

ROBERT G. RADWIN

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Waunakee, WI 53797
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RESEARCH INTERESTS

Instruments and analytical methods to assess physical stress in the workplace; causes and prevention of work-related musculoskeletal disorders; ergonomics of manually operated machinery, equipment, medical instruments, and hand tools; human-computer interaction; occupational biomechanics; rehabilitation engineering

EDUCATION

B.S. Electrical Engineering (1975)
Polytechnic Institute of New York

M.S.E. Electrical and Computer Engineering (1979)
The University of Michigan, Ann Arbor

M.S. Bioengineering (1979)
The University of Michigan, Ann Arbor

Ph.D. Industrial and Operations Engineering (1986)
The University of Michigan, Ann Arbor
(Co-chairs: Thomas J. Armstrong and Don B. Chaffin)

HONORS, AWARDS AND DISTINCTIONS

Eta Kappa Nu, Electrical Engineering Honor Society (1974)
University of Michigan Fellowship (1975 – 1977)
Outstanding Teaching Assistant Award (1980)
Alpha Pi Mu, Industrial Engineering Honor Society (1982)
National Institute for Occupational Safety & Health Traineeship (1982 – 1985)
Ford Motor Company Fellowship (1983 – 1986)
Sigma Xi, The Scientific Research Society, Full Member (1985)
Senior Member of the Institute of Industrial Engineers (1988)
Whitaker Foundation Investigator Grantee (1990)
Presidential Young Investigator Award, National Science Foundation (1991)
Special Emphasis Research Career Award, National Institute for Occupational Safety and Health (1991)
Who's Who in Science & Engineering (1992 – Present)
Board Certification in Ergonomics, CPE No. 145 (1993)
Senior Member of the Institute of Electrical and Electronics Engineers (1994)
Fellow of the Human Factors and Ergonomics Society (1997)
Fellow of the American Institute for Medical and Biological Engineering (1999)
Fellow of the Ergonomics Society (2000)
Engineering Alumni Society Merit Award in Biomedical Engineering, University of Michigan (2004)
Fellow of the Biomedical Engineering Society (2005)
Who's Who in Medicine and Healthcare (2006 – Present)
Who's Who in America (2006 – Present)

PROFESSIONAL EXPERIENCE

Academic:

Assistant Professor
Department of Industrial Engineering
University of Wisconsin-Madison
(1987 – 1991)

Associate Professor
Department of Industrial Engineering
University of Wisconsin-Madison
(1991 – 1995)

Associate Chair for Graduate Programs
Department of Industrial Engineering
University of Wisconsin-Madison
(1994 – 1996)

Professor
Department of Industrial Engineering
University of Wisconsin-Madison
(1995 – Present)

Director
Biomedical Engineering Program
University of Wisconsin-Madison
(1996 – 1999)

Professor and Founding Chair
Department of Biomedical Engineering
University of Wisconsin-Madison
(1999 – Present)

Professor
Department of Orthopedics & Rehabilitation
University of Wisconsin-Madison
(2004 – Present)

Research:

Research Assistant
Department of Electrical and Computer Engineering
The University of Michigan, Ann Arbor
(1975 – 1979)

Research Assistant
Department of Physical Medicine and Rehabilitation
The University of Michigan Medical Center, Ann Arbor
(1980)

Research Assistant
Department of Industrial Engineering
The University of Michigan, Ann Arbor
(1980 – 1986)

Research (Continued):

Postdoctoral Research Fellow
Center for Ergonomics
The University of Michigan, Ann Arbor
(1986 – 1987)

Teaching:

Courses Developed/Taught:

IE 315 Production Planning and Control
IE 549 Human Factors Engineering
IE 556 Occupational Health and Safety Engineering
BME/IE 564 Ergonomics in Manufacturing and Industry
BME/IE 764 Occupational Biomechanics
IE 765 Ergonomics Laboratory and Field Methodology
IE 859 Seminar in Ergonomics

Additional Teaching Experience:

Lecturer and Laboratory Instructor
Digital Computer Engineering
Department of Electrical and Computer Engineering
The University of Michigan, Ann Arbor
(1978 – 1981)

Outreach and Professional Development:

Guest lectures in undergraduate and graduate courses, graduate seminars, and professional short courses (1981 – Present).

