

May 2009

## CURRICULUM VITAE

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**GIBSON, Jerry Don**

**Citizenship:** U.S.

**Professor:** Electrical Engineering

**Birthdate:** 12 May 1946

**Birthplace:** Ft. Worth, TX

**Marital Status:** Married

**Number of Children:** Two

**Business Address:**

Department of Electrical & Computer  
Engineering and Media Arts and Technology  
Program

2215 Elings Hall (CNSI)  
University of California, Santa Barbara  
Santa Barbara, CA 93106-6065  
Phone: (805) 893-6187  
Fax: (805) 893-2930  
E-mail: gibson@ece.ucsb.edu

**Home Address:**

3768 Brenner Drive  
  
Santa Barbara, CA 93105  
Phone: (805) 687-7927

**Professional Interests:** Data, Speech, Image, and Video Compression, Multimedia over Networks, Wireless Communications, Multiuser Communications, Information Theory, Digital Signal Processing, and Adaptive Filtering

**EDUCATION:** Ph.D., Electrical Engineering, Southern Methodist University, 1973.  
M.S., Electrical Engineering, Southern Methodist University, 1971.  
B.S., Electrical Engineering, University of Texas at Austin, 1969.

**EXPERIENCE:**

Educational

Chair, Electrical & Computer Engineering Department, University of California, Santa Barbara, June 2008-present.

Professor, Electrical & Computer Engineering Department, and Graduate Program in Media Arts and Technology, University of California, Santa Barbara, Aug 2002-present.

Professor and Chairman, Department of Electrical Engineering, SMU, Aug 1997-Jul 2002.

J. W. Runyon, Jr. Professor of Electrical Engineering, Texas A&M University, Sep 1987 - Jul 1997.

Visiting Professor, Information Systems Laboratory, Department of Electrical Engineering, Stanford University, Sep - Dec 1991.

Director, Telecommunications, Control and Signal Processing Research Center, Texas A&M University, Jun. 1987-1991.

Professor, Electrical Engineering, Texas A&M University, Sep 1983 -Jul 1997.

Associate Professor, Electrical Engineering, Texas A&M University, Sep 1978 - Aug 1983.

Assistant Professor, Electrical Engineering, Texas A&M University, Sep 1976 - Aug 1978.

Assistant Professor, Electrical Engineering, University of Nebraska-Lincoln, Sep 1974 - Aug 1976.

Visiting Assistant Professor, Electrical Engineering, University of Notre Dame, Jan 1974 - May 1974.

Research Associate, Electrical Engineering, University of Notre Dame, Sep 1973 - Dec 1973.

Research Assistant, Electrical Engineering, Southern Methodist University, Aug 1972 - Aug 1973.

Research Assistant, Electrical Engineering, University of Texas, Jan 1968 - Jan 1969.

### Industrial

Summer Faculty Appointment, Defense Communications Agency, Reston, VA, Jun. 1974 - Aug. 1974.

Aerosystems Engineer, General Dynamics Corp., Ft. Worth, TX, Jan.1969 - Jan. 1972.

Consultant for numerous companies and government agencies.

### **SOCIETY MEMBERSHIPS:**

Institute of Electrical and Electronics Engineers, Fellow (Communications, Signal Processing, and Information Theory Societies)

Eta Kappa Nu  
Sigma Xi  
American Society for Engineering Education

## **AWARDS and RECOGNITION:**

Distinguished Lecturer, IEEE Communications Society, 2007-2008

Outstanding Electrical Engineering Professor, April 1999, the Graduate Student Council, School of Engineering and Applied Science, SMU.

IEEE Fellow, 1992, for contributions to the theory and practice of adaptive prediction and speech waveform coding.

1990 Frederick Emmons Terman Award, Electrical Engineering Division, American Society for Engineering Education, \$4,000.

Co-Recipient of the IEEE Signal Processing Society 1993 Senior Paper Award in Speech Processing.

One of 50 invited participants to the Colloquium on Information Theory: The First 50 Years and Beyond, Royal Academy of the Netherlands, June 17-19, 1998, Amsterdam.

Rated among the top 10 percent of the more than 200 short course instructors from industry, government, and academia who lectured for UCLA Extension in 1993/94.

The noise canceller in the Japanese half-rate digital cellular standard uses an algorithm from the paper, J. D. Gibson, et al, "Filtering of Colored Noise for Speech Enhancement and Coding, *IEEE Trans. on Signal Processing*, Vol. 39, Aug. 1991, pp. 1732-1742.

