

CURRICULUM VITAE

Clifford E. Brubaker, PhD

BIOGRAPHICAL	2
PUBLICATIONS/PRESENTATIONS	3
Journal Articles	3
Proceedings	5
Abstracts .	8
Workshop and Conference Reports	8
Books	9
Book Chapters	9
Meeting Presentations	10
Technical Reports	12
Newsletter Articles	14
INVITED PRESENTATIONS	14
National and International	14
Local and Regional	17
RECOGNITION/AWARDS	18
GRANTS/CONTRACTS	19
TEACHING	21
SERVICE	23

(July, 2016)

BIOGRAPHICAL**NAME:**

Clifford E. Brubaker

ADDRESS:

(Office)
 University of Pittsburgh
 School of Health and Rehabilitation Sciences
 4029 Forbes Tower
 Pittsburgh, PA 15260
 Telephone: 412/383-6561
 FAX: 412/383-6535
 email: cliffb@pitt.edu
 URL: <http://www.shrs.pitt.edu/>

CURRENT POSITION:

University of Pittsburgh, School of Health and Rehabilitation Sciences 1991 –
 Distinguished Service Professor and Dean Emeritus; Dean 2015 –
 Professor, McGowan Institute Regenerative Medicine, 2001 – Executive Committee, 2008 –
 Professor, Neurological Surgery, School of Medicine, 1992 –
 Professor, Clinical & Translational Science Institute, 2008 –

Adjunct Appointments

Professor, Robotics Institute, School of Computer Science, CMU, 2007 –
 Professor, School of Life Science and Technology, Xi'an Jiaotong University, Xi'an, PRC,
 2005 –

EDUCATION:

INSTITUTION	DEGREE	CONFERRED	FIELD OF STUDY
Purdue Univ.		1956-58	Mech. Eng.
Ball State Univ.	B.A.	1961	Phys. Ed.
Ball State Univ.	M.A.	1964	Phys. Ed.
Univ. of Oregon	Ph.D.	1968	Phys. Ed. (Ex. Physiology)

PREVIOUS UNIVERSITY APPOINTMENTS:

University of Oregon

Graduate Teaching Assistant, 1964 - 65

Instructor, 1965 – 67

Assistant Professor, 1967 – 73

Promoted to Associate Professor with Tenure, effective Fall, 1973, (Resigned)

University of Virginia

Assistant Professor of Education, 1973 - 1978

Assistant Professor of Orthopedics, 1974 - 1988

Associate Professor of Education, Tenured 1978 - 1990

Professor Education, 1990 – 1991

Director, Rehabilitation Engineering Center, 1987 – 1991

Research Assoc. Prof. of Biomedical Eng., 1988 – 1991 (Prom. To Prof., Left UVA)

PUBLICATIONS:

Journal Articles:

James, SL and CE Brubaker (1972) Running Mechanics, J Amer Med Assoc, 221:1014-1016.

James, SL and CE Brubaker (1973) Biomechanics of Running, Orth Clin N Amer, 4:605-615.

Brubaker, CE and SL James (1974) Injuries to Runners, J Sports Med, 2(4):189-98.

Kulund, DN and CE Brubaker (1978) Injuries to Cross-country Cyclists, Phys Sports Med, 6:74-81.

Brubaker, CE, DN Kulund, E Evonuk, RC Crampton, RB O'Donnell (1978) Physiological Responses of Bike Centennial Participants, Phys Sports Med, 6:75-81.

Kulund, DN, JB Dewey, CE Brubaker, JR Roberts (1978) Olympic Weight Lifting Injuries, Phys Sports Med, 6:111-119.

Thacker, JG, JR O'Reagan, JH Aylor, CE Brubaker (1980) Wheelchair Dynamometer, ASME Trans J Mech Des, 102:718-722.

Nwaobi, OM, B Cusick, CE Brubaker, MD Sussman (1983) Electromyographic Investigation of Extensor Activity in Cerebral Palsied Children in Different Seating Positions, Dev Med Child Neurol, 25:175-183.

Brubaker, CE and GA Hunt (1985) A 3-Dimensional Predictive Model of A Lever Propulsion Cycle, Med Biol Eng Comp, 23(2):1241-1242.

McLaurin, CA and CE Brubaker (1986) A Lever Drive System for Wheelchairs, J Rehab Res Dev, 23(2):52-54. (Tech. Note)

Brubaker, CE, CA McLaurin, IS McClay (1986) Effects of Side-slope on Wheelchair Performance, J Rehab Res Dev, 23(2):55-58. (Tech. Note)

Brubaker, CE (1986) An Analysis of Factors that Affect Wheelchair Mobility and Performance, J Rehab Res Dev, 23(4):19-26.

Brubaker, CE (1988) Advances in Wheelchair Technology, IEEE Eng Med Biol, 9:21-24.

Sprigle, SH, KC Chung, CE Brubaker (1990) Reduction of Sitting Pressures with Custom Contoured Cushions, J Rehab Res Dev, 27(2):135-140.

Sprigle, SH, KC Chung, CE Brubaker (1990) Factors Affecting Seat Contour Characteristics, J Rehab Res Dev, 27(2):127-134.

Brubaker, CE, SH Sprigle (1990) Amputations, Prosthetics and Orthotics: Seating and Wheelchairs, Current Opinion in Orthopedics, 1(3):445-449.

Brienza, DM, KC Chung, CE Brubaker (1991) Computer Design and Fabrication of Custom Contoured Seating, Medical Design and Materials, 1(1):32-41.

McLaurin, CA, CE Brubaker (1991) Biomechanics and the Wheelchair, Prosthetics and Orthotics International, 15:24-37.

Chung, KC, CE Brubaker, (1991) "Seating and Wheelchairs", Current Opinion in Orthopaedics, 2:824-829.

Brienza, DM, CE Brubaker, KC Chung, RM Inigo (1991) An Optimal Control Approach to Seat Contouring, IEEE Trans.

Hughes, CH, PN Sheth, CE Brubaker (1992) Biomechanics of Wheelchair Propulsion as a Function of Seat Position and User-Chair Interface Arch Phys Med 73:263-269.

Chung, KC, CA McLaurin, CE Brubaker, (1991) "Quantitative Measure of Buttocks-Cushion Interface Contour", J of Rehab Res & Dev,.

Brienza, DM, CA McLaurin, KC Chung, CE Brubaker, (1991) "Design of a Computer-Controlled Seating Device for Research Applications", J Rehab Res & Dev,.

Brienza, DM, CE Brubaker, CA McLaurin, KC Chung, (1992), "A Manufacturing System

for Contoured Foam Cushions", J Rehab Res & Dev, 29:4.

Brienza, DM, RM Inigo, KC Chung, CE Brubaker, (1993), "Seat Support Surface Optimization Using Force Feedback," IEEE Trans on Biomed Eng., 40(1):95-104.

Brienza, DM, RM Inigo, KC Chung, CE Brubaker (1993), "Seat Contour Optimization," IEEE Trans on Biomed Eng., 40(1):95-104.

Brienza, DM, CA McLaurin, KC Chung, CE Brubaker, (1993) "Design of a Computer-Controlled Seating Device for Research Applications," IEEE Trans on Rehab Eng. 1(1):63-66.

Cooper, RA, DM Brienza, CE Brubaker (1994) "Wheelchairs and Seating," Current Opinion in Orthopedics, 4;VI:101-107.

Brienza, DM, KC Chung, CE Brubaker, J Wang, TE Karg, CT Lin, (1996) "A System for the Analysis of Seat Support Surfaces Using Surface Shape Control and Simultaneous Measurement of Applied Pressures," IEEE Trans on Rehab Eng 4(2):103-113.

Brienza, DM, TE Karg, CE Brubaker (1996) "Seat Cushion Design for Elderly Wheelchair Users Based on Minimization of Soft Tissue deformation using stiffness and pressure measurements" IEEE Trans on Rehab. Eng 4(4):320-328.

