

## CURRICULUM VITAE

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Title: President

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Title: Consultant in Neurology

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McGuire Veterans Medical Center  
Richmond, Virginia 23249

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Title: Associate Professor Graduate Faculty (affiliate)

Organization: Biomedical Engineering Program  
School of Engineering  
Virginia Commonwealth University  
Richmond, Virginia

**Education:**

- 1969      Ph.D. (Molecular Biology)  
Washington University  
St. Louis, Missouri
- 1963      B.S. (Physics)  
University of Maryland  
College Park, Maryland

**Postdoctoral Training:**

- 1977-1978    Senior Fellow in Neurology  
(With Michael J. Aminoff, M.D.)  
Neurology Department  
University of California  
San Francisco, California
- 1974-1977    Fellow in Neuro-Ophthalmology  
(With William Hoyt M.D. & Lawrence Stark, M.D.)  
Neuro-Ophthalmology Unit  
University of California  
San Francisco, California
- 1970-1971    Postdoctoral Fellow  
(With Jose del Castillo, M.D.)  
Laboratory of Neurobiology  
University of Puerto Rico  
San Juan, Puerto Rico

**Postgraduate Courses:**

- 1971      PDP-12 Assembly Language  
Digital Equipment Company, Maynard, Massachusetts
- 1977      Digital Image Processing  
University of Southern California  
Los Angeles, California
- 1984      Dizziness Update  
University of Toronto, Canada
- 1986      Pathfinder Programming & Topographical Mapping  
Nicolet Biomedical Instruments, Madison, Wisconsin
- 1986      Dizziness Update  
University of Toronto, Canada

### **Postgraduate Courses (cont.)**

- 1994            Dizziness and Imbalance, 15th Annual Neuro-Audiology Seminar  
St. Joseph's Hospital, Savannah, Georgia
- 1994            Otolaryngology/Neuro-Otology Update for the Practitioner  
Eastern Virginia Medical School, Norfolk VA
- 1998            Properties of Soil  
Washington Area Consortium of Engineering Laboratories (WACEL)
- 1998            Nuclear Moisture/Density Gauge Safety  
Ochs Technical Services
- 2001            Radiation Safety (BIOC 510)  
Medical College of Virginia, Virginia Commonwealth University
- 2001            Nuclear Moisture/Density Gauge Safety  
Virginia Department of Transportation

### **Occupational History:**

- 1992-            President  
ALBA Systems  
(Neurophysiological systems development consulting)  
DBA: Ochs Technical Services  
(an industrial nuclear safety consulting and training firm)
- 1979-            Consultant in Neurology  
Neurology Service  
McGuire Veterans Hospital  
Richmond, Virginia
- 1993-            Associate Professor Graduate Faculty (affiliate)  
Biomedical Engineering Program  
School of Engineering  
Virginia Commonwealth University  
Richmond, Virginia
- 1998-1999      Associate Clinical Professor  
Department of Psychiatry  
Medical College of Virginia  
Richmond, Virginia
- 1992-1993      Associate Professor  
Biomedical Engineering Program  
School of Engineering  
Virginia Commonwealth University

- 1987-1992 Associate Professor  
Neuro-Ophthalmology Division  
Department of Neurology  
Medical College of Virginia  
Richmond, Virginia
- 1987-1992 Associate Professor (affiliate)  
Biomedical Engineering Program  
Virginia Commonwealth University  
Richmond, Virginia
- 1984-1987 Assistant Professor (affiliate)  
Biomedical Engineering Program  
Virginia Commonwealth University  
Richmond, Virginia
- 1978-1987 Assistant Professor  
Neuro-Ophthalmology Division  
Department of Neurology  
Medical College of Virginia  
Richmond, Virginia
- 1978  
(summer) Consultant  
Space Sickness & Visual-Vestibular Interaction Program  
Biomedical Research Division  
National Aeronautics and Space Administration  
Moffett Field, Sunnyvale, California
- 1973-1976 Visiting Research Associate  
Department of Electrical Engineering & Computer Science  
University of California  
Berkeley, California
- 1971-1972 Research Associate  
Laboratory of Neurobiology  
University of Puerto Rico  
San Juan, Puerto Rico
- 1969-1970 Research Instructor  
Department of Pharmacology  
Washington University  
St. Louis, Missouri
- 1968-1969 Instructor in Biology (half time)  
Department of Biology  
Washington University  
St. Louis, Missouri

