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CURRICULUM VITA

NAME: Robert J. Sclabassi
HOME ADDRESS:1607 Hogan Way
Gibsonia, PA 15044
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BIRTHDATE: June 4, 1939
BIRTHPLACE: Santa Monica, CA
CITIZENSHIP: USA

BUSINESS ADDRESS: Computational Diagnostics, Inc.
Clinical Neurophysiological Services, LLC
5001 Baum Blvd, Suite 530
Pittsburgh, PA 15213
BUSINESS PHONE: (412) 681-9990 (x 108)

EDUCATION

UNDERGRADUATE:

1957-1962	Loyola University of Los Angeles	BSEE

GRADUATE:

1962-1965	University of Southern California Study Areas: Electrical Engineering Computers	MSEE
1965-1969	University of Southern California Study Areas: Electrical Engineering Control Theory Neurophysiology	Engr.in E.E.
1969-1971	University of Southern California Study Areas: Systems Theory Neurophysiology	Ph.D. in E.E.

PROFESSIONAL:

1979-1981	University of Pittsburgh	M.D.

POST-GRADUATE:

1971-1972	University of California at Los Angeles Dept. of Neurology Post-Doctoral Scholar Study Areas: Basic and Clinical Neurophysiology

APPOINTMENT AND POSITIONS

ACADEMIC:

2010 – Present	Member Department of Neurological Surgery, WPAGHS
2008 – 2011	Loyola Marymount University – Member of the Board of Regents Regents representative to the Board of Trustee's Academic Affairs Committee
2011- Present	Loyola Marymount University – Member of the Board of Trustees Academic Affairs Committee
1996-2008	Member, Center for the Neural Basis of Cognition, University of Pittsburgh and Carnegie-Mellon University.
1980-2008	Professor Neurological Surgery, Professor of Psychiatry, School of Medicine; Professor of Electrical, Mechanical, and Biomedical Engineering, School of Engineering; Professor of Neuroscience, Faculty of Arts and Science; Graduate Faculty; Director, Center for Clinical Neurophysiology, University of Pittsburgh Medical Center (1980-2008); Director, Lab for Computational Neuroscience (1980-2004), Department of Neurosurgery; Member of the Neuroscience Program and Member of the Training Faculty in Neuroscience; Consultant to the Cranial Base Tumor Center (1980-1996) ; Member of the Biomedical Engineering Program (Director, 1984-1986).
.	Advisory Committee, University of Pittsburgh, Center for Biotechnology and Bioengineering (1989-1992). Consultant to Veteran's Administration Hospital for Clinical Neurophysiology, Charter Senior Associate, Center for Biomedical Informatics, University of Pittsburgh (1990-2000).
1976-1978	Research Associate Professor of Neurosurgery, University of Pittsburgh, School of Medicine Associate Professor of Biomedical Engineering, Biomedical Engineering Program, Carnegie-Mellon University
1972-1976	University of California, Los Angeles, Adjunct Associate Professor Neurology and Biomathematics, Departments of Neurology, and Biomathematics. Associate Member of the Brain Research Institute and Associate Investigator, Data Processing Laboratory, Brain Research Institute, UCLA Center for the Health Sciences

MEDICAL STAFF PREVILIGES:

Presbyterian-University Hospital (1980 - 2008)
Shadyside Hospital (1980 - present)
Children's Hospital of Pittsburgh (1980- present),
Montefiore Hospital (1980-1996; hospital absorbed by PUH),
Eye and Ear Hospital (1980 -1995, hospital absorbed by PUH),
Veteran's Administration Hospital, Oakland (1980 – present),
Passavant Hospital (1990 – present),
St. Margarets Hospital (1994 - present),
Magee-Womens Hospital (1996 - present)
McKeesport Hospital (1998 -present)
Altoona Regional Hospital (2000 - present),
St. John's Hospital, Springfield, MO. (2004 – present).
Alle-Kiski Medical Center (2010 – present),
Allegheny General Hospital (2010 – present)
Cannonsburgh Hospital (2010 – present),
Forbes Regional Hospital (2010 – present)
Western Pennsylvania Hospital (1996 - present)

NON-ACADEMIC:

2010-2011	Highmark, Clinical Policy Management Subcommittee for Neuroscience
2008-2009	Sentio, LLC, Member of the Scientific Advisory Board
2006-Present	Neuro Kinetics, Inc., Member of the Board of Directors Pittsburgh Opera – Member of the Board of Directors
1995-2003	Fox Chapel Water Authority – Member of the Board of Directors
2002-2006	The American Socieity of Neurophysiological Monitoring – Member of the Board of Directors
2000-2007	Surgical Technologies Assessment Group, LLC, Partner
1997-Present	Decision Resources, Inc., Member of the Board of Directors
1989-Present	Computational Diagnostics, Inc., CEO and Chairman of the Board of Directors
2008-2009	Computational Diagnostics, Inc., President
1968-1970	LIMTECH, Santa Monica, California, Vice-President of Engineering
1968-1971	TRW Systems Group, Redondo Beach, California, Section Head, Control and Instrumentation Section Electronic Systems Department, Advanced Systems Laboratory

1965-1968 Space Technology Laboratories (TRW Systems Group), Redondo Beach, CA, Staff Engineer, Systems Analysis and Design Department, Guidance and Navigation Laboratory

1962-1965 Rockwell International (North American Aviation, Downey, CA), Research Engineer, Simulation and Computer Technology Department, Space and Information Systems Division

INVENTION AWARDS

"Navigation Sextant Simulator"
North American Aviation-1964

"Heliometer Control System"
TRW Systems Group-1968

"Acoustic Aneurysm Detector and Associated Method"
U.S. Patent No. 4,928,705, University of Pittsburgh - 1990

Bootstrapped Microphone or Hydrophone
U.S. Patent filed, University of Pittsburgh, 1990

"Data Processing For Fast Internet Transmission of Webpages"
U.S. Patent, 09,904,791, University of Pittsburgh - 2001

"Method of Data Communication with Implantable Devices and associated apparatus"
U.S. Patent No. 6,847,844, University of Pittsburgh - 2005

"Energy Delivery Method and Apparatus Using Volume Conduction for Medical Applications" U.S. Patent filed, Case No. 1067, University of Pittsburgh, 2005

"A Portable Apparatus That Delivers Power and Information to Implantable Devices" U.S. Patent filed, University of Pittsburgh, 2006

"Skin-Screw Electrodes for Super-Installation on Hairy Skin without Using Adhesives and Electrolyte Gel" U.S. Patent filed, University of Pittsburgh, 2006.

"Method of Data Communication with Implanted Device and Associated Apparatus (Supplementary)" U.S. Patent No. 7,228,183, University of Pittsburgh, 2007.

“Implantable Device, System Including Same, and Method Utilizing Same.
U.S. Application No. 12/203,041., U.S.Patent Filed University of Pittsburgh, 2008.

"Method, Apparatus, and System for Food Intake and Physical Activity Assessment" U.S.Application No 12/141,741, U.S. Patent filed, University of Pittsburgh, 2008.

"Wireless Energy Transfer System," U.S. Provisional Patent Disclosure 214001-01384 (Internal No.), Filed, March 2009.

LICENSURES AND CERTIFICATION

Diplomate of the American Board of Neurophysiology Monitoring	Certificate No. 3
Licensed Professional Engineer #E8352-California	Inactive
Medical License, State Board of Medicine, Pennsylvania	MD-064935-L
Medical License, Missouri State Board of Registration for the Healing Arts	2004029829
New Mexico Medical Board Telemedicine License	TM2006-0027
Medical License, State Board of Medicine, Ohio	097849

MEMBERSHIPS IN PROFESSIONAL AND SCIENTIFIC SOCIETIES

1962 - Institute of Electrical and Electronics Engineers
Technical Groups on: Automatic Control Theory
Biomedical Engineering
Signal Processing
1970 - American Association for the Advancement of Science
1971 - Neuroscience Society
1974 - California Society of Professional Engineers
1974 - National Society of Professional Engineers
1976 - Pennsylvania Society of Professional Engineers
1980 - New York Academy of Science
1982 - American Medical Association
1982 – Allegheny County Medical Society
1982 – Pennsylvania Medical Society
1984 - American EEG Society
1987 - Academy of Clinical Neurophysiology
1987 - International Neural Network Society
1990 - The American Society of Neurophysiological Monitoring
1992 - American Institute of Medical and Biological Engineering
2009 – American Telemedicine Association

HONORS

1968 - United States Public Health Service Pre-Doctoral Fellow
1971 - United States Public Health Service Post-Doctoral Fellow
1972 - Sigma Xi
1984 - Kappa Delta Pi
1989 - Finalist in the Computerworld Smithsonian Awards for Real-Time Intraoperative Monitoring System
1990 - Fellow of the American Society of Neurophysiological Monitoring

1991 - Finalist in the Computerworld Smithsonian Awards for NeuroNet System
1991 - Distinguished Alumni Award for Professional Achievement, Loyola Marymount University
1992 - Elected Founding Fellow of the American Institute of Medical and Biological Engineering
1993 - Elected Senior Member of the Institute of Electrical and Electronics Engineers
1999 - Engineering Alumni Wall of Fame, Loyola Marymount University
2003 - Best Paper Award - International Symposium on Uncertainty Modeling and Analysis
2004 - Best Paper Award -2nd International Conference on Telemedicine and Multimedia Communication (Poland)
2006 – University of Pittsburgh Innovator Award
2007 – University of Pittsburgh Innovator Award

PUBLICATIONS

Refereed Journal Papers:

1. **Sclabassi RJ**, "A generalized nerve-net model". Engineer in Electrical Engineering, Thesis, School of Engineering, University of Southern California, 1969.

2. **Sclabassi RJ**, "The statistical investigation of hypothesis in neurophysiology". Ph.D. Dissertation in Electrical Engineering, Graduate School, University of Southern California, 1971.

3. **Sclabassi RJ** and Harper RM, "Laboratory computers in neurophysiology". *Proc IEEE*, 1973; 61 (11):1602-1614..

4. Namerow NS, **Sclabassi RJ** and Enns NF, "The somatosensory responses to stimulus trains: normative data: *Electroenceph Clin Neurophysiol*, 1974; 37(1):11-21.

5. **Sclabassi RJ**, Namerow NS and Enns NF, "Somatosensory response to stimulus trains in patients with multiple sclerosis". *Electroenceph Clin Neurophysiol*, 1974; 37(1), 23-33..

6. Estrin T, **Sclabassi RJ** and Buchness R, "Computer graphics applications to neurosurgery". *Proc Medinfo*, 1974; 831-836.

7. Lieb J, **Sclabassi RJ**, Crandall P and Buchness R, "Comparison of the action of diazepam and phenobarbital using EEG derived power spectra obtained from temporal lobe epileptics". *Neuropharmacology*, 1974: 13: 769-783.

8. Harper RM, **Sclabassi RJ** and Estrin T, "Time series analysis and sleep research". *IEEE Trans Auto Cont*, 1974; 19 (6): 932-943.

9. **Sclabassi RJ**, Buchness R and Estrin T, "Interactive graphics in the analysis of neuronal spike train data". *Comp Graphics, Pattern Recog, Data Structure*, 1975: 47-49.

10. **Sclabassi RJ**, Buchness R and Estrin T, "Interactive graphics and the analysis of neuronal spike train data". *Comput Biol Med*, 1976: 6:163-178.

11.

11 **Sclabassi RJ**, "Neuronal models, spike trains, and the inverse problem". *Mathematical_ Biosci*, 1976; 32: 203-219.

12. Ward DS, Rubin I and **Sclabassi RJ**, "Applications of queuing theory to some problems in neuronal circuitry". *Applied Math Comp*, 1977; 3: 227-245.

13. **Sclabassi RJ**, Risch H, Hinman CL, Kroin JS, Enns NF and Namerow NS, "Complex pattern evoked somatosensory responses in the study of multiple sclerosis".*Proc IEEE*, 1977; 65 (5): 626-633.

