

EXHIBIT A

LEONARD JOSEPH CIMINI, JR.

PROFESSIONAL EMPLOYMENT

2002-Present UNIVERSITY OF DELAWARE, NEWARK, DE (Professor)

- Teach undergraduate courses in linear systems, probability, and communications
- Teach graduate courses in digital and wireless communications
- Eta Kappa Nu faculty advisor
- Supervised 13 graduate students (5 received MS, 3 received PhD) and 3 post-docs
- Research topics: communications in uncertain environments, networks in crisis, cooperative networking

1996-2002 AT&T LABORATORIES - RESEARCH, MIDDLETOWN, NJ. (Technology Consultant)

- Studied the effect of channel mismatch on adaptive modulation for OFDM for wireless applications.
- Invented and analyzed techniques for robust channel estimation and peak power reduction in OFDM.
- Invented and analyzed solutions to both the physical layer and MAC layer challenges for providing high-bit-rate packet data to wide-area cellular users, using OFDM.

1985-1996 AT&T BELL LABORATORIES, HOLMDEL, NJ. (Member of Technical Staff)

- Invented, analyzed, designed and built a 20-Mbps packet-based wireless modem using clustered OFDM and another using a DFE with fast signal recovery techniques.
- Invented a technique for fast frequency synthesis using a remodulator carrier recovery technique.
- Proposed and analyzed the use of multicarrier techniques to overcome the limitations to high-bit-rate wireless transmission caused by multipath.
- Invented and analyzed new algorithms for dynamic channel selection in wireless communication systems.
- Proposed, analyzed, and demonstrated a TDMA-based technique for indoor wireless communications using slow cyclical frequency hopping and Reed-Solomon coding.
- Derived the fundamental limitations of Erbium-doped fiber amplifiers for cable TV distribution.
- Invented, analyzed, and demonstrated the use of a Fabry-Perot filter as a fiber-dispersion equalizer in high-bit-rate, long-haul, lightwave systems.
- Proposed and demonstrated an optical frequency synthesizer.
- Invented, analyzed, and demonstrated polarization switching as a means of achieving polarization-insensitive single-photon coherent detection.

1982-1985 AT&T BELL LABORATORIES, WEST LONG BRANCH, NJ. (Member of Technical Staff)

- Proposed and analyzed new speech privacy techniques for cellular mobile radio systems.
- Designed and demonstrated 10- and 18-GHz hardware for a personal communication system.
- Proposed and analyzed the use of OFDM in mobile radio systems. This was the first application of OFDM to wireless systems and has been the basis for much of the current widespread work in this area.

1976-1978 IN-COLLEGE EMPLOYMENT

- RCA, MISSILE AND SURFACE RADAR DIVISION, MOORESTOWN, NJ. Designed hardware and software for testing of a phased array radar system. Also worked on several radar detection problems.
- UNIVERSITY OF PENNSYLVANIA, PHILADELPHIA, PA. Investigated the feasibility of using frequency diversity as a means of enhancing images in microwave holography.

TEACHING AND CONSULTING EXPERIENCE

1996-Present Gave numerous tutorials at IEEE conferences and workshops on High-Speed Wireless Data and OFDM for Wireless Communications.

1994-2001 UNIVERSITY OF PENNSYLVANIA, PHILADELPHIA, PA.

Adjunct Professor in Dept. of Electrical Engineering. Taught course in wireless systems.

1983-1988 MONMOUTH COLLEGE, WEST LONG BRANCH, N.J.

Adjunct Professor in the Dept. of Elec. Eng. Taught several graduate and undergraduate courses.

2002-2003 MITSUBISHI ELECTRIC RESEARCH LABS, MURRAY HILL, NJ. Consultant.

2004-Present Patent litigation - consultant and expert witness.

