-Sigma Data Converters*, James Candy and Gabor D. Temes (eds.), New York: IEEE Press, 1991.
10. J. J. Moon and L. R. Carley, *Sequence Detection for High-Density Storage Channels*, Boston, MA: Kluwer Academic Press, 1992.

11. E. Ochotta, R.A. Rutenbar, and L. R. Carley, "Equation-Free Synthesis of High-Performance Linear Analog Circuits," in *Advanced Research in VLSI*, J. Allen and F. T. Leighton (eds.), Cambridge MA: MIT Press, March 1992.
12. L. R. Carley, P. C. Maulik, E. S. Ochotta, and R. A. Rutenbar, "Analog Cell-Level Synthesis Using a Novel Problem Formulation," in *Advances in Analog Circuit Design*, J. H. Huijsing (editor), Boston, MA: Kluwer Academic Press, 1993.
13. L. R. Carley and R. S. Gyurcsik (eds.), *CAD of Analog Circuits and Systems*, Boston, MA: Kluwer Academic Press, 1993.
14. J. M. Cohn, D. J. Garrod, R. A. Rutenbar, and L. R. Carley, *Analog Device-Level Layout Automation*, Boston, MA: Kluwer Academic Press, 1994.
15. L. R. Carley, "Analog CAD," in *Analog VLSI: Signal and Information Processing*, M. Ismail and T. Fiez (editors), New York: McGraw Hill, 1994.
16. I. Masaki, L. R. Carley, S. Decker, B. K. P. Horn, H.-S. Lee, D. A. Martin, C. G. Sodini, and J. L. Wyatt Jr., "New Architecture Paradigms for Analog VLSI Chips," in *Vision Chips: Implementing Vision Algorithms with Analog VLSI Circuits*, C. Koch and H. Li (eds.), New York, NY: IEEE Press, 1995.
17. L. R. Carley, J. Kenney, and C. M. Wolff, "CAD for the Analysis and Design of Oversampling ADCs and DACs," in *Delta-Sigma Data Converters*, S. Norsworthy and R. Schreier (eds.), New York, NY: IEEE Press, 1996.
18. L. R. Carley and G. Temes, "Delta-Sigma ADCs with Multibit Quantizers," in *Delta-Sigma Data Converters*, S. Norsworthy and R. Schreier (eds.), New York, NY: IEEE Press, 1996.
19. B. R. Stanisic, R. A. Rutenbar and L. R. Carley, *Power Distribution Synthesis for Mixed-Signal Integrated Circuits*, Kluwer Academic Publishers, Norwell: MA, 1996.
20. R. A. Rutenbar, L. R. Carley, P.C. Maulik, E. S. Ochotta, T. Mukherjee, B. Basaran, S. Mitra, S. K. Nag, B. R. Stanisic, "Synthesis and Layout for Analog and Mixed Signal ICs in the ACACIA System," chapter in *Advances in Analog Circuit Design*, Kluwer Academic Publishers, Norwell: MA, 1996.
21. Emil S. Ochotta, Tamal Mukherjee, Rob A. Rutenbar, L. Richard Carley, *Practical Synthesis of High-Performance Analog Circuits*, Kluwer Academic Publishers, Boston MA, 1998.
22. Emil S. Ochotta, Brian A.A. Antao, Tamal Mukherjee, Rob A. Rutenbar, and L. Richard Carley, "Analog Integrated Circuit and System Synthesis," in *Analog CAD*, IEEE Press, Brian Antao and Rob A. Rutenbar (eds.), 1998.
23. Memet Aktuna, Rob A. Rutenbar, L. Richard Carley, *Geometric Algorithms for RF Circuit Layout*, Kluwer Academic Publishers, Boston MA, 2000.
24. R. Harjani, R. A. Rutenbar and L. R. Carley, "Analog Circuit Synthesis, for Performance in OASYS" originally in Proceedings ACM/IEEE Int'l Conference on CAD, Nov 1988, is reprinted in The Best of ICCAD: 20 years of Excellence in Computer Aided Design, a volume of the 40 most influential papers (out of over 1000) published across the first 20 years of the ACM/IEEE International Conference on CAD, IEEE Press, 2003.