Brienza, DM, RA Cooper, CE Brubaker, (1996) "Wheelchairs and Seating," Current Opinion in Orthopedics, 7 (VI)

DM Brienza and CE Brubaker, (1999)"A Steering Linkage for Short Wheelbase Vehicles," Journal of Rehabilitation Research and Development, 36(1)

Fabrisia Ambrosio (2013) Michael L. Boninger; Clifford E. Brubaker; Anthony Delitto William R. Wagner; Richard K. Shields; Steven L. Wolf; Thomas A. Rando; EMERGENT THEMES FROM THE SECOND ANNUAL SYMPOSIUM ON REGENERATIVE REHABILITATION, PITTSBURGH, PA: A GUEST EDITORIAL, Journal of Rehabilitation Research and Development, 50(3)

Proceedings:

Richardson, DC and CE Brubaker (1978) Quantification of Human Running Gait, Biomechanics, Vol. VI-A:398-399, Proceedings, 6th International Congress on Biomechanics, University Park Press.

Brubaker, CE, CA McLaurin, JD Gibson, T Soos (1980) Effect of Seat Position on Wheelchair Propulsion Efficiency, RESNA Proceedings, 3:134-140.

Brubaker, CE, JD Gibson, G Shasby, J McCubbin (1981) Estimation of Work as a Function of Lever Force, RESNA Proceedings, 4:307-309.

Brubaker, CE and CA McLaurin (1982) Effect of Seat Position on the Generation of Handrim Force, RESNA Proceedings, 5:147-148.

Brubaker, CE, IS McClay, CA McLaurin (1983) Effects of Mechanical Advantage on Lever Propulsion Efficiency, RESNA Proceedings, 6:122-124.

McLaurin, CA, CE Brubaker, JG Thacker (1984) Measurement of Wheelchair Rolling Resistance, ICRE Proceedings, 2:5-6.

Ross, SA and CE Brubaker (1984) Electromyographic Analysis of Selected Upper Extremity Muscles during Wheelchair Propulsion, ICRE Proceedings, 2:7-8.

Brubaker, CE, IS McClay, CA McLaurin (1984) Effect of Seat Position on Wheelchair Propulsion Efficiency, ICRE Proceedings, 2:12-14.

Brubaker, CE, IS McClay, CA McLaurin (1984) The Effect of Mechanical Advantage on Handrim Propulsion Efficiency, ICRE Proceedings, 2:15-16.

McLaurin, CA and CE Brubaker (1985) A Lever Drive System for Wheelchairs, RESNA Proceedings, 8:48-50.

Brubaker, CE, CA McLaurin, IS McClay (1985) Effects of Sideslope on Wheelchair Performance, RESNA Proceedings, 8:81-83.

Brubaker, CE, CA McLaurin, IS McClay (1985) A Preliminary Analysis of Limb Geometry and EMG Activity for Five Lever Placements, RESNA Proceedings, 8:350-352.

Shapcott, N, M Ferguson-Pell, CE Brubaker, M Heinrich (1986) A Methodology to Assist in the Prescription of Wheelchairs, Resna Proceedings, 9:143-145.

Brubaker, CE and PN Sheth (1986) A Preliminary Analysis of Optimization of Wheelchair Seat Position, IEEE/EMBS Proceedings, 8:572-575.

Glaser, RM, MR Heath, CE Brubaker, AB Wilson (1986) A System for Monitoring Daily Ambulatory Activity, IEEE/EMBS Proceedings, 8:579-583.

Sheth, PN and CE Brubaker (1987) A Spatial Musculoskeletal Model for Wheelchair Lever Propulsion, RESNA Proceedings, 10:486-488.

Brubaker, CE, CA McLaurin, CW Stout (1987) A Variable Position, Compact Folding Wheelchair, RESNA Proceedings, 10:559-561.

Chen, JJ, LQ Wilson, CE Brubaker, PN Sheth (1988) Construction of Tension-Length Curves of Human Upper Extremity Muscle, RESNA Proceedings, 11:136-137.

Chen, JJ, CE Brubaker, PN Sheth (1988) Determination of Attachment Locations of Human Upper Extremity Muscles, RESNA Proceedings, 11:138-139.

Wilson, LQ, CJ Hughes, JJ Chen, CE Brubaker (1988) Efficiency Comparison using Hand Rims, Lever Drive and Ski Poles, RESNA Proceedings, 11:300-301.

Chung, KC, SH Sprigle, DM Brienza, CE Brubaker, CA McLaurin (1988) Effect of Contoured Support Surface on Pressure Distribution, RESNA Proceedings, 11:314-316.

Sheth, PN, N Neyer, CE Brubaker (1988) Analysis of Muscular Load Sharing in Wheelchair Propulsion Cycles, IEEE/EMBS Proceedings, 10:1621-1622.

Brienza, DM, CE Brubaker, RM Inigo (1989) A Fiber Optic Force Sensor for Automated Seat Design, RESNA Proceedings, 12:232-233.

Chung, KC, SH Sprigle, DM Brienza, CE Brubaker, CA McLaurin (1989) UVA Custom Contoured Seating System: Technical and Clinical Evaluation, RESNA Proceedings, 12:236-237.

Hughes, CJ, LQ Wilson, W Weimar, PN Sheth, CE Brubaker (1989) A Test Simulator for Wheelchair Propulsion, RESNA Proceedings, 12:448-449.

Sposato, BA, KC Chung, CA McLaurin, CE Brubaker, DM Brienza (1990) Prescribing Customized Contoured Seat Cushions, RESNA Proceedings, 13:103-104.

Chung, KC, CA McLaurin, CE Brubaker (1990) A Computer-Aided Shape Sensing System for Custom Seat Cushions, RESNA Proceedings, 13:395-396.

Hughes, CJ, W Weimar, P Sheth, CE Brubaker (1990) Biomechanics of Lever Drive Wheelchair Propulsion, RESNA Proceedings, 13:413-414.

Brienza, DM, CE Brubaker, CA McLaurin (1990) A Manufacturing System for Custom Contoured Foam Cushions, RESNA Proceedings, 13:415-416.

Wang, J, DM Brienza, CE Brubaker, Y Yuan (1996) Design of An Ultrasound Soft Tissue Characterization System for the Computer-Aided Seating System, RESNA Proceedings, 16:193-198.

Karg, TE, DM Brienza, CE Brubaker, J. Wang, CT Lin (1996) A System for the Design and Analysis of Seat Support Surfaces, RESNA Proceedings, 16:226-228.

Karg, TE, DM Brienza, KC Chung, CE Brubaker (1996) Evaluation of a Surface Shape Optimization Technique for Custom Contoured Cushion Design, RESNA Proceedings, 16:229-231.

Brienza, DM, CE Brubaker (1996) Design and Development of a Wheelchair for Enhanced Access, RESNA Proceedings, 16:250-252.

Brienza, DM, CE Brubaker (1997) "A Four-Wheel Steering Mechanism for Short Wheelbase Vehicles, RESNA Proceeding, 17:

Abstracts:

CE Brubaker and SL James (1973) Harmonic Analysis of Running Gait, Med Sci Sport, 5:59.

CE Brubaker (1973) Incidence of Non-traumatic Injuries to Runners, Med Sci Sport, 5:53.

CE Brubaker, CA McLaurin, JD Gibson, T Soos (1979) Effect of Speed and Load on Wheelchair Propulsion, Med Sci Sport, Vol 11.

CE Brubaker (1985) Positional Factors in Dynamic Control of Manual Wheelchairs, Proceedings: 38th Annual Conference on Engineering in Medicine and Biology, p. 136.

RM Glaser, MR Heath, CE Brubaker, AB Wilson (1986) A System for Long-term Monitoring of Wheelchair Activity, Proceedings: 39th Annual Conference on Engineering in Medicine and Biology, p. 205.

Brubaker, CE, Rehabilitation Engineering: Challenge and Opportunity, Annual Fall Meeting of the Biomedical Engineering Society, Charlottesville, VA, October 1991.

Sanders, EH, CE Brubaker, (1991) Center of Mass Location During Wheelchair Propulsion, Annual Fall Meeting of the Biomedical Engineering Society, Charlottesville, VA, October,.