- 1964-1969 Graduate Student in Molecular Biology  
Department of Biology  
Washington University  
St. Louis, Missouri
- 1963-1964 Physicist  
Laboratory of Neurophysiology, NINDB  
National Institutes of Health  
Bethesda, Maryland
- 1960-1962  
(summers) Electronics Technician  
Laboratory of Neurophysiology, NINDB  
National Institutes of Health  
Bethesda, Maryland
- 1959-1963 Undergraduate Student  
Department of Physics  
University of Maryland  
College Park, Maryland

**Honors:**

- 1986 Elected to The Honor Society of Phi Kappa Phi  
Virginia Commonwealth University
- 1970 Fulbright-Hays Fellow  
Department of Health, Education & Welfare
- 1969 Honored Graduate Student  
American Oil Chemists Society

**Awards:**

- 1966-1969 Training Grant in Molecular Biology  
National Institutes of Health
- 1970-1971 Postdoctoral Fellowship  
National Institutes of Health (NINDS)
- 1975-1977 National Research Service Award  
National Institutes of Health (NEI)
- 1986-1987 Wayne C. Hall Research Award  
Phi Kappa Phi

## BIBLIOGRAPHY

1. Ochs, A. L., Changes in membrane properties with hyperpolarization in snail neurons. *Amer. J. Physiol.* 213: 16-20, 1967.
2. Ochs, A. L., Electrical Response to Vibration of a Lipid Bilayer Membrane. Ph.D. Thesis, Washington University, St. Louis, Missouri, 1969.
3. Peinado, R. E., Ochs, A. L. and Baranano, E., Some mathematical considerations of receptive fields. *Seminaire P. Dubreil* 25: J7-1 to J7-6, University of Paris, 1972.
4. Ochs, A. L. and Burton, R. M., Electrical response to vibration of a lipid bilayer membrane. *Biophys. J.* 14: 473-489, 1974.
5. Ochs, A. L. and Peinado, R. E., Two-dimensional analysis of retinal information transfer. *J. Opt. Soc. Amer.* 65: 842-846, 1975.
6. Ochs, A. L., Selhorst, J. B., Hoyt, W. F. and Stark L., Simulation of abnormal eye movements in cerebellar disease. *Proc. 1975 Winter Simulation Conf.* 83-88, 1976.
7. Selhorst, J. B., Stark, L., Ochs, A. L. and Hoyt, W. F., Disorders in cerebellar ocular motor control I: Saccadic overshoot dysmetria. *Brain* 99: 497-508, 1976.
8. Selhorst, J. B., Stark, L., Ochs, A. L. and Hoyt, W. F., Disorders in cerebellar ocular motor control II: Macrosaccadic oscillations. *Brain* 99: 509-522, 1976.
9. Shults, W. T., Stark, L., Hoyt, W. F. and Ochs, A. L., Normal saccadic structure of voluntary nystagmus. *Arch Ophthalmol.* 95: 1399-1404, 1977.
10. Stark, L., Shults, W. T., Ciuffreda, K. J., Hoyt, W. F., Kenyon, R. V. and Ochs, A. L., Voluntary nystagmus is Saccadic: Evidence from motor and sensory mechanisms. *Proc. Joint Automatic Control Conf.* 2: 1410-1414 1977.
11. Ochs, A. L., Hoyt, W. F., Stark L. and Patchman, M. A., Saccadic initiation time in Multiple sclerosis. *Ann. Neurol.* 4: 578-579, 1978.
12. Ochs, A. L., Is Fourier analysis performed by the visual system or by the visual investigator? *J. Opt. Soc. Amer.* 69: 95-98, 1979.
13. Ochs, A. L., Stark, L. Hoyt, W. F. and D'Amico, D., Opposed adducting saccades in convergence-retraction nystagmus: A patient with sylvian aqueduct syndrome. *Brain* 102: 497-508, 1979.