Administrative:

Associate Chair for Graduate Programs, Department of Industrial Engineering. University of Wisconsin–Madison (1994 – 1996).

Associate Director for Admissions, Manufacturing Systems Engineering Program, University of Wisconsin–Madison (1994 – 1996).

Program Chair, Biomedical Engineering Program, Administration of undergraduate and graduate programs in biomedical engineering, University of Wisconsin–Madison (1996 – 1999).

Department Chair, Department of Biomedical Engineering, University of Wisconsin–Madison (1999 – Present).

University Affiliations:

Trace Research and Development Center, Waisman Center, University of Wisconsin–Madison (1987 – Present)

Biomedical Engineering Center, College of Engineering, University of Wisconsin–Madison (Director 1992 – Present)

Biotechnology Training Program, University of Wisconsin–Madison (1992 – Present)

University Affiliation (Continued):

Industrial Hand Tool and Ergonomics Research Consortium, University of Wisconsin–Madison (Director 1992 – Present)

Manufacturing Systems Engineering Program, Executive Committee, College of Engineering, University of Wisconsin–Madison (1992 – Present).

Ergonomics Design and Analysis Research Consortium, University of Wisconsin–Madison (Director 1996 – Present)

Medical Scientist Training Program (MD/PhD Program), Steering Committee and Trainer, University of Wisconsin-Madison (2002 – Present)

Clinical Neuroengineering Training Program, Steering Committee and Trainer, University of Wisconsin-Madison (2005 – Present)

University Committee Membership:

Committee on Engineering Education, College of Engineering, University of Wisconsin–Madison (1987 – 1995).

Graduate Committee, Department of Industrial Engineering, University of Wisconsin–Madison (1987 – 1994; Chair 1994 – 1996).

Human Factors Area Group, Department of Industrial Engineering, University of Wisconsin–Madison (1987 – Present; Chair 1989 – 1991).

Computing Integration Committee, Department of Industrial Engineering, University of Wisconsin–Madison (1988 – Present; Chair 1990; Chair 1992 – 1994).

Faculty Senate of the University of Wisconsin–Madison (Senator 1991 – 1993; Alternate Senator 1994 – 1996).

Information Technology Advisory Committee, College of Engineering, University of Wisconsin–Madison (1992 – 1994).

Industrial Engineering Professional Masters Degree Program Committee, Department of Industrial Engineering, University of Wisconsin–Madison (Chair 1992 – 1996).

Curriculum Committee, Manufacturing Systems Engineering Program, University of Wisconsin–Madison (1992 – 1994).

Graduate Admissions Committee, Department of Industrial Engineering, University of Wisconsin–Madison (1993 – 1996; Chair 1994 – 1996).

Graduate Recruiting Committee, Department of Industrial Engineering, University of Wisconsin–Madison (Chair 1994 – 1996).

Engineering Exposition Advisory Committee, College of Engineering, University of Wisconsin–Madison (1993).

Manufacturing Systems Area Group, Department of Industrial Engineering, University of Wisconsin–Madison (1993 – Present).

Research Committee, Graduate School, University of Wisconsin–Madison (1994 – 1997)

University Committee Membership (Continued):

Academic Planning Council, College of Engineering, University of Wisconsin–Madison
(1995 – Present)

Undergraduate Committee, Department of Industrial Engineering, University of Wisconsin–
Madison (1996 – 1999)

Operating Committee, College of Engineering, University of Wisconsin–Madison (1997 –
Present)

Invention Disclosure Focus Group, Wisconsin Alumni Research Foundation, University of
Wisconsin–Madison (1998)

Graduate Engineering Research Scholars Committee, College of Engineering (1999 – Present)

Wisconsin Information and Medical Systems Problems and Priorities Assessment Committee,
University of Wisconsin-Madison (1999)

Medical Scientist Training Program Executive Committee, School of Medicine and Public Health,
University of Wisconsin–Madison (2002 – Present)

Professional Outreach:

Professional Registration:

National Board Certification in Ergonomics (1993 – Present) CPE No. 145

Consulting Experience (1983 – Present):

Major Clients:

