

Curriculum Vitae of Leandra Vicci

Current Appointment: 1981 – Lecturer of Computer Science and
Director of the Microelectronic Systems Laboratory (MSL),
Department of Computer Science, University of North Carolina, Chapel Hill, NC.

Previous Appointments:, in reverse chronological order:

- ★ 1978 – Engineer, Electro Scientific Industries, Portland, OR;
- ★ 1975 – Supervisor, University of Oregon, Eugene, OR;
- ★ 1972 – Engineer, Oregon Graduate Center, Beaverton, OR;
- ★ 1965 – Engineer, Boeing Aerospace, Seattle, WA;
- ★ 1962 – Lab Technician, Scripps Institute of Oceanography, La Jolla, CA;
- ★ 1961 – Coop Intern, Woods Hole Oceanographic Institution, Woods Hole, MA;
- ★ 1960 – Coop Bench Technician, ACF Industries, Paramus, NJ;
- ★ 1960 – Coop Research Assistant, Florida State University, Tallahassee, FL.

Education:

- ★ Antioch College, Physics, B.S., 1964.

Awards:

- ★ 1996 UNC Chapel Hill Chancellor's Award for Innovation in Research.
- ★ 1996 North Carolina Governor's Award for Innovation.

Recent Publications:

BOOK CHAPTERS

- ★ Taylor II, R. M., D. Borland, F. P. Brooks Jr., M. Falvo, M. Guthold, T. Hudson, K. Jeffay, G. Jones, D. Marshburn, S. J. Papadakis, L.-C. Qin, A. Seeger, F. D. Smith, D. H. Sonnenwald, R. Superfine, S. Washburn, C. Weigle, M. C. Whitton, P. Williams, L. Vicci and W. Robinett, "Visualization and Natural Control Systems for Microscopy," in *Visualization Handbook*, edited by C. Johnson and C. Hansen, Harcourt Academic Press, 2004, pp.875-900.

REFEREED JOURNALS

- ★ Hall, A. R., An, L., Liu, J., Vicci, L., Falvo, M. R., Superfine, R., Washburn, S., "Experimental measurement of single-wall carbon nanotube torsional properties," *Physical Review Letters*, vol. 96, no. 25, pp. 256102/1-4, 30 June 2006.
- ★ Fisher, J., J. Cribb, K. Desai, L. Vicci, B. Wilde, K. Keller, R. Taylor II, J. Haase, K. Bloom, T. O'Brien, R. Superfine, "Thin-foil magnetic force system for high-numerical-aperture microscopy," *Review of Scientific Instruments*, (pub. on-line) 14 February 2006.
- ★ Fisher, J., L. Vicci, J. Cummings, K. Keller, B. Wilde, T. O'Brien, K. Desai, C. Weigle, G. Bishop, R. Taylor II, C. Davis, R. Boucher, R. Superfine, "Three-dimensional force microscope: A nanometric optical tracking and magnetic manipulation system for the biomedical sciences," *Review of Scientific Instruments*, vol. 76 no. 5, May 2005.

- ★ Dwyer, C., L. Vicci, J. Poulton, D. Erie, R. Superfine, S. Washburn, R. M. Taylor II, “The design of DNA self-assembled computing circuitry,” *IEEE Tran. VLSI Systems*, vol. 12, pp. 1214-20, November 2004.
- ★ Papadakis, S. J., A. R. Hall, P. A. Williams, L. Vicci, M. R. Falvo, R. Superfine, S. Washburn, “Resonant Oscillators with Carbon-Nanotube Torsion Springs,” *Physical Review Letters*, vol. 93, p. 146101, 1 October 2004.
- ★ Dwyer, C., J. Poulton, R. Taylor, L. Vicci, “DNA self-assembled parallel computer architectures,” *Nanotechnology*, vol. 15, pp. 1688-94, October 2004.
- ★ Dwyer, C., L. Vicci, and R. M. Taylor, “Performance simulation of nanoscale silicon rod field-effect transistor logic,” *IEEE Trans. Nanotechnology*, vol. 2, pp. 69 V74, June 2003.
- ★ Cummings, J., C. Weigle, L. Vicci, K. Keller, B. Wilde, J. Fisher, D. Sill, G. Bishop, G. Welch, J. Y. Jeong, R. M. Taylor and R. Superfine, (2002). “A 3D force microscope.” *Biophysical Journal*, vol. 82 No. 1, 2002.
- ★ Welch, Greg, G. Bishop, L. Vicci, S. Brumback, K. Keller, D. Colucci, “High-performance wide-area tracking, the HiBall Tracking System,” *Presence: Teleoperators & Virtual Environments*, MIT Press, February 2001, pp. 1-21.