14. Ochs, A. L. and Aminoff, M. J., The effects of adaptation to the stimulating pattern on the latency and waveform of visual evoked potentials. *Electroenceph. Clin. Neurophysiol.* 48: 502-508, 1980.
15. Ochs, A. L. and Aminoff, M. J., Visual evoked potentials elicited by a circular grating. *Arch. Neurol.* 37: 308-309, 1980.
16. Weiss, J. N., Ochs, A. L., Abedi, S. and Selhorst, J. B., Retinopathy after tilorone hydrochloride. *Amer. J. Ophthalmol.* 90: 846-853, 1980.
17. Aminoff, M. J. and Ochs, A. L., Pattern-onset visual evoked potentials in suspected multiple sclerosis. *J. Neurol. Neurosurg. Psychiat.* 44: 608-614, 1981.
18. Selhorst, J. B., Ochs, A. L. and Selbst, A. L., Myoclonic ocular jerks. *Ann. Neurol.* 13: 212-213, 1982
19. Cohen, G. R., Harbison, J. W., Blair, C. J. and Ochs, A. L., Clinical significance of transient visual phenomena in the elderly. *Ophthalmology* 91: 436-442, 1984.
20. Schwartz, M. A., Selhorst, J. B., Ochs, A. L., Beck, R. W., Campbell, W. W., Harris, J. K., Walters, B., and Velasco, M. E., Oculo-masticatory myorhythmia: A unique movement disorder occurring in Whipple's disease. *Ann. Neurol.* 20: 677-683, 1986.
21. Selhorst, J. B., Schwartz, M. A., Ochs, A. L. and Beck, R. W., Pendular vergence oscillations. *Highlights in Neuro-Ophthalmol., Proc. 6th Meeting International Neuro-Ophthalmol. Soc.* 153-162, 1987.
22. Ross, D. E., Ochs, A. L., Hill, M. R., Goldberg, S. C., Pandurangi, A. K. and Winfrey, C. J., Erratic eye tracking in schizophrenic patients as revealed by high resolution techniques. *Biol. Psychiat.* 24: 675-688, 1988.
23. Kendler, K. S., Ochs, A. L., Gorman, A. M., Hewitt, J. K., Ross, D. E. and Mirsky, A., The structure of Schizotypy: A pilot multitrait twin study. *Psychiatry Res.* 36: 19-36, 1991.
24. Ross, D. E., Ochs, A. L., Pandurangi, A. K., Thacker, L. and Kendler, K. S., Mixture analysis of smooth pursuit eye movements in schizophrenia. *Psychophysiology* 33: 390-397, 1996.

25. Bartols, S. M., Musick, J. A. and Ochs, A. L., Visual Acuity Thresholds of the Juvenile Loggerhead Sea Turtle (*Caretta caretta*): An Electrophysiological Approach. *J. Comp. Physiol. A* 187: 953-960, 2002.

## Chapters

1. Ochs, A. L., Newberry, J., Lenhardt, M. L. and Harkins, S. W., Neural and vestibular aging associated with falls. *Handbook of the Psychology of Aging* (J. E. Birren, ed.) 378-399, Van Nostrand Reinhold, New York, 1985.

## Patents

1. Lenhardt, M. L. and Ochs, A. L., Method and apparatus for alerting and/or repelling birds and other animals. US 6,250,255 B1, 2001.