1986-1987 Dresser Industries Professor, Texas A&M University

1985-1986 Dresser Industries Professor, Texas A&M University

Senior TEES Research Fellow, 1985-1986, Texas Engineering Experiment Station, \$5,000. Research Award.

TEES Research Fellow, 1984 -1985, Texas Engineering Experiment Station, \$5,000. Research Award.

TEES Research Fellow, 1983-1984, Texas Engineering Experiment Station, \$5,000. Research Award.

## **PATENTS:**

U.S Patent: 6,650,762, Gibson, et al, issued November 18, 2003, Types-Based Lossy Data Embedding

## **PROFESSIONAL SERVICES:**

Member, 2009 IEEE Medal of Honor Selection Committee

Member, Best Paper Award Committee, IEEE Transactions on Multimedia, 2008

Member, IEEE Awards Committee, 2008

Member, IEEE Communications Society Awards Committee, 2007

Member, Board of Governors, IEEE Communications Society, 2005-2007

Member, Technical Committee on Personal Communications, Recognition Award Committee, 2005-2007

Member, Technical Program Committee, Forty-First Asilomar Conference on Signals, Systems, and Computers, Nov. 4-7, 2007

Member, Technical Program Committee, 1st Multimedia Communications Workshop, June 11, 2006, Istanbul, Turkey

Associate Editor, *IEEE Transactions on Information Forensics and Security*, IEEE Signal Processing Society, 2005-2006

Member, Prize Paper Award Committee, *IEEE Transactions on Multimedia*, 2003

Member, IEEE Communications Society Awards Committee, 2001-2003

Member, IEEE Hamming Medal Committee, 2001-2003

Member, Steering Committee, Wireless Communications and Networking Conference, IEEE Communications Society, 2000-2008

Conference Founder and First Technical Program Chair, IEEE Wireless Communications and Networking Conference, New Orleans, LA, Sept 21-25, 1999.

President, IEEE Information Theory Society, 1996.

Technical Program Chair, 1997 Asilomar Conf. On Signals, Systems & Computers, Monterey, CA.

Member, Information Theory Society Board of Governors, 1990-98.

First Vice-President, IEEE Information Theory Society, 1995.

Member, Speech Technical Committee, Signal Processing Society, 1992-95.

Member, Editorial Board, *Proceedings of the IEEE*, 1991-1996.

Second Vice-President, IEEE Information Theory Society, 1994.

Finance Chair, First IEEE International Conference on Image Processing, Nov 1994, Austin, TX.

General Co-Chairman (with Robert M. Gray), 1993 International Symposium on Information Theory, San Antonio, TX.

Associate Editor for Communications, *IEEE Trans. on Information Theory*, Oct 1988-1991.

Member, Technical Program Committee, 1995 IEEE Speech Coding Workshop, Annapolis, Maryland, 20-22 Sep 1995.

Member, Technical Program Committee, 28th Annual Asilomar Conference on Signals, Systems, and Computers, Pacific Grove, CA, 31 Oct - 2 Nov 1994.

Program Committee, "Speech Coding for the Network of the Future," IEEE Workshop on Speech Coding for Telecommunications, St. Jovite, Quebec, Canada, 13-15 Oct 1993.

Technical Program Committee, 1992 and 1993 IEEE International Workshop on Intelligent Signal Processing and Communication Systems, Taiwan, R.O.C.

Organizing Committee, 1992 IEEE Workshop on Visual Signal Processing and Communications, USA.

Program Committee, "Digital Voice for the Nineties," IEEE Workshop on Speech Coding for Telecommunications, Whistler, B.C., Canada, 11-13 Sep 1991.

Associate Editor for Speech Processing, *IEEE Trans. on Communications*, Nov 1981 - 1985.

Session Chair/Organizer for the sessions:

1. "Applied Source Coding," 1979 International Conference on Communications, Boston, MA, 10-14 Jun 1979.
2. "Data Compression Over Noisy Channels," 1980 National Telecommunications Conference, Houston, TX, 30 Nov - 4 Dec 1980.
3. "Error Control Coding," 1982 Global Communications Conference, Miami, FL, 29 Nov - 2 Dec 1982.
4. "Estimation and Control with Quantized Data," Twenty-Second Conference on Decision and Control, San Antonio, TX, 14-16 Dec 1983.
5. "Picture Processing Technologies for Communications in the VLSI Era," 1984 International Conference on Communications, Amsterdam, 14-17 May 1984.
6. "Estimation and Identification for Speech Processing," Invited Session, Seventh IFAC Symposium on Identification and Parameter Estimation, University of York, United Kingdom, 3-7 Jul 1985.
7. "Speech and Image Coding," Twenty-Ninth Midwest Symposium on Circuits and Systems, Lincoln, NE, 11-12 Aug 1986.
8. "Image Coding and Compression II," 1987 IEEE International Conf. on Acoustics, Speech, and Signal Processing, Dallas, TX, 6-9 Apr 1987.
9. "Source Coding of Speech and Video," 1987 IEEE International Conf. on Communications, Seattle, WA, 7-10 Jun 1987.
10. "Speech and Image Compression," Thirty-First Midwest Symposium on Circuits and Systems, St. Louis, MO, 10-12 Aug 1988.

