

NAME: Michael J.M. Raffin

EDUCATION:

Year	Degree	Major	Institution
1967	B.A.	French	California State College at Los Angeles Los Angeles, CA
1972	M.A. (eq.)	Audiology & Speech Pathology	California State University at Los Angeles Los Angeles, CA
1976	Ph.D.	Audiology	University of Iowa Iowa City, IA

LICENSURE AND CERTIFICATION:

- 1977 Certificate of Clinical Competence in Audiology (CCC-A), American Speech-Language & Hearing Association (#2-75-404).
- 1978 Occupational Hearing-Conservation Course Director, Council for Accreditation in Occupational Hearing Conservation (#507).
- 1993 Licensed Audiologist, Department of Professional Regulations, State of Illinois (#147-000810).
- 2006 Certified Professional Supervisor of Hearing Conservation Program, Council for Accreditation in Occupational Hearing Conservation (#456006).

ACADEMIC APPOINTMENTS:

- 1976 - 1979 Assistant Professor (Audiology), Northwestern University, Evanston, IL.
- 1979 - 1982 Assistant Professor (Audiology), University of Montana, Missoula, MT.
- 1982 - 1984 Associate Professor (Audiology), University of Montana, Missoula, MT.
- 1985 - 1986 Adjunct Professor of Audiology, University of South Carolina, Columbia, SC.
- 1988 - 1989 Assistant Professor of Otolaryngology, Harvard University Medical School, Boston, MA.
- 1989 - 1993 Professor of Audiology (part-time), California State University at Northridge, Northridge, CA.
- 1993 - 2000 Assistant Professor of Otolaryngology, Loyola University Medical Center, Maywood, IL.
- 2000 - present Associate Professor of Otolaryngology, Loyola University Medical Center, Maywood, IL.
- 2005 - Complemental Faculty, Department of Communication Disorders and Sciences, Rush University Medical Center, Chicago, IL.
- 2006 - Adjunct Instructor, Department of Communicative Disorders, University of Northern Illinois, De Kalb, IL.

HOSPITAL APPOINTMENTS:

- 1984 - 1986 Audiology Clinic Coordinator, W.J.B. Dorn Veterans' Hospital, Columbia, SC.
- 1986 - 1987 Clinical Associate, Massachusetts Eye & Ear Infirmary, Boston, MA.
- 1987 - 1989 Director, Audiology Clinic Service, Massachusetts Eye & Ear Infirmary, Boston, MA.
- 1988 - 1989 Director, Hearing-Aid Center, Massachusetts Eye & Ear Infirmary, Boston, MA.

- 1991 - 1993 Director, Department of Audiology & Neurodiagnostics, Saint Joseph Medical Center (upon acquisition of Medicorp, Inc.), Burbank, CA.
- 1996 - 2000 Manager, Ophthalmology Consult Room, Loyola University Medical Center, Maywood, IL.
- 1995 - 2001 Manager, ENT Consult Room, Loyola University Medical Center, Maywood, IL.
- 1993 - present Director, Department of Audiology, Loyola University Medical Center, Maywood, IL.
- 2000 - present Director, Balance Center, Loyola University Outpatient Center, Oakbrook Terrace, IL.
- 2003 - present Director, Hearing Center (Hearing aids and implants), Loyola University Outpatient Center, Oakbrook Terrace, IL.

AWARDS AND HONORS:

- 1967 - 1969 Army Commendation Medal, Combat Infantry Badge, Purple Heart, Bronze Star, Silver Star, Cross of Gallantry.
- 1982 Academic Tenure, University of Montana.
- 1983 - 1989,
- 1995-2005 ACE (1983, 1986, 1989, 1992, 1995, 1998, 2000, 2002, 2005, 2006 Three-year Award for Continuing Education), American Speech-Language & Hearing Association.
- 2005 Freedom Team Certificate of Appreciation (Secretary of the Army & US Army Chief of Staff).