CONFERENCES

- ★ Meehan, Timothy D., L. Vicci, E. T. O’Brien, J. Fisher, R. Superfine, “Quantitative study of the magnetophoresis of ferritin labeled beads,” *2005 Biophysical Society Conference, Long Beach, CA*, February 2005.
- ★ Cribb, Jeremy, D. B. Hill, R. M. Taylor, II, L. Vicci, J. Fisher, K. V. Desai, B. Wilde, J. Sheehan, M. G. Forest, R. Superfine, “Measuring local microrheological properties of human mucus with magnetically driven microbeads,” *2005 Biophysical Society Conference, Long Beach, CA*, February 2005.
- ★ Superfine, R., L. Vicci, J. Hao, J. Fisher, B. Wilde, R. M. Taylor, E. T. O’Brien, “Magnetic pole structures for biological force measurements,” *2003 Biomedical Engineering Society Meeting*, October 2003.
- ★ Fisher, J., R. Superfine, T. O’Brien, R. M. Taylor II, C. W. Davis, H. Matsui, L. Vicci, G. Matthews and B. Wilde “Motion and force generation of cilia in human lung cell cultures,” *47th Biophysical Society Annual Meeting*, San Antonio, TX, March 1-5, 2003. Published in: *Biophysical Journal* (Annual Meeting Abstracts).
- ★ Sill, D., J. Hao, D. Brandl, B. Wilde, J. Fisher, L. Vicci, R. M. Taylor II, R. Superfine, “Microfabricated magnetic pole structures for biological force measurements,” *47th Biophysical Society Annual Meeting*, San Antonio, Texas., March 1-5, 2003. Published in: *Biophysical Journal* (Annual Meeting Abstracts).
- ★ Superfine, R., G. Bishop, J. Cummings, J. Fisher, K. Keller, G. Matthews, D. Sill, R. M. Taylor II, L. Vicci, C. Weigle, G. Welch and B. Wilde, “Touching in biological systems: A 3D force microscope,” *Proceedings of Microscopy and Microanalysis*, Quebec City, Canada, 2002.
- ★ Dwyer, C., R. Taylor, L. Vicci, “Transport simulation of a nanoscale silicon field effect transistor,” *Proc. 2002 2nd IEEE Conference on Nanotechnology*, Washington, DC, August 26-8, pp.601-4.

TECHNICAL REPORTS

- ★ Vicci, Leandra “The 3DFM Magnet Drive Amplifier,” TR05-002, Department of Computer Science, UNC at Chapel Hill, January 2005.
- ★ Vicci, Leandra “Analytical bead force model for the 3DFM,” TR03-029, Department of Computer Science, UNC at Chapel Hill, September 2003.
- ★ Vicci, Leandra “B&K 4370 Accelerometer and Charge Amplifier Manual,” TR03-002, Department of Computer Science, UNC at Chapel Hill, January 2003.
- ★ Vicci, Leandra “A 3D Magnetic Force Manipulator DC Prototype,” TR01-031, Department of Computer Science, UNC at Chapel Hill, October 2001.
- ★ Vicci, Leandra “Averages of Rotations and Orientations in 3-space,” TR01-029, Department of Computer Science, UNC at Chapel Hill, August 2001.
- ★ Vicci, Leandra “Quaternions and Rotations in 3-space: The Algebra and its Geometric Interpretation,” TR01-014, Department of Computer Science, UNC at Chapel Hill, April 2001.

Intellectual Property

PATENTS

- ★ Vicci, Leandra, “Methods and systems for reactively compensating magnetic current loops,” U.S. Pat. No. 6,960,984; 1 November 2005.
- ★ Vicci, Leandra, “Magnetic-flux conduits,” U.S. Pat. No. 6,720,855; 13 April 2004.
- ★ Vicci, Leandra, “Automatic emergency and position indicator,” U.S. Pat. No. 6,175,329; 16 January, 2001.
- ★ Chi, Vernon L., “Salphasic distribution of timing signals for the synchronization of physically separated entities,” U.S. Pat. No. 5,387,885; 7 February 1995.

PUBLISHED PATENT APPLICATIONS

- ★ Vicci, Leandra, R. Superfine, “Methods and systems for three-dimensional motion control and tracking of a mechanically unattached magnetic probe,” U.S. Pat. Appl. No. 20040244470; December 9, 2004.
- ★ Vicci, Leandra, R. Superfine, “Methods and systems for controlling motion of and tracking a mechanically unattached probe,” U.S. Pat. Appl. No. 20040184214; September 23, 2004.

(UNPUBLISHED) PATENT PENDING

- ★ Vicci, Leandra, “Methods and systems for reactively compensating magnetic current loops,” U.S. Pat. Appl. Serial No. 09/723356 and European Pat. Appl. No. 00982557.1

Professional activities and service:

- ★ Member of IEEE, ACM
- ★ Conference committee, ARVLSI95
- ★ Nine MCNC technical advisory committees, 1982-1991
- ★ UNC Patent Committee 1988-present
- ★ UNC College of Arts and Sciences Conflict of Interest Oversight Committee 1996-present