11. "Adaptive Filters," Thirty-Second Midwest Symposium on Circuits and Systems, Urbana, IL, 14-16 Aug 1989.
12. "Speech Coding for Telecommunications," 1990 IEEE Global Telecommunications Conf. Dallas, TX, 27-29 Nov 1989.
13. "Source Coding II," 1990 IEEE International Symposium on Information Theory, San Diego, CA, 14-19 Jan 1990.
14. "Detection and Estimation VI," 1990 International Symposium on Information Theory and Its Applications, Honolulu, HI, 27 -30 Nov 1990.
15. "Quantization," 1991 IEEE International Symposium on Information Theory, Budapest, Hungary, 24-28 Jun 1991.
16. "Low Delay Speech Coding," IEEE Speech Coding Workshop, Whistler, B.C., Canada, 11-14 Sep 1991.
17. "Speech Coding at Rates Below 4 KB/S," 1993 IEEE International Conf. on Acoustics, Speech, and Signal Processing, Minneapolis, MN, 27-30 Apr 1993.
18. "Sensory Modeling and Analysis," Twenty-Eighth Annual Conference on Information Sciences and Systems, Princeton, NJ, 16-18 Mar 1994.
19. "Quantization Techniques," 1994 IEEE International Symposium on Information Theory, Trondheim, Norway, 27 Jun - 1 Jul 1994.
20. "Estimation," 1995 IEEE International Symposium on Information Theory, Whistler, B.C., Canada, 17-22 Sep 1995.
21. "Shannon Theory," 1996 IEEE International Symposium on Information Theory and Its Applications, Victoria, B.C., Canada, 17-20 Sep 1996.
22. "Information Theoretic Methods in Probability and Statistics," Shannon Lecture presented by Imré Csiszár, 1997 IEEE International Symposium on Information Theory, Ulm, Germany, 29 Jun - 4 Jul 1997.
23. "Source Coding Theory," 1998 IEEE International Symposium on Information Theory, MIT, Cambridge, MA, 16-21 Aug 1998.
24. "Future Directions in Wireless Communications," Plenary Session, 1999 IEEE Wireless Communications and Networking Conference, New Orleans, LA, 22-24 Sep 1999.
25. "Signal Processing," 2000 IEEE Emerging Technologies Symposium on Broadband, Wireless, Internet Access, Richardson, TX, 10-11 Apr 2000.
26. "DSP Plenary I," Presentation by Tom Engibous, President and CEO of TI, Ninth IEEE DSP Workshop and the First DSP Education Workshop, Hunt, TX, 15-18 Oct 2000.
27. "DSP for Communications II," Ninth IEEE DSP Workshop and the First DSP Education Workshop, Hunt, TX, 15-18 Oct 2000.

28. "Information Hiding and Watermarking," Thirty-Ninth Allerton Conference on Communication, Control, and Computing, University of Illinois at Champaign-Urbana, Allerton House, Monticello, Illinois, 3-5 Oct 2001.
29. "Watermarking," Fortieth Allerton Conference on Communication, Control, and Computing, University of Illinois at Champaign-Urbana, Allerton House, Monticello, Illinois, 3-5 Oct 2002.
30. "Speech Coding," 37th Asilomar Conference on Signals, Systems, and Computers, Pacific Grove, CA, 9-12 Nov 2003.
31. "Joint Source/Channel Coding," First International Symposium on Control, Communications, and Signal Processing, Hammamet, Tunisia, 21-24 March 2004.
32. "Speech and Audio Coding," 38th Asilomar Conference on Signals, Systems, and Computers, Pacific Grove, CA, 7-10 Nov 2004.
33. "Video and Applications," 39th Asilomar Conference on Signals, Systems, and Computers, Pacific Grove, CA, 30 Oct-1 Nov 2005.
34. "Multimedia over Wireless," International Wireless Communications and Mobile Computing Conference, Vancouver, B. C., Canada, 3-6 July, 2006.
35. "Multimedia QoS Support," IEEE Wireless Communications and Networking Conference, Las Vegas, NV, 31 March-3 April, 2008.