MEMBERSHIPS (OFFICES & COMMITTEE ASSIGNMENTS) IN PROFESSIONAL SOCIETIES:

- 1977 - American Auditory Society.
- 1975 - American Speech-Language & Hearing Association (Council of State Association Presidents, 1981 - 1982; Audiologic Standards Committee, 1980 - 1987).
- 1976 - 1989,
- 1991 - International Society of Audiology.
- 1977 - Acoustical Society of America.
- 1988 - Association for Research in Otolaryngology.
- 1990 - Prosper Ménière Society.
- 1988 - 1990,
- 1993 - American Academy of Audiology (Fellow).
- 1976 - 1979,
- 1993 - Chicago Speech & Hearing Association (Member-at-Large, 1979; Nominations Committee, 1979; Program Committee, 1978 - 1979).
- 1976 - 1979,
- 1993 - Illinois Speech & Hearing Association (Program Committee, 1977).
- 1995 - The Society for Ear, Nose & Throat Advances in Children (Fellow).
- 1997 - Illinois Academy of Audiology
- 2003 - Association for the Advancement of Science.

MAJOR RESEARCH INTERESTS:

1. Development of paradigms for screening word recognition ability.
2. Applications of computer technology to clinical patient management.
3. Development of paradigms for improved cost-efficient clinical procedures.
4. Development of software for clinical uses.

BIBLIOGRAPHY:

Presentations while at present employment site:

- Raffin, M.J.M., Hansen, J.M. & Sinclair, J.S., (1992). Enhanced ECoChG and Ménière's Disease: Clinical fantasy in dehydration. Paper presented at the Annual Convention of the American Speech-Language-Hearing Association, San Antonio, TX, 23 November 1992.
- Raffin, M.J.M., (1994). Hearing Measurement. Presentation to the Acoustic Neuroma Association meeting, Maywood, IL, 14 May 1994.
- Hotaling, A.J., Blank, C.R., Park, A.H., Matz, G.J., Yost, W.A. & Raffin, M.J.M. (1994): Distortion-Product Otoacoustic Non-Emissions. Paper presented at the 20th. Annual Convention of the American Auditory Society and the International Society of Audiology, Halifax, Nova Scotia, Canada, 3 July 1994.
- Anderson, D.E., Leonetti, J.P. & Raffin, M.J.M., (1994). Problems in direct Eighth Cranial Nerve monitoring during hearing preservation acoustic-tumor surgery. Poster Session presented at the Congress of Neurological Surgeons, Chicago, IL, 3 October 1994.
- Hotaling, A.J., Blank, C.R., Park, A.H., Yost, W.A., Matz, G.J. and Raffin, M.J.M. (1994): Distortion-Product Masquerades of Emissions. Poster session presented at the Annual Convention of the American Speech-Language-Hearing Association Convention, New Orleans, LA, 19 November 1994.
- Feiner, M.V., Hotaling, A.J., Pardue, K.M., Matz, G.J. and Raffin, M.J.M. (1994): Universal Newborn Hearing Screening: Applications in the NICU. Short Course "*Universal Newborn Hearing Screening: Meeting the Challenge*" presented at the Annual Convention of the American Speech-Language-Hearing Association Convention, New Orleans, LA, 19 November 1994.
- Feiner, M.V., Pardue, K.M., Raffin, M.J.M. and Hotaling, A.J. (1994): Evolution of a Universal Neonatal Intensive Care Hearing Screening Program. Paper presented at the Annual Meeting of the Society for Ear, Nose and Throat Advancements in Children, Sacramento, CA, 4 December 1994.
- Raffin, M.J.M. (1994): Newborn Hearing Screening: Expected outcomes and cost effectiveness. Presentation in association with the national teleconference of the American Speech-Language-Hearing Association on "*Universal Newborn Hearing Screening*", Sertoma Speech and Hearing Services, Oak Lawn, IL, 16 December 1994.
- Raffin, M.J.M., Downs, M., Berlin, C.E. & Bess, Fred A. (1995): Should we try to identify every baby with a hearing loss? - The Great Debate. Presentation at the Annual Winter Convention of the Illinois Academy of Audiology, Chicago, IL, 26 January 1995.
- Anderson, Douglas E., Leonetti, J.P. & Raffin, M.J.M. (1995): Problems in direct eighth nerve monitoring during hearing preservation acoustic tumor surgery. Poster presented at the Sixth Annual Meeting of the North American Skull Base Society, Naples, FL, 18 through 21 February 1995.
- Leonetti, J.P., Blank, C.R., Anderson, D.E., Fowles, S.J., Broeker, M.L., Nickels, J.K. & Raffin, M.J.M. (1995): Objective criteria for hearing preservation in acoustic-schwannoma surgery. Paper presented at the Sixth Annual Meeting of the North American Skull Base Society, Naples, FL, 21 February 1995.