Brienza, DM, RM Inigo, KC Chung, CE Brubaker (1990) A new Approach to Seat Contour Design, IEEE-EMBS Proceedings.

Workshop and Conference Reports:

Brubaker, CE and CA McLaurin, Studies on Wheelchair Propulsion, in: Wheelchair I: A report of a Workshop, AB Wilson, Jr., Ed., Moss Rehabilitation Hospital, Philadelphia, 1978.

Brubaker, CE and CA McLaurin, Ergonomics of Wheelchair Propulsion, in: Wheelchair III, p. 22-43, La Jolla VAMC, La Jolla, CA, 1978.

Brubaker, CE, Editor, Proceedings of the 8th Conference on Rehabilitation Technology, pp. 447, RESNA PRESS, Washington, DC, 1985.

Brubaker, CE, Innovations in Wheelchair Design, 2nd International Seating Symposium: Seating the Disabled, p. 49-52, University of British Columbia, Vancouver, BC, Canada, February 20-22, 1986. (Syllabus)

Brubaker, CE, Optimizing Wheelchair Mobility: Prescription Considerations, Optimal Wheelchair Selection for Spinal Cord Injury, American Academy of Physical Medicine and Rehabilitation, Course Supplement Volume 1, p. 231-239, American Congress of Rehabilitation Medicine, Orlando, FL, October 18-19, 1987.

Brubaker, CE, Impact of Changes in Manual Wheelchair Design, 4th International Seating Symposium: Challenges '88, Seating the Disabled, p. 32-35, Sunny Hill Hospital for Children, University of British Columbia and University of Tennessee, Vancouver, BC, Canada, Feb. 18-20, 1988. (Syllabus)

Brubaker, CE, Editor, The Availability and Utilization of Assistive Technology to Meet the Seating and Mobility Needs of Severely Disabled and Elderly Persons: A Report of a State-of-the-Art Workshop, Sponsored by the Interagency Working Group on Aging, Dulles International Airport, Washington, DC, December, 1988.

Brubaker, CE and SI Reger, CAD/CAM for Custom Seating, Proceedings: 5th International Seating Symposium, p. 210- 220, University of Tennessee, Memphis, Tennessee, February, 1989.

Brubaker, CE, A Survey of Powered Wheelchair Problems and Features, in: Wheelchair IV: Report of a Conference on the State-of-the-Art of Powered Wheelchair Mobility, p. 68-75, RESNA PRESS, Washington, DC, 1989.

Brubaker, CE, Editor, Wheelchair IV: Report of a Conference on the State-of-the-Art of Powered Wheelchair Mobility, pp. 139, RESNA PRESS, Washington, DC, 1989.

Books:

Robert Barry, Amy Murcko and Clifford E. Brubaker, *The Six Sigma Book for Healthcare: Improving Outcomes by Reducing Errors*, 2002.

Amy C. Smith, Robert F. Barry and Clifford E. Brubaker, *Going Lean: Busting Barriers to Patient Flow (Why is this Patient Still Here?)*, 2007 -- 2nd Edition in review with publisher

Book Chapters:

James, SL and CE Brubaker, Biomechanical and Neuromuscular Aspects of Running, in: Wilmore, J., Ed., *Exercise and Sports Sciences Review*, Volume 1: 189-216, 1973.

McLaurin, CA and CE Brubaker, Wheelchair Biomechanics, *Disability*, p. 471-477, MacMillan Press, Ltd., London, 1979.

Brubaker, CE, Biomechanics of Running, *South African Textbook of Sports Medicine*, p. 33-47, University of the Witwatersrand Sports Medicine Clinic, Johannesburg, South Africa, 1979.

Brubaker, CE, Evaluating Fitness, in: *The Injured Athlete*, DN Kulund, p.97-108, Lippincott, 1982.

Brubaker, CE, Ergonomic Considerations, in: *Choosing A Wheelchair System*, Journal of Rehabilitation Research, Clinical Supplement No. 2, p. 55-71, Veterans Administration, Department of Medicine and Surgery, Rehabilitation Research and Development Service, Office of Technology Transfer, 1989.

McLaurin, CA and CE Brubaker, Wheelchair Biomechanics, In: JP Paul, JC Barbenel, JM Courtney, RM Kennedy, Eds., *Progress in Bioengineering*, Adam Hilger, Bristol and New York, 1989.

Presentations:

Harmonic Analysis of Running, Annual Conference of the American College of Sports Medicine, Seattle, WA, May, 1973.

Type and Incidence of Running Injuries, Annual Conference of the American College of Sports Medicine, Seattle, WA, May, 1973.

Quantification of Human Gait using Harmonic Analysis, 6th International Congress on Biomechanics, Copenhagen, Denmark, 1978. (co-author) Presented by S.L James, MD

Effect of Speed and Load on Wheelchair Propulsion, Pan-Pacific Conference, American College of Sports Medicine, Honolulu, Hawaii, May, 1979.

Effect of Seat Position on Wheelchair Propulsion Efficiency, International Conference on Rehabilitation Engineering, Toronto, Ontario, Canada, June, 1980.

Estimation of Work as a Function of Lever Force, 4th Conference on Rehabilitation Technology, Washington, DC, June, 1981.

Effect of Seat Position on the Generation of Handrim Force, 5th Annual Conference on Rehabilitation Technology, Houston, TX, June, 1982.

Effects of Mechanical Advantage on Lever Propulsion Performance, 6th Annual Conference on Rehabilitation Technology, San Diego, CA, June, 1983.

A Method for the Measurement of Wheelchair Rolling Resistance, 2nd International Conference on Rehabilitation Engineering, Ottawa, Canada, June, 1984.

Electromyographic Analysis of Upper Extremity Muscles used in Wheelchair Propulsion,

2nd International Conference on Rehabilitation Engineering, Ottawa, Canada, June, 1984.

Effects of Seat Position on Wheelchair Propulsion Efficiency, 2nd International Conference on Rehabilitation Engineering, Ottawa, Canada, June, 1984.

Effects of Mechanical Advantage on Handrim Propulsion Efficiency, 2nd International Conference on Rehabilitation Engineering, Ottawa, Canada, June, 1984.

Lever Drive System for Wheelchairs, 8th Annual Conference on Rehabilitation Technology, Memphis, Tennessee, June, 1985.

Energy Cost of Propelling a Wheelchair on Sideslopes, 8th Annual Conference on Rehabilitation Technology, Memphis, Tennessee, June, 1985.

An Analysis of Limb-segment Angles and EMG Activity during Wheelchair Propulsion, 8th Annual Conference on Rehabilitation Technology, Memphis, Tennessee, June, 1985.

Prediction of A Wheelchair Propulsion Cycle using Inverse Fourier Transforms, XIV International Conference on Medical and Biological Engineering, Espoo, Finland, August, 1985.

Factors in the Dynamic Control of Manual Wheelchairs, 38th Annual Conference of the Alliance on Engineering in Medicine and Biology, Chicago, IL, October, 1985.

A Multiple Positioning Device to Assist in the Prescription of Wheelchairs, 9th Annual Conference on Rehabilitation Technology, Minneapolis, MN, June, 1986.

A System for Long-term Monitoring of Wheelchair Activity, 39th Annual Conference of the Alliance on Engineering in: Medicine and Biology, Baltimore, MD, September, 1986.

Criteria for Optimization of Wheelchair Seat Position, 8th Conference on Engineering in Medicine and Biology, IEEE, Fort Worth, TX, November, 1986.

A System for Monitoring Daily Ambulatory Activity, 8th Conference on Engineering in Medicine and Biology, IEEE, Fort Worth, TX, November, 1986.

A Musculoskeletal Model for Wheelchair Propulsion, 10th Annual Conference on Rehabilitation Technology, San Jose, CA, June, 1987.

An Adjustable, Compact Folding Wheelchair, 10th Annual Conference on Rehabilitation Technology, San Jose, CA, June, 1987.

Length-tension Curves for selected Human Upper-extremity Muscles, International Conference for the Advancement of Rehabilitation Technology, Montreal, Quebec, Canada, June, 1988.