Baker Material Handling Corporation
Bestt Rollr, Inc.
Bettcher Industries
Black & Decker
Boeing Company
Cargill Corporation
Caterpillar Corporation
CSX Transportation
Design Concepts, Inc.
ECM Motor Company
Electronic Theater Controls, Inc.
Fisher Body Division, General Motors Corp.
Fiskars, Inc.
Ford Motor Company
General Motors Corporation
Group Four Design
Hamilton Standard, United Technologies Corp.
Hobart Corporation, PMI Food Equipment Group
Huck International, Thiokol Corp.
IBP, Inc.
InForm Product Development, Inc
Ingersoll-Rand Company
Jerome Foods, The Turkey Store
John Deere Company
National Institute for Occupational Safety and Health
Pontiac Motor Division, General Motors Corp.

Major Clients (Continued):

Professional Positioners, Inc.
Quest Technologies
Rail India Technical and Economic Services
Reliable Electric, Reliance Comm/ Tec Corp.
Renquist Associates
Rubbermaid Company
Sears
Signode Packaging Systems/Paslode
State of Washington Dept. of Labor and Industries
Shur-Line, Inc
Traex, Menasha Corp.
United Auto Workers – DaimlerChrysler National Training Center
United Auto Workers – GM National Training Center
US Postal Service
US Department of Labor
Vollrath Corporation
Wisconsin Occupational Therapy Association
Ziba Design

Services Rendered:

Evaluation of industrial jobs for biomechanical stresses and repetitive trauma hazards; Human factors design of consumer and industrial products; Presentations in professional short courses and workshops; Vibration assessment and ergonomics analysis of power hand tools.

Technical Advisory Board, Quest Technologies, Oconomowoc, Wisconsin

PROFESSIONAL SOCIETIES AND SERVICE

Affiliations:

American Industrial Hygiene Association
American Institute for Medical and Biological Engineers (Fellow)
American Society for Engineering Education
Biomedical Engineering Society (Fellow)
Ergonomics Society, U.K. (Fellow)
Human Factors and Ergonomics Society (Fellow)
Institute of Electrical and Electronics Engineers (Senior Member)
Institute of Industrial Engineers (Senior Member)

Service and Offices Held:

American Industrial Hygiene Association, Ergonomics Committee, Member (1991 – 1996, 1997 – 2000), Vice Chair (1993 – 1994), Chair (1994 – 1995), Past Chair (1995 – 1996)

American Industrial Hygiene Conference and Exposition, Ergonomics Program Chair (1992)

Human Factors and Ergonomics Society Annual Meeting, Paper Reviewer (1990 – 1996), Session Chair (1991 – 1997)

Human Factors and Ergonomics Society, Industrial Ergonomics Technical Group, Chair (1994)

Service and Offices Held (Continued):

Human Factors and Ergonomics Society, Review Committee for OSHA Ergonomics Standard, Chair (1994)

Editorial Boards:

American Industrial Hygiene Association Journal, Associate Editor (1997 – 2001)
Human Factors, Editorial Board Member (1995 – Present), Associate Editor (2005 – Present)
International Journal of Industrial Ergonomics, Editorial Board Member (1993 – Present)
Journal of Safety Research (2001 – Present)

Reviewed Numerous Papers for the Following Publications:

Annals of Biomedical Engineering
American Industrial Hygiene Association Journal
Applied Ergonomics
Ergonomics
Ergonomics Guides
Human Factors
Human Performance
IEEE Transactions on Biomedical Engineering
IEEE Transactions on Rehabilitation Engineering
IEEE Transactions on Systems, Man, and Cybernetics
International Journal of Industrial Ergonomics
Journal of Biomechanics
Journal of Occupational Medicine
Journal of Orthopedic Research
Journal of Rehabilitation Research and Development
Journal of Safety Research
Perceptual and Motor Skills

Service to Government and Public Agencies:

National Institute for Occupational Safety and Health, Criteria Document for *Occupational Exposure to Hand–Arm Vibration* (DHHS No. 89-106). Reviewer (1989).

American National Standards Institute, *Accredited Standards Committee for Control of Cumulative Trauma Disorders* (ANSI Z-365). Voting member (1991 – Present), elected chair–Job Analysis and Design Subcommittee (1994 – Present).