PROFESSIONAL AND SERVICE ACTIVITIES

- IEEE, Member (1977-1988), Senior Member (1989-1999), Fellow (2000-Present)
- Vice President-Publications, IEEE Comm. Society (2010-Present)
- Director of On-Line Content, IEEE Comm. Society, (2008-2009)
- Board of Governors, At-Large Member, IEEE Comm. Society (1999-2001, 2005-2007)
- Chair, Emerging Technologies Committee, IEEE Comm. Society (2004-2007)
- Member, Strategic Planning Committee, IEEE Comm. Society (2004-2007)
- Member, Fellow Evaluation Committee, IEEE Vehicular Technology Society (2004-Present)
- Member, Fellow Evaluation Committee, IEEE Comm. Society (2008-Present)
- Member, Awards Committee, IEEE Comm. Society (2004-2007)
- Member, Nominations and Elections Committee, IEEE Comm. Society (2003-2007)
- Member/Chair, *IEEE Transactions on Wireless Communications* Steering Committee (2001-2009)
- Comm. Theory Committee, IEEE Comm. Society: Sec. (1987-1989), Vice Chair (1989-1992, 2001-2004)
- *IEEE Trans. on Comm.*, Ed. for Mobile Comm. (1989-1991), Area Ed. for Wireless Comm. (1991-1998)
- Founding Editor-in-Chief of the *IEEE-JSAC: Wireless Communications Series* (1998-2000)
- *IEEE JSAC*, Guest Ed., April/May 1996. on Wireless Local Comm.; Senior Ed., *IEEE JSAC* (2000-Present)
- Comm. Theory Symposium Co-Chair, *Globecom 2004*
- Technical Program Chair, *1999 Comm. Theory Workshop*
- Technical Program Committee for more than 25 international conferences from 1994 until the present
- Session Organizer and Chairman for many conferences as well as a reviewer for many archival journals
- Gave numerous invited university seminars, including NJIT, Polytechnic Institute, Princeton University, University of Pennsylvania, University of Alberta, and the Royal Institute Technology in Sweden

EDUCATION

- 1980-1982 UNIVERSITY OF PENNSYLVANIA (Ph.D. Electrical Eng. in May 1982, GPA 4.0/4.0)
Dissertation: "Some Results in Quantization for Filtering and Detection" (Advisor: S. A. Kassam)
- Fall 1979 MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Research involved the analysis of free-space optical systems. GPA 5.0/5.0.
- 1978-1979 UNIVERSITY OF PENNSYLVANIA (M. S. Electrical Eng. in August 1979, GPA 4.0/4.0)
Thesis: "Minimax Estimation Filters" (Advisor: S. A. Kassam)
- 1974-1978 UNIVERSITY OF PENNSYLVANIA (B. S. Electrical Eng. in May 1978, GPA 3.9/4.0)

HONORS AND AWARDS

- 2010 Donald W. McLellan Meritorious Service Award from the IEEE Communications Society
- 2010 Recognition Award from the Wireless Communications Committee of the IEEE Communications Society.
- 2010 Innovator's Award from the New Jersey Inventors Hall of Fame for innovative research related to high-speed wireless communications.
- 2010 Stephen O. Rice Prize from the IEEE Comm. Society for the best paper in the *IEEE Trans. on Commun.*
- 2007 James Evans Avante-Garde Award from the IEEE Vehicular Technology Society
- July 1985 paper in *IEEE Trans. on Comm.*, "Analysis and Simulation of a Digital Mobile Channel Using Orthogonal Frequency Division Multiplexing," named one of the 50 most influential papers in the history of the IEEE Comm. Society.
- Elected IEEE Fellow for contributions to the theory and practice of high-speed wireless communications
- Best Paper Awards at *WCNC 2007* and *Chinacomm 2008*.
- National Science Foundation Fellowship (1978-1981); MIT Vinton Hayes Fellowship in Communications; University of Pennsylvania Graduate Fellowship; IEEE Fortescue Fellowship
- Mayor's Scholar (1974-1978); RCA Scholar (1975-1978); Benjamin Franklin Scholar (1974-1978)
- Dean's List (1974-1978); Graduated (1978) with summa cum laude honors and awarded A. Atwater Kent Prize in Electrical Engineering

- Member of Tau Beta Pi (Vice-President 1977-1978); Member of Eta Kappa Nu (Secretary 1977-1978)

COMMUNITY ACTIVITIES AND MENTORING

- Received AT&T Research Affirmative Action Award for 1995
- Tutored minority students at a local middle school as part of affirmative action program at AT&T
- Supervised and mentored many students as part of the Summer Research Program at AT&T