Estimation of Attachments for Selected Upper-extremity Muscles, International Conference for the Advancement of Rehabilitation Technology, Montreal, Quebec, Canada, June, 1988.

Efficiency Comparisons among Hand Rims, Lever Drive and Ski Poles, International Conference for the Advancement of Rehabilitation Technology, Montreal, Quebec, Canada, June, 1988.

Pressure Reduction using Contoured Support Seating, International Conference for the Advancement of Rehabilitation Technology, Montreal, Quebec, Canada, June, 1988.

Muscular Load Sharing during Wheelchair Propulsion, 10th Conference on Engineering in Medicine and Biology, IEEE, New Orleans, LA, November, 1988.

Evaluation of a Fiber Optic Force Sensor, 12th Annual Conference on Rehabilitation Technology, New Orleans, LA, June, 1989.

A Technical and Clinical Evaluation of a Custom Contoured Seating System, 12th Annual Conference on Rehabilitation Technology, New Orleans, LA, June, 1989.

Brubaker, CE, Rehabilitation Engineering Education: An International Issue, in *Rehabilitation Engineering*, Review Publication prepared for the World Summit for Social Development, Copenhagen, Denmark, March, 1995, 148 pp., United Nations, 1995.

Distinguished Service Professor Inaugural Address, "Then to Now –1991-2015 – An Improbable Journey 'From 'Health-Related' to 'Rehabilitation Science,'" April 23, 2015.

Technical Reports:

Brubaker, CE, Wheelchair Propulsion Studies, University of Virginia Rehabilitation Engineering Center Annual Report, p. 1-7, 1978.

Brubaker, CE, Wheelchair Propulsion Studies, University of Virginia Rehabilitation Engineering Center Annual Report, p. 1-8, 1979.

Brubaker, CE, Wheelchair Propulsion Studies, University of Virginia Rehabilitation Engineering Center Annual Report, p. 1-6, 1980.

Brubaker, CE, Ergonomics of Wheelchair Propulsion, Wheelchair Mobility: A Summary of Activities at the University of Virginia Rehabilitation Engineering Center, 1976-1981, p. 1-32, 1981.

Brubaker, CE, Human Factors in Wheelchair Performance, Wheelchair Mobility: A Summary of Activities at the University of Virginia Rehabilitation Engineering Center, p. 1-12, 1983.

Brubaker, CE, Human Factors in Wheelchair Performance, Wheelchair Mobility: A Summary of Activities at the University of Virginia Rehabilitation Engineering Center, p. 1-15, 1984.

Brubaker, CE, Human Factors in Wheelchair Performance, Wheelchair Mobility: A Summary of Activities at the University of Virginia Rehabilitation Engineering Center, p. 1-14, 1985.

Brubaker, CE, Human Factors in Wheelchair Performance, Wheelchair Mobility: A Summary of Activities at the University of Virginia Rehabilitation Engineering Center, p. 1-7, 1986.

Brubaker, CE and PN Sheth, A Model for Optimization of Wheelchair Lever Propulsion, in: Rehabilitation R&D Progress Reports, p. 140-141, Veterans Administration Rehabilitation Research and Development Service, Baltimore, MD, 1987.

Brubaker, CE, Human Factors in Wheelchair Propulsion, in: Wheelchair Mobility: A Summary of Activities at the University of Virginia, Rehabilitation Engineering Center, 1983-1988, p. 1-38, 1988.

Chung, KC, CA McLaurin, CE Brubaker, SI Reger, SH Sprigle, DM Brienza, Seating and Body Support, in: Wheelchair Mobility: A Summary of Activities at the University of Virginia Rehabilitation Engineering Center, 1983-1988, p. 39-118, 1988.

McLaurin, CA, CE Brubaker, WG Stamp, Editors, Wheelchair Mobility: A Summary of Activities at the University of Virginia, Rehabilitation Engineering Center, 1983-1988, 401 pp., UVA-REC, March, 1988.

Brubaker, CE, CA McLaurin, JG Thacker, JJ Kauzlarich, RM Inigo, JH Aylor, KC Chung, Research and Development Conducted to Improve Wheelchair and Seating Design, Rehabilitation R&D Progress Reports, p. 128-129, Veterans Administration Rehabilitation Research and Development Service, Baltimore, MD, 1988.

Sprigle, SH and CE Brubaker, Evaluation of the Therm-a-rest Seat Cushion, UVA-REC Technical Report, pp. 14, July, 1988.

Chung, KC, CE Brubaker, CA McLaurin, SH Sprigle, J Schunkewitz, BA Todd, PR Protz, III. Improved Seating Design, In: Wheelchair Mobility: A Summary of Activities at the University of Virginia Rehabilitation Engineering Center, Feb. 1989 - Jan. 1990, p. 73-110.

Brubaker, CE and JG Thacker, IV. Training, In: Wheelchair Mobility: A Summary of Activities at the University of Virginia Rehabilitation Engineering Center, Feb. 1989 - Jan. 1990, p. 111-113.

Brubaker, CE, Ed., Wheelchair Mobility: A Summary of Activities at the University of Virginia Rehabilitation Engineering Center, Feb. 1989 - Jan. 1990, 122 pp.

Brienza, DM, Brubaker, CE, Wang, J, Karg, P, Bertocci, G, An Ultrasound Device for Distortion Measurement and Biomechanical Analysis of Soft Tissue, SCRF Grant#1503-03: Final Report June 1995-October 1998.

Newsletter Articles:

14 Reports in Rehabilitation Technology Review, from 1985 - 1988, as Section Editor for Special Interest Groups.

Editorial commentary as Dean and Publisher of *Facets* Magazine. [Magazine of the School of Health and Rehabilitation Sciences -- published 3 times annually] 2001 -

Book Reviews:

Luc van der Woude, Manual Wheelchair Propulsion: An Ergonomic Perspective, Amsterdam, The Netherlands: Free University Press, 1989, 126 pp. illustrated. -- Reviewed for the Journal of Rehabilitation Research and Development, 6(3):93-94.

PRESENTATIONS:

Invited Presentations (National and International):

Biomechanics of Running, American Academy of Orthopedic Surgeons: Sports Medicine Symposium, Houston, Texas, April, 1975.

Mechanical Analysis of Running Gait, Northlake Surgical Symposium, Chicago, Illinois, December, 1975.

Wheelchair Propulsion, Wheelchair I, Workshop sponsored by the Veterans Administration and the Rehabilitation Services Administration, Washington, DC, December, 1977.

Energy Consumption in Wheelchair Propulsion in the Spinal Cord Injured, Spinal Cord Injury Conference, Veterans Administration, Southeast Regional Medical Education Center, Atlanta, Georgia, August, 1979.

Ergonomics of Wheelchair Propulsion, Wheelchair III, Workshop on Recreational and Powered Wheelchairs, La Jolla Veterans Administration Medical Center, La Jolla, California, September, 1982.

Innovations in Wheelchair Design, 2nd International Seating Symposium, University of British Columbia, Vancouver, BC, Canada, February, 1986.

Powering the Chair, Principles and Problems, 2nd International Seating Symposium,

University of British Columbia, Vancouver, BC, Canada, February, 1986. (With J. Foort)

Manual Wheelchair Mobility, American Academy of Physical Medicine and Rehabilitation and American Congress of Rehabilitation Medicine, Baltimore, MD, October, 1986.

Optimizing Manual Wheelchair Mobility: Prescription Considerations, American Academy of Physical Medicine and Rehabilitation and American Congress of Rehabilitation Medicine, Orlando, FL, October, 1987.

Impact of Changes in Wheelchair Design, 4th International Seating Symposium: Challenges '88 - Seating the Disabled, University of British Columbia, Vancouver, BC, Canada, February, 1988.

Principles and Applications: Seating, International Society for Prosthetics and Orthotics Workshop on CAD/CAM in Prosthetics and Orthotics, Seattle University, Seattle Washington, June, 1988.

Computer Aided Design and Manufacturing for Custom Seating, 5th International Seating Symposium: Seating the Disabled, Memphis, Tennessee, February, 1989.