Reviewer for: *IEEE Trans. on Communications, IEEE Trans. on Information Theory, IEEE Trans. on Signal Processing, IEEE Trans. on Speech and Audio Processing, IEEE Trans. on Image Processing*, National Science Foundation

## **COMMITTEE MEMBERSHIPS:**

### University of California, Santa Barbara

Chair, Advisory for Faculty Recruitment and Diversity Committee, Electrical and Computer Engineering, 2008-2009

Member, Web Advisory Committee, Electrical and Computer Engineering, 2008-2009

Member, Advisory for Merits and Promotions Committee, Electrical and Computer Engineering, 2008-2009

Co-chair, Lecture Series Committee, Media Arts and Technology, 2008-2009

Member, External Affairs Committee, Electrical and Computer Engineering, 2007-2008

Member, ECE Graduate Affairs, Admissions Subcommittee, 2007-2008

Representative to the UCSB Faculty Legislature, Media Arts & Technology Program, 2007-2008

Co-Chair, Facilities and Technical Infrastructure Committee, Media Arts & Technology Program, 2007-2008

Member, Strategic Planning and Development Committee, Media Arts & Technology Program, 2007-2008

Chair, CCSP Faculty Search Committee, Electrical and Computer Engineering Department, 2006-2007

Co-Chair, CIO Search Committee, UCSB, 2005-2007

Member, MSO Selection Committee, Electrical and Computer Engineering Department, 2006

Chair, Advisory Committee for Faculty Recruitment & Diversity, Electrical and Computer Engineering Department, 2006-2007

Member, MSO Selection Committee, Media Arts & Technology Program, 2005

Member, Undergraduate Curriculum Committee, Electrical & Computer Engineering, 2005-2006

Member, Admissions Committee, Media Arts & Technology Program, 2002-Present

Member, Curriculum Committee, Media Arts & Technology Program, 2002-Present

Member, Infrastructure/Space Committee, Media Arts & Technology Program, 2002-Present

### Professional

Chair, Electrical and Computer Engineering Department Academic Program Review Committee, University of Arizona, Spring 2001.

Multimedia Communications Technical Committee, IEEE Communications Society, 2006

Personal Communications Technical Committee, IEEE Communications Society, 1997 - Present

Data Communication Systems Technical Committee, IEEE Communications Society, 1978 - Present.

Signal Processing and Electronics Technical Committee, IEEE Communications Society, 1981 - Present.

### Southern Methodist University

Jerry R. Junkins' Building Oversight Committee, 1998-2002

Jerry R. Junkins' Building Users Committee, Chairman, 1998-2002

Benchmarking Committee, University-wide, 1998

Research Policy Committee, University-wide, 1998-2000

## **RECENT TALKS:**

Invited Participant, Panel on "Wireless Multimedia Communications," Wireless Communications and Networking Conference, Las Vegas, NV, April 1, 2008.

"Information Transmission over Single and 2X2 MIMO Channels," SMU, Dallas, TX, March 26, 2008.

"Voice and Video over Wireless Networks," Engineering Science Lecture Series, Sonoma State University, Sonoma, CA, Feb. 21, 2008.

"Voice and Video over Wireless Networks," Wireless Networking and Communications Seminar Series, Dept. of Electrical and Computer Engineering, University of Texas, Austin, TX, Sept. 20, 2007.

"Voice and Video over Wireless Networks," IEEE Communications Society Distinguished Lecture, National Instruments, Austin, TX, Sept. 20, 2007.

"Voice and Video over Wireless Networks," IEEE Communications Society Distinguished Lecture, Clear Lake-NASA, Sept. 19, 2007.

"Tandem Voice Communications," IEEE Communications Society Distinguished Lecture, Richardson, TX, Sept. 18, 2007.

"Voice and Video over Wireless Networks," NTTDoCoMo, San Jose, CA, March 17, 2006.

"Voice and Video over Wireless Networks," Intel Corp., Hillsboro, OR, Feb. 7, 2006.

"Voice and Video over Wireless Networks," Nokia Research Center, San Diego, CA, Jan. 11, 2006.

"Wide Open Spaces or Mostly Wireless, Most of the Time," Plenary Talk, 62nd IEEE Vehicular Technology Conference, Dallas, TX, Sept. 28, 2005

"VoIP, Voice over Wireless LANs, and Digital Cellular," Nokia Research Center, San Diego, CA, Jan. 5, 2005.