- Raffin, M.J.M., Blank, C.R. & Hotaling, A.J. (1995): Criteria for Distortion-Product Otoacoustic Emissions (DPOAE). Short Course taught at the Seventh Annual Convention of the American Academy of Audiology, Dallas, TX, 30 March 1995.
- Leonetti, J.P. & Raffin, M.J.M. (1995): Dizziness, Hearing Loss and Hearing Aids. Paper presented at the Symposium on What You Need to Know About the Primary Care of the Ear, Nose and Throat., Loyola University Medical Center, Maywood, IL, 5 April 1995.
- Blank, Candace R., Broeker, M.L. & Raffin, M.J.M. (1995): Aspects of hearing loss and personal amplification devices. Conference held for the Stan Mikita Camp, Glenview, IL, 15 June 1995.
- Feiner, M.V., Pardue, K.M., Raffin, M.J.M. & Matz, G.J. (1995): Paper presented at the National Symposium on Hearing in Infants, Vail, CO, 10 August 1995.
- Feiner, M.V., Hotaling, A.J., Pardue, K.M., Matz, G.J., Wachter, B.G. & Raffin, M.J.M. (1996): Otoacoustic emissions: Some observations and applications. Seminar presented at the Inaugural Annual Convention of the Puerto Rico Academy of Audiology, San Juan, PR, 3 February 1996.
- Feiner, M.V., Broeker, M.L., Allen, S., Leonetti, J.P. & Raffin, M.J.M. (1996): What do I do after surgery? Program for the Annual Convention of the Acoustic Neuroma Association - Illinois Chapter, Maywood, IL, 16 November 1996.
- Hotaling, A.J., Raffin, M.J.M., Matz, G.J., Park, A.H., & Blank, C.R. (1997): Documented Otoacoustic non-Emissions (Done). Program for the Annual Convention of the Society for Ear, Nose and Throat, St. Petersburg Beach, FL, 5 December 1997, Page 9.
- Raffin, M.J.M. & Hotaling, A.J. (1998): Current developments and updates in Speech Pathology and Audiology. Loyola University Medical Center, Maywood, IL, 9 May 1998.
- Raffin, M.J.M., Nouri, F.J., Leonetti, J.P., Anderson, D.E., & Matz, G.J. (1998): Analysis of pure-tone threshold differences. Presented at the Annual Convention of the American Speech-Language-Hearing Association, San Antonio, TX, 19-22 November 1998.
- Raffin, M.J.M., Nouri, F.J., Leonetti, J.P., Anderson, D.E. & Matz, G.J. (1999): Outcome Measures in Hearing Preservation and Conservation. Presented at the 10th. Annual Meeting of the North American Skull Base Society, Chicago, IL, 29 May 1999.
- Raffin, M.J.M.(2000) : Uncommon Causes for Common Presenting Symptoms: Dizziness. Presented at the Loyola Center for Cranial Base Surgery Symposium, Maywood, IL, 23 March 2000.
- Raffin, M.J.M.(2003): Hearing Preservation and Rehabilitation in Acoustic Neuroma Surgery. Presented at the Annual Convention of the Illinois Academy of Audiology, Chicago, IL, 24 January 2003.
- Raffin, M.J.M. (2003): Tinnitus. Presented at the Annual Audiology and Otolaryngology Update. Maywood, IL, 14 May 2003.
- Massey, B.L., Park, A.H. & Raffin, M.J.M. (2003): Biocompatibility Evaluation of Bioresorbable PE Tubes in a Guinea-Pig Model.. Presented at the Annual Meeting of the AAO-HNSF & Oto. Expo. Orlando, FL, 23 September 2003.