## Abstracts

1. Ochs, A. L. and Burton, R. M., Electrical response to vibration in lipid bilayer membranes. *Biophys. J.* 8: A27, 1968.
2. Selhorst, J. B., Stark, L., Ochs, A. L. and Hoyt, W. F., Disorders in cerebellar ocular motor control: I. Saccadic overshoot dysmetria, II. Macro-saccadic oscillation, an oculographic control system and clinico-anatomic analysis. *Surv. Ophthalmol.* 23: 65-66.
3. Ochs, A. L. and Aminoff, M. J., The effect of adaptation to the stimulating pattern on the latency and waveform of visual evoked potentials. *Clin. Res.* 27: 52A, 1979.
4. Ochs, A. L. and Aminoff, M. J., Pattern-reversal and pattern-onset visual evoked potentials in normal subjects and patients with possible multiple sclerosis. *Electroencephal. Clin. Neurophysiol.* 51: 27P, 1980.
5. Schwartz, M. A., Harris, J. K., Ochs, A. L. and Selhorst, J. B., Convergence-masseter myoclonus. 17th Frank B. Walsh Soc. Meeting, 1985.

6. Ochs, A. L., Ross, D. E., Hill, M. R. and Goldberg, S. C., The nature of abnormal eye movements in schizophrenic patients. *Inv. Ophthalm. Visual Sci.* 27 (suppl.): 156, 1986.
7. Ochs, A. L. and Harbison, J., Nystagmus in bilateral motile ocular prosthesis: "acquired" congenital nystagmus? Third Ocular Motor Symp., Clin. Eye Movement Soc., 1986.
8. Harbison, J., Palmer, K. and Ochs, A. L., Migraine amaurosis fugax. ? Investigate. *Stroke* 18: 295, 1987.
9. Towne, A., Bell, Z., Ko, D., Ochs, A. L. and DeLorenzo, R. J., Cerebrospinal fluid findings in prolonged status epilepticus. *Neurology* 37 (suppl. 1): pp95, 1987.
10. Harbison, J. W. and Ochs, A. L., Angiography of amaurosis fugax. *Stroke* 19: 135, 1988.
11. Harbison, J. W. and Ochs, A. L., Correlation of clinical signs and symptoms with angiographic findings in amaurosis fugax. Virginia Soc. of Ophthalmology Annual Meeting, 1988.
12. Ochs, A. L. and Harbison, J. W., Development of objective visual acuity VEPs at MCV. Virginia Soc. of Ophthalmology Annual Meeting, 1988.
13. Ochs, A. L., Ross, D. E., Goldberg, S. C., Pandurangi, A. K. and Hill, M. R., Predictive slow tracking by schizophrenic patients. Fourth Ocular Motor Symp., Clin. Eye Movement Soc., May 1988.
14. Pandurangi, A. K., Goldberg, S. C., Ross, D. E., Ochs, A. L., Brink, D. D. and Hill, M. R., Biological markers of the positive and negative syndromes in schizophrenia. Amer. Psychiatric Assoc., 141 Annual Meeting, 1988.
15. Ochs, A. L., Ross, D. E., Goldberg, S. C., Pandurangi, A. K. and Kendler, K. S., Oscillations in slow tracking eye movements indicate an overt, intense effort of prediction. Fifth Ocular Motor Symp., Clin. Eye Movement Soc., October 1988.
16. Ross, D. E., Ochs, A. L. Pandurangi, A. K. and Kendler, K. S., Abnormal oscillations in the slow pursuit eye movements of schizophrenic patients. Second International Congress on Schizophrenia Research, San Diego, CA, 1989
17. Ochs, A. L., Ross, D. E., Goldberg, S. C., and Kendler, K. S., Oscillations in slow tracking eye movements indicate an intense effort of prediction. *Inv. Ophthalm. Visual Sci.*, 31: 533, 1990.