"Data Embedding Using the Method of Types," NTTDoCoMo Labs, San Jose, CA, May 4, 2004.

"Voice Communications over Tandem Networks," Electrical and Computer Engineering Department, Oklahoma State University, April 16, 2004.

"Voice Communications over Tandem Networks," Department of Electrical Engineering, University of Oklahoma, April 15, 2004.

"Multimedia Over Networks: Key Issues and (a Few) Answers," Department of Electrical and Computer Engineering, University of Miami, December 5, 2003.

"Video and Audio Coding in the Signal Compression Lab at UCSB," Qualcomm, Inc., San Diego, CA, October 22, 2003.

"Data Embedding Using the Method of Types," Dolby, Inc., San Francisco, CA, August 27, 2003.

"Universal Receivers and Data Embedding," Department of Electrical and Computer Engineering, University of California, Santa Barbara, October 29, 2001.

"Universal Classification, the Method of Types, and Data Embedding," Department of Electrical and Computer Engineering, University of California, San Diego, October 19, 2001.

"Research Directions and Standards in Speech Coding," Department of Electrical Engineering, Texas A&M University, College Station, Texas, September 25, 2001.

"The Next New Thing in (Tele)Communications," Graduate Student Reception, School of Engineering, Southern Methodist University, Plano Centre, Plano, Texas, August 19, 2001.

"Universal Successive Refinement of CELP Speech Coders," Nowlin Distinguished Lecture Series in Telecommunications, Department of Electrical Engineering, University of Texas at Austin, Austin, Texas, March 8, 2001.

"Randomization and Whitening in Lossy Source Coding," HP Labs, June 22, 2000, Palo Alto, CA.

"Compressed Multimedia Over Wireless Networks," Fort Worth Section, IEEE Communications Society, Motorola Cellular, Oct. 20, 1999, Fort Worth, TX.

"Strategies for Compressed Multimedia in Wireless Networks," Nortel Wireless Forum, poster presentation, Oct. 18, 1999, Richardson, TX.

"Multiple Descriptions and Error Concealment for Image Coding," Dept. of Electrical Engineering, University of Nebraska-Lincoln, 7 May 1999, Lincoln, NE.

Panel on Wireless Communications, J. D. Gibson, T. Rappaport, A. J. Paulraj, H. Sobol, V. Prabhu, and R. Prakash, 1999 Emerging Technologies Symposium, April 12-13, 1999, Richardson, Texas.

"Multimedia Communications Over Low Rate Wireless Channels," IEEE Region 5 Meeting, TechCon '98, April 17, 1998, Fort Worth, TX.

"Multimedia Communications Over Networks," Dept. of Electrical Engineering, Southern Methodist University, Feb. 1997, Dallas, TX.

"Scalable Video Coding and Successive Refinement of Information," University of Nebraska -Lincoln, 8 Nov 1996.

"Multimedia Communications over Networks," Bogazici University, Istanbul, Turkey, 14 Jun 1996.

“Multimedia Compression and DSP,” University of Strathclyde, Glasgow, Scotland, 3 Jun 1996.

“Multimedia Communications over Networks,” University of West England, Bristol, England, 31 May 1996.

“Multimedia Communications over Networks,” School of Electrical Engineering, Cornell University, Ithaca, NY, 17 Jan 1996.

“Data, Voice, and Video Over Circuit-Switched, Packet-Switched and Wireless Networks,” Advanced Micro Devices, Sunnyvale, CA, 3 Nov 1995.

“Layered Coding of H.261 Video and Low Complexity Multiresolution Video Coding Over the Internet,” Hewlett-Packard, Palo Alto, CA, 2 Nov 1995.

“Speech Coding,” Department of Electrical Engineering, University of California-Los Angeles, 8 Aug 1995.

“Layered Coding of H.261 Video,” Department of Electrical Engineering, Duke University, 6 Mar 1995.

“Variable Rate Speech Coding,” Department of Electrical Engineering, University of Nebraska-Lincoln, 6 Oct 1994.

“Speech Coding,” Motorola-Austin, 31 Aug 1994.

“Multimedia Communications and Networking,” AMD - Austin, TX, 21 Jan 1994.

“Why the Academy?” A Seminar in University Research and Teaching (ASURT), 26 Oct 1993.

“Progressive Encoding and Successive Refinement: Who Cares?” PictureTel Corp., Peabody, MA, 8 Oct 1993.

“Code Generators for Tree Coding of Speech,” Information Systems Laboratory, Stanford University, 27 May 1993.