The Wheelchair: Fifty Years of Progress? Paralyzed Veterans of America Distinguished Lecture Series, Seattle Veterans Administration Medical Center, Seattle, WA, March, 1989.

Shape Sensing and Custom Fabrication, 6th International Seating Symposium: Seating the Disabled, University of British Columbia, February, 1990.

U.S. Participation in International Rehabilitation Engineering, United Nations Economic Commission for Europe Workshop on Rehabilitation Engineering, Washington, DC, June 14-16, 1990.

Pressure Relief - Theory and Practice, Seventh International Seating Symposium: Seating the Disabled, February 21-23, 1991, Memphis, TN.

Advanced Technology for Custom Seating, Conference on Rehabilitation Technology, Children's Specialized Hospital, April 11, 1991, New Brunswick, NJ.

Cost-effectiveness of Custom Seating, Session II, REHAB-2, UN ECE and IFMBE, Fagernes, Norway, May 12-15, 1991.

Accessibility Issues, Beyond Chataqua Conference, Central Rehabilitation Institute, Moscow, Russia, September 12, 1991.

Assistive Technology, Mir Institute, St. Petersburg, Russia, September 19, 1991.

Rehabilitation Engineering: Challenge and Opportunity, Biomedical Engineering Society

Annual Meeting, University of Virginia, Charlottesville, VA, October, 1991.

Application of Energy Optimal Control to Muscular Force Distribution for Wheelchair Propulsion, ASME Winter Annual Meeting, Atlanta, GA, December, 1991.

"Mechanics of Wheelchair Propulsion", Department of Biomedical Engineering, Cheng Kung National University, Taipei, Republic of China, April 29, 1992.

"Rehabilitation Engineering Services", Department of Rehabilitation Medicine, Cheng Kung National University, Taipei, Republic of China, April 30, 1992.

"Computer Aided Design of Custom Contoured Seat Cushions", Kaoshiung Medical College, Kaoshiung, Republic of China, May 1, 1992.

"Rehabilitation Engineering Education: An International Issue", Keynote Address, REHAB-3, UN-ECE and IFMBE Workshop on Rehabilitation Engineering, Trebon, Czechoslovakia, May 25, 1992.

"Wheelchair Mobility", Rehabilitation Engineering Seminar, Charles University, Prague, Czechoslovakia, May 28, 1992.

"Wheelchair Biomechanics", Instructional Course, International Society of Prosthetics and Orthotics, Chicago, IL, July 3, 1992.

"Specialized Seating: An Engineering Perspective", Symposium, International Society of Prosthetics and Orthotics, Chicago, IL, July 3, 1992.

"Rehabilitation Technology", The Biomedical Engineering Division of the Hong Kong Institution of Engineers, International Conference on Biomedical Engineering BME'94, Hunghom, Kowloon, Hong Kong, April 10, 1994.

"Medicine and Engineering: cooperation in BME education," panel discussion on Biomedical Engineering Training and Education, BME'94: International Conference on Biomedical Engineering, April 7, Hong Kong.

"Providing Access to Technology and Services," keynote address, ICTA Regional Conference on Access and Transport, April 10, 1994, Hong Kong.

"Providing for Accessibility to Public Transportation," panel discussion, ICTA Regional Conference on Access and Transport, April 13, 1995 Guangzhou, PRC.

"Current Advances in Rehabilitation", Presentation at University of Western Australia, Perth, Australia, October, 1996.

"Rehabilitation and Disability," Presentation at Ankara Numune Hospital, May 5, 1997, Ankara, Turkey.

“International Collaboration in the Training of Rehabilitation Professionals,” Jockey Club Rehabilitation Engineering Centre 10th Anniversary Ceremony, Keynote Address, The Hong Kong Polytechnic University Friday, 12 December, 1997, Hong Kong.

“The Missing Bolt ? - Application of Assistive Technology in Medical Rehabilitation.” Special Lectures on Technology for the Disabled and the Elderly, Hong Kong Hospital Authority, 13 December 1997, Hong Kong.

"Rehabilitation and Disability: Trends and Issues", Public Lecture, The Hong Kong Polytechnic University, 31 August 2000, Hong Kong.

"Engineering in Rehabilitation: A Brief history of Engineering Contributions to the Science, Art and Practice of Rehabilitation" ASME IMECE2002-T&S-32041, Brubaker, C.E and D. S. Childress, November, 2002, New Orleans

"Diversity and Digital Employment", University Continuing Education Association 88th Annual Conference, March, 2003, Chicago

"Uphill and Against the Wind – Living with Disability," Riland Memorial Lecture, American Osteopathic College of Occupational & Preventive Medicine, April, 2003, Pittsburgh

"Trends and Opportunities in Rehabilitation Engineering," Xi'an Jiaotong University, October, 2005, Xi'an, China

Presentations (Local and Regional):

Physiology of Exercise, Lecture presented at Orthopedic Grand Rounds, University of Virginia, February, 1975. Biomechanics of Human Motion, Lecture presented to 4th year Mechanical Engineering Students, Department of Mechanical Engineering, University of Virginia, November, 1975.

Presented 8 papers on a variety of subjects from 1978 to 1987, in the Art and Science of Sports Medicine Conference, University of Virginia.

Presented two Lectures on Wheelchair Mobility and two on EMG analysis each year from 1982 to 1987 to Students in the Masters Program in Rehabilitation Engineering, Department of Biomedical Engineering, University of Virginia.

"Rehabilitation Engineering", Governor's School of Excellence, University of Pittsburgh, July 29, 1991.

"Research in Rehabilitation Engineering", Bioengineering Seminar, University of Pittsburgh, January 17, 1992.

"Management of Spinal Cord Injury", Head Injury Symposium, Greater Pittsburgh Rehabilitation Hospital, Pittsburgh, PA, February 28, 1992.

"Programs of the School of Health and Rehabilitation Sciences", Allegheny County Psychiatry Society, Pittsburgh, PA, March 31, 1992.

Keynote address Blackburn's Pharmacy Professional Night, Tarentum, PA, November 4, 1992.

Research and Development at the University of Pittsburgh Rehabilitation Engineering Research Center, Industrial Engineering Research Seminar, University of Pittsburgh, October 21, 1993.

Opportunities and Obligations: Universal Design and Universal Access, Address to Greater Johnstown Committee (CEO's of Johnstown businesses, corps.) on March 24, 1994.

RECOGNITION/AWARDS:

Rehabilitation Engineering and Assisive Technology Society of North America (RESNA) Distinguished Service Award - June, 1988.

PVA Distinguished Lecturer, Seattle Veterans Administration Medical Center, March, 1989.

Sigma Xi. (full member) 1989.

RESNA Distinguished Service Award, June, 1990.

Elected Fellow (founding), American Institute for Medical and Biological Engineering, February, 1992.

Elected Fellow, RESNA, 1992.

Elected President-elect of RESNA, June, 1992. (President 1995, 1996)

Isabelle and Leonard H. Goldensen Technology Award, 1995 (United Cerebral Palsy Research and Education Foundation).

Robin Gray Visiting Scholar Fellowship, University of Western Australia, September, 1996.

Lifetime Achievement Award – The Pittsburgh Business Times 2002 Health Care Hero Award, March, 2002

Riland Memorial Lecture, American Osteopathic College of Occupational & Preventive Medicine, April, 2003

The "Joe" Award (Pittsburgh Employment Conference), August, 2003

Elected Fellow Inaugural Class, Biomedical Engineering Society, September, 2005

RESMA Colin A. McLaurin Award; Annual RESNA Conference, Arlington, VA, July 13, 2016.

EXHIBITS:

Scientific Exhibit: Mechanics of Injury in Running, Section on Sports Medicine, American Academy of Orthopedic Surgeons, Las Vegas, Nevada, February, 1973.

Scientific Exhibitions: Wheelchair and Seating Research and Development, University of Virginia Rehabilitation Engineering Center Exhibit, Conference on Rehabilitation Technology, Annually, from 1979 - 1991.