National Institute for Occupational Safety and Health, *Ergonomic Hazard Exposure Assessment and Validation Committee*. Member of an international committee advising the Division of Surveillance, Hazard Evaluations, and Field Studies (1992).

National Institute for Occupational Safety and Health, *Power Hand Tool Ergonomics Research Task Force*. Member of an international committee advising the Engineering Control Technology Branch (1993 – 1994).

National Institutes of Health, General Medicine B Study Section. Member of ad hoc scientific review panel (1993).

Department of Energy/ National Institute for Occupational Safety and Health. Member of scientific advisory panel on an OSHA standard for reducing and preventing work-related musculoskeletal disorders in industry (1994).

Service to Government and Public Agencies (Continued):

National Institutes of Health, Occupational Health Study Section. Member of ad hoc scientific review panel (1994).

US Technical Advisory Group to ISO/TC (Ergonomics) 159/SC3 on Anthropometry and Biomechanics. Member (1994 – 1998).

National Institute for Occupational Safety and Health, Draft document *Musculoskeletal Disorders and Workplace Factors: A Critical Review of Epidemiologic Evidence for Work-Related*

Musculoskeletal Disorders of the Neck, Upper Extremity, and Low Back, Division of Surveillance, Hazard Evaluations, and Field Studies. Reviewer (1996).

National Science Foundation, Division of Manufacturing, Industry and Innovation. Proposal reviewer (1997).

Research Council of Canada, National Sciences and Engineering, Proposal Reviewer (1997).

National Institute for Occupational Safety and Health, Manual Hand Tool Ergonomics Advisory Committee (1998).

National Research Council and Institute of Medicine, Panel on Musculoskeletal Disorders and the Workplace, Member (1999-2000).

National Institute for Occupational Safety and Health, Research Program Reviewer (1999).

Research Council of Canada, National Sciences and Engineering, Proposal Reviewer (1999 – 2000).

National Research Council, Committee on Human Factors (2001 – 2006).

GRANTS AND CONTRACTS

Radwin, R. G. (Principal Investigator), Wisconsin Alumni Research Foundation: “Grant in Aid,” \$95,600, (1987 – 1992).

Webster, J. G. (Principal Investigator) and Radwin, R. G., National Institute of Health: “Tactile Sensors for the Insensate Hand,” \$336,100 (1988 – 1991).

Vanderheiden, G. C. (Principal Investigator) and Radwin, R. G., National Institute for Disability and Rehabilitation Research: “Rehabilitation Engineering Center on Access to Computers and Electronic Equipment,” \$3,500,000 (1988 – 1992).

Radwin, R. G. (Principal Investigator), Department of Veterans Affairs: “Development of a Pinch Force Psychomotor Test,” \$6,000 (1989 – 1990).

Radwin, R. G. (Principal Investigator), Ingersoll-Rand Company: “An Ergonomics Investigation of Power Tool Design Factors Affecting Operator Grip Exertions,” \$65,000 (1990).

Radwin, R. G. (Principal Investigator), Rodriquez, A., and Jeng, O. J., Whitaker Foundation (In-kind support from the Oscar Mayer Company): “Psychomotor and Sensory Deficits Associated with Carpal Tunnel Syndrome,” \$134,000 (1990 – 1993).

Grants and Contracts (Continued):

Radwin, R. G., Sainfort, P., Smith, M. J., Vanderheiden, G. C., and Wiker, S. F., University of Wisconsin-Madison College of Engineering: "Human Factors Teaching Lab," \$255,000 (1990).

Radwin, R. G. (Principal Investigator), Hewlett Packard Company: "Laboratory Equipment Grant," \$13,800 (1991).

Radwin, R. G. (Principal Investigator), National Science Foundation: "Presidential Young Investigator Award," \$312,500 (1991 – 1996).

Radwin, R. G. (Principal Investigator), National Institute for Occupational Safety and Health: "Characterization of Posture, Force and Repetitive Motion," \$150,000 (1991 – 1994).

Radwin, R. G. (Principal Investigator), Multiple Donors (American Automobile Manufacturers Association, Atlas Copco Tool Company, Bettcher Industries, Black & Decker, Chicago Pneumatic Tool Company, Engman-Taylor Company, Huck International, Indresco Corporation, Ingersoll-Rand Company, John Deere Company, Milwaukee Electric, Snap-on Corporation, Stanley Tools, Stanley Air Tools): "Industrial Hand Tool and Ergonomics Research Consortium," \$187,500 (1992 – 1997).