“Progressive Encoding of Images and Successive Refinement of Information,” Department of Electrical Engineering, Rice University, 7 Apr 1993.

## **SHORT COURSES:**

“Multimedia Compression: Principles, Applications, and Standards,” UCLA Extension, 8-11 Aug 1995, 6-8 Aug 1996, 20-22 Aug 1996 (at Motorola), and 6-9 May 1997 (at NSA). Course Coordinator and Lecturer.

“Multimedia Data Compression,” Imperial College, London, England, 28-30 Jun 1995. Course Coordinator and Lecturer.

“Digital Transmission for Multimedia and the Information Superhighway,” UCLA Extension, 8-10 Aug 1994. Course Coordinator and Lecturer.

“Data, Speech, Image, and Video Compression: Principles, Applications, and Standards,” UCLA Extension, 6-10 Jan 1992; 17-21 Aug 1992; 9-13 Nov 1992; 4-8 Jan 1993; 9-13 Aug 1993; 10-14 Jan 1994; 25-27 May 1994; 10-12 Aug 1994: Course Coordinator and Lecturer.

“Speech Coding and the Digital Cellular Standard,” BNR, Inc., 18 Apr 1990, Lecturer.

“Digital Communications,” TCSP Research Center, Texas A&M University, 10-12 Apr 1989, Course Coordinator and Lecturer.

“Digital Processing and Coding of Speech and Images,” UCLA Extension, 27-31 Jul 1981, Contributor, 2 days, 200 pages of notes, 205 transparencies.

“Digital Processing of Speech and Images,” UCLA Extension, 26-30 Jul 1982, Lecturer, 2 days, 200+ pages of notes, 200+ transparencies.

### **CURRENT RESEARCH SUPPORT:**

Principal Investigator, "Speech Coding for Universal Voice Communications," October 1, 2007-September 30, 2010, \$373,000

Co-Principal Investigator, "Efficient Compression and Processing of Audio and Video Signals," Applied Signal Technology, Dolby Laboratories and Qualcomm, August 17, 2006-December 31, 2009, \$144,054

Co-Principal Investigator, "Efficient Compression and Processing of Audio and Video Signals," Applied Signal Technology, Dolby Laboratories and Qualcomm, August 24, 2007-December 31, 2010, \$207,175

Co-Principal Investigator, "Efficient Compression and Processing of Audio and Video Signals," August 1, 2008-December 31, 2009, \$235,000

Co-Principal Investigator, "Efficient Compression and Processing of Audio and Video Signals," UC Micro, January 1, 2008-December 31, 2008, \$217,000.

### **PREVIOUS RESEARCH SUPPORT:**

Co-Principal Investigator, "Efficient Compression and Processing of Audio and Video Signals," Applied Signal Technology, Dolby Laboratories and Qualcomm, August 11, 2004-December 31, 2008, \$76,584

Co-Principal Investigator, "Efficient Compression and Processing of Audio and Video Signals," Applied Signal Technology, Dolby Laboratories and Qualcomm, September 9, 2005-December 31, 2008, \$91,491

Co-Principal Investigator, "Efficient Compression and Processing of Audio and Video Signals," UC Micro, January 1, 2007-December 31, 2007, \$100,000.

Principal Investigator, "Voice Communications over Tandem Networks," National Science Foundation, September 1, 2004-August 31, 2008, \$240,000.

Co-Principal Investigator, "Real Time Communication Support in an Ubiquitous Next-Generation Internet," National Science Foundation, September 1, 2004-August 31, 2008, \$900,000.

Co-Principal Investigator, "Efficient Compression and Processing of Audio and Video Signals," UC Micro, January 1, 2006-December 31, 2006, \$125,000.

Principal Investigator, "Cross Layer Designs for Voice over Wi-Fi Links in a Multi-Hop Network," UC Discovery Program/Nokia, May 17, 2005-May 16, 2006, \$86,261.79.

Principal Investigator, "Tandem Voice Communications," Nokia Research Center, July 31, 2004-June 15, 2005, \$50,000.

Co-Principal Investigator, "Efficient Compression and Processing of Audio and Video Signals," UC Micro, January 1, 2005-December 31, 2005, \$125,000.

Co-Principal Investigator, "Efficient Compression and Processing of Audio and Video Signals," UC Micro, January 1, 2004-December 31, 2004, \$140,000.

Principal Investigator, "Spectral Entropy and Adaptive, Lossy Source Coding," National Science Foundation, January 1, 2001-December 31, 2003, \$339,063.