18. Siegel, L. M., Astruc J., Ochs, A. L. and Thompson, J., Assignment of neuroanatomical correlates to the vector visual evoked potential using hemifield stimulation. *VA Med. Q.*, 118: 48, 1991.
19. Ochs, A. L., Siegel, L. M., Astruc J. and Thompson, J., Simultaneously recorded conventional, vector, and topographically mapped evoked potentials. *EEG Clin. Neurophysiol.* 79: 38p, 1991.
20. Siegel, L. M., Ochs, A. L., Astruc J. and Thompson, J., Hemifield visual evoked potentials recorded with a 3-dimensional vector technique. *EEG Clin. Neurophysiol.* 79: 45p, 1991.
21. Rankine, D. A., Harbison, J. W. and Ochs, A. L., Angiographic profiles of amaurosis fugax (AF), central retinal artery occlusion (CRAO), and central retinal artery branch occlusion (CRABO). *Neurology* 41 (Suppl 1): 203, 1991.
22. Ochs, A. L., Siegel, L. M., Astruc, J. and Thompson, J. L., The visual pathway described with a 3-dimensional VEP display. *Inv. Ophthalm. Visual Sci.*, 32: 1111, 1991.
23. Ochs, A. L., Zasler, N. O., Astruc, J. and O'Shanick, G. J., Oculomotor dysfunction following traumatic brain injury. 15th Annual Conference on Rehabilitation of the Brain Injured Adult and Child. Williamsburg, VA, June 1991.
24. Lenhardt, M. L., Clarke, A. M., Skellett, R. A., Soltanpour, D. A. and Ochs. A. L., Human audition of ultrasound. *J. Acoustical Soc. Amer.* 89: 1940, 1991.
25. Ochs, A. L., Zasler, N. O., Astruc, J. and O'Shanick, G. J. Post-traumatic vestibular dysfunction. *Arch. Phys. Med. Rehabil.* 72: 775, 1991.
26. Astruc, J., Ochs, A. L. and Zasler, N., A retrospective study of post-traumatic oculomotor dysfunction. Ninth Ocular Motor Symp., Clin. Eye Movement Soc., Williamsburg, VA, June 1992.
27. Ochs, A. L., Zasler, N. Astruc, J. and O'Shanick, G. J., A prospective study of post-traumatic oculomotor dysfunction. Ninth Ocular Motor Symp., Clin. Eye Movement Soc., Williamsburg, VA, June 1992.
28. Zasler, N. O., Ochs, A. L., et al., Oculovestibular dysfunction in symptomatic mild traumatic brain injury. The American Academy of Physical Medicine and Rehabilitation. 54th Annual Meeting, San Francisco, CA, November 1992.

29. Zasler, N. O., Ochs, A. L., et al., Oculovestibular pathology after TBI: Correlation between electronystagmographic and posturographic analysis. 11th Annual National Symposium, National Head Injury Foundation, Boston, MA, December, 1992.
30. Lenhardt, M. L., Grant J. W. and Ochs A., Possible hair cell detection for hearing ultrasound in deaf listeners. Neural Mechanisms of the Vestibular System II, The Johns Hopkins University, Baltimore MD, December, 1992.
31. Rappaport, K. D., Siegel, L. M. and Ochs, A. L., The P60 pattern-reversal VEP wave originates in the LGN. *Inv. Ophthal. Visual Sci.*, 36: S689, 1995.
32. Ochs, A. L., Vestibular disturbance induced by microwave radiation. 7th Annual Meeting, Bird Strike Committee - USA, Boston, MA, August 1997.
33. Lenhardt, M, Ochs, A. L., Sismour, E., Genova, J. and Kelly M. Infrasonic and microwave hearing in six avian species. 7th Annual Meeting, Bird Strike Committee - USA, Boston, MA, August 1997.
34. Ochs, A. L., Ross, D. E., A. L., Pandurangi, and Compton, A.D, Effects of antipsychotic medication on smooth pursuit eye movements in patients with schizophrenia. Biennial Meeting, International Congress on Schizophrenia Research, Santa Fe, NM, April 1999.