- Raffin, M.J.M. & Glowka, R. (2003): Simplistic Aspects of the ABR: Manifestations of COS (some Thoughts on Current Thinking and Developing Developments). Presented at the Annual Convention of the Montana Speech-Language-Hearing Association, Butte, MT, 17 October 2003.
- Raffin, M.J.M. Leonetti, J.P., & Anderson, D.E. (2003): ABR: Intra-Operative Applications. Presented at the Annual Convention of the Montana Speech-Language-Hearing Association, Butte, MT, 17 October 2003.
- Raffin, M.J.M. & Sinclair, J.S. (2003): Quantitative Bases for Audiological Interpretation: Prologue to Pure-Tone Audiometry. Presented at the Annual Convention of the Montana Speech-Language-Hearing Association, Butte, MT, 17 October 2003.
- Raffin, M.J.M., Nourie, F.J., Leonetti, J.P., Anderson, D.E. & Sinclair, J.S. (2003): Quantitative Methods in the Analysis of Pure-Tone Audiometry. Presented at the Annual Convention of the Montana Speech-Language-Hearing Association, Butte, MT, 17 October 2003.
- Raffin, M.J.M. , Leonetti, J.P. & Marzo, S.J. (2003): Treatise on Tinnitus. Presented at the Annual Convention of the Montana Speech-Language-Hearing Association, Butte, MT, 17 October 2003.
- Herr, BD, Raffin, MJM, Leonetti, JP & Anderson, DE (2004): Intraoperative Auditory Brainstem Response in the Removal of Cerebellopontine Angle Tumors. Paper presented at the (and winner of the 2004) Annual Girgiss Medical Research Competition, Chicago, IL (22 March2004).
- Raffin, M.J.M. (2003): Current Hearing-Aid Technology. Presented at the Annual Audiology and Otolaryngology Update: New Treatments for Sensorineural Hearing Loss. Maywood, IL, 5 May 2004.
- Herr, BD, Raffin, MJM, Leonetti, JP & Anderson, DE (2004): Hearing Preservation and Conservation following the Romoval of Cerebellopontine Angle Tumors. Paper presented at the Meeting of the Chicago Laryngological and Otological Society (CL&O), Chicago, IL, 21 June 2004.
- Schuman, R, Agarwal, N, Oplatek, A, Raffin, M, Marzo, S. & Matz, G (2006): Ototoxicity in the Guinea Pig Associated With the Administration of Hydrocodone / Acetaminophen. Paper presented at the Annual Girgis Research Competition, Maywood, IL, 18 January 2006.
- Beauchamp, M., Leonetti, J, Marzo, S & Raffin, M (2006): Impact of Modified Radical Mastoidectomy on Sensorineural Hearing Loss. Paper presented at the Annual Girgis Research Competition, Maywood, IL, 18 January 2006.
- Schuman, R, Agarwal, N, Oplatek, A, Raffin, M, Marzo, S & Matz, G (2006): Ototoxicity in the Guinea Pig Associated with the Oral Administration of Hydrocone / Acetaminophen. Paper presented at the Annual Meeting of the Chicago Laryngological and Otological Society, Chicago, IL, 3 April 2006. Winner of the Lederer-Pierce competition.
- Schuman, RM, Agarwal, N, Oplatek, A, Raffin, M, Marzo, S & Matz, G (2006): Ototoxicity in the Guinea Pig Associated with the Oral Administration of Hydrocone / Acetaminophen. Paper presented in the Annual Meeting of the Combined Otological Spring Meetings (COSM), at the 139th Annual Meeting of the American Otological Society, Chicago, IL, 20 May 2006.