Radwin, R. G. (Co-principal Investigator) and Vanderheiden, G. C. (Co-principal Investigator), Pointer Systems, Inc.: "Laboratory Testing and Clinical Evaluation of a Cordless Computer Input Drive," \$79,000 (1992 – 1994).

Radwin, R. G. (Principal Investigator), Caterpillar Corporation: "An Ergonomics Investigation of a Wheel Loader Steering Transmission Control System," \$11,000 (1993 – 1994).

Radwin, R.G. (Principal Investigator), The Office Ergonomics Research Committee: "Keyboard Design Factors that Reduce Overexertion," \$20,000 (1995 – 1995).

Radwin, R. G. (Principal Investigator), General Motors Corporation: "Manufacturing Ergonomics Graduate Program," \$100,000 (1995 – 2006).

Radwin, R. G. (Principal Investigator), Department of Health and Human Services, National Institute for Occupational Safety and Health: "Worker Monitoring Tests for Carpal Tunnel Syndrome," \$770,000 (1996 – 2001).

Radwin, R. G. (Principal Investigator), Multiple Donors (Greater Cincinnati Occupational Health Center, National Institute for Occupational Safety and Health, NCR Corporation, State of Washington Bureau of Labor and Industries): "Ergonomics Design and Analysis Research Consortium," \$90,000 (1996 – 2001).

Radwin, R. G. (Principal Investigator), Tompkins, W. J. and Vanderby, R., Whitaker Foundation, "Biomedical Engineering Special Opportunity Awards," \$1,000,000 (1998 – 2001).

Radwin, R. G. (Principal Investigator), Arndt, R. A., Sainfort, F., and Yen, T. Y., UAW-Daimler Chrysler, "Development and Validation of Multimedia Video Tape Job Analysis for Physical Stress Factors Associated with Musculoskeletal Disorders," \$300,000 (1999 – 2002).

R. Radwin (Principal Investigator) and T. Yen, National Institute for Occupational Safety and Health, Multimedia Video Tape Data Analysis Software, \$20,100 (1999 – 2000).

Grants and Contracts (Continued):

Radwin, R. G. (Principal Investigator), Lin, J. H., and Richard, T., National Institute for Occupational Safety and Health, "Development of a Hand Tool Biomechanical Model," \$13,000 (1999 – 2000).

Radwin, R. G. (Principal Investigator) and Sesto, M. E., National Institute for Occupational Safety and Health, "The Effect of Hand-Arm Vibration on Sensory and Psychomotor Deficits and Recovery," \$16,300 (2001 – 2002).

Radwin, R. G. (Principal Investigator), 3M Company, "Evaluation of a High Friction Material for Ergonomics and Rehabilitation Applications," \$35,000 (2001-2002).

Radwin, R. G. (Principal Investigator) and Irwin, C., National Institute for Occupational Safety and Health, "The Effect of Handle Shape and Size on Submaximal Grip Force," \$18,835 (2001 – 2002).

Radwin, R. G. (Principal Investigator), Best, T., Block, W., Richard, T., and Sesto, M.E., National Institute for Occupational Safety and Health, "Biomechanical Effects of Industrial Eccentric Exertions," \$540,000 (2003 – 2006).

Radwin, R. G. (Co-Principal Investigator) and Blowski, D., Gas Technology Institute, "Ergonomics of Gas Distribution Utility Tasks," \$140,000 (2004 – 2005).

Vanderheiden, G. C. (Principal Investigator) and Radwin, R. G., "Universal Interface & Information Technology Access Rehabilitation Engineering Research Center," NIDRR, \$5,000,000 (2003 – 2008).

Radwin, R. G. (Principal Investigator), Fronczak, F., Sesto, M. E. and Yen, T. Y., General Motors, Delphi and the United Auto Workers-GM Center for Human Resources, "Ergonomics Criteria for Industrial Power Hand Tools," \$670,000 (2005 – 2007).

Radwin, R. G. (Principal Investigator), Wallace H. Coulter Foundation, "Translational Research Partnership in Biomedical Engineering," \$2,900,000 (2006 – 2011).