Journal Articles

1. L.R. Carley and S.A. Raymond, "Threshold Measurement: Applications to Excitable Membranes of Nerve and Muscle," *Journal of Neuroscience Methods* 9:309-333, May 1983.
2. L.R. Carley, "An Oversampling Analog-to-Digital Converter Topology for High Resolution Signal Acquisition Systems," *IEEE Transactions on Circuits and Systems* TCAS-34, No. 1, 83-91, January 1987.
3. L.R. Carley and S.A. Raymond, "Comparison of the after-effects of impulse conduction on threshold at nodes of Ranvier along single frog Sciatic axons," *Journal of Physiology (London)* 386: pp. 503-527, May 1987.
4. L.R. Carley and J.J. Moon, "Time Measurements of Amplitude and Bit Shift in Thin Metallic Media," *IEEE Transactions on Magnetics*, MAG-23, No. 5, pp. 2686- 2688, September 1987.
5. J.J. Moon, L.R. Carley, and R.R. Katti, "Density Dependence of Noise in Thin Metallic Longitudinal Media," *Journal of Applied Physics*, Vol. 63, No. 8, pp. 3254-3256, April 1988.
6. L.R. Carley and R.A. Rutenbar, "How to automate analog IC designs," *IEEE Spectrum*, Vol. 25, No. 8, pp. 26-30, August 1988.
7. L.R. Carley and R.A. Rutenbar, "How to automate analog IC designs (translated into Japanese)," *Japanese Spectrum*, Maruzen, vol. 02, no. 03, March 1989.
8. J.J. Moon and L.R. Carley, "Partial Response Signalling in a Magnetic Recording Channel," *IEEE Transactions on Magnetics*, TMAG-24, No. 5, pp. 2172-2174, September 1988.
9. L. R. Carley, "A Noise-Shaping Coder Topology for 15+ Bit Converters," *IEEE Journal of Solid State Circuits*, Vol. SC-24, No. 2, April 1989.
10. R. Harjani, R. A. Rutenbar and L. R. Carley, "OASYS: A Framework for Analog Circuit Synthesis," *IEEE Trans. Computer Aided Design of ICs and Systems*, Vol. 8, No. 12, Dec. 1989.
11. L. R. Carley, "Trimming Analog Circuits Using Floating-Gate Analog MOS Memory," *IEEE Journal of Solid State Circuits*, Vol. SC-24, No. 6, Dec. 1989.
12. J.J. Moon and L.R. Carley, "Detection Performance in the Presence of Transition Noise," *IEEE Transactions on Magnetics*, MAG-26, No. 5, pp. 2172-2174, September 1990.
13. J.J. Moon and L.R. Carley, "Performance Comparison of Detection Methods in Magnetic Recording," *IEEE Transactions on Magnetics*, MAG-26, No. 6, pp. 3155- 3172, November 1990.
14. J. Cohn, D. Garrod, R. A. Rutenbar and L. R. Carley, "New Algorithms for Placement and Routing of Custom Analog Cells in ACACIA," *IEEE Journal of Solid State Circuits*, Vol. SC-26, No. 3, March 1991.
15. T. Mukherjee and L. R. Carley, "Rapid Yield Estimation as a Computer Aid for Analog Cell Design," *IEEE Journal of Solid State Circuits*, Vol. SC-26, No. 3, March 1991.
16. L. R. Carley, A. Gruss, and T. Kanade, "Integrated Sensor and Rangefinding Analog Signal Processor," *IEEE Journal of Solid State Circuits*, Vol. SC-26, No. 3, March 1991.
17. L. R. Carley and J. G. Kenney, "Comparison of Computationally Efficient Forms of FDTS/DF Against PR4-ML," *IEEE Transactions on Magnetics*, MAG-27, No. 6, pp. 4567-4572, November 1991.
18. K. Nakamura and L. R. Carley, "An Enhanced Fully Differential Folded-Cascode Op Amp," *IEEE Journal of Solid State Circuits*, Vol. SC-27, No. 4, April 1992.
19. J. G. Kenney, L. R. Carley, and R. W. Wood, "Multi-Level Decision Feedback Equalization for Saturation Recording," *IEEE Transactions on Magnetics*, Vol. 29, No. 4, pp. 2160-2172, July 1993.