Lal, D., Raffin, MJM & Petruzzelli, GJ (2006): P003: Survival and Prognostic Factors in Squamous Cell Carcinoma of the Retromolar Trigone Treated with Primary Surgery. Poster Session presented in the Annual Meeting of the American Head & Neck Society (AHNS), Chicago, IL, 18 August.

Original Reports:

1. Raffin, M.J.M., Lilly, D.J. & Thornton, A.R. (1976). Time-intensity trade for speech: A temporal speech-Stenger effect. *Journal of Speech and Hearing Research*, 19, 749-766.
2. Raffin, M.J.M., Davis J.M. & Gilman, L.A. (1978). Comprehension of inflectional morphemes by deaf children exposed to a visual English sign system. *Journal of Speech and Hearing Research*, 21, 387-400.
3. Raffin, M.J.M. (1978). Errors in the ASHA Committee on Audiometric Evaluations' ASHA Guidelines for manual pure-tone threshold audiometry. *Asha*, 20, 604.
4. Raffin, M.J.M. (1978). The sound system. *Current Health*, 4, 1-10.
5. Chun, C. & Raffin, M.J.M. (1978). The reliability of acoustic-reflex threshold measurements. *Human Communications - Canada*, 3, 35.
6. Schafer, D. & Raffin, M.J.M. (1978). Binomial characteristics of speech-discrimination scores. *Human Communications - Canada*, 3, 43.
7. Thornton, A.R. & Raffin, M.J.M. (1978). Speech discrimination scores modeled as a binomial variable. *Journal of Speech and Hearing Research*, 21, 507-518.
8. Raffin, M.J.M. & Thornton, A.R. (1980). Confidence levels for differences between speech-discrimination scores. *Journal of Speech and Hearing Research*, 23, 5-18.
9. Raffin, M.J.M. & Schafer, D. (1980). Application of a probability model based on the binomial distribution to speech-discrimination scores. *Journal of Speech and Hearing Research*, 23, 570-575.
10. Gilman, L.A., Davis, J.M. & Raffin, M.J.M. (1980). Use of common morphemes by hearing-impaired children exposed to a system of manual English. *Journal of Auditory Research*, 20, 57-60.
11. Thornton, A.R. & Raffin, M.J.M. (1982). Sources of speech-discrimination variability. *Ear and Hearing*, 3, 240-341.
12. Shea, S.L. & Raffin, M.J.M. (1983). Electromagnetic characteristics of the Willeford Central Auditory Processing test battery. *Journal of Speech & Hearing Research*, 26, 18-22.
13. Raffin, M.J.M., Bingea, R.L. & Scott, C.S. (1983). The University of Montana Communicative Rehabilitation Program for nursing-home residents. *Human Communications - Canada*, 7, 251-253.
14. Bingea, R.L., Raffin, M.J.M., Aune, K.J., Baye, L. & Shea, S.L. (1982, released 1983). Incidence of hearing loss among geriatric nursing-home residents. *Journal of Auditory Research*, 22, 275-283.