DOCTORAL THESIS SUPERVISION

Supervision as Major Professor:

1. Jeng, One-Jang, "Quantitative Assessment of Functional Deficits Associated with Carpal Tunnel Syndrome," Department of Industrial Engineering, University of Wisconsin–Madison, 1994. Dr. Jeng is currently an associate professor at New Jersey Institute of Technology.
2. Lin, Mei-Li, "Development of a Relative Discomfort Profile for Repetitive Hand Exertions and Motions," Department of Industrial Engineering, University of Wisconsin–Madison, 1995. Dr. Lin is the Director of Research at the National Safety Council.
3. Oh, Seungyeon, "Tool Dynamics and Workstation Effects on Power Hand Tool Operation," Department of Industrial Engineering, University of Wisconsin–Madison, 1995. Dr. Oh is a member of the technical staff of Anderson Consulting.

Supervision as Major Professor (continued):

4. Yen, Thomas Y., "Physical Stress Measurements for Work-Related Musculoskeletal Disorders Using Video-Based Continuous Biomechanical Data Acquisition and Interactive Multimedia Computer Exposure Analysis," Department of Industrial Engineering, University of Wisconsin–Madison, 1997. Dr. Yen is an assistant research scientist at the University of Wisconsin–Madison.
5. Lin, Jia-Hua, "Dynamic Biomechanical Models of the Hand and Arm Response to Impulsive Reaction Forces," Department of Industrial Engineering, University of Wisconsin–Madison, 2001. Dr. Lin is an assistant scientist at the Liberty Mutual Center for Safety Research.
6. Sesto, Mary E., "Biomechanical and Physiological Changes Following Submaximal Eccentric Activity," Department of Industrial Engineering, University of Wisconsin–Madison, 2002. Dr. Sesto is an assistant scientist at the University of Wisconsin–Madison.
7. Irwin, Curt B., "A Biomechanical Investigation of Handle Force Vectors." Department of Biomedical Engineering, University of Wisconsin-Madison, 2002. Mr. Irwin is currently a dissertator.
8. Felton, Elizabeth, "Testing of an ECoG controlled neuroprosthetic device." Department of Biomedical Engineering, University of Wisconsin-Madison, 2005. Ms. Felton is currently a dissertator and enrolled in the MD/PhD Program.

Additional Thesis Committee Membership:

1. Kaczmarek, Kurt A., "Electrocutaneous Stimulation Parameters," Department of Electrical and Computer Engineering, University of Wisconsin–Madison, 1992. Dr. Kaczmarek is currently an associate research scientist in the Department of Rehabilitation Medicine at the University of Wisconsin–Madison.
2. Yoon, Jongsuk S., "Development of an Anthropometric Size Description System for Woman's Clothing," Department of Consumer Science, University of Wisconsin–Madison, 1992. Dr. Yoon is currently an assistant professor in the Department of Clothing & Textiles at Yonsei University, Seoul, Korea.
3. Kim, Seung K., "Biomechanical Analysis of the Taekwon-Do Front Thrust Kick," Department of Kinesiology, University of Wisconsin–Madison, 1993.
4. Lim, Soo-Yee, "An Integrated Approach to Upper Extremity Musculoskeletal Discomfort in the Office Environment: The Role of Psychosocial Work Factors, Psychological Stress and Ergonomic Risk Factors," Department of Industrial Engineering, University of Wisconsin–Madison, 1994. Dr. Lim is currently a research scientist at the National Institute for Occupational Safety and Health.
5. Beebe, David J., "Development of Silicon Sensors for Hand Force Measurements," Department of Electrical and Computer Engineering, University of Wisconsin–Madison, 1994. Dr. Beebe is currently an associate professor in the Department of Biomedical Engineering at the University of Wisconsin-Madison.
6. Cohen, Kevin P., "Optimal Sensors and Signal Processing Algorithms for Apnea Monitoring," Department of Electrical and Computer Engineering, University of Wisconsin–Madison, 1995. Dr. Cohen is currently a research scientist at MIT-Lincoln Laboratories.