Co-Principal Investigator, "Physical Layer Performance in 802.11a for Wireless LAN's," Nokia Research Center, January 1-December 31, 2002, \$67,584.

Co-Principal Investigator, "Optimal and Variable Bit Allocation in OFDM," Jan. 1, 2001-Dec. 31, 2001, \$121,143.

Principal Investigator, "30 kHz AMR," Nokia Mobile Phones, Dec. 1, 2000-May 31, 2002, \$105,606.

Principal Investigator, "Data Embedding, the Method of Types, and Universal Receivers," National Science Foundation, September 1, 2000-August 31, 2001, \$47,161.

Principal Investigator, "Space-Time Codes for Broadband Wireless," Advanced Micro Devices, Jan 1- Dec 31, 2000, \$35,536.

Co-Principal Investigator, "Physical Layer Performance in Draft 802.11a for Wireless LANs," Nokia Research Center USA, Jan 1-Dec 31, 2000, \$99,995.

Principal Investigator, "Broadband Networks and Applications," On Command, Inc., 1 Jul 1999 - 31 Dec 2000, \$50,000.

Principal Investigator, "Quality of Service in Multimedia Communications: Infrastructure and Research," Texas Instruments, Inc., Jan. 1, 1998- Dec. 31, 2000, \$200,000.

Principal Investigator, "Reduced Complexity Tree Coding of Speech in the Presence of Background Impairments," NSF, Sep 1996-28 Feb 2000, \$245,735.

Principal Investigator, "Dynamically Variable Rate Speech Coding," National Science Foundation, 1 Jun 1993 - 31 Aug 1996, \$229,655.

Co-Principal Investigator, "Telecommunications Networks for Interactive Multimedia: Wideband to Wireless," Texas Advanced Technology Program, 1 Jan 1994 - 31 Aug 1996, \$207,586.

Co-Principal Investigator, "A New Method for Speech Segmentation," Texas A&M University Interdisciplinary Research Initiative, 1 May 1996 - 30 Apr 1997, \$24,927.50.

Principal Investigator, "Pyramidal Video, Wideband Audio, and Coding for Robustness to Packet Loss for CU-SeeMe," NSF/Cornell, 1 Jan 1996 - 30 Nov 1996, \$46,375.

Principal Investigator, "Low Complexity 8 kbits/s Packet Voice for Videoconferencing," NSF/Cornell, 1 May 1995 - 31 Aug 1996, \$39,702.

Co-Principal Investigator, "Parametric Filtering for Speech Analysis and Recognition," Texas Instruments, 1 Feb 1995 - 31 May 1997, \$20,000.

Co-Principal Investigator, "Servers for Multimedia Access in Manufacturing," Program for Automation in Manufacturing (Compaq), 1 Sep 1993 - 31 August 1995, \$54,000.

Principal Investigator, "Variable Rate Speech Coding," Motorola - Austin, 1 Jun 1993 -31 May 1995, \$35,000 (gift funds).

Principal Investigator, "Data Compression," Advanced Micro Devices, \$2,000.

Co-Principal Investigator, "Multiple Descriptions Source Codes with Applications to Packetized Speech," National Science Foundation, 15 Jul 1991 - 31 Dec 1993, \$226,548.

Principal Investigator, "Speech Coding Research," BNR, Inc., Sep 1991 - Aug 1993, \$50,000 (gift funds).

Principal Investigator, "Multi-Tree Coding of Speech," National Science Foundation, 1 Jun 1990 - 30 Nov 1992, \$132,388.

Principal Investigator, "Speech Coding and Digital Communications," BNR, Inc., Oct. 1988 - Sep. 1991, \$150,000.

Principal Investigator, "Reduced Complexity Speech Coding," Texas Instruments, Inc., Jun 1988, \$18,000.

Principal Investigator, "Studies in Speech and Image Coding and Digital Communications," Tellabs, Inc., South Bend, IN, Jun, 1985, \$10,000; Apr 1986, \$5,000; Mar 1987, \$7,500; May 1988, \$7,000; Jul 1989, \$7,000.

Principal Investigator, "Research in Digital Signal Processing," Lockheed, Inc., Austin, TX, Jun 1989, \$3,000.

Principal Investigator, "Speech Coding at 4 to 16 kbits/s," BNR, Inc., Jan 1988, \$8,351.

Principal Investigator, "Non-Real Time Compression of Voice Signals," VMX, Inc., 15 Jan 1987 - 14 Jan 1988, \$53,238.