Scientific Exhibit: Exposition on Technology for the Disabled, Mayor's Council on Disability, Arthur Ashe Center, Richmond, Virginia, March, 1987.

PATENTS:

Brubaker, CE and CA McLaurin, Lever Drive Apparatus, U.S. Patent No. 4,840,076. Awarded April, 1990.

Silverman, MW, M Heinrich, CE Brubaker, CA McLaurin, Mechanical Shape Sensor, U.S. Patent No. 4,998,354. Awarded March, 1991.

Brubaker, CE, CA McLaurin, Back and Trunk Positioning and Shape Sensing Apparatus, U.S. Patent No. 5,163,333. Awarded Nov. 1992.

Brubaker, CE, et al., Reusable Die Shape For The Manufacture of Molded Cushions, U.S. Patent No. 5,470,590. Awarded Nov. 1995.

Brienza, DM, and CE Brubaker, A Four-wheel Steering Linkage for Short Wheelbase Vehicles, Patent No. 5,862,874. Awarded Jan. 1999.

Brubaker, CE and DM Brienza, Self Adjusting, Contouring Cushioning System, U.S. Provisional Patent 2000, Patent No. 6,941,602 B2. Awarded Sept. 2005.

GRANTS AND CONTRACTS:

UNIVERSITY OF OREGON

Kinematic and Metabolic Analysis of Running, Office of Scientific and Scholarly Research, University of Oregon, 1971. Amount: \$2000. Principal Investigator.

Biomechanics of Human Motion, Office of Scientific and Scholarly Research, University of Oregon, 1972. Amount: \$2000. Principal Investigator.

Harmonic Reconstruction of Human Motion by Computer Simulation, Collins Medical Trust, 1973. Amount \$1400. Principal Investigator.

UNIVERSITY OF VIRGINIA

Analysis of Normal and Abnormal Gait, Office of Sponsored Programs, University of Virginia, 1974. Amount \$4200. Principal Investigator.

The Art and Science of Sports Medicine (Conference), Rogan Foundation, 1974. Amount \$5000. Conference Co-Chair.

The Art and Science of Sports Medicine (Conference), University of Virginia Alumni Foundation. \$5000/Yr. 1975 - 1986. Conference Co-Chair.

Effects of Prolonged Exercise on Selected Physiological Variables (Study of Bike Centennial '76 participants), 1976. Biomedical Sciences Program, University of Virginia Medical Center. Amount \$7500. Principal Investigator.

Wheelchair Propulsion Studies Project of the University of Virginia Rehabilitation Engineering Center, Rehabilitation Services Administration, PHS, 1976-1981. \$2.5 million. Role: Co-Investigator.

Wheelchair Propulsion Studies Project of the University of Virginia Rehabilitation Engineering Center, National Institute on Handicapped Research, US Dept. of Education, 1982. \$700,000. Role: Co-Investigator.

Wheelchair Propulsion Studies Project of the University of Virginia Rehabilitation Engineering Center, National Institute on Handicapped Research, US Dept. of Education, 1983-1988. \$4.25 million. Role: Co-Investigator 1983-1986, Principal Investigator 1987-88.

Predictive Model of Wheelchair Lever Propulsion Based on Muscular Function, Field Initiated Research Program, National Institute on Disability and Rehabilitation Research, US Dept. of Education, 1986-1989. \$270,000. Role: Principal Investigator.

*Rehabilitation Engineering Center: Improved Wheelchair and Seating Design, National Institute on Disability and Rehabilitation Research, US Dept. of Education, 1988-1993.

\$3.5million. Role: REC Director and Principal Investigator.

Evaluation of the UVA CAD/CAM Custom Contour Seating System, Amendment to Rehabilitation Engineering Center Cooperative Agreement, National Institute on Disability and Rehabilitation Research, US Dept. of Education, Sept., 1989, \$120,000. Role: Principal Investigator.

Optimization of Seat Contour for the Oldsmobile Cutlass Supreme, Contract from Human Factors of CPC Div. General Motors Corp., October, 1989. \$25,348. Role: Project Director.

Rehabilitation Engineering Center: Personal Transportation Systems for Individuals with Disabilities, National Institute on Disability and Rehabilitation Research, U.S. Department of Education, 1990-1995. \$2.5 million. Role: Co-Principal Investigator.

Long-term Training for Rehabilitation Engineers, Rehabilitation Services Administration, U.S. Department of Education, 1990-1993. \$300,000. Role: Principal Investigator.

UNIVERSITY OF PITTSBURGH

Research Training in Rehabilitation Engineering, National Institute on Disability and Rehabilitation Research, U.S. Department of Education, 1991-1994. \$500,000. Role: Principal Investigator.

Design and Development of a Wheelchair for Enhanced Access, Paralyzed Veterans of America, Spinal Cord Research Foundation, 1992-93, \$100,000. Role: Principal Investigator.

Rehabilitation Engineering Center on Technology to Improve Wheelchair Mobility, The National Institute on Disability and Rehabilitation Research, Office of Special Education and Rehabilitative Services, US Dept. of Education, 1993-1998. \$3.5 million. Role: Co-Principal Investigator.

Research Training in Rehabilitation Science with Special Emphasis on Disability Studies, Office of Special Education and Rehabilitative Services, National Institute on Disability and Rehabilitation Research, US Department of Education, 1997-2002, \$750,000. Role: Co-Principal Investigator.

Rehabilitation Engineering Center on Technology to Improve Wheelchair Mobility II, The National Institute on Disability and Rehabilitation Research, Office of Special Education and Rehabilitative Services, US Dept. of Education, 1999 - 2003. \$4.5 million. Role: Co-Principal Investigator.

NSF/Quality of Life Technology Engineering Research Center, \$15 million grant in collaboration with Carnegie Mellon University, 2005 – 2015. Role: Initiator.

TEACHING:

Courses Taught (University of Virginia):

Kinesiology
Physiology of Exercise
Anatomy
Biomechanics*
Anatomy*
Physiology*
Principles of Training*

* Graduate Courses

Courses Taught (University of Pittsburgh):

Human Factors in Leadership Skill Development

Advising (University of Oregon and University of Virginia):

(Exercise Physiology, Biomechanics)

Doctoral Candidates - 18
Masters Candidates - 13
Doctoral Committees - 15 (not including above)

(Engineering)

Mechanical Engineering Masters Committees - 3
Electrical Engineering Masters Committees - 4
Electrical Engineering Doctoral Committees - 2
Biomedical Engineering Masters Committees - 4
Mechanical Engineering Senior Thesis - 1

External examiner for Ph.D. Dissertations:

Faculty of Physical Education, University of Western Australia, Perth, Western Australia, Australia (1984) and for the Department of Anatomy, Faculty of Medicine, University of Melbourne, Melbourne, Victoria, Australia (1989). External examiner for a Master of Philosophy Thesis at the Hong Kong Polytechnic University, January, 1995.

Thesis Committees (University Of Pittsburgh):

Mary Ann Holbein, Industrial Engineering - Ph.D. Dissertation Committee 1991 - 1993

Sherry Schlerdorf, Physical Therapy - M.S. Committee, 1992 - 1993

Therese Willkomm, RST - Ph.D. Dissertation Committee -1996 - 1997

David Van Sickle, RST - Ph.D. Dissertation Committee – 1997

Don Spaeth, RST – PhD Dissertation Committee – 1999 - 2002

Akira Sekikawa - Public Health - Ph.D. Dissertation Committee - 1999-2000

Jue Wang - RST - Ph.D. Dissertation Committee - 1999 - 2000

Brian Fay - RST - Ph.D. Dissertation Committee - 2000 - 2002

Khlood Salmon - Public Health - PhD Dissertation Committee - 2000- 2001

Diane Frndak – HIM – Ph.D. Dissertation Committee – 2005

SERVICE:

Professional Affiliations and Activities:

RESNA - An Interdisciplinary Society for the Advancement of Rehabilitative and Assistive Technology (formerly the Rehabilitation Engineering Society of North America)

Founding Member, (1979)