Additional Thesis Committee Membership (Continued):

7. Harbst, Kimberly B., "Developmental Differences in the Accuracy of Bimanual Isometric Force Production," Department of Kinesiology, University of Wisconsin–Madison, 1996. Dr. Harbst is currently an assistant professor in the Department of Physical Therapy at the University of Wisconsin–LaCross.
8. Palreddy, Surekha, "User Adaptation of ECG Beat Classifiers," Department of Electrical and Computer Engineering, University of Wisconsin–Madison, 1996. Dr. Palreddy is currently a member of the technical staff at Cardiac Pacemakers Inc.
9. Beams, David M., "Fuzzy Logic Servocontrol in Low-flow Inhalation Anesthesia," Department of Electrical and Computer Engineering, University of Wisconsin–Madison, 1997. Dr. Beams is currently an assistant professor in the Department of Electrical Engineering at the University of Texas–Tyler.
10. Dani, Tushar, H., "A Virtual Reality Based Geometric Modeling Environment for Concept Shape Design," Department of Mechanical Engineering, University of Wisconsin–Madison, 1999. Dr. Tushar is currently a member of the technical staff at Ford Motor Company, Dearborn, MI.
11. Mendenhall, John, "Changes in Treatment Decision Making Styles of Newly Diagnoses Cancer Women," Department of Industrial Engineering, University of Wisconsin-Madison, 1999.
12. Quick, Davd W., "Ischemic Mitral Valve Disease: Implications to Repair, Replacement, and Medical Therapy," Department of Biomedical Engineering, University of Wisconsin-Madison, 2001.
13. Lee, Taeyong, "Viscoelastic Properties of Biological and High-Damping Composite Materials," Department of Biomedical Engineering, University of Wisconsin-Madison, 2001.

PATENTS AND INVENTIONS

Registered Trademarks and Copyright of Multimedia Video Task Analysis™ and MVTA™ software, Wisconsin Alumni Research Foundation, 1998.

Heckman, T.B, Mitchell, D. J., and Radwin, R. G., "Carriage for a Food Slicer," U.S. Patent No. 6,167,791, January 2, 2001.

PUBLICATIONS AND PRESENTATIONS

Refereed Journal Articles:

1. Radwin, R. G. and T. J. Armstrong. Assessment of hand vibration exposure on an assembly line, *American Industrial Hygiene Association Journal*, 46(4), 211-219, 1985.
2. Armstrong, T. J., Radwin, R. G., Hansen, D. J., and K. W. Kennedy. Repetitive trauma disorders: Job evaluation and design, *Human Factors* 28(3), 325-336, 1986.
3. Armstrong, T. J., Fine, L. J., Radwin, R. G., and B. S. Silverstein. Ergonomics and the effects of vibration in hand intensive work, *Scandinavian Journal of Work – Environment and Health*, 13, 286-289, 1987.

Refereed Journal Articles (Continued):