Principal Investigator, "Speech Coding and Digital Switching," Northern Telecomm Inc., Richardson, TX, Mar 1985, \$18,000.

Co-Principal Investigator, "Studies in Signal Processing," VMX, Inc., 1 Jun 1986 - 15 Jan 1987, \$19,803.

Principal Investigator, "Data Compression of Intermittently Excited AR, ARMA, and MA Processes," Office of Naval Research, Statistics and Probability Program, 1 Oct 1983 - 30 Sep 1986, \$105,000.

Co-Principal Investigator, "Alphabet-Constrained Data Compression," Air Force Office of Scientific Research, Mathematical Sciences Division, Oct 1983 - Sep 1984, \$66,250.

Co-Principal Investigator, "Digital Signal Processing/Communications Equipment," National Science Foundation, 15 Jul 1983 - 31 Dec 1984, \$40,000.

Principal Investigator, "Abstract Methods in Communication Theory," E-Systems, Inc., Dallas, TX, Sep 1983 - May 1984, \$31,756.

Principal Investigator, "Sequential Adaptive Noise Spectral Shaping and Backward Adaptive Prediction for Differential Encoding Systems," Electrical and Optical Communications Program, National Science Foundation, 1 Jun 1981 - 30 Nov 1983, \$60,000.

Principal Investigator, "Research in Digital Telephony," Fairchild Corp., Palo Alto, CA, 1 Sep 1981 - 31 Aug 1982, \$12,000.

Principal Investigator, "Adaptive Coders for Nonstationary Autoregressive Sources," Office of Naval Research, Statistics and Probability Program, 1 Jan 1981 - 30 Sep 1983, \$86,634.

Co-Principal Investigator, "Bit Weighting and Soft Decision Demodulation for Image Compression Error Control," Wright-Patterson Air Force Base, OH, 12 May 1980 - 30 Jun 1982, \$125,000.

Principal Investigator, "Adaptive Prediction in Differential Pulse Code Modulation Systems," National Science Foundation, Electrical and Optical Communications Program, 15 Jun 1978 - 15 Jun 1980, \$50,000.

Principal Investigator, "Speech Digitization Using Fixed-lag Smoothing," National Science Foundation, Research Initiation Grant, 1 Apr 1975 - 31 Jul 1976, \$17,000.

#### **OTHER SUPPORT:**

Lead Professor, "Master's Program in DSP with Applications to Wireless Communications and Multimedia," 1 Jun 1995 - 31 Aug 1997, Texas Instruments, Inc., \$40,000 (equipment) plus \$230,000.

Principal Investigator, "Electrical Engineering Teaching Video and Handbook," Center for Teaching Excellence, Texas A&M University, 1 Jul 1993 - 31 Mar 1994, \$2,753.

**POSTDOCTORAL SCHOLARS SUPERVISED:**

H. Dong (Joint with A. Gersho), September 2003-March 2004.

A. Servetti, March 2003-October 2003, Politecnico di Torino, Italy

**OTHER STUDENTS SUPERVISED:**

M. Zoffoli, M.S. Student, visiting from University of Bologna, Italy, Oct. 2007-June 2008

M. Nystrom, Visiting Ph. D. Student, Lund University, Sweden, Spring and Oct. 2007

J. McAllister, NSF REU student, Summer 2005.

L. Villareal, NSF GRIP student, Summer 2005

C. Soriano, CAMP student, Summer 2004

**CURRENT GRADUATE STUDENTS:**

Y. Liao, Ph. D. Student

M. Bhaskaranand, Ph.D. Student

A. Gopalan, M.S. Student

S. Mangiat, M.S. Student

M. Manohara, M.S. Student

P. Ramadas, M.S. Student

J. Villegas, Ph.D. Student

**GRADUATE STUDENTS SUPERVISED:**

J. Hu, Ph. D., December 2007. "Fundamental Limits in Video Compression and Video Communications"

S. Choudhury, Ph. D., December 2007. Dissertation: "Link Adaptation and Cross Layer Design for Multimedia Communications"

N. Shetty, Ph. D., December 2007. "Tandeming in Multihop Voice Communications"

J. Balam, Ph. D., December 2007. "Multiple Description Coding for Voice Communications over Mobile Ad-Hoc Networks"

W. Bo, Ph. D., December 2005. Dissertation: "Voice Communications over Two-Hop Tandem Networks"

J. Jung, Ph. D., December 2005. Dissertation: "Signal Representations and Spectral Entropy"

J. Yue, Ph. D., May 2005. Dissertation: "Detection and Channel Estimation for MIMO-OFDM Wireless Communications"

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