15. Forrester, J.I. & Raffin, M.J.M. (1982, released 1983). Effects of extended-range frequency-response amplification. *Journal of Auditory Research*, 22, 37-43.
16. Harris, L.V. & Raffin, M.J.M. (1982, released 1983). Effects of psychophysical method and increment size on spondee-threshold measurements. *Journal of Auditory Research*, 22, 143-151.
17. Bingea, R.L., Raffin, M.J.M., Aune, K.J., Baye, L. & Shea, S.L. (1984). Precursors of an Adult Aural Rehabilitation Program. I: Incidence of hearing loss among geriatric nursing-home residents. *Audicibel*, 33(3), 16-19.
18. Beattie, R.L. & Raffin, M.J.M. (1985). Reliability of threshold, slope, and PB-max for monosyllabic words. *Journal of Speech and Hearing Disorders*, 50, 366-378.
19. Raffin, M.J.M. (1986). A response to Kamhi(1985): "Questioning the value of large N, multivariate studies: A response to Schery (1985)". *Journal of Speech and Hearing Disorders*, 51, 93-94.
20. Bingea, R.L. & Raffin, M.J.M. (1986). Normal performance variability on a dichotic CV test across nine onset-time-asynchrony conditions: Application of a binomial-distribution model. *Ear and Hearing*, 70, 216-254.
21. Raffin, M.J.M. & Matz, G.J. (1994). Research design for early intervention. *Audiology Today*, 6 (3), 6.
22. Raffin, M.J.M. & Matz, G.J. (1994). Universal Newborn Hearing Screening. *Pediatrics*, **94** (6), 950 - 952.
23. Hotaling, A.J., Blank, C.R., Matz, G.J., Park, A.H., Yost, W.A. & Raffin, M.J.M. (1995). Distortion-Product Otoacoustic Non-Emissions. *Amer. Auditory Soc. Bulletin*, **20** (1), 26.
24. Raffin, M.J.M. & Blank, C.R. (1995). Criteria for DPOAE. *Amer. Acad. Audiol.*, **212**, Tape 39 3/30/95, The Aaztec Group Inc.: Phoenix, AZ.
25. Feiner, M.V., Pardue, K.M., Raffin, M.J.M. & Matz, G.J. (1996). Infant hearing screening program: High-risk factors for hearing loss. *Seminars in Hearing*, **17**(2), 165 - 170.
26. Raffin, M.J.M. & Matz, G.J. (1996): Screening for Hearing Impairment - Commentary 2. *Abstracts of Clinical Care Guidelines*, **8** (9), 9 - 10.
27. Raffin, M.J.M. & Matz, G.J. (1996): DTTA: Speech therapy in patients with a prior history of recurrent acute or chronic otitis media with effusion - Commentary 2. *Abstracts of Clinical Care Guidelines*, **8** (9), 5 - 6.
28. Raffin, M.J.M., Nouri, F.J., Leonetti, J.P., Anderson, D.E. & Matz, G.J. (1999) Outcome Measures in Acoustic Neuroma Management: Balance Function After Acoustic Neuroma. *A 10th.-Year Reflection: Program*, 16.
29. Raffin, M.J.M., Nouri, F.J., Leonetti, J.P., Anderson, D.E. & Matz, G.J. (1999) Outcome Measures in Acoustic Neuroma Management: Hearing Preservation and Conservation: Methods of Analysis. *Pearls & Pitfalls - 10th. Annual Meeting of the North American Skull Base Society*, 5.

30. Raffin, M.J.M. (2003): Tinnitus. *Audio-Digest Otolaryngol.* **36** (15): 13. Glendale, CA: Audio-Digest (7 August 2003).
31. Raffin, M.J.M., Nourie, F.J., Leonetti, J.P., Anderson, D.E. & Sinclair, J.S. (2004) Quantitative Methods in the Analysis of Pure-Tone Audiometry. *Audiologyonline* http://www.audiologyonline.com/articles/arc_disp.asp?id=1206. and http://www.audiologyonline.com/management/uploads/articles/Raffin_ART.doc
32. Marzo, S.J., Leonetti, J.P., Raffin, M.J. & Letarte, P. (2004). Diagnosis and management of post-traumatic vertigo. *Laryngoscope.*, **114**: 1720 - 1723.