4. Radwin, R. G., Armstrong, T. J., and D. B. Chaffin. Power hand tool vibration effects on grip exertions, *Ergonomics*, 30 (5), 833-855, 1987.
5. Radwin, R. G., VanBergeijk, E., and T. J. Armstrong. Muscle response to pneumatic hand tool reaction forces, *Ergonomics*, 32(6), 655-673, 1989.
6. Ulin, S. S., Armstrong, T. J., and R. G. Radwin. Use of computer aided drafting for analysis and control of posture in manual work, *Applied Ergonomics*, 21(2), 143-151, 1990.
7. Radwin, R. G., Armstrong, T. J, and E. VanBergeijk. Vibrating power hand tools used in automotive assembly, *American Industrial Hygiene Association Journal*, 51(9), 510-518, 1990.
8. Radwin, R. G., Armstrong, T. J., Chaffin, D. B., Langolf, G. D., and J. W. Albers. Hand-arm frequency-weighted vibration effects on tactility, *International Journal of Industrial Ergonomics*, 6, 75-82, 1990.
9. Radwin, R. G., Vanderheiden, G. C. and M. L. Lin. A method for evaluating head-controlled computer input devices using Fitts' law, *Human Factors*, 32(4), 423-438, 1990.
10. Kaczmarek, K.A., Kramer, K.M., Webster, J. G., and R. G. Radwin. A 16-channel, 8-parameter waveform electrotactile stimulation experiment system, *IEEE Transactions on Biomedical Engineering*, 38(10), 933-943, 1991.
11. Jensen, T. R., Radwin, R. G., and J. G. Webster. A conductive polymer sensor for measuring external finger forces, *Journal of Biomechanics*, 24 (9), 851-858, 1991.
12. Radwin, R. G., Wertsch, J. J., Jeng, O-J, and J. Casanova. Ridge detection tactility deficits associated with carpal tunnel syndrome, *Journal of Occupational Medicine*, 33(6), 730-736, 1991.
13. Radwin, R. G., Masters, G. P., and F. W. Lupton. A linear force summing hand dynamometer independent of point of application, *Applied Ergonomics*, 22(5), 339-345, 1991.
14. Lin, M. L., Radwin, R. G., and G. C Vanderheiden. Gain effects on performance using a head-controlled computer input device, *Ergonomics*, 35(2), 159-175, 1992.
15. Radwin, R. G., Oh, S., Jensen, T. R., and J. G. Webster. External finger forces in submaximal static prehension, *Ergonomics*, 35(3), 275-288, 1992.
16. Kaczmarek, K. A., Webster, J. G., and R. G. Radwin. Maximal Dynamic Range Electrotactile Stimulation Waveforms, *IEEE Transactions on Biomedical Engineering*, 39(7), 1992.
17. Oh, S. and R. G. Radwin. Pistol grip power tool handle and trigger size effects on grip exertions and operator preference, *Human Factors*, 35(3), 551-569, 1993.
18. Rodriquez, A. A., Radwin, R. G., and O. J. Jeng. Median nerve electrophysiologic parameters and psychomotor performance in carpal tunnel syndrome, *Electromyography and Clinical Neurophysiology*, 33, 311-319, 1993.
19. Radwin, R. G. and M. L. Lin. An analytical method for characterizing repetitive motion and postural stress using spectral analysis, *Ergonomics*, 36(4), 379-389, 1993.
20. Jeng, O. J., Radwin, R. G., and A. A. Rodriquez. Functional psychomotor deficits associated with carpal tunnel syndrome, *Ergonomics*, 37(6), 1055-1069, 1994.

Refereed Journal Articles (Continued):

21. Yoon, J. S. and R. G. Radwin. The accuracy of consumer-made body measurements for women's mail order clothing, *Human Factors*, 36(3), 557-568, 1994.
22. Radwin, R. G., Jeng, O. J., and E. T. Gisske. A new automated tactility test instrument for evaluating hand sensory function, *IEEE Transactions on Rehabilitation Engineering*, 1(4), 220-225, 1994.
23. Radwin, R. G., Lin, M. L., and T. Y. Yen. Exposure assessment of biomechanical stress in repetitive manual work using frequency-weighted filters, *Ergonomics*, 37(12), 1984-1998, 1994.
24. Ceron, R. J., Radwin, R. G., and C. Henderson. Hand skin temperature variations for work in moderately cold environments and the effectiveness of periodic rewarming, *American Industrial Hygiene Association Journal*, 56(5), 558-567, 1995.
25. Yen, T. Y. and R. G. Radwin. A video-based system for acquiring biomechanical data synchronized with arbitrary events and activities, *IEEE Transactions on Biomedical Engineering*, 42(9), 944-948, 1995.
26. Jeng, O. J. and R. G. Radwin. A gap detection tactility test for measuring sensory deficits associated with carpal tunnel syndrome, *Ergonomics*, 38(12), 2588-2601, 1995.
27. Beebe, D. J., Hsieh, A. S., Denton, D. D., and R. G. Radwin. A silicon force sensor for robotics and medicine, *Sensors & Actuators*, 50 (1-2), 55-65, 1996.
28. Carvalho, A. A. and R. G. Radwin. A new method for extending the range of conductive polymer sensors for contact force, *International Journal of Industrial Ergonomics*, 17(3), 285-290, 1996.
29. Schaab, J. A., Radwin, R. G., Vanderheiden, G. C., and P. K. Hansen. Evaluation of two control-display gain measures for head-controlled computer input devices, *Human Factors*, 38(3), 390-403, 1996.
30. Radwin, R. G. and O. J. Jeng. Activation force and travel effects on overexertion in repetitive key tapping, *Human Factors*, 39(1), 130-140, 1997.
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