Chair, Section on Wheelchair Propulsion, 1984

Chair, Scientific Program, 8th RESNA Conference, 1985

Editor, Proceedings, 8th Annual Conference, 1985

Founded program for RESNA Special Interest Groups, 1985

Chair, Committee on Special Interest Groups, 1985-1988

Member, Awards Committee, 1986

Member, Nominations Committee, 1986 – 1987

Board of Directors , 1986 – 1998

Member, Long Range Planning Committee, 1987 – 1994

Member, RESNA/ANSI Wheelchair Standards Comm., 1987 – 1991

Member, Subcommittee on Seating, Positioning and Ergonomics, 1983 – 1990

Member, Database subcommittee, 1988 - 1990

Advisory Council, Manpower Training Project, 1987 – 1990

Member, Quality Assurance Committee, 1988 – 1998

Executive Committee, 1988 – 1998

Treasurer, 1989 – 1992

Chair, Management Committee – 1989 – 1992

Chair, Finance Committee - 1989 – 1992

President Elect - 1993 - 1994

Chair - Long-Range Plan - 1993 – 1994
President - 1995-1996
Chair - International Committee – 1998 – 1999

Alliance for Engineering in Medicine and Biology (AEMB)
Vice President for National Affairs – 1990 – 1991

American Institute for Medical and Biological Engineering (AIMBE)
Fellow: Inaugural Class – 1992
Committee on Bioengineering National Needs Assessment – 1992 – 1994
Chair Bylaws Committee College of Fellows 1992 – 1995

Biomedical Engineering Society (BMES)
Member, 1991 –
Elected Fellow, Inaugural Class – 2005

American College of Sports Medicine
Member, 1968 -
Chair, Regional Lecture Series Committee, 1976 – 1977

Southeast Chapter, American College of Sports Medicine
Founding Member, Nov., 1973
Board of Directors, 1973 – 1975
Chaired Annual Meeting, Oct., 1974

International Society of Biomechanics, 1976 – 1992

American Association for the Advancement of Science, 1967 –

American Orthopedic Society for Sports Medicine, 1975 – 1991

New York Academy of Science, 1978 – 1990

Multiple Sclerosis Society, Blue Ridge Chapter, 1988 – 1991
Chair, Subcommittee on Assistive Devices

Easter Seal Research Foundation (ESRF), 1990 – 1994
Board of Trustees - 1990 – 1994
Scientific Review Activities 1990 – 1994

Peer Review (Editorial):

Medicine and Science in Sport and Exercise (Journal of the American College of Sports Medicine). Served as guest reviewer 1977 – 1993. Typically, reviewed from 2 – 4 manuscripts/yr.

American Journal of Sports Medicine (Journal of the American Orthopedic Society for Sports Medicine). Served as reviewer 1978 – 1988
. Typically review 1 to 2 manuscripts/yr.

Physician and Sports Medicine. 1978 – 1985.

Journal of Rehabilitation Research and Development (Quarterly Journal of the Rehabilitation Research and Development Service of the Veterans Administration. Typically reviewed from 3 to 5 manuscripts/yr. 1980 – 2000.

Rehabilitation Technology Review (Quarterly RESNA Newsletter), Section Editor for Special Interest Groups, 1985 – 1988.

Assistive Technology (RESNA Journal). New journal initiated in 1988. 1988 – 1996.

RESNA Press (Publishing Division of RESNA). Editorial Board (as financial officer of RESNA).

Journal of the American Spinal Cord Injury Association. Section Editor for Rehabilitation Technology. Appointed 1989. Medical Design and Materials. Editorial Advisory Board, 1990- 93.

Journal of Rehabilitation Research and Development. Editorial Board, 1991 – 1999.

Journal of the American Society of Artificial and Internal Organs, *ad hoc* reviewer 1994.

Peer Review (Grants):

Veterans Administration: Peer Review of Research Proposals. 1978 – 2002.

National Institute on Disability and Rehabilitation Research, US Dept. of Education: Peer Reviewer 1986 - 1996.

Spinal Cord Injury Foundation, Paralyzed Veterans of America: 1984 – 2000.

National Institutes of Health: Chair, SBIR Study Section on Orthopedics, 1988 – 1994
Member 1987 – 1994; Ad hoc review NIA, 1991; NIH/NSF joint SBIR, 2010

UCP Research and Education Foundation: 1996 – 2008

National Science Foundation: STC 2008; SBIR/STTR 2005 –

Easter Seal Research Foundation Board of Trustees; Peer Review panel 1990 – 1994.

21st Century Fund, State of Indiana: 2004.

National Research Council of Canada (ad hoc): 1996, 1997, 2004.

Public Testimony and Research Advisory Activities:

National Workshop on Rehabilitation Technology Research, Sponsored by NIDRR, Alexandria, VA, October 3-4, 1990. (Chairman).

National Center for Medical Rehabilitation Research (NICHD) - Recommendations on priorities on behalf of University of Pittsburgh, March 19, 1992.

Public Hearing on NIDRR Long Range Plan (co chair) Washington, DC, October, 1995.

Other Service:

Meetings, Panels, Sessions Organized and Chaired:

Co-Chair, The Art and Science of Sports Medicine: Annual Sports Medicine Conference, University of Virginia, Sponsored by Curry School of Education, School of Medicine and Department of Athletics of the University of Virginia. Annually, 1974-1990.

Host and Chair, Southeast Chapter, American College of Sports Medicine, 1st Annual Conference, Charlottesville, VA, October, 1974.

Chair, Research Section on Biomechanics, American College of Sports Medicine, Annual Conference, New Orleans, LA, May, 1975.

Chair, Session on Wheelchair Mobility, International Conference on Rehabilitation Engineering, Atlanta, GA, August, 1979.

Chair, Current Practices and Technological Advances: A Course on Mobility and Seating, University of Virginia, Charlottesville, VA, April, 1984.

Chair, Scientific Program, 8th Annual Conference on Rehabilitation Technology, Memphis, Tennessee, June, 1985.

Chair, Research section on Manual Wheelchairs, 9th Annual Conference on Rehabilitation Technology, Minneapolis, MN, June, 1986.

Chair, Rehabilitation Engineering Section, 39th Conference of the Alliance for Engineering in Medicine and Biology, Baltimore, MD, September, 1986.

Chair, Wheelchair IV: A State-of-the-Art Conference on Powered Wheelchair Mobility, National Institute on Disability and Rehabilitation Research and the University of Virginia REC, Charlottesville, VA, December, 1988.

Chair, State-of-the-Art Conference: The Availability and Utilization of Assistive Technology to Meet the Seating and Mobility Needs of Severely Disabled and Elderly Persons, Interagency Working Group on Aging (AOA, NIA, NIDRR, VA, NASA), Dulles International Airport, Washington, DC, December, 1988.

Judge, Rodman Design Competition for 1st year Engineering Honor Students, Department of Mechanical Engineering, University of Virginia, Charlottesville, VA, April, 1989.

Chair, NIDRR National Workshop on Rehabilitation Technology, Alexandria, VA, October 3,4, 1990.

Chair, Transportation I - A State of the Art Conference on Personal Transportation for Persons with Disabilities, University of Virginia, Charlottesville, VA, April 13-15, 1991.

Chair, Steering Committee for the Long Range Plan. National Institute on Disability and Rehabilitation Research, U.S. Department of Education, 1995 – 1998.

Chair, 1st Annual International Symposium on Quality of Life Technology. Quality of Life Technology Center, University of Pittsburgh and Carnegie Mellon, Pittsburgh, PA, June 30-July 1, 2009.

Committees:

Advisory Council Member, 1987 – 1992: Center for Rehabilitation Technology Services, South Carolina Vocational Rehabilitation Department, West Columbia, SC.

Review of the NIDRR Rehabilitation Engineering Center for “The Improvement of Service Delivery in Rehabilitation Technology.” Role: Review the Progress of the REC and prepare a report for submission to NIDRR, U.S. Dept. of Education. 1989.

Member: Steering Committee to establish an infrastructure for Bioengineering in the U.S. (resulted in the founding of the American Institute for Medical and Biological Engineering [AIMBE]. - Sponsored by the National Science Foundation) 1989 – 1992.