Reviews:

1. Raffin, M.J.M. (1976). Book Review of La Prothese Auditive. *Journal of the Acoustical Society of America*, **59**, 1020-1021.
2. Thompson, D.J. & Raffin, M.J.M. (1986). Critical review of the OHC-K software package. *Asha*, **28**(3), 75-76.

Books and Monographs:

1. Thornton, A.R. & Raffin, M.J.M. (1981). Speech discrimination scores modeled as a binomial variable. In: I.M. Ventry & R.F. Dixon (Eds.) *Hearing Measurement (Second Edition)*, pp. 236-244). Reading, MA: Addison-Wesley.
2. Raffin, M.J.M. & Thornton A.R. (1981). Confidence levels for differences between speech-discrimination scores. In: I.M. Ventry & R.F. Dixon (Eds.) *Hearing Measurement (Second Edition)*, pp. 245-259). Reading, MA: Addison-Wesley.
3. Raffin, M.J.M. (1992). Advances in auditory brainstem response (ABR) testing: Technical considerations for the future. In: I.K. Arenberg, (Ed.), *Proceedings of the Third International Symposium and Workshops on Surgery of the Inner Ear* (pp.). Amsterdam: Kugler & Ghedini.
4. Raffin, M.J.M. & Sinclair, J.S. (1993 in preparation). *Modern Developments in Electrophysiologic Applications in Clinical Audiology*.
5. Thornton, A.R. & Raffin, M.J.M. (1996). Speech discrimination scores modeled as a binomial variable. In: L. Lucks-Mendel & J.L. Danhauer (Eds.) *Audiologic Evaluation and Management and Speech Perception Assessment*, pp. 32-43. San Diegom CA: Singular Publishing Group, Inc.
6. Raffin, M.J.M. & Thornton A.R. (1996). Confidence levels for differences between speech-discrimination scores. In L. Lucks-Mendel & J.L. Danhauer (Eds.) *Audiologic Evaluation and Management and Speech Perception Assessment*, pp. 44-57. San Diegom CA: Singular Publishing Group, Inc.

Non-Print Materials:

- 1978 - 1981 Developed software for speech-discrimination data analysis. Cantankerous Software limited of Alberton, MT.

- 1979 - 1984 Developed software for clinic record-keeping and accounting data-base management. Department of Communication Sciences & Disorders, University of Montana, Missoula MT.
- 1984 - 1986 Developed software for the Administrative Management Information System (AMIS), data reduction and reporting, clinic protocols and calibration. W.J.B. Dorn Veterans' Hospital, Columbia, SC.
- 1986 Developed software for clinic scheduling and staffing. Massachusetts Eye & Ear Infirmary, Boston, MA.
- 1986 - 1987 Developed software for audiological case history and report. Massachusetts Eye & Ear Infirmary, Boston, MA, and Cantankerous Software Limited of West Quincy, West Quincy, MA.
- 1986 - 1987 Developed software applications for clinic patient billing, record-keeping budget and accounting. Massachusetts Eye & Ear Infirmary, Boston, MA.
- 1988 Developed software applications for quality assurance related to PSRO and JCAH requirements. Massachusetts Eye & Ear Infirmary, Boston, MA.
- 1988 Developed software applications for equipment inventory and departmental purchase orders. Massachusetts Eye & Ear Infirmary, Boston, MA.
- 1988 Binomial Probabilities, Version 3.0. Cantankerous Software Limited of West Quincy, West Quincy, MA.
- 1987 - 1988 Developed Q/MASS: Speech Audiometry, Volume I (word recognition test materials in compact disc format). Massachusetts Eye & Ear Infirmary, Boston, MA.
- 2003 - Developing software for audiological data-base management system in a wireless networking environment.
- 2004 ABR, IOM, ASSR and other acronyms. *Audiologyonline.com* interview, 14 May 2004. <http://www.audiologyonline.com/interview/displayarchives.asp?ID=277>