14. **Sclabassi RJ**, Hinman CL, Kroin JS and Risch H, "The modulatory effect of prior input upon afferent signals in the somatosensory system". *Proc Joint Automatic Control Conference*, 1977; 2: 787-795, IEEE, New York..

15. **Sclabassi RJ** and Noreen GK, "The characterization of dual-input evoked potentials as nonlinear systems using random impulse trains". *Proc Conf Pitts Model Simul*, 1981; 12:. 1123-1130.

16 See ME, **Sclabassi RJ** and Vries JK, "Microprocessor based monitoring system for the intensive care unit". *IECI Proc App Mini Microcomp*, 1981; 52-57.

17. Guthkelch AN, **Sclabassi RJ** and Vries JK, "Changes in the visual evoked potentials of hydrocephalic children".*Neurosurg*, 1982; 11 (5):599-602.

18. Guthkelch AN, **Sclabassi RJ**, Hirsch RP and Vries JK, "Visual evoked potentials in hydrocephalus: Relationship to head size, shunting, and mental development".*Neurosurg*, 1984; 14 (3): 283-286.

19. Albright AL, **Sclabassi RJ**, Slamovits T and Bergman I, "Spasmus nutans associated with optic gliomas in infants". *J Peds*, 1984; 105 (5): 778-780.

20. **Sclabassi RJ**, Hinman CL, Kroin JS and Risch H, "A nonlinear analysis of afferent modulatory activity in the cat somatosensory system".*Electroenceph Clin Neurophysiol*, 1985; 60: 444-454.

21. Guthkelch AN, Vries JK and **Sclabassi RJ**, "Early detection of brainstem glioma using brainstem auditory evoked potentials". *Dev Med Child Neurol*, 1985; 27(3), 331-334..

22. Albright AL and **Sclabassi RJ**, "Use of the cavitron ultrasonic surgical aspirator (CUSA) and visual evoked potentials for chiasmal gliomas of children". *J Neurosurg*, 1985; 63:138-140. 1

23. Albright AL and **Sclabassi RJ**, "Use of the cavitron ultrasonic surgical aspiratory (CUSA) and evoked potentials for the treatment of thalmic and brain stem tumors in children". J Neurosurg, Vol. 17, pp. 564-569, 1985.

24. Lockhart LB, Hiles DA and **Sclabassi RJ**, "Electroretinograms before and after discission of a secondary lenticular membrane in an infant". *Trans Penns Acad Ophthamal Otolaryn,* 1985; 38: 355-359.

25. **Sclabassi RJ**, Kroin JS, Hinman CL and Risch H, "The effect of cortical ablation on modulatory activity in the cat somatosensory system". *Electroenceph Clin Neurophysiol*, 1986; 64(1), 31-40.

26. Pang D, **Sclabassi RJ** and Horton JA, "Lysis of intraventricular blood clot with urokinase in a canine model. Part I: The canine intraventricular blood cast model".*J Neurosurg*, 1986; 19(4): 540-546.

27. Pang D, **Sclabassi RJ** and Horton JA, "Lysis of intraventricular blood clot with urokinase in a canine model. Part II: In-vivo safety study with intraventricular urokinase". *J Neurosurg*, 1986; 19(4): 547-552.

28. Pang D, **Sclabassi RJ** and Horton JA, "Lysis of intraventricular blood clot with urokinase in a canine model. Part III: Effects of intraventricular urokinase on clot lysis and post-hemorrhagic hydrocephalus". *J Neurosurg*, 1986; 19 (4): 553-572.

29. Ingram MD, **Sclabassi RJ**, Stiller RL, Cook DR and Bennett MH, "Cardiovascular and electroencephalographic effects of laudanosine in "nephrectomized" cats". *British J Anesthesia*, 1986; 58: 14S-18S.

30. Brenner R, **Sclabassi RJ**, Spiker DG, Ulrich R, Reynolds CF, Boller F, Lordeon P, Marin R and Pearlman S, "Computerized spectral analysis in elderly normal, demented and depressed subjects". *Electroenceph Clin Neurophysiol*, 1986; 64(6):483-492.

31. Guthkelch AN, Bursick DM and **Sclabassi RJ**, "The relationship of the latency of the visual P100 wave to gender and head size". *Electroenceph Clin Neurophysio*l, 1987, 68:219-222.

32. Cerchiari EL, Hoel TM, Safar P and **Sclabassi RJ**, "Protective effects of combined superoxide dismutase and deferoxamine on recovery of cerebral blood flow and function after cardiac arrest in gogs". Stroke, Vol. 18, pp. 869-878, 1987.

33. **Sclabassi RJ**, Lofink RM, Guthkelch AN, Gur D and Yonas H, "Effect of low concentration stable xenon on the EEG power spectrum". *Electroenceph Clin Neurophysio*l, 1987; 67 (4): 340-347.

34. Sandford SI, Tarter RE, **Sclabassi RJ** and VanThiel DH, "Sensory information processing in patients with nonalcoholic cirrhosis: short-latency visual, auditory and somatosensory event-related potentials". *J Neuro Sci*, 1987; 80: 269-276.

35. **Sclabassi RJ**, Sun M, Sekhar LN, Wasserman J and Blue HB, "An acoustic aneurysm detector". *Med Instrum,* 1987; 21(6): 317-322.

36. Krieger DN, Lofink RM, Doyle E, Burk G and **Sclabassi RJ**, "NeuroNet: An implementation of an integrated clinical neurophysiology system". *Med Instrum*, 1987; 21(6): 296-305.

37. **Sclabassi RJ**, Krieger DN and Berger TW, "A systems theoretic approach to the study of CNS function". *Annals of Biomed Eng*, 1988; 16(1):17-34.

38. Sekhar LN, **Sclabassi RJ**, Sun M, Blue HB and Wasserman J, "Intra-aneurysmal pressure measurements in experimental saccular aneurysms in dogs".*Stroke*, 1988;19(3):352-356.

39. Sun M, Sekhar LN, **Sclabassi RJ**, Wasserman J, Blue HB and Lucyx KJ, "Recording and processing of aneurysm vibrational signal in dogs". *J Biomed Eng*, 1988; 10:336-342.

40. Pollack IF, Pang D and **Sclabassi RJ**, "Recurrent spinal cord injury without radiographic abnormalities in children". *J Neurosurg*, 1988; 69:177-182.

41. Reinmuth OM, Abramson NS, Cerchiari EL, Chandra N, Diven WF, Latchaw RE, Novak R, Obrist WB, Safar P, **Sclabassi RJ** et al, "Predicting outcome after resuscitation from clinical death". *Critical Care Med*, 1988; 16(10): 1043-1052..

42. **Sclabassi RJ**, Eriksson JL, Port RL, Robinson GB and Berger TW, "Nonlinear systems analysis of the hippocampal perforant path-dentate projection: I. Theoretical and interpretational considerations". *J Neurophysiol*, 1988; 60(3):1066-1076.

43. Berger TW, Eriksson JL, Ciarolla DA and **Sclabassi RJ**, "Nonlinear systems analysis of the hippocampal perforant path-dentate projection: II. Effects of random impulse train stimulation". *J Neurophysiol*, 1988; 60(3):1077-1094.

44. Berger TW, Eriksson JL, Ciarolla DA and **Sclabassi RJ**, "Nonlinear systems analysis of the hippocampal perforant path-dentate projection: III. Comparison of random train and paired impulse stimulation". *J of Neurophysiol*, 1988; 60(3):1095-1109.

45. Trzepacz PT, **Sclabassi RJ** and VanThiel DH, "Delirium: A subcortical phenomenon?". *J Neuropsych Clin Neurosci*, 1989;1(3): 283-290.

46. Sun M, Li CC, Sekhar LN and **Sclabassi RJ**, "A wigner frequency analyser for nonstationary signals". *IEEE Trans Instr Meas*, 1989; 38(5):961-966.

47. Sun M, Li CC, Sekhar LN and **Sclabassi RJ**, "Efficient computation of discrete pseudo wigner distribution". *IEEE Trans Acoustics, Speech, Sig Proc*, 1989; 37(11);1135-1142.

48. Cerchiari EL, Safar P, Hoel TM and **Sclabassi RJ**, "Effects of combined superoxide dismutase and deferoxamine on recovery of brainstem auditory evoked potentials and EEG after asphyxial cardiac arrest in dogs. *Resuscitation*, 1990; 19; 25-40..

49. Scher MS, Sun M, Hatzilbrou GM, Greenberg NL, Cebulka G, Krieger DN, Guthrie RD and **Sclabassi RJ**, "Computer analysis of EEG sleep in the neonate: methodological considerations".*J Clin Neurophysio*l, 1990;7(2); 417-441.

50. Krieger DN, Berger TW, Levitan S and **Sclabassi RJ**, "An interactive toolset for characterizing complex neural systems". *Computers Mathematics*, 1990; 20(4-6): 31-246.

51. Sekhar LN, Blue HB, Sun M, Wasserman J, Bonaddio D and **Sclabassi RJ**, "Acoustic recordings from experimental saccular aneurysms in dogs".*Stroke*, 1990; 21(8):1215-1221.

52. **Sclabassi RJ**, Leichner R, Kuchinsky A, Krieger DN and Prince F, "The multi-media medical monitoring, diagnosis, and consultation project." *Proc HICSS*, 1991; 24(3):. 717-723,

53. Krieger DN, Burk G and **Sclabassi RJ**, "NeuroNet: A distributed real-time system for monitoring neurophysiologic function in the medical environment."*IEEE Computer*, 1991; 24(3): 45-55.

54. Krieger DN, **Sclabassi RJ**, Cappola R and Nakamura R, "Spatio-temporal cortical patterns evoked in monkeys by a discrimination task." *Cog Neurosci,* 1991; 3(3):242-251.

55. Segal R, Pollack I, Segal E, Hanley E, **Sclabassi RJ** and Hirsh W, " Herniated L4-5 disc after placement of harrington instrumentation for a Fracture of the thoacolumbar spine." *Neurosurg,* 1991; 29(1): 135-136..

56. Robinson GB, **Sclabassi RJ** and Berger TW, "Kindling-induced potentiation of excitatory and inhibitory inputs to hippocampal dentate granule cells. I. Effects on Linear and Nonlinear" Response Characteristics." *Brain Research*, 1991; 562: 17-25..

57. Sun M, Bonaddio D, Mi J and **Sclabassi RJ**, "An analysis of the effect of jitter in data acquisition on synchronous averaging."*IEEE Trans.Systems, Man Cyber*, 1991;21(2):456463.

58. Krieger DN, Berger TW and **Sclabassi RJ**, "Instantaneous characterization of time-varying nonlinear systems. *IEEE Trans Biomed Eng*, 1992; 39(4): 420-424.

59. Vrahas M, Gordon RG, Mears DC, Krieger D and **Sclabassi RJ**, "Intraoperative somatosensory evoked potential monitoring of pelvic and acetabular fractures." *J Orthop Trauma*, 1992; 6(1):50-58..

60. Sun M and **Sclabassi RJ**, "Discrete-time instantaneous frequency and its computation." *IEEE Trans Sig Proc,* 1993; 41(5):1867-1880.

61. Robinson GB, Fluharty SJ, Zigmond MJ, **Sclabassi RJ** and Berger TW, "Recovery of hippocampal dentate granule cell responsiveness to entorhinal cortical input following norepinephrine depletion: Possible role of compensatory events within norepinephrine neurons." *Brain Research*, 1993; 614:21-28.

62. Scher MS, Dokianakis SG, Sun M, Steppe DA, Guthrie RD and **Sclabassi RJ**, "Rectal temperature changes during sleep state transitions in term and preterm neonates at postconceptional term ages".*Pediatric Neurology*, 1994; 10 (3):191-194.

63. Scher MS, Sun M, Steppe DA, Guthrie RD, and **Sclabassi RJ**, "Comparisons of EEG spectral and correlation measures between healthy fullterm and preterm infants". *Pediatric Neurology*, 1994; 10(2):104-108.

64. Scher MS, Sun M, Steppe DA, Banks DL, Guthrie RD and **Sclabassi RJ**, "Comparisons of EEG-state specific spectral values between healthy fullterm and preterm Iinfants at matched conceptional ages". *Sleep*, 1994; 17(1): 47-51.

65. Sun M, **Sclabassi RJ**, Li CC, Zhang Y and Szu H, "Symmetrical wavelet transforms for edge localization." *SPIE Optical Engineering*, 1994; 33(7):2272-2281.

66. Berger TW, Chauvet G and **Sclabassi RJ**, "A biologically based model of functional properties of the hippocampus". *Neural Networks*, 1994; 7(6/7):1031-1064.

67. Hatzilabrou GM, Greenberg N, **Sclabassi RJ**, Carroll T, Guthrie RD and Scher M, "A Comparison of conventional and matched filtering techniques for rapid eye movement detection of the newborn." *IEEE Trans Biomed Eng*, 1994; 41(10):990-995.

68. Krieger DN and **Sclabassi RJ**, "Time varying evoked potentials". *J Med Eng Tech*, 1994;. 18(3): 96-100.

69. Scher MS, Steppe DA, Dokianakis SG, Sun M, Guthrie RD and **Sclabassi RJ**, "Cardiorespiratory behavior during sleep in full-term and preterm neonates at comparable postconceptional term ages". *Pediatric Research*, 1004; 36(6):738-744..

70. Hsin HC, Li CC, Sun M and **Sclabassi RJ**, "An adaptive training algorithm for back-propagation neural networks". *IEEE Trans Systems, Man, Cybern*, 1995; 25(3): 512-514.

71. Xu Y, Gu YL, Wu YT and **Sclabassi RJ**, "Robust control of free-floating space robot systems". *Inter J Control*, 1995; 61(2):261-277.

.

72. Simon R, Krieger DN, Znati T, Lofink RM and **Sclabassi RJ**, "MultiMedia MedNet: A medical collaboration and consultation system". *IEEE Computer*, 1995; 28(5): 65-73, 1995.

73. Scher MS, Steppe DA, Banks DL, Guthrie RG and **Sclabassi RJ**, "Maturational Trends of EEG-Sleep Measures in the Healthy Preterm Neonate" *Ped Neurol*, 1995; 12(4):314-322.

74. Simon R, Znati T and **Sclabassi RJ**, "DIPCS: An Interprocess Communication Architecture for Distributed Multimedia Systems". *Multimedia Tools Applications*, 1995; 1(3): 263-293.

75. Barr J, Horowitz M, Mathis J, **Sclabassi RJ**, Jungreis C, Horton J and Yonas H, "Intraoperative urokinase infusion for embolic stroke during carotid endarterectomy". *Neurosurgery*, Vol. 36 (3), pp. 606-611, 1995.

76. **Sclabassi RJ**, Krieger DN, Simon R, Lofink RM, Gross G and DeLauder D, "NeuroNet: A collaborative system for intraoperative guidance and control". *IEEE Computer Graphics _ Applications*, 1996; 16(1):39-45.

77. Kosanovic BR, Chaparro LF and **Sclabassi RJ**, "Signal analysis in fuzzy Information Space". *Fuzzy Sets Systems*, 1996; 77: 49-62.

78. Scher MS, Dokianakis SG, Sun M, Steppe DA, Guthrie RD and **Sclabassi RJ**, "Computer classification of sleep in preterm and full-term neonates at similar postconceptional term ages". *Sleep*, 1996; 19(1):18-25.

79. Baumann SB, Noll DN, Kondziolka DS, Schneider W, Nichols TE, Mintun MA, Lewine JD, Yonas H, Orrison WW and **Sclabassi RJ**, "Comparison of Functional MRI with PET and MEG to Identify the Motor Cortex in a Patient with an Arteriovenous Malformation". *J Image Guided Surgery*, 1996; 1:191-197.

80. Foutrakis GN, Burgreen G, Yonas H and **Sclabassi RJ**, "Construction of 3-D Arterial Volume Meshes From Magnetic Resonance Angiography". *Neurological Research*, 1996; 18 (8):354-360.

81. Sun M, Qian S, Yan X, Baumann SB, Xia XG, Dahl RE, Ryan ND and **Sclabassi RJ**, "Localizing functional activity in the brain through time-frequency analysis and synthesis of the EEG". *Proc IEEE*, 1996; 84 (9):1302-1311.

82. Li V, Albright AL, **Sclabassi RJ** and Pang D, "The role of somatosensory evoked potentials in the Evaluation of spinal cord retethering".*J Ped Neurosurg*, 1996; 24:126-133.

83. Tsui F-C, Li CC, Sun M and **Sclabassi RJ**, "Acquiring, modeling, and predicting ntracranial pressure in the intensive care unit".*Biomed Eng, Apps, Basis, Comm,* 1996; 8(6):566-578.

84. Grabb PA, Albright AL, **Sclabassi RJ** and Pollack IF, "Continuous intraoperative electromyography of cranial nerves during resection of fourth ventricular tumors in children". *J Neurosurg*, 1997; 86:1- 4..

85. Wu YT and **Sclabassi RJ**, "Identification of nonlinear systems using random amplitude poisson distributed input functions". *IEEE Trans Sys, Man, Cyber*, 1997;27(2): 222-234.

86. Foutrakis GN, Yonas H and **Sclabassi RJ**, "Finite element methods in the simulation and analysis of intracranial blood flow". *Neurological Research*, 1997; 19(2):174-186.

87. Scher MS, Dokianakis SG, Steppe DA, Banks DL and **Sclabassi RJ**, "Computer classification of state in healthy preterm neonates".*Sleep*, 1997; 20(2):132-141.

88. Scher MS, Steppe DA, **Sclabassi RJ** and Banks DL, "Regional Differences in Spectral EEG Measures Between Healthy Fullterm and Preterm Infants".*Ped Neurol*, 1997;17(3): 218-223..

89. Krieger DN, Onodipe S, Charles PJ and **Sclabassi RJ**, "Real time signal processing in the clinical setting". *Ann Biomed Eng*, 1998; 26 (3), 462-472.

90. Balzer JR, Rose RD, Welch WC and **Sclabassi RJ**, "Simultaneous somatosensory evoked potential and electromyographic recordings during lumbosacral decompression and instrumentation". *Neurosurgery*, 1998; 42 (6), 1318-1325.

91. Cho H, Nemoto EM, Yonas H, Balzer JR and **Sclabassi RJ**, "Cerebral monitoring by means of oximetry and somatosensory evoked potentials during carotid endarterectomy". *J Neurosurg*, 1998; 89: 533-538.

92. Scher MS, Richardson GA, Robles N, Geva D, Goldschmidt L, Dahl RE, **Sclabassi RJ** and Day NL, "Effects of prenatal substance exposure: altered maturation of visual evoked potentials" *Ped Neurol*, 1998; 18(3), 236-243.

93. Wu YT, Sun M, Krieger DN and **Sclabassi RJ**, "A comparison of orthogonal search and canonical variate analysis for the identification of neurobiological systems" *Annals Biomed Eng*, 1999; 27:592-606.

94. Foutrakis GN, Yonas H and **Sclabassi RJ**, "Saccular aneurysm formation in curved and bifurcating arteries". *Amer J Neuroradiology*, 1999; 20:1309-1317.

95. Scarrow AM, Resnick DK, Adelson PD and **Sclabassi RJ**, "Cervical spine evaluation in obtunded or comatose pediatric trauma patients". *Ped Neurosurg*, 1999; 30:269-75.

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OTHER PUBLICATIONS:

1. Sun M, CC Li, Y Zhang and **RJ Sclabassi**, "Symmetrical Wavelet Transforms for Edge Localization", Technical Report No. TR-CV-93-03, Department of Electrical Engineering, University of Pittsburgh, June, 1993.

2. Sun M and **RJ Sclabassi**, "The Gabor Spectrogram in Aneurysm Research". National Instruments Corporation Application Note 067, pp. 16-20, April, 1995.

PROFESSIONAL ACTIVITIES

TEACHING:

University of California at Los Angeles

A summary of estimation theory (9 hours), Data Processing Laboratory, of the Brain Research Institute. 1972, 1973, 1974 and 1975.

Linear and Non-Linear Programming Advances in Engineering Mathematics; Computer Science Department. 1973, 1974 and 1975.

Biomath. 208: Modeling and Analysis of Neuroelectric Data. Graduate seminar on the strategy and techniques of spike train, EEG, and evoked response modeling analysis.

Biomath. 213: Biomedical Laboratory Computing. The theory and use of laboratory computers in support of biomedical applications.

Carnegie-Mellon University

Biomed. 707: Bioinformation Processing I. Graduate seminar on the strategy and techniques for modeling and analyzing biological signals.

Biomed. 771: Identification theory in biological systems: Graduate seminar on application of identification and estimation theory to biological systems.

Biomed. 775: Neural Networks. Graduate seminar on relationships between neurophysiology, neuropsychobiology, and methods of analysis.

University of Pittsburgh

Basic Neurosciences: Resident Training Program, Department of Neurosurgery, University of Pittsburgh (1976-2003).

Laboratory for Computational Neuroscience, 1980-Present. (with Dr. Sun - 1991- to present).

Electrical Engineering 290: Bioengineering Systems, Spring 1986, Spring 1987.

Biomedical Engineering Relationship of Engineering to Neuroscienc (1 hr lecture) (1998 to 2008).
Neuroscience Introduction to Clinical Neurophysiology. Spring & Fall, 2007. (team taught: Drs. Balzer, Crammond, Habeych and Sclabassi)

STUDENTS, FELLOWS and RESIDENTS:

1. Ward, Denham S, Ph.D., Dissertation Committee: "*Stochastic Relationships for Neurons and Neuron Pair Networks*," Department of System Science, University of California at Los Angeles, 1975. Research Adviser: I Rubin. MD, University of Miami, 1977. Present Position: Professor of Anesthesiology, University of Rochester.

2. Schwartzman, Dedie, Ph.D., Dissertation Committee: "*Analysis of EEG Using Non-Orthogonal Basis Functions*," Department of Computer Science and Brain Research Institute, University of California at Los Angeles. Research Adviser: J. Vidal. Present Position: Unknown

3. Risch, Harvey A., M.D., Thesis Adviser: "*Functional Power Series Analysis of Somatosensory Evoked Potentials*", University of California at San Diego, March, 1976. Ph.D. , University of Chicago, 1980. Present position, Department of Preventive Medicine and Biostatistics, Faculty of Medicine, University of Toronto, Ontario.

4. Hinman, Channing Lee, Ph.D., Dissertation Adviser: "*Modulation of Afferent Signals in the Cat Somatosensory System Examined by Functional Power Series Analysis*", University of California at Los Angeles, January, 1977. Department of Medicinal Chemistry, College of Pharmacy, University of Toledo, Ohio.

5. Kroin, Jeffrey, Ph.D., Post Doctoral Scholar, Department of Neurology, University of California at Los Angeles, 1975-1976. Professor of Neurosurgery, Rush-Presbyterian-St. Lukes, Chicago, Illinois.

6. Bechtel, Philip, M.D., Resident Research Adviser, Department of Neurological Surgery, University of Pittsburgh, 1977-1978. Present position: Neurosurgery, Private Practice, Fort Worth, Texas.

7. Noreen, Gary K, M.S.E.E., Thesis Adviser: "*Characterization and Simulation of Dual-Input Nonlinear Systems Using Impulse Train Inputs*", Department of Electrical Engineering, Carnegie-Mellon University, June,1978. Present Position: Unknown.

8. Bursick, Daniel M, M.D., Resident Research Adviser, Department of Neurological Surgery, University of Pittsburgh, 1980-1981. Present position: Neurosurgery, Private Practice, Pittsburgh, PA.

9. McKeever, Robert T, M.S.E.E., Graduate Adviser, Department of Electrical Engineering, Carnegie-Mellon University, 1981. Present Position: Development Engineer, Dupont, Inc.

10. See, Michael E., M.S.E.E., Thesis Adviser: "A Microprocessor Based Monitoring System for the Neurosurgical Intensive Care Unit," Department of Electrical Engineering, Carnegie-Mellon University, 1981. Present Position: Engineer, IBM.

11. Orr, William, Ph.D., Dissertation Committee: "*Spontaneous Activity of Striatal Neurons Following Dopamine-Depleting Brain Lesions: Relation to Local Dopamine Concentration and Behavior*," Department of Behavioral Neuroscience. University of Pittsburgh, 1986. M.D., Northwestern University. Present Position: Unknown.

12. Krieger, Donald, Ph.D., Post-Doctoral Fellow, Center for Clinical Neurophysiology, Department of Neurological Surgery, University of Pittsburgh, 1987-88. Faculty, Department of Neurological Surgery, University of Pittsburgh, 1988 to 2005. Retired.

13. Sun, Mingui, Ph.D., Dissertation Adviser: "*The Discrete Pseudo Wigner Distribution: Efficient Computation and Cross-Component Elimination*," Laboratory for Computational Neuroscience, Department of Electrical Engineering, University of Pittsburgh, 1989. Present position: Professor, Departments of Neurological Surgery, Biomedical Engineering and Electrical and Computer Engineering, University of Pittsburgh, Pittsburgh, PA.

14. Sandford, Sandra, M.S., Thesis Committee: "*Sensory Processing in Patients with Nonalcoholic Cirrhosis*," Department of Clinical Psychology, University of Pittsburgh, 1986. Present Position: Unknown.

15. Harty, Patrick, Ph.D., Dissertation Committee: " ," Department of Behavioral Neuroscience, University of Pittsburgh, 1986. Present Position: Professor of Neuroscience, Yale University.

16. Jasiukaitis, Paul, Ph.D., Post-Doctoral Fellow, Center for Clinical Neurophysiology,

Department of Neurological Surgery, University of Pittsburgh, 1988-90. Present Position: Department of Neurosurgery,University of California at San Fransisco.

17. Nisenbaum, Eric S, Ph.D., Dissertation Committee: "*Identification of Two Funtionally Distinct Subpopulations of Neurons within The Rat Striatum*," Department of Behavioral Neuroscience, University of Pittsburgh, 1989. Present Position: Unknown.

18. Kim, Kin-Wah, MSEE, Thesis Advisor: "*A Comparative Study of Compound Action Potentials and Currents*," Laboratory for Computational Neuroscience, Department of Electrical Engineering, University of Pittsburgh, 1989. Present Position: Unknown.

19. Markowitz, Tracey, MSEE, Thesis Advisor: "*Characterization and Focusing of Beams Emitted From Ultrasonic Transducers*," Laboratory for Computational Neuroscience, Department of Electrical Engineering, University of Pittsburgh, 1989. Present Position: Attorney, University of Pittsburgh Medical Center.

20. Solomon, Jacqueline , MSEE, Thesis Advisor: "*A Multiple Transputer System for the Simulation of the Hippocampal Formation Based on the Volterra Kernel and Wigner Theories of Nonlinear Systems*," Laboratory for Computational Neuroscience, Department of Electrical Engineering, University of Pittsburgh, 1991. Present Position: Unknown.

21. Hatzibrou, Mina, MSEE, Research Adviser: Department of Electrical Engineering, University of Pittsburgh, 1992. Present Position: Unknown.

22. Biedka Tom , MSEE: Research Adviser: Professional Masters Degree. Present Position: Engineer, E-Systems, Dallas, Texas.

23. Kondziolka Douglas , MD, MS, Thesis Adviser: "*Development of a Malignant Brain Tumor (Rat Glioma Model for Assessing Radio Surgery Effects in vivo)*," Department of Behavioral Neuroscience, University of Pittsburgh, 1991. Present Position: Professor of Neurosurgery, University of Pittsburgh.

24. Burk Gerald , MSEE, Thesis Adviser: "*A Comparative Technique Using the Wavelet Transform for Determining the Delay of a Brainstem Evoked Potential*," Laboratory for Computational Neuroscience, Department of Electrical Engineering, University of Pittsburgh, 1992. Present Position: Engineer, Babcock & Wilcox, Lynchburg, VA.

25. Kwan Paul , MSEE, Thesis Adviser: "*Analog/Digital VLSI Implementation of Hippocampus*," Laboratory for Computational Neuroscience, Department of Electrical Engineering, University of Pittsburgh, 1993. Present Position: Unknown

26. Foutrakis George, MSME, Thesis Adviser: "*An Investigation of Fluid Dynamic Factors in the Initiation and Growth of Intra-Cranial Saccular Aneurysms via the Finite Element Method*," Laboratory for Computational Neuroscience, Department of Mechanical Engineering, University of Pittsburgh, 1993. Present Position: Biomedical Engineer, WL Gore & Associates.

27. Bonaddio Donald, MSEE, Thesis Adviser: "*Acquisition and Analysis of Human and Canine*

Compound Action Current Data for the Assessment of Peripheral Nerve Damage in vivo," Laboratory for Computational Neuroscience, Department of Electrical Engineering, University of Pittsburgh, 1993. Present Position: Engineer, Boeing Company.

28. Wu Yu-Te, MSEE, Thesis Adviser: "*Identification of Nonlinear Systems Using Poisson Distributed Events with Gaussian Distributed Amplitudes as Input Functions*," Laboratory for Computational Neuroscience, Department of Electrical Engineering, University of Pittsburgh, 1992. Ph.D., Carnegie-Mellon University, 1994. Present Position: Professor, Dept. of Computer Science and Information Engineering, Yang Ming University, Taiwan.

29. Tsui Fu-Chiang, MSEE, Thesis Adviser: "*Dipole Localization in Human Brain via the Wavelet Transform of Multi-Channels EEG*," Laboratory for Computational Neuroscience, Department of Electrical Engineering, University of Pittsburgh, 1993. Ph.D., Dissertation Adviser: "*Time-series Prediction Using a Multiresolution Dynamic Predictor*," Laboratory for Computational Neuroscience, Department of Electrical Engineering, University of Pittsburgh, 1996. Present Position: Research Assistant Professor, Department of Medical Bioinformatics, University of Pittsburgh.

30. Vera, Pedro, Ph.D.: Post-Doctoral Fellow, Center for Clinical Neurophysiology, Department of Neurological Surgery, University of Pittsburgh, 1992. Assistant Professor, Department of Neurological Surgery, University of Pittsburgh, 1993. Present Position: Research Professor, Veterans Administration Hospital, Tampa, FL.

31. Weisz, Donald, Ph.D.: Post-Doctoral Fellow, Center for Clinical Neurophysiology, Department of Neurological Surgery, University of Pittsburgh, 1993-94. Present Position: Professor, Department of Neurological Surgery, Mount Sinai Medical Center, New York.

32. Balzer, Jeffrey, Ph.D.: Dessertation Committee: "*Nonlinear Systems Analysis of Medial Perforant Path Input to the Hippocampal Dentate Gyrus: Effects of Stimulus Intensity*," Department of Behavioral Neuroscience, University of Pittsburgh, 1994. Post-Doctoral Fellow, Center for Clinical Neurophysiology, Department of Neurological Surgery, University of Pittsburgh, 1993-94. Present Position: Associate Professor, Department of Neurological Surgery, University of Pittsburgh.

33. Akgul, Tayfun, Ph.D., Research Adviser , Dissertation: "*Multi-Scale Deconvolution of Sensor Array Signals: Time and Sum-of-Cumulants Domain Solutions,*" Department of Electrical Engineering, University of Pittsburgh, 1994. Present Position: Professor, Istanbul University.

34. Caldwell, Mathew, M.D., Post-Doctoral Fellow (six months), Center for Clinical Neurophysiology, Department of Neurological Surgery, University of Pittsburgh, 1995. Present Position: Associate Professor of Anesthesiology, University of Pittsburgh.

35. Whitehurst, Stephen, M.D., Post-Doctoral Fellow (six months), Center for Clinincal Neurophysiology, Department of Neurological Surgery, University of Pittsburgh, 1995. Present Position: Associate Professor of Anesthesiology, University of Pittsburgh.

36. Jesinger, Robert, Ph.D. Student: Department of Electrical and Computer Engineering

and the Biomedical Engineering Program, Carnegie Mellon University, 1993-1995. Medical Student, University of Pittsburgh, 1996-2000. Present Position: Unknown.

37. Kosanovic, Bogdan, MSEE, Thesis Adviser: "*Theoretical and Experimental Decomposition of Neuronal Structures*," Laboratory for Computational Neuroscience, Department of Electrical Engineering, University of Pittsburgh, 1992. Ph.D.: Dissertation Adviser: "*Signal and System Analysis in Fuzzy Information Space*", Laboratory for Computational Neuroscience, Department of Electrical Engineering, University of Pittsburgh, 1995. Present Position: Technical Staff, Texas Instruments, Inc., Gaithersburg, MD.

38. DeLamatre TJ, Hariramani PP, Kidwell BA, Medniolam S, Ocampo TS and Scott AD, MS in Information Networking: Thesis Reader: "*MEDNET: Design and Implementation of a Multimedia Medical Networking System over an ATM Network*," Information Networking Institute, Carnegie-Mellon University, 1995. Research Adviser: Allen Fisher. Present Positions: Unknown.

39. Simon, Robert, Ph.D., Dissertation Committee: "*An Integrated Communication Architecture for Distributed Multimedia Applications*," Laboratory for Computational Neuroscience, Department of Computer Science, University of Pittsburgh, 1996. Present Position: Professor, Department of Computer Science, George Mason University, Fairfax, VA. Research Adviser: T. Zinati.

40. Yan, Peter, Ph.D., Post-Doctoral Fellow, Laboratory for Computational Neuroscience, Department of Neurological Surgery, University of Pittsburgh, 1994-1995. Present Position: Senior Scientest, Compunetix, Inc., Pittsburgh, PA.

41. Onodipe, Seun, MSEE, Graduate Adviser, Professional Master's Degree, Department of Electrical Engineering, University of Pittsburgh, 1995. Present Position: Engineer, Lucent Technology.

42. Sonmez, Murat, Ph.D., Dissertation Adviser: "*An Analysis of Fuzzy Integral Decision: A Novel Approach to EEG Source Localization,"* Laboratory for Computational Neuroscience, Department of Electrical Engineering, University of Pittsburgh, 1997. Dissertation: Present Position: Staff Engineer, Lucent Technology.

43. Briggs, Alan, MSME, Graduate Adviser, Mechanical Engineering, University of Pittsburgh, 1995-1998. Present Position: Unknown.

44. Liang, Wei, Ph.D., Visiting Professor, Laboratory for Computational Neuroscience, Department of Neurological Surgery, University of Pittsburgh, 1998-2002. Present Position: Professor and Associate Dean, Henan University of Technology, Henan, China.

45. Landes McNamee, Rebecca, MSBME, Thesis Adviser: " *Characterization of Heart Rate Dynamics in Infants as a Probe for Neural State*," Laboratory for Computational Neuroscience, Department of Bioengineering, University of Pittsburgh, 1995. Ph.D., Dissertation Adviser: "*An Investigation of a Neuro-Fuzzy Inference System for Use in Modeling the Physiological system of Beat-by-Beat Cardiac Control*," Laboratory for Computational Neuroscience, Department of Bioengineering, University of Pittsburgh,

1999. Present Position: Assistant Professor, Department of Radiology, University of Pittsburgh.

46. Alrabiah, Tawfig Fawzan, Ph.D., Dissertation Committee: "*Multicast Routing For Real-Time Communication in Wide-Area High-Speed Networks,*" Department of Computer Science, University of Pittsburgh, 1999. Present Postion: Unknown. Research Adviser: T. Zinati.

47. Gephart, Kimberly A, MSBME, Thesis Adviser : "*Heart Rate Variation in Epilepsy,*" Laboratory for Computational Neuroscience, Department of Bioengineering, University of Pittsburgh, 2000. Present Position: Retired.

48. Macey, Katherine Elizabeth, Ph.D., Dissertation Examining Committee (UCLA): "*Applications of Wavelet Transforms to Analysing Medical Signals*," Department of Electrical and Electronic Engineering, University of Canterbury, Christchurch, New Zealand, 2000. Present Position: Unknown. Research Adviser: R. Fright.

49. Yi, Ke-Chu, Ph.D., Visiting Professor, Laboratory for Computational Neuroscience, Department of Neurological Surgery, 2000-2001. Present Position: Professor, Xidian University, Xian, China.

50. Han, Li-Qiang, Ph.D., Visiting Professor, Laboratory for Computational Neuroscience, Department of Neurological Surgery, 2000-2001. Present Position: Vice President, Jilin University of Technology, Chanchun, China.

51. Bates, Robyn Rebecca, MSBME, Thesis Adviser: "*Detection of Seizure Foci by Recurrent Neural Networks*," Laboratory for Computational Neuroscience, Department of Bioengineering, University of Pittsburgh, 2001. Ph.D. Candidate, Dissertation Adviser: 2003 - Present.

52. Herrera, Rafael, MSEE, Ph.D. Student: Laboratory for Computational Neuroscience, Department of Electrical and Computer Engineering, University of Pittsburgh, 1995-2000. Present Position: Chief Technical Officer, Computational Diagnostics, Inc., Pittsburgh.

53. Pon, Lin-Sen (Vincent), Ph.D., Dissertation Adviser: "*Separation of Spiky Transients in EEG/MEG Using Morphological Filters in Multi-resolution Analysis*," Laboratory for Computational Neuroscience, Department of Electrical and Computer Engineering, University of Pittsburgh, 2002. Post-Doctoral Fellow, Laboratory for Computational Neuroscience, Department of Neurological Surgery, University of Pittsburgh, 2002-2004. Present Position: Professor, ,Taiwan.

54. Vyshka, Gentian, M.D., Visiting Professor, Fulbright Scholar, Laboratory for Computational Neuroscience, Department of Neurological Surgery, University of Pittsburgh, 2004. Present Position: Professor, Department of Neurology, UHC Mother Theresa, Tirana, Albania.

55. Furstenau, Scott, BS, Research Adviser, Undergraduate Research Student, Report: "*Quantification of Tremor in Parkinson Patients*," Laboratory for Computational Neuroscience, Department of Bioengineering, University of Pittsburgh, 2003. Present Position: Unknown.

56. Paul Roche, MSEE, Thesis Committee: "*Transmitting Biological Waveforms using a Cellular Phone*," Laboratory for Computational Neuroscience, Department of Electrical and Computer Engineering, University of Pittsburgh, 2004. Present Position: Unknown. Research Adviser: M. Sun.

57. Brian Wessel, MSBME, Thesis Co-Adviser: "*Analytical and Numerical Optimiation of an Implantable Volume Conduction Antenna*," Laboratory for Computational Neuroscience, Department of Biomedical Engineering, University of Pittsburgh, 2004. Present Position: Member of the Technical Staff, Charles Drapper Labs, MIT. Research Co-Adviser: M. Sun.

58. Bansel, Pansy MSEE, Co-Thesis Adviser: "*Simulation and Extraction of Single Trial Evoked Potentials*," Laboratory for Computational Neuroscience, Department of Electrical and Computer Engineering, University of Pittsburgh, 2004. Present Position: engineer, NeuroMetrix, Inc., Waltham MA. Research Co-Adviser: M. Sun.

59. Tian, Bin, Ph.D., Visiting Professor, Laboratory for Computational Neuroscience, Department of Neurological Surgery, University of Pittsburgh, 2003-2004. Present Position: Professor of Information Sciences, Xidian University, Xian, China.

60. Murphy, Michael, M.D., Post-Doctoral Fellow, Center for Clinical Neurophysiology, Department of Neurological Surgery, University of Pittsburgh, 2004. Present Position: Assistant Professor, Department of Anesthesiology, University of Pittsburgh.

61. Hu, Chengquan, PH.D., Visiting Professor, Laboratory for Computational Neuroscience, Department of Neurological Surgery, 2004-2005. Present Position: Professor, Jilin University, China.

62. Hsu, Jennting, Graduate Student, Laboratory for Computational Neuroscience, Department of Electrical and Computer Engineering, University of Pittsburgh, 2003-2006. Present Position: Unknown. Research Adviser: CC Li.

63. Oyolu, Chuba, Graduate Student, Laboratory for Computational Neuroscience, Department of Electrical and Computer Engineering, University of Pittsburgh, 2003-2005. Present Position: Unknown.

64. Susan Wright, Graduate Student, Laboratory for Computational Neuroscience, Departments of Neuroscience and Computer Science, University of Pittsburgh, 2003-2004. Present Position: Unknown.

65. Liu,Qiang, Ph.D., Dissertation Committee: "New Change Detection Models for Object-Based Encoding of Patient Monitoring Video," Laboratory for Computational Neuroscience, Department of Electrical and Computer Engineering, University of Pittsburgh, 2005, Post-Doctoral Scholar, Laboratory for Computational Neuroscience, Department of Neurological Surgery, 2005-2007. Present Position: Member of the Technical Staff - . Research Adviser: M. Sun.

66. Doll, Sara, BSBME, Undergraduate Project Adviser, Laboratory for Computational

Neuroscience, Department of Bioengineering, University of Pittsburgh, 2003. Present Position: Engineer,FDA, Washington DC.

67. Kaczmarski, Lisa, BSBME, Undergraduate Project Adviser, Laboratory for Computational Neuroscience, Department of Bioengineering, University of Pittsburgh, 2003. Present Position: Unknown.

68. Magcalas, Philip, BSBME, Undergraduate Project Adviser, Laboratory for Computational Neuroscience, Department of Bioengineering, University of Pittsburgh, 2003. Present Position: Unknown.

69. Nauhaus, Ian, MSBME, Thesis Committee: "*The Energy Harvesting problem for Implantable Devices*," Laboratory for Computational Neuroscience, Department of Bioengineering, University of Pittsburgh, 2003. Present Position: Graduate Student, University of Pittsburgh. Research Adviser: M. Sun.

70. Hadjipanayis, Constantinos George, M.D., Ph.D., Dissertation Committee: "*Radiosensitivity Enhancement of Human Glioblastoma Multiforme by Herpes Simplex Virus Vector*," Department of Biochemistry and Molecular Biology, University of Pittsburgh, 2005. Present Position: Assistant Professor of Neurological Surgery, Emory University. Research Adviser: NA DeLuca.

71. Rath, William Tyler, MSBME, Thesis Co-Adviser: "*Modeling of Transcranial Electrical Stimulation by Finite Element Analysis*," Laboratory for Computational Neuroscience, Department of Bioengineering, University of Pittsburgh, 2006. Present Position: Unknown. Research Co- Adviser: M. Sun.

72. Peng, Renbin, Graduate Student, Laboratory for Computational Neuroscience, Department of Electrical and Computer Engineering, University of Pittsburgh, 2005 –2006.Present Position: Unknown.

73. Justin, Gusphyl A, MSBME, Thesis Adviser: " *Biofuel Cells as a Possible Power Source for Implantable Electronic Devices* ", Department of Bioengineering, University of Pittsburgh, 2004. Ph.D., Dissertation Adviser: "*Generating Electricity Within the Physiological Environment for Low Power Implantable Device Applications: Towards the Development of in-vivo Biofuel Cell Technologies*," Department of Bioengineering, University of Pittsburgh,2007. Present Position: Post-doctoral scholar, Clemson University.

74. Ozkurt, Tolga, MSEE, Dissertation Committee, Laboratory for Computational Neuroscience, Department of Electrical and Computer Engineering, Engineering, University of Pittsburgh, 2005 – 2009. Dissertation: Research Adviser: M. Sun. " " Department of Electrical and Computer Engineering, University of Pittsburgh, 2009. Present Position: Post-doctoral Scholar, ….., Hamburgh, Germany.

75. Li, Leon, BSEE Undergraduate Co-adviser, Laboratory for Computational Neuroscience, Department of Electrical and Computer Engineering, University of Pittsburgh, 2005 – 2007. Goldwater Scholar. Present Position: Graduate Student in Electrical Engineering, MIT. Co-Adviser: M. Sun.

76. Lu, Xueling, Undergraduate Co-adviser, Laboratory for Computational Neuroscience, Department of Electrical and Computer Engineering, University of Pittsburgh. 2006 – present. Co-Adviser.

77. Jia, Wenyan, Ph.D., Post-Doctoral Fellow, Laboratory for Computational Neuroscience, Department of Neurological Surgery, University of Pittsburgh, 2005-2009. 2009-present, Research Assistant Professor, Department of Neurological Surgery, University of Pittsburgh.

78. Zhao,Jun, Visiting Engineer, Laboratory for Computational Neuroscience, Department of Electrical and Computer Engineering, University of Pittsburgh, 2004-present

79. Tang, Zhide, Visiting Professor, Laboratory for Computational Neuroscience, Department of Neurosurgery, University of Pittsburgh. 2005 – 2006.Present Position: Professor, .

80. Hackworth, Steven Andrew, MSEE, Thesis Committee: " *Proof of Concept for a Remotely Powered Deep Brain Stimulation Device*," Laboratory for Computational Neuroscience, Department of Electrical and Computer Engineering. University of Pittsburgh, 2005. Ph.D. Dissertation Committee. "*Design, Optimization, and Implementation of a Volume Conduction Energy Transfer Platform for Implantable Devices*," University of Pittsburgh, 2010, Research Adviser: M. Sun.

81. Snyderman, Molly, Summer Research Student, Co-Adviser, Laboratory for Computational Neuroscience, Department of Neurological Surgery, 2005. Present Position – Undergraduate – New York University, Co-Adviser: M. Sun.

82. Ryu, Kwang Ryol, Ph.D., Visiting Professor, Laboratory for Computational Neuroscience, Department of Neurosurgery, University of Pittsburgh, 2006- present. Position: Professor, Department of Electrical Engineering, Mokwon University, South Korea.

83. Xu, Guizhi, Ph.D., Visiting Professor, Laboratory for Computational Neuroscience, Department of Neurosurgery, University of Pittsburgh, 2006-2007. Present Position: .

84. Yao, Ning, MSEE, Dissertation Committee, Laboratory for Computational Neuroscience, Department of Electrical and Computer Engineering, University of Pittsburgh, 2007- 2010. Research Adviser: M Sun.

85. Yuan, Zhiyong, Ph.D. Visiting Professor, Laboratory for Computational Neuroscience, Department of Neurosurgery, University of Pittsburgh, 2006-2007. Position:

86. Senay, Seda, MSEE, Dissertation Committee, "*Sample Reconstruction from Nonuniform Samples using Prolate Speheroidal Wave functions: Theory and Application*," Department of Electrical and Computer Engineering, University of Pittsburgh, 2006-2011. Research adviser: LF Chaparro.Present Position: Unknown

87. Henry, Christopher, Undergraduate Summer Research Student, Co-Adviser, Laboratory for Computational Neuroscience, Department of Neurological Surgery, University of Pittsburgh. 2006. Co-Adviser: M. Sun,

88. Riley, Laura, Undergraduate Summer Research Student, Co-Adviser, Laboratory for Computational Neuroscience, Department of Neurological Surgery, University of Pittsburgh, 2006. Co-Adviser: M. Sun.

89. Hirsch, David, Undergraduate Summer Research student, Co-Adviser, Laboratory for Computational Neuroscience, Department of Neurological Surgery, University of Pittsburgh, 2006. Co-Adviser: M. Sun.

90. Charles, Prophete, MSBME, Graduate Adviser, Professional Master's Degree. Laboratory for Computational Neuroscience, Department of Bioengineering, University of Pittsburgh, 2007. Present Position: Systems Administrator, Newark Beth Israel Medical Center.

91. Mbonu, Ola, BSEE, Graduate Co-Adviser, Laboratory for Computational Neuroscience, Department of Electrical and Computer engineering, University of Pittsburgh, 2006- present. Co-Adviser: M. Sun.

92. Vinjamui, Ramana, MSEE, Dissertation Committee, "*Dimensionality Reduction in Control and Co-ordination of the Human Hand*," Department of Electrical and Computer Engineering, University of Pittsburgh, 2006-2008t. Research Adviser: ZH Mao.

94. Kanal, Eliezer Yosef, BS, Research Adviser, "*Temporal connectivity Patterns of the Cortico- limbic Learning and Rewards Network*," Laboratory for Computational Neuroscience, Department of Bioengineering and the Center for the Neural Basis of Cognition, University of Pittsburgh, 2006- 2009. Post Doctoral Scholar, Department of Biological Sciences, Carnegie-Mellon University.

94. Sheremeta, Marta, Undergraduate Adviser, Senior Honors Thesis, "*Learning and Other Relevant Functions of Dorsolateral Pre-frontal Cortex*," Laboratory for Computational Neuroscience, Department of Neuroscience and the Honors College, University of Pittsburgh, 2007-2008.

95. Zheng, Xuyuan, Ph.D., Visiting Professor, Laboraotry for Computational Neuroscience, Department of Neurological Surgery, University of Pittsburgh, 2007-2008. Position: , Tienjin, China.

96. Zhang, Hong, Ph.D., Visiting Professor, Laboraotry for Computational Neuroscience, Department of Neurological Surgery, University of Pittsburgh, 2007-present. Position:

97. Schmidt, Karl, Undergraduate Summer Research Student, Co-Adviser, Laboratory for Computational Neuroscience, Department of Neurological Surgery, University of Pittsburgh, 2007. Position: Student, Czech Technical University, Prague. Co-Adviser: M. Sun.

98. Seyringer, Franz, Undergraduate Summer Research Student, Co-Adviser, Laboratory for Computational Neuroscience, Department of Neurological Surgery, University of Pittsburgh, 2007. Position: Student, University of Natural Resources and Applied Sciences, Vienna, Austria. Co-Adviser: M. Sun.

99. Zhao, Ruizhen, Ph.D., Visiting Professor, Laboratory for Computational Neuroscience, Department of Neurological Surgery, University of Pittsburgh, 2007- 2009. Position: Professor, North Jiaotong University, Beijing, China.

100. Zhang, Fei, Ph.D., Post-Doctoral Scholar, Laboratory for Computational Neuroscience, Department of Neurological Surgery, University of Pittsburgh, 2008-2009. Present Position: Post-Doctoral Scholar, National Institute for Scientific Technology.

RESEARCH:

Research is focused on the applications of system theory to problems in basic and clinical neuroscience and the development of instrumentation to explore neural function.

ACTIVE GRANTS:

1.. NIH U01 HL91736-01, **Co-Investigator**, M. Sun, PI., "A Unified Sensor System for Ubiquitous Assessment of Diet and Physical Activity", 1/07-7/11,

PREVIOUS GRANTS:

1. National Multiple Sclerosis Society, 516-D-4,"Neurophysiological Studies in Multiple Sclerosis," **Co-Investigator**, N Namerow, PI, Department of Neurology, University of California at Los Angeles, 1971-1976.

2. NINCDS, NS-02501, "Application of Computers and Neurophysiology to the Study of the Brain," Brain Research Institute, **Co-Investigator**, T Estrin, PI, Brain Research Institute, University of California at Los Angeles, 1971-1976.

3. NINCDS NS-11443, "Computational Investigations of Problems in Neurology," RJ Sclabassi, **Principal Investigator**, Departments of Neurology and Biomathematics, University of California at Los Angeles, 1974-1977.

4. Faculty Research Grant, "Computational Neuroscience," RJ Sclabassi, **Principal Investigator,** Biotechnology Program, Carnegie-Mellon University, 1977-1981.

5. General Electric Grant, "Effects of Xenon on EEG," **Co-Investigator**, H. Yonas PI, Department of Neurological Surgery, University of Pittsburgh, 1983-1984

6. CRC Seed Grant, "Nonlinear Systems Analysis of Synaptic Transmission in the Mammalian Hippocampus," **Co-Investigator**, T Berger, PI, Department of Behavioral Neuroscience, University of Pittsburgh, 1983.

7. Whitaker Foundation, "Nonlinear Systems Analysis of Synaptic Transmission in the Mammalian Hippocampus," **Co-Investigator**, T Berger, PI, Department of Behavioral Neuroscience, University of Pittsburgh, 1984-1986.

8. Richard Mellon King Foundation, "Acoustic Studies of Intracranial Aneurysms and Arteriovenous Malformations," **Co-Investigator**, L Sekhar, PI, Department of Neurological Surgery, University of Pittsburgh, 1985-1986.

9. American Heart Association, "Acoustic Studies of Experimental Saccular Aneurysms," **Co-Investigator**, L Sekhar, PI, Department of Neurosurgery, University of Pittsburgh, 1985-1986.

10. Burroughs-Wellcome Inc, "Characterization of the EEG and Measurement of Plasma Levels of Atracurium and Laudanosine in Surgical Patients Undergoing Cadaver Kidney Transplantation," **Co-Investigator**, R Cook, PI, Department of Anesthesiology, University of Pittsburgh, 1985-1986.

11. HRSF, "Spinal Cord Transplantation," **Co-Investigator**, L Albright, PI, Department of Neurological Surgery, University of Pittsburgh, 1985.

12. NINCDS, NS 19794, "Magnetic Measurements of Peripheral Nerve Function," **Co-Investigator**, J Wikswo, PI, Department of Physics, Vanderbilt University, 1986-1989.

13. NINCDS, NS 23110, "Lysis of Intraventricular Blood Clot with Urokinase", **Co-Investigator**, D Pang, PI, Department of Neurosurgery, University of Pittsburgh, 1986-1988.

14. Ben Franklin Partnership Grant, "Development of an Acoustic Aneurysm Detector," **Co-Investigator,** L. Sekhar, PI, Department of Neurological Surgery, University of Pittsburgh, 1986-1989.

15. Ben Franklin Partnership Grant, "Development of a Clinical Neurophysiology System," **Principal Investigator**, Department of Neurological Surgery, University of Pittsburgh, 1987-1990.

16. NIMH, MH40858, "Developmental Neurobiology of Infantile Autism", **Co-Investigator**, N Minshew, PI, Department of Psychiatry, University of Pittsburgh, 1987-1989.

17. CRC Seed Money, "Scalp EEG Response Nonlinearities During Cognitive Task Performance in Autistic vs Normal Subjects", **Co-Investigator**, D Krieger, PI, Department of Neurosurgery, University of Pittsburgh, 1987-1988.

18. NINDS R43 , "Automatic Enhancement of Clinical Evoked Potentials", **Co-Investigator**, W Larimore, PI, Business and Technological Systems, Inc., 1987.

19. NINDS R01 NS01110, "Ontogeny of EEG Sleep in the Healthy Premature Neonate," **Co-Investigator**, MS Scher, PI, Department of Pediatrics, 1987-1991.

20. Scaife Family Foundation, " New Sceening Tests to Identify Infants at Risk," **Co-Investigator**, MS Scher, PI, Department of Pediatrics, 1987-1991.

21. Office of Naval Research, "Changes in Neuronal Network Properties Induced by Learning and Synaptic Plasticity: A Nonlinear Systems Approach", **Co-Principal Investigator** with T

Berger, Departments of Neurological Surgery and Behavioral Neuroscience, University of Pittsburgh, 1987-1990.

22. Air Force Office of Scientific Research, "A Systems Theoretic Investigation of Neuronal Network Properties of the Hippocampal Formation", **Co-Principal Investigator** with T Berger, Department of Neurological Surgery and Behavioral Neuroscience, University of Pittsburgh, 1988-1991.

23. Apollo Computer, Inc. "Computational Support for the Neurosciences", **Principal Investigator**, Departments of Neurological Surgery and Behavioral Neuroscience, University of Pittsburgh, 1988.

24. NINDS: NS26793, "Computer Analyses of EEG Sleep in Preterm Neonates", **Co-Investigator**, M Scher, PI, Department of Pediatrics, University of Pittsburgh, 1988-1993.

25. American Heart Association, "Intraoperative Evaluation of Aneurysmal Hemodynamics", **Co-Investigator**, L Sekhar, PI, Department of Neurosurgery, University of Pittsburgh, 1989- 1 990.

26. NIMH:MH45156-01A1, "Behavioral Neuroscience and Schizophrenia", **Co-Investigator**, E Stricker, PI, Department of Neuroscience, University of Pittsburgh, 1990-1993.

27. Office of Naval Research: N00014-87-K-0472, "Changes in Neuronal Properties Induced by Learning and Synaptic Plasticity: A Nonlinear Systems Approach", **Co-Principal Investigator** withT Berger, Department of Neuroscience, University of Pittsburgh, 1990-1993.

28 Hearst Foundation, "Cerebral Aneurysm Detection", **Co-Investigator**, H Yonas, PI, Department of Neurological Surgery, University of Pittsburgh, 1991-1993.

29. Magee-Womens Hospital Research Fund, "Computer Analysis of EEG Sleep in Preterm Neonates," **Co-Investigator**, MS Scher, PI., 1991.

30. NINDS: NS30318, "Hypothermia and Traumatic Brain Injury", **Principal Investigator** Core B: Data Acquisition and Biostatistics: D Marion, PI, Department of Neurological Surgery, University of Pittsburgh, 1991-1994.

31. Hewlett Packard, "Real-Time Protocols for Multimedia Applications," **Co-Principal Investigator** with T Znati, Departments of Neurological Surgery and Computer Science, University of Pittsburgh, 1992-1993.

32. Hewlett Packard, Inc., "Computational Support for Multimedia Technology in the Clinical Neurosciences", **Principal Investigator**, Departments of Neurological Surgery, Electrical Engineering, and Neuroscience, University of Pittsburgh, 1993.

33. Ben Franklin Technology Center of Western Pennsylvania, "MedNet: Multi-Media Extensions to NeuroNet", **Project Director**, Departments of Neurological Surgery, Electrical Engineering and Computer Science, University of Pittsburgh, D DeLauder, PI,

Computational Diagnostics, Inc. 1993-1995.

34. Children's Hospital of Pittsburgh, RAC Award, "The Localization of Interictal and Ictal Sources in Epilepsy Patients: Quantitative Approaches to EEG/MEG Data and Cross-Validation of Calculated Sources Using Multimodality Image Registration," **Co-Investigator**, S. Baumman, PI, 1993-1995.

35. N1AA: RO1AA08528, "Prenatal Alcohol Effects on Brain Maturation," **Co-Investigator**, M Scher, PI, Departments of Neurological Surgery and Pediatrics, University of Pittsburgh, 1992- 1996.

36. NIDRR: H133P30002, "Research Training in Engineering and Rehabilitation Technology", **Mentor**, Departments of Neurosurgery and Bioengineering, University of Pittsburgh, 1993-1998.

37. Whitaker Foundation, "A Multicomponent Modeling of Distributed Electrical Activities on Neural Substrates", **Co-Investigator**, M Sun, PI, Department of Neurological Surgery, University of Pittsburgh, 1994-1997.

38. NINDS R41 NS36888, "An Automatic Multichannel EEG Electrode Placement System", **Co-Investigator**, M. Sun, PI, Department of Neurological Surgery, University of Pittsburgh, 1997- 1999. (In collaboration with Computational Diagnostics, Inc.)

39. Hewlett Packard, Inc., "Health Information Systems Initiative at The University of Pittsburgh," **Principal Investigator**, Departments of Neurological Surgery and Electrical Engineering, 1997-1998.

40. NIMH: P01 MH41712-11, "Psychobiology of Depression in Children and Adolescents", **Principal Investigator** Project 4, N Ryan, PI, Department of Psychiatry, University of Pittsburgh, 1997-2002.

41. Whitaker Foundation, "Theoretical and Clinical Study of the Initiation, Development an Rupture of Cerebral Aneurysms", **Co-Investigator**, A Robertson, PI, Department of Mechanical Engineering, University of Pittsburgh, 1997-2001.

37. NIH, "A Multicenter Study of Sleep and Outcome in High Risk Infants", **Co-Investigator**, MS Scher, PI, Department of Pediatrics, University of Pittsburgh, 1997-2001.

38. NIH, "Assessment of Biological and Social Risk in Preterm Infants", **Co-Investigator**, D Holditch-Davis, P.I., Department of Health of Women and Children, University of North Carolina at Chapel Hill, 1997-2001.

39. NINDS R21 NS39047, "Extraction of Early Ictal Activity Through Data Mining", **Co-Investigator**, M Sun, PI, Department of Neurosurgery, University of Pittsburgh, 1999-2001.

40. NINDS R42 NS36888, "An Automatic Multichannel EEG Electrode Placement System", **Co-Investigator**, M. Sun, PI, Department of Neurological Surgery, University of Pittsburgh, 1999- 2002. (In collaboration with Computational Diagnostics, Inc.)

41. NINDS R41 NS , "Identifying viable tissue with EEG and perfusion imaging", **Co-Investigator**, Luu, P.I., Electrical Geodesics, Inc., 1999-2001.

42. NINDS , "Hypothermia for Severe TBI in Children," **Consultant**, PD Adelson, PI, Department of Neurosurgery, University of Pittsburgh, 1999-2002.

43. NINDS R01 NS/MH38494 "Multichannel EEG Data Compression", **Co-Investigator**, M Sun, PI, Department of Neurosurgery, University of Pittsburgh, 1999-2002.

44. NSF , "Complex Interactive Network/Systems Infrastructure for Networks, Computation and Communication", **Co-Investigator**, M Mickle, PI, Department of Electrical and Computer Engineering, University of Pittsburgh, 1999-2004.

46. NIADA R01 AA11637, "Cognitive-Psychosocial Interactions and Alcoholism Risk", **Co-Investigator**, R Tarter, P.I.,Department of Psychiatry, University of Pittsburgh, 2000-2007.

47. NINDS 2 R01 NS/MH 38494, "Video-EEG Data Compression," **Co-Investigator**, M Sun, PI, Department of Neurosurgery, University of Pittsburgh, 2002-2007.

48. NINDS R01-NS43791/R01EB002099, "Data Communication with Implantable Micro Devices," **Co-Investigator**, M Sun, PI, Department of Neurosurgery, University of Pittsburgh, 2002-2007.

49. NIIBE EB 002309, "Video Compression for Remote Monitoring of Neursurgery," **Co-Investigator**, M Sun, PI, Department of Neurosurgery, University of Pittsburgh, 2003-2007.

50. NIADA P50 DA 55605, "Drug Abuse Vulnerability: Mechanisms and Manifestations", **Co-Investigator**, R Tarter, PI,Department of Psychiatry, University of Pittsburgh, 2004-2007.

51. US ARMY W81XWH-05-C-0047, SBIR, Phase I, "Volume Conduction Invasive Medical Data Communications Systems," **Co-Investigator**, M Sun, PI. Department of Neurological Surgery, Richard Friedman, PI , Computational Diagnostics, Inc. 2005-2006.

52. Coulter Foundation, "Conducting Polymer/Hydrogel Skin Surface Electrode for High Resolution Multichannel EEG," **Co-Investigator**, T Chui, PI, Department of Bioengineering, 9/05- 8/07.

53. NIH R01 EB002309, **Co-Investigator**, M. Sun, PI., "Video Compression for Remote Monitoring in Neurosurgery" 9/03 - 8/08.

54. US ARMY SBIR A2-2094, Phase II, **Co-Investigator**, M. Sun, PI., "Volume Conduction Invasive Medical Data Communication System, University of Pittsburgh, 1/06-1/09. (to Computational Diagnostics, Inc.)

SEMINARS, CONFERENCES AND INVITED LECTURES:

1. The conference of Systems Analysis Approach to Neurophysiological Problems, Brainerd, Minn, June, 1969.

2. "The use of the train somatosensory evoked response and linear discriminant analysis in the study of multiple sclerosis". Data Processing Laboratory, Brain Research Institute, University of California at Los Angeles, November 9, 1971.

3. Co-Chairman with N.S. Namerow of a session on "Biological Systems: Vision", 24th Annual Conference on Engineering in Medicine and Biology, Las Vegas, 1971.

4. "The statistical investigation of neurophysiological hypotheses", Department of Biomathematics, University of California at Los Angeles, February 16, 1972.

5. "The use of discriminant analysis in the study of problems in the neurosciences", The Association for the Psychophysiological Study of Sleep, 11th Annual Meeting, New York, May 7, 1972.

6. Co-Chairman and organizer with D.O. Walter and M.F. Gardiner of a workshop on Decision Theory in the Neurosciences, BRI Alumni Reunion, 1972.

7. Co-Chairman and organizer with D.L. Walter of a SIGBIO Professional Development Seminar, Computers in the Neurosciences, Fall Joint Conference, Anaheim, California, 1972.

8. Multivariate statistical analysis in the study of data from evoked response experiments". FJCC, SIGBIO Professional Development Seminar, Anaheim, CA, December, 1972.

9. "The statistical investigation of neurophysiological hypothesis". Department of Psychiatry, Harvard Medical School, May 8, 1972.

10. "The statistical investigation of neurophysiological hypotheses". Computer Science Department, University of California at Los Angeles, November 30, 1972.

11. "Neural models, spike trains, and the inverse problem". Neuroscience Research Seminar, University of California at Los Angeles, February 13, 1974.

12. Invited lecturer in the special session on Times Series Analysis and System Identification, Joint Automatic Control Conference, Austin, Texas, June, 1974.

13. Invited lecturer in the Federation of American Societies for Experimental Biology Conference on The Computer as a Research Tool in the Life Sciences, Aspen, Colorado, June, 1974.

14. Invited lecturer in the Ninth Annual Winter Conference on Brain Research. Delivered talks on Neurophysiological Aspects of Demyelinating Diseases, and Sensory and Motor Neurophysiology in Clinical Neuroscience, Keystone, Colorado, January, 1976.

15. Invited lecturer in the workshop on Special Computer Hardware Development for the

Biomedical Research Community, sponsored by Biotechnology Resources Branch of N.I.H., Lonedell, Missouri, May, 1976.

16. Invited lecturer in the Tenth Annual Winter Conference on Brain Research, Keystone, Colorado, January, 1977.

17. "The modulatory effect of prior input upon afferent signals in the somatosensory systems". Department of Physiology, Medical University of South Carolina, February 1, 1977.

18. Invited lecturer in the session on Biomedical Signal Processing, 1977 Joint Automatic Control Conference, San Francisco, June, 1977.

19. Invited lecturer in the Quantitative Analysis Workshop, 1977 Neurosciences Meeting, Anaheim, November, 1977.

20. Invited lecturer in the Clinical Conference on Evoked Potentials, New York Academy of Sciences, New York, June, 1981.

21. Invited lecturer in the 2nd Annual MIU Neuroscience Conference, presented, "The inverse problem: a construct for the quantitative study of the central nervous system", Fairfield, Iowa, May, 1982.

22. Invited lecturer in the 11th Annual Educational and Scientific Symposium of the Society of Critical Care Medicine, Panel on Special Considerations in Pediatric Central Nervous System Monitoring. June, 1982, St. Louis, MO, presented, "Measurement of electrical phenomenon-conventional EEG, spectral analysis, evoked potentials".

23. Invited lecturer in the NATO Advanced Study Institute on Biomagnetism, Frascati, Italy, September, 1982.

24 Invited lecturer in the 4th Annual Conference on Frontiers of Engineering in Health Care, session on Computers in Clinical Research, Philadelphia, PA, September, 1982.

25. Lecturer in The Second International Evoked Potential Symposium, Cleveland, OH, October, 1982.

26. Course on "Sensory Evoked Potentials", with T. Fria, University of Pittsburgh, December, 1982.

27. Invited lecturer in the Sixteenth Annual Winter Conference on Brain Research, Keystone, Colorado, January, 1983.

28. Visiting Professor, Department of Neuroscience, Maharishi International University, Fairfield, Iowa, June, 1983.

29. Lecturer in Computers in Neurosurgery, Congress of Neurological Surgeons, 33rd Meeting, October, 1983.

30. Co-Chairman of the session on Network Systems for Patient Testing and Monitoring and presenter of a paper on "Computer networks in clinical neurophysiology" at the 19th Annual AANI Meeting, Washington, DC, April, 1984.

31. Invited lecturer in Anesthesiology Symposium on "Neuromuscular blocking agents: State of the art and directions in future research". Presented discussion on "CNS effects of muscle relaxants", Captiva Island, Florida, April, 1985.

32. Invited lecturer in International Conference on Dynamics of Sensory and Cognitive Processing of the Brain, presented paper on "Nonlinear properties of the human somatosensory system", Berlin, August, 1985.

33. Medical Grand Rounds, Mercy Hospital of Pittsburgh, 1985

34. Pediatric Grand Rounds, Children's Hospital of Pittsburgh, 1986

35. Invited lecturer Magnetoencephalography and Cognitive Processing for Polygraphy, presented paper on "Nonlinear properties of the CNS with EEG and MEG", Arlington, Virginia, February, 1986.

36. Invited lecturer Signature Analysis, sponsored by the Engineering Foundation, New England College, presented paper on "Observations on neuroelectric and neuromagnetic signals in humans and animals", 1986.

37. Invited lecturer in Advanced Short Course on Advanced methods of Physiological System Modeling", sponsored by N.I.H., Biomedical Simulation Resource. Presented paper on "Nonlinear properties of the somatosensory system", September, 1986.

38. Invited lecturer, "Nonlinear properties of the neuronal systems", Department of Behavioral Neuroscience, University of Pittsburgh, March 2, 1987.

39. Invited lecturer in 1987 Nurse Anesthetist Seminar on "The uses of evoked potential monitoring in the operating room", sponsored by LaRoche College, Department of Continuing Education, March 5, 1987.

40. Lecturer in Neural Models of Plasticity: Theoretical and Empirical Approaches, given by the Air Force of Scientific Research, Universal Energy Systems, Woods Hole, MA, April 29, 1987.

41. Lecturer on panel III, Pre and Postinsult Measurements for Prognosticating Arrest and Outcome in the Reversibility of Clinical Death, given by Resuscitation Research Center, Dr. P. Safar, May 2, 1987.

42. Invited lecturer, 2nd Workshop on Advanced Methods of Physiological System Modeling, Biomedical Simulations Resource, presented paper on "Nonparametric and parametric models of sensory data", May, 1987.

43. Invited Chairperson, American Electroencephalographic Society Annual Course and Meeting,

Scientific Session D, St. Louis, MO, September, 18, 1987.

44. "Neuronet: A distributed computing approach to clinical and experimental systems neurophysiology", Northwestern University, Department of Physiology, Chicago, Illinois, June 10, 1988.

45. Chairperson: Modern Concepts of System Analysis, FASEB, New Orleans, March 23, 1989.

46. Chairman of a symposium "Modern Analysis of Complex Systems" at the 73rd Annual Meeting, Federation of American Societies for Experimental Biology, in New Orleans, March, 1989.

47. Invited lecturer, Theodore Johnston Case Presidential Symposium, at American EEG Society meeting, "Applications of quantitative techniques to sleep studies", in New Orleans, September, 1989.

48. Surgical Grand Rounds, Western Pennsylvania Hospital, 1990.

49. Surgical Grand Rounds, Conomaugh Valley Hospital, 1991.

50. Invited lecturer, Second International Skull Base Symposium, Foz do Iguacu, Brazil, "Techniques of Intraoperative Monitoring", July 1991.

51. Visiting Professor, University of Connecticut, Department of Neurosurgery, October, 1991.

52. Invited lecturer, Third Annual and First International Scientific and Educational Conference of the American Society of Neurophysiological Monitoring. Presented with D Krieger, "Time Varying Evoked Potentials", Pittsburgh, PA, May, 1992.

53. Invited lecturer, Symposium on the Hospital of the Future, Singapore, "Distributed Multi-Media Applications in the Medical Environment", August, 1992.

54. Invited lecturer and Session organizer, Surgery of the Pelvis and Acetabulum: An International Consensus, Pittsburgh, PA, SSEP Monitoring session, "Controversies in Intra-operative Monitoring of Spinal Cord and Sciatic Nerve Function", October, 1992.

55. Invited lecturer, Computational Neuroscience Symposium, Purdue University, "Nonlinear Properties of the Hippocampal Formation", October, 1992.

56. Visiting Professor and Featured Speaker, "Clinical Applications of Neurophysiological Monitoring", Stroke Management in the 90's Symposium, Louisiana State University, Department of Neurosurgery, December, 1992.

57. Invited lecturer, "Neurophysiological Monitoring in Skull Base Surgery", The Jerusalem Symposium on Surgery of the Skull Base and Adjacent Midline Region, Jerusalem, Israel, March, 1993.

58. Invited lecturer, "Neurophysiological Monitoring", Acoustic Neuroma: Advances in

Diagnosis and Management, George Washington University, May, 1993.

59. Invited lecturer, "A Path to Teleneurosurgery", Forum on Medical Robotics and Computer Assisted Surgery, Shadyside Medical Center, Pittsburgh, PA, June, 1993.

60. Invited lecturer, "Neurophysiological Monitoring in Skull Base Surgery", International Congress on Minimal Invasive Techniques in Neurosurgery, Wiesbaden, Germany, June, 1993.

61. Invited lecturer, "Nonlinear Cognitive Potentials in Psychotic Patients", XIII Interantional Congress of EEG and Clinical Neurophysiology, Vancouver, British Columbia, September, 1993.

62. Invited lecturer, "Distributed Computer Systems for Medicine", INSERM Conference on Modern Computing, Strasbourg, France, November, 1993.

63. Neurosurgical Grand Rounds, St. John's Hospital (Detroit, MI), 1994

64. Invited lecturer, "Intra-operative Monitoring", Surgery of the Pelvis and Acetabulum, Pittsburgh, PA, October, 1994.

65. Invited lecturer, "Intraoperative Monitoring Using SEPs and BAEPs", North American Skull Base Society Meeting, Naples, FL, February, 1995.

66. Invited lecturer, “Intraoperative Monitoring: State of the Art”, Sacramento Skull Base Symposium, Sacramento, CA, June, 1995.

67. Invited lecturer, "Distributed Computer Systems for Medicine", INSERM Conference on Modern Computing, Strasbourg, France, October, 1995.

68. Invited lecturer, “Technological Advances in Support of Intraoperative Monitoring During Cranial Base Surgery”, 2nd International Skull Base Congress, San Diego, CA, June/July, 1996.

69. Invited lecturer, “Intraoperative Monitoring Using a Polynomial Time-Varying Model”, 3rd International Congress on Minimally Invasive Neurosurgery, Paris, France, June/July, 1997.

70. Invited lecturer, “State of the Art in Neurophysiological Intraoperative Monitoring”, 11th International Congress of Neurological Surgery, Amsterdam, The Netherlands, July, 1997.

71. Invited lecturer, “NeuroNet: A System for Intraoperative Monitoring”, Department of Neurologcial Surgery, Groningen, The Netherlands, July, 1997.

72. Invited lecturer, “Data Everywhere: Bioinformatics in Pittsburgh”, SCICOM ‘97: International Symposium on Scientific Communication in Life Sciences”, Faculté de Médecine de Nancy- France, September, 1997.

73. Visiting Professor, “Current Concepts in Intraoperative Monitoring”, Department of

Anesthesiology, West Virginia University, Morgantown, WV, February, 1998.

74. Invited lecturer, "Microvascular Compression Syndromes", 13th Meeting of the World Society for Sterotactic and Functional Neurosurgery, Adelaide, Australia, September 11-14, 2001.

75. Invited lecturer, "Neurophysiological Monitoring in Microvascular Compression Syndromes", 13th Meeting of the world Society for Sterotactic and Functional Neurosurger, Adelaide, Australia, September 11-14, 2001.

76. Invited lecturer, "Separation of Spiky Transient Activity in EEG/MEG Data Using Multiresolution and Morphological Analysis." Invited Paper: USC Symposium on Advanced Methods of Physiological System Modeling, May, 2002.

77. Invited lecturer, Hebei University of Technology, "Separation of Spiky Transient Activity in EEG/MEG Data Using Multiresolution and Morphological Analysis," August 20, 2002, Tiangin, China.

78. Invited lecturer, Xuanwu Hospital, Department of Neurosurgery and Neurology, "Methods of Intraoperative Monitoring During Microvascular Decompression Procedures," August 21, 2002, Beijing, China.

79. Invited lecturer, "Approaches to Neuromonitoring and its Relationship to Anesthesia," Department of Anesthesiology, Children's Hospital of Pittsburgh, October 24, 2002.

80. Invited lecturer, "Fundamentals of Neurophysiological Monitoring", Physical Rehab Residents, Mercy Hospital, Pittsburgh, PA, January 31, 2003.

81. Invited Presenter, "Comparative Dimensionality in Neural Networks," ISUMA 2003, University of Maryland, September, 2003.

82. Invited lecturer, " Approaches to Neuromonitoring and its Relationship to Anesthesia." Department of Anesthesiology, Children's Hospital, Pittsburgh, PA, March 26, 2003.

83. Invited Presenter, "Physiologic Monitoring and Beyond" Hemifacial Spasm Conference, Pittsburgh, PA, July 18-19, 2003.

84. Invited Presenter, "Multimedia Aspects of Remote Neurophysiological Monitoring," 2nd International Conference on Telemedicine and Multimedia Communication – Teleconference Telecast, Poland, October 8, 2004. (Best Paper Award)

85. Invited Lecturer "Facial Nerve Monitoring" ENT Department (Residents), Eye & Ear Institute, Pittsburgh, PA , October 14, 2004.

86. Fessenden Lecturer "Magnetoencephalography – A Window Into the Functioning of the Human Brain," University of Pittsburgh, Department of Electrical Engineering and Computer Engineering, January 31, 2007.

87. Panelist –Forum on Billing Issues – 18th Annual Meeting of American Society of

Neurophysiological Monitoring, Chicago, IL, May 6, 2007.

88. Panelist – Panel Discussion of Issues in Remote Monitoring – 18th Annual Meeting of American Society of Neurophysiological Monitoring, Chicago, IL May 6, 2007.

89. Presenter, "Issues in Remote Monitoring" ASNM Clearwater Course on NeuroMonitoring, February 29, 2008.

90. Invited Presenter "Brain-Implantable Computing Platform", Unither Nanotechnology and Telemedicine Technology Conference, Feb 24th to 26th, 2009., Magog. Quebec.

91. Invited Presenter "mTBI, Neuroscience and Telemedicine", Innovative New Technologies to Identify and Treat Traumatic Brain Injuries: Crossover Technologies and Approaches Between Military and Civilian Applications", sponsoerd by TATRC, Sep. 23, 2009, Indian Wells, CA. (Published in meeting proceedings).

92. Invited Presenter "Protecting the Brain: Is There a Role for Neurophysiological Monitoring During Complex Transplant Procedures," The Heart, Lung, and Esophageal Surgery Institute, University of Pittsburgh Medical Center, January 28, 2010, Pittsburgh, PA.

93. Invited Keynote Speaker "Biomedical Engineering: The Economic Engine of the 21st Century." BioEco 2011, Tianjin, P.R. China, June 26 and 27th, 2011.

SERVICE:

JOURNAL REFEREE:

Consulting Editor: Electroencephalography and Clinical Neurophysiology (1985 - 1995)
Advisory Board: Minimally Invasive Neurosurgery (1995-20008)

Ad-Hoc Reviewer: IEEE Transactions on Biomedical Engineering (ongoing)
IEEE Transactions on Systems, Man and Cybernetics (ongoing)

Reviewer: Mathematical Biosciences
Somatosensory Research
Bulletin of Mathematical Biology
Anesthesia and Analgesia
Alcoholic Studies
Acta Neurologica Scandinavica
Hearing Research
Psychophysiology
Digestive Diseases and Sciences
Critical Care Medicine
Annals of Biomedical Engineering
Journal of Neural Transmission

GRANT REVIEWING:

NIH:

Computer and Biomathematical Sciences Study Section (1972-1976)

AIDS and Related Research Study Section, AARG-7
(Chairman: 1988-1992; member 1993-1994)

NIH Reviewers Reserve (1994-1998)

Member: Special Study Sections on Computer Applications (1976-2004)
Special Study Sections on Communicative Sciences (1976-2004)
Special Study Sections on Sleep (1976-2004)

Member: Clinical Neurophysiology: Devices and Neuroprosthetics ETTN-10:Study Section (2005 - present)

Ad-hoc Member: Development and Brain Disorders Study Section (2007-2008).
Neurotechnology Study Section (2008)
EUREKA Special Emphasis Panel (NINDS) (2008)

Member:Emerging Technologies and Training in the Neurosciences Study Section. (2009 – present).

NSF:

Ad-hoc Reviewer for the Engineering Division

VAHS:

Ad-hoc reviewer for Veteran's Intramural Research Program.

COMMITTEES-ACADEMIC:

Chairman, Graduate Admissions Committee, Department of Biomathematics, UCLA (1974-1976)

Member Curriculum Committee, Department of Biomathematics, UCLA (1973-1976)

Co-Chairman Curriculum Committee, Biomedical Engineering Program, (1976-1977) (Carnegie-Mellon University)

Member of Human Experimentation Committee (1976-1979)
Carnegie-Mellon University

Computer Usage Committee - Children's Hospital (1979-1988)

Biomedical Engineering Program Executive Committee (1984-1993)

Neuroscience Program Curriculum Committee (1984-1990)

M.D./Ph.D. Scientific Advisory Committee (1984-1992)

Pittsburgh Neuroscience Society-Secretary-Treasurer (1984-1988)

Western Pennsylvania Advance Technology Center (1984-1990; 1991-1993) Chairman of Biotechnology Committee

Director, Center for Clinical Neurophysiology, University Health Center of Pittsburgh, (1982-2008).

Center for Biotechnology and Bioengineering (1988-1992)

NICHD Special Review Committee, "Animal Models for SIDS" (1991)

Member Promotions Committee, Department of Neurosurgery, University of Pittsburgh (1992-2006)

Elected Representative to School of Medicine's Planning and Budgeting Committee, University of Pittsburgh (1993-1996)

Executive Committee, Department of Neurosurgery, University of Pittsburgh (1994-2000)

Clinical Information Systems Steering Committee, University of Pittsburgh (1994-2004)

Elected Member of the Advisory Committee on Tenure, Appointments and Promotions, School of Medicine, University of Pittsburgh (1995-1997)

Scientific Advisory Committee for the Functional Imaging Research Program, University of Pittsburgh (1995-2000)

Member Education Committee, Department of Neurosurgery, University of Pittsburgh (1995-2006)

Member Institutional Review Board, University of Pittsburgh (1998-2000)

Biocomplexity Panel, National Science Foundation, Directorate for Biological Sciences, June, 2000.

USC - NIH Biomedical Simulations Resource (BMSR), Scientific Advisory Committee, 2002 - present.

Mentor, Weekly Research Seminars on Biomedial Engineering and Computational Neurophysiology, Department of Neurological Surgery, University of Pittsburgh,

2002.

Non-Tenured Faculty Promotions and Appointments (NTFPA), School of Medicine, University of Pittsburgh , 2002- 2006

USC - Engineering Research Center on Biomemetic Devices, Scientifc Advisory Committee: 2003 - present.

COMMITTEES-PROFESSIONAL:

Member Signal Processing and Information Handling Committee, Engineering in Medicine and Biology Group, IEEE (1974-1983)

CONSULTANT:

N.A.S.A. (1978-1979)

American Institute of Biological Sciences (1978-1979)

Clinical Neurophysiology Program-Department of Neurology, University of California at Los Angeles (1976-1985)

Consultant in Clinical Neurophysiology, Veteran's Administration Hospital, Pittsburgh (1984- 2000)

Member, NSF Panel on Neural Networks (1990)