Member: Advisory Council, Center for Assistive Technology, Department of Rehabilitation Services, Commonwealth of Virginia, 1991.

Member: Commission on Assistive Technology, Office of Vocational Rehabilitation (OVR), Commonwealth of Pennsylvania, 1991 - 1994.

Member: Southwestern Pennsylvania Rehabilitation Steering Committee, 1991 – 1997

United Way of Pittsburgh Committee on Social Services, 1991 – 1996.

Member: Advisory Board TECH-LINK. 1992 - 2007, Executive Committee – 1995 – 2007; Assumed responsibility for TECH-LINK on behalf of SHRS to sponsor and support

the First Lego League Robotics Camp and participation in Annual Regional Competition, 2008 –

Chair, NIDRR Steering Committee on Long Range Planning, U.S. Department of Education 1995 – 1997.

Member, Committee on Assessing Rehabilitation Science and Engineering, Institute of Medicine, National Academy of Sciences, Chair, Subcommittee on Education. 1993-96

Member, Hiram G. Andrews Vocational Rehabilitation Center Project Committee, established by Governor Tom Ridge. 1997 - 1999.

Member, Support Helps Other Use Technology (SHOUT) Committee, 1996 -

Member, Institute of Advanced Technology (IAT) CCAC, Business Advisory Committee, 1996 – 98.

Member, United Cerebral Palsy Research and Education Advisory Committee, 1999 -

Member, Hiram G. Andrews Center Advisory Committee, 2000 – 2003.

Member, Advisory Board Coro Pittsburgh Health Sciences Fellowship, 2000 -

Member, NIDDR Capacity Building Planning Panel, August, 2006.

Member and Reviewer, UCP Research and Education Foundation, 1999 – 2011

Consultant to MUSC College of Health Professions, Charleston SC, April, 2008.

Health Care Provider Curriculum Planning Meeting, April, 2008, US Department of Health and Human Services

International Service:

Member, U.S. Department of State Bureau of Human Rights and Humanitarian Affairs delegation to Moscow, USSR. Meetings with Department of Social Security of the Russian Republic to discuss improving services for people with Disabilities, February, 1990.

Delegation to Moscow, USSR, (Delegation Leader) to participate in Seminars on mobility technology in INVALTECH 90, an exposition on assistive technology, on behalf of the Bureau of Human Rights and Humanitarian Affairs, U.S. Department of State. April 16-21, 1990.

Chair, Instructional Program in Design and Development of Assistive Devices for Disabled Persons for Engineers from the Central Machine Building Institute of the USSR, May 28 - June 11, 1991. University of Virginia, Charlottesville, VA.

Accessibility Issues, Beyond Chataqua Conference, Central Rehabilitation Institute, Moscow, Russia, September 12, 1991. Assistive Technology, Mir Institute, St. Petersburg, Russia, September 19, 1991. Member Delegation, on behalf of the Bureau of Human Rights and Humanitarian Affairs, U.S. Department of State.

Co-chair, Session IV: International Cooperation and Dissemination of Information on Rehabilitation Engineering; REHAB-1, The First International Workshop on Rehabilitation Engineering; Sponsored by the United Nations Economic Commission of Europe and the International Federation for Medical and Biological Engineering, June 14-16, 1990, Washington, DC.

Chair, Session III: REHAB-2, Sponsored by UN ECE and IFMBE, Oslo and Fagernes, Norway, May 12-15, 1991.

Chair, Instructional Program in Design and Development of Assistive Devices for Disabled Persons for Engineers from the Central Machine Building Institute of the USSR, May 28 - June 11, 1991. University of Virginia, Charlottesville, VA.

Chair, Section on Education, International Workshop on Rehabilitation Engineering, REHAB-3, Sponsored by UN-ECE and IFMBE, Charles University, Prague and Trebon Spa, Czechoslovakia, May 23-27, 1992.

Member, Validation Panel for the Health Science Curriculum of the Hong Kong Polytechnic University, Hong Kong, November, 1994.

Member, International Board of Reference for The Interdisciplinary Centre for Musculoskeletal Bioengineering and Rehabilitation Technology, The Hong Kong Polytechnic University, Hong Kong. 1994 – 1995.

Member, Health Science Panel for the 'Research Assessment Exercise,' conducted by the University Grants Committee of Hong Kong. - 1999 – 2000.

Member, Departmental Assessment Panel, Hong Kong Polytechnic University, Hong Kong, 1999

Advisor and Consultant to Artificial Limbs Manufacturing Corporation of India (ALIMCO, Kanpur, India) on behalf of NIDRR – January, 2001.

Member, Advisory Committee for Faculty Area of Strategic Development, Hong Kong Polytechnic University, Hong Kong 1999 – 2005.

Advisor to Indian Spinal Injury Centre, Delhi, India, 2000 – 2003.

Faculty Service, Administrative Assignments:

University of Virginia

Director, University of Virginia Rehabilitation Engineering Centers, May, 1987 - 1991

Drafted Curriculum and Established PhD in Sports Medicine – 1977; Director, 1977 – 1991, University of Virginia.

Director, Rehabilitation Engineering Education Program; Member, Research Committee, Department of Biomedical Engineering, University of Virginia.

Search Committee, School of Medicine - Chair of Orthopedic Surgery, 1990-91, University of Virginia.

University Of Pittsburgh

Health Sciences Planning and Budget Committee, 1991- 2015

Affirmative Action Committee, Health Sciences, 1991- 2015

Deans' Advisory Committee, School of Excellence for Health Care Professions, 1991- 2016

Senate Education Policies Committee, 1991 – 1993.

The Center for Injury Reduction and Control Executive Committee (CIRCL) - 1992

Steering Committee, William Svetz Lectureship, 1992 – 1994.

Search Committee, Senior Vice Chancellor, Health Sciences, 1992 - 1993.

Health Center Advisory Committee, 1992 – 1998.

Deans' Council Working Group on Undergraduate Education, 1992 – 2015

Steering Committee, Interdisciplinary Doctoral Program, SHRS, - 1992 – 1995.

Accessibility Priorities Committee - 1993 – 2002.

External Advisory Board, Pittsburgh Tissue Engineering Initiative, 1995 – 1998.

University Wide Ethics Panel, 1996 - 1998

Biomedical Informatics Committee, 1996 - 2015

Child Development Advisory Board, 1994 -

Dorothy Bradley Brown Scholarship Selection Committee, 2006 - 2015

EUCLID/LEND Advisory Board, 1996 - 2008

Health Sciences International Committee, 1996 - 2015

VA Deans' Committee, 1996 ~ 2004

Provost's Advisory Committee on Undergraduate Programs. 1997 -

Internal Monitoring Committee for Center for Injury Research & Control, 1997-

Council of Deans, Steering Committee - 1997 – 1999.

Health Sciences Information System Steering Committee, 1998 – 2015

International Coordination Council (ICC), 2004 -

Chancellor's Disability Agenda 2000 Committee, 1999 – 2000.

UCLID Oversight Committee, 1999 - 2005

Prevention Center Task Force (Graduate School of Public Health), 1999.

University Planning and Budget Committee (Deans' Council Representative), 1999 – 2002.

Search Committee, Vice Chancellor of Student Affairs, 1999 – 2000.

Chair, McGowan Institute for Regenerative Medicine Retreat, 2003 – 2004.

Pitt/UPMC Rehabilitation Steering Committee, 2004 – 2015

Global Health Advisory Board, 2007-

McGowan Institute for Regenerative Medicine Executive Committee, 2008 –

Provost's Online Task Force, 2013

Bioengineering Chair Search committee, June, 2013:

Served as the outside member of 3-person committee (Radisav Vidic, Civil and Environmental Engineering (Chair), Lorenzo Soletti (BioE Alumnus), Cliff Brubaker

(External Member) at the request of Dean Gerald Holder to interview all faculty of the BioE department to assess the disposition of the faculty for internal candidates for the Position of Chair of the SSOE BioE Department. Concluded June 27, 2013 with submission of the committee report to Dean Holder.