20. J. G. Kenney, P. A. McEwen, and L. R. Carley, "Evaluation of Magnetic Recording Detection Schemes for Thin Film Media," *IEEE Transactions on Magnetics*, vol. MAG-27, no. 6, 4822-4824, November 1991.
21. J. G. Kenney and L. R. Carley, "Design of Multibit Noise-Shaping Data Converters," *Analog Integrated Circuits and Signal Processing*, Vol. 4, No. 1, pp. 49-62, July 1993.
22. P. H. Dietz and L. Richard Carley, "Simple Networks for Pixel Plane Median Filtering," *IEEE Transactions on Circuits and Systems*, Vol. 40, No. 12, pp. 799-801, December 1993.
23. B.R. Stanisic, N.K. Verghese, D.J. Allstot, R.A. Rutenbar, L.R. Carley, "Addressing Substrate Coupling in MIXed-Mode ICs: Simulation and Power Distribution Synthesis," *IEEE Journal of Solid State Circuits*, Vol. 29, No. 3, pp. 226-239, March 1994.
24. J. Moon and L. R. Carley, "Efficient Sequence Detection for Intersymbol Interference Channels with Run-Length Constraints," *IEEE Transactions on Communications*, Vol. 42, No. 9, pp. 2654-60, Sept. 1994.
25. P. C. Maulik, L. R. Carley, R. A. Rutenbar, "Automatic Analog Topology Selection via Mixed Integer/Non-linear Programming," *IEEE Transactions on CAD*, Vol. 14, No. 4, pp. 401-412, April 1995.
26. B. R. Stanisic, R. A. Rutenbar and L. R. Carley, "Mixed-Signal Noise Decoupling via Simultaneous Power Distribution Design and Cell Customization in RAIL," *IEEE Journal of Solid State Circuits*, Vol. 30, No. 3, pp. 321-326, March 1995.
27. S. Mitra, R. A. Rutenbar, L. R. Carley and D. J. Allstot, "Substrate-Aware Mixed-Signal Macro-Cell Placement in WRIGHT," *IEEE Journal of Solid State Circuits*, Vol. 30, No. 3, pp. 269-278, March 1995.
28. K. Nakamura, M. Hotta, L. R. Carley and D. J. Allstot, "A 85-mW, 10-bit 40-MS/s ADC with Decimated Parallel Architecture," *IEEE Journal of Solid State Circuits*, Vol. 30, No. 3, pp. 173-183, March 1995.
29. K. Bracken and L. Carley, "Adaptive Continuous-Time Equalization Followed by FDTs/DF Sequence Detection," *IEEE Transactions on Magnetics*, Vol. 31, No. 2, pp. 1089-1094, March 1995.
30. L. R. Carley, K. C. Bracken, R. Mittal, and J. Park, "A Low-Power Analog Sampled-Data VLSI Architecture for Equalization and FDTs/DF Detection," *IEEE Transactions on Magnetics*, Vol. 31, No. 2, pp. 1202- 1207, March 1995.
31. K. C. Bracken, H. M. Zayed, and L. R. Carley, "Adaptive Continuous-Time Equalization Followed by FDTs/DF Sequence Detection," *IEEE Transactions on Magnetics*, Vol. 31, No. 6, pp. 3048-3050, November 1995.
32. E. S. Ochotta, R. A. Rutenbar and L. R. Carley, "Synthesis of High-Performance Analog Circuits in ASTRX/OBLX," *IEEE Transactions on CAD*, Vol. 15, no. 3, pp. 273-294, March 1996.
33. M. H. Kryder, W. Messner, L. R. Carley, "Approaches to 10 Gbit/in² Recording", *J. Applied Physics*, Vol. 79, no. 8, pp. 4485-4490, 1996.
34. G. K. Fedder, S. Santhanam, M. L. Reed, S. C. Eagle, D. F. Guillou, M. S.-C. Lu, and L. R. Carley, "Laminated High-Aspect-Ratio Microstructures in a Conventional CMOS Process", *Sensors & Actuators A*, vol. A57, no. 2, pp. 103-110, November 1996.
35. R. Mittal, K. C. Bracken, L. R. Carley, and D. J. Allstot, "A Low-Power Backward Equalizer for DFE Read-Channel Applications," *IEEE Journal of Solid State Circuits*, vol. 32, no. 2, pp. 270-273, Feb. 1997.
36. J. C. Park and L. R. Carley, "Analog Complex Graphic Equalizer for EPR4 Channels," *IEEE Transactions on Magnetics*, vol. TMAG-33, no. 5, pt. 1, pp. 2785-7, Sept. 1997.
37. R. K. Krishnamurthy and L. R. Carley, "Exploring the design space of mixed swing quadrail for low power digital circuits," *IEEE Transactions on VLSI Systems*, vol. 5, no. 4, pp. 388-400, December 1997.

38. L. R. Carley and S. Sridharan, "A pipelined 16-State Generalized Viterbi Detector," *IEEE Transactions on Magnetics*, vol. 34, no. 1, pt. 1, pp. 181-6, January 1998.
39. J. C. Park and L. R. Carley, "High-Speed CMOS Continuous-Time Complex Graphic Equalizer For Magnetic Recording," *IEEE Journal of Solid State Circuits*, vol. 33, no. 3, pp. 427-38, March, 1998.
40. Mehmet Aktuna, Rob A. Rutenbar, L. Richard Carley, "Transistor-Level Early Floorplanning Algorithms for RF Circuits," *IEEE Transactions on CAD*, vol. 18, no. 4, pp. 375-388, April 1999.
41. N. M. Zayed and L. R. Carley, "Equalization and Detection for Nonlinear Recording Channels with Correlated Noise," *IEEE Transactions on Magnetics*, vol. 35, no. 5, pt. 1, pp. 2295-7, September 1999.
42. L. R. Carley, P. K. Khosla, R. M. Unetich, "Teaching Introduction to Electrical and Computer Engineering in Context," *IEEE Proceedings*, vol. 88, no. 1, pp. 8-22, January, 2000.
43. Srinath Sridharan and L. R. Carley, "A 110MHz 350mW 0.6um CMOS 16-State Generalized-Target Viterbi Detector for Disk Drive Read Channels," *IEEE Journal of Solid State Circuits*, vol. 35, no. 3, pp. 362-370, March, 2000.
44. L. R. Carley, J. A. Bain, G. K. Fedder, D. W. Greve, D. F. Guillou, M. S. C. Lu, T. Mukherjee, S. Santhanam, L. Abelmann, and S. Min, "Single Chip Computers With MEMS-Based Magnetic Memory," *Journal of Applied Physics*, vol. 87, no. 9, pp. 6680-6685, 1